A MULTI-LEVEL STUDY OF THE ANTECEDENT FACTORS OF INNOVATION: CASE STUDIES OF THAI SMALL AND MEDIUM-SIZE ENTERPRISES

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A Dissertation Submitted in Partial
Fulfillment of the Requirements for the Degree of
Doctor of Philosophy (Human Resource and Organization Development)
School of Human Resource Development
National Institute of Development Administration
2016

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August 2016

ABSTRACT

Title of Dissertation	A Multi-Level Study of the Antecedent Factors of Innovation: Case Studies of Thai Small and Medium-Size Enterprises
Author	Miss Wichuwan Satsomboon
Degree	Doctor of Philosophy (Human Resource and Organization Development)
Year	2016

In today's economy, innovation is regarded as an essential tool for the organizations to succeed in the global market. As a result, many organizations are trying to produce innovative products and services to serve the customers' needs. However, not all organizations have become successful in achieving innovation, and there are a variety of factors that influence creativity and innovation within the firms. Thus, the current study provides a broad understanding of the antecedent factors that foster and impede innovation in Thai small and medium-size enterprises in various industries. A multi-level study at the individual, group, and organizational level is provided in order to gain greater understanding of the particular issues. Further, as human resources play a very significant role in facilitating innovation within firms, various interventions are suggested in this study.

In addition, this study deployed the inductive approach using qualitative case studies. The data were collected through interviews with 30 managers and 30 staff members in 13 Thai SMEs in Bangkok and metropolitan areas. The case study companies were recommended by the National Innovation Agency and were selected based on the random sampling technique. Conventional content analysis along with the three-phase procedure of data analysis proposed by Miles and Huberman (1994) were deployed to analyze the data.

The findings of this study suggested a variety of points. First, the concept of innovation from the various viewpoints of the participants was described following 5 themes: 1) new and unique products and services; 2) improvement of existing products and services; 3) new technology; 4) new solutions and processes; and 5) long-term investment.

Second, the antecedent factors that foster innovation at the individual, group, and organizational level were explored. At the individual level, 3 themes were identified: 1) skills and knowledge, 2) motivation, and 3) personality. At the group level, 4 themes were derived from the findings; 1) diversity/ group structure, 2) cohesiveness, 3) group leader, and 4) team climate. At the organizational level, the following themes were described: 1) organizational encouragement; 2) supervisory encouragement; 3) freedom; 4) resources; 5) HR activities and policy; and 6) customer orientation.

Third, the antecedent factors that impede innovation in the small and medium-size enterprises in Thailand were elaborated according to the following: 1) time limitations/workload; 2) financial problems; 3) lack of facilities and resources; 4) communication failure; 5) unsupportive management; 6) difficulty in recruiting creative employees; and 7) internal process problem.

The implications for scholars include: the utilization of mixed methods and data triangulation, which could enhance the quality of the research, and the recruiting of more participants from different settings in order to explore the phenomena and to be able to generalize the findings to various countries.

The implications for practice emphasized how to apply the findings as HR interventions in order to facilitate innovation within the firms. The interventions suggested in this study included: selection and staffing, compensation and benefits, training and development, diversity management, creating an organizational climate that supports innovation, and retaining employees/talent management.

Key limitations in this study included the fact that the qualitative approach using interviews and observations was the only major method used to identify the research questions for this study, limitations regarding the language used in this study, and the small number of participants, which limited the study in terms of being able to generalize the findings beyond the sample group.

ACKNOWLEDGEMENTS

There are many persons that supported this dissertation. Without them, this dissertation would not have been possible.

First, I would like to express my deep gratitude to my advisor, Asst. Prof. Dr. Oranuch Pruetipibultham, who supported and gave me advice throughout the journey of pursuing a doctoral degree. She encouraged and cheered me up at every step during the process of writing this dissertation. In addition, she always supported me to learn and tried to bring out the best in me. Thank you for the time and your patience. I am so lucky that I had her as my advisor. She is the best. Besides my advisor, I would like to especially thank my dissertation committee, Asst. Prof. Dr. Wasita Boonsathorn and Dr. Malinvisa Sakdiyakorn, for their time and support along the way. In addition, I would like to especially thank Dr. Bruce Leeds, who helped me edit the grammatical errors in this dissertation.

Secondly, I would like to thank Mr. Pantapong Tangteerasunun and Dr. Chaiyatorn Limapornvanich from the National Innovation Agency (NIA) for their help in providing information and recommending the case companies for this dissertation.

Thirdly, this dissertation would not have been completed without the cooperation of the 60 participants who devoted their time for the interviews. I would like to sincerely thank them for their useful information and for the experiences they shared during interviews.

Fourthly, and most importantly, I would like to thank my family, especially my mother, who encouraged me to pursue a Ph.D. Without her, I might have given up at some point during the journey. Thank you for the emotional support and love which helped me to accomplish this. Lastly, my thanks and appreciation go to others who provided inspiration and encouraged me to get through the hardest time of my dissertation process, including my lovely friends and colleagues. Thank you!

I dedicate this dissertation to my beloved parents. Without them, I would never have been here today. Thank you for your endless love, support, and encouragement.

Wichuwan Satsomboon

August 2016

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CHAPTER 1

INTRODUCTION

This study focuses on the antecedent factors that lead to creativity and innovation in small and medium-size enterprises (SMEs) in Thailand. The study aims to study three levels of analysis (individual, group, and organizational). The objectives of the research are (1) to explore the perception of innovation from the employee and management point of view, 2) to explore the antecedent factors that lead to creativity and innovation at different levels of analysis, and (3) to propose the role of human resource management (HRM) and development (HRD) as well as guidance in achieving organizational competitiveness through innovation. This chapter outlines the background and context of the study. Then, a statement of the problems, the research objectives, and the research questions are to be addressed. It also suggests the significance of the study as well as operational definitions of key terms. Finally, the researcher's background related to this topic is described. The following topics are presented:

1.1 Introduction

Multiple changes in both the external and internal environments cause businesses to search for new and more effective ways of doing business. In Thailand, many organizations have confronted numerous difficulties, including economic uncertainty and political instability. This is perhaps especially true of Thai small and medium-size enterprises, which have lower competitive advantages compared to multinational corporations (Kuniyoshi & Tadao, 1988). As a result, many businesses have attempted to differentiate themselves to be able to compete in the global market. Thus, innovation is considered to be an important strategy to help the organization stay ahead of others (Drucker, 1985; Peters & Waterman, 1982; Kanter, 1983; Lin & Liu, 2012).

The term “innovation” has been widely recognized by researchers and practitioners for many decades. It can be defined as the process of producing new products or services from new idea and could lead to profit for a firm (Kuniyoshi & Tadao, 1988). However, much of the literature has also cited the term “creativity” as a source of innovation. In other words, creativity is the process of producing new ideas which is novel and useful for others (Amabile et al., 1996; Stein, 1953). The terms creativity and innovation are frequently used interchangeably in the academic literature. However, these two terms are different.

In this dissertation, the author views creativity as something that is novel and useful but that is not yet implemented in any action. Furthermore, creativity is mostly exhibited at the individual or group level (Amabile et al., 1996; McLean, 2005). In contrast, innovation is the production of creative ideas into something new, such as new products, processes, or services which can generate a profit for organizations. Innovation is also related to the study at an organizational level (Amabile et al., 1996; Shalley & Gilson, 2004). The definitions of each key term and the distinction between these terms will be discussed again in Chapter 2.

Previously, studies on creativity and innovation focused on individual and group creativity rather than organizational factors (e.g., Amabile, 1983; Lovelace, 1986; Peters & Waterman, 1982). However, these studies emphasized only the creative actions of the individual and the group. Later on, the studies of the organizational level where organizational variables were the major contributions were widely discussed among researchers. Recently, an emerging body of research has indicated that organizational factors are an important determinant that supports or impedes innovation (Damanpour, 1992; Martins & Terblanche, 2003; Woodman, Sawyer, & Griffin, 1993). As Amabile (1996) and McLean (2005) have pointed out, it is important to study the social environment in order to create a supportive environment for creative individuals.

Although there are many studies on creativity and innovation, researchers have indicated the need to develop cross-level analysis in order to develop an integrated framework of innovation (Crossan & Apaydin, 2010; Damanpour, 1991). Thus, the focus of this dissertation is multi-level study that aims to investigate the antecedent factors of creativity and innovation in the organization. Furthermore, as several studies have demonstrated the link between human resource and innovation (Gupta & Singhal, 1993; Stern, 1992; Yussof & Kasim, 2003), how HRM and HRD activities support creativity and innovation is also an important issue which is discussed in this study.

1.2 Background of the Study

1.2.1 Innovation

With the high intense competition in today's globalization, many organizations are trying to find ways to differentiate themselves in the marketplace in order to survive. On the one hand, an emerging body of research suggests that innovation is one of the strategies that are recognized as important factors in handling the rapidly-changing economic environment (Lin & Liu, 2012; Martins & Terblanche, 2003). On the other hand, innovation is also an indicator of a country's competitiveness. For example, the World Economic Forum (WEF) has conducted an assessment to measure

the competitiveness of a country by comparing 148 countries around the world using various indicators, including innovativeness (WEF, 2015).

The word innovation was first described by Joseph Alois Schumpeter in 1934 in the book “The Theory of Economic Development” (Schumpeter, 2008). Schumpeter implied in his study that creativity and science can lead to technological innovation. After Schumpeter suggested the idea of innovation in his study, many theorists proposed theories related to innovation (e.g., Drucker, 1985; Roger, 1962; Schmookler, 1966). Recently, the study of innovation has been carried out by many researchers and it is recognized as the most important strategy for an organization in terms of overcoming the intense competition in today’s global market.

The importance of innovation for businesses and the economy is frequently seen in both the literature and in practice. Recently, the concept of innovation has gained much attention from researchers and scholars in various fields. Furthermore, for the past 10 years, leading organizations as well as government agencies have considered innovation as a vital strategy for competing in the market and have attempted to promote innovation strategies within organizations.

In Thailand, the National Innovation Agency (NIA) established under the umbrella of the Ministry of Science and Technology in 2003 has the objective of promoting and facilitation innovation development in Thai SMEs through a variety of means, including knowledge sharing, funding, and marketing support (Thailand National Innovation Agency [NIA], 2014). Furthermore, innovation is considered an important strategy in order to create a country’s competitiveness. Especially in Thailand innovation has been determined as one of the crucial strategies for developing the nation in the Eleventh National Economic and Social Development Plan 2012-2016 (Thailand Master Plan, 2010).

As mentioned earlier concerning the importance of innovation for businesses and for the country’s economy, it is essential to gain an in-depth understanding of the antecedent factors that facilitate and inhibit creativity and innovation within firms, which is described in the next section.

1.2.2 Antecedent Factors That Lead to Creativity and Innovation

In order to accomplish the aims of this dissertation, past studies on the antecedent factors that influence creativity and innovation are presented as follows.

Previous studies have suggested that personality (Amabile, 1988), group creativity (Hunter, Bedell & Mumford, 2007; Scott & Bruce, 1994; West, 2003; Woodman et al., 1993), group diversity (Williams & O'Reilly, 1998), leadership (Amabile, 1998; Amabile et al., 2004; Oldham & Cummings, 1996), work environment (Oldham, 2003; Oldham & Cuummings, 1996), and organizational culture (Giugni, 2004; Martins & Terblanche, 2003) influence creativity and innovation.

Prior studies contributed to the understanding of an individual's traits and personality, and recent work has shifted to an organizational context that supports creativity and innovation. The major contributions at this level of analysis include those of Woodman, Sawyer, and Griffin (1993), Amabile and Conti (1999), and Martins and Martins (2002). As the subject of interest on this research is to investigate the important antecedent factors that influence innovation in Thai small and medium-size enterprises, the scope of this dissertation covers the antecedent factors at different levels of analysis. The antecedent factors at the individual, group, and organizational level are the major contribution.

1.2.3 Small and Medium-Size Enterprises

In Thailand, the Office of Small and Medium Enterprises Promotion (OSMEP) has classified small and medium-size enterprises according to 3 major categories; 1) production sectors—agriculture processing, manufacturing, and mining; 2) the trading sector—wholesale and retail and; 3) the service sector (Norlaphoompipat, 2008). The classification of SMEs in Thailand is based on the value of fixed assets and the numbers of full-time employees (OSMEP, 2014).

Furthermore, it has been stated that small and medium-size enterprises are positively associated with future economic growth in developing countries (Beck, Demirguc-Kunt & Levine, 2005). In addition, SMEs have also become recognized as the life blood of the nation (Ghobadian & Gallear, 1996).

In Thailand, SMEs play a significant role in developing a country's economy because they are an important foundation of the nation's development (OSMEP, 2014). The numbers of SMEs in Thailand in 2007 included 2,375,368 enterprises, and increased to 2,900,759 enterprises in 2009 (SMEs Summary Report, 2013).

According to the white paper report in 2014 by the OSMEP, it was suggested that the total Thai gross domestic product (GDP) in 2013 was worth 11,898,710 million Baht, with SMEs accounting for 37.4% or 4,454,939.6 million Baht of the total GDP, which increased from 2012 at around 0.4% (OSMEP, 2014) (The details of Thai SMEs are described again in Chapter 2).

Nevertheless, the growth of the Thai economy was interfered with by varieties of crises during the past decade; for example, the world financial crisis in 2008, a severe flood in 2011, and political instability in 2014. Furthermore, government policies, such as the minimum labor wage increase in 2013, also created hardship for many businesses. A number of Thai organizations, especially SMEs, are likely to face a more critical situation, particularly when the ASEAN Economic Community (AEC) is fully implemented in 2015. There will be more competitors from both the ten member countries (Indonesia, Malaysia, the Philippines, Singapore, Thailand, Brunei, Vietnam, Laos, Myanmar, and Cambodia) and from the rest of the world investing in the ASEAN single market. This will cause more intense competition among businesses.

As a consequence, a number of the Thai SMEs that have lower capability to compete, when compared to the larger multinational firms, could potentially encounter critical situations. Thus, it is important to deploy an innovative strategy in order to increase the SMEs' performance as well as create sustainable development for Thai SMEs.

1.2.4 Human Resource (HR) and Innovation

In a competitive environment, HR plays a significant key role in enhancing the competitiveness of organizations (Becker & Gerhart 1996; Pearson, Brockhoff & Von Boehmer 1993; Shipton et al., 2006). In general, HR can be divided into human resource management (HRM) and human resource development (HRD). The

following section is devoted to the definitions and the relationship of HR and innovation.

There are various definitions of HRM by many authors (e.g., Armstrong, 1992; Bratton & Gold, 2003; Byars & Rue, 2006). For example, Armstrong (1992) suggested that HRM is the activities established by organizations to increase an individual's value and thus achieve an organizational competitive advantage. In line with this, Byars and Rue (2006) defined HRM as a set of activities or strategies that attempt to manage employees within organizations in order to achieve organizational goals. From the variety of definitions, the author views HRM as the processes or activities that aim to manage employees at all levels of the organization in order to achieve organizational goals.

On the other hand, the definition of HRD has been debated by many scholars. For example, Nadler and Nadler (1989) defined HRD as the activities provided by the organization in order to create new behavior or change an individual's behavior. Similarly, Werner and DeSimone (2006 p.5) defined HRD as "[a] set of systematic and planned activities designed by an organization to provide its members with the opportunities to learn necessary skills to meet current and future job demands." In this research, the researcher views HRD as the process provided by the organization to develop an individual's skills and knowledge with the aim of increasing organizational effectiveness.

In addition, much evidence has demonstrated that HR is associated with creativity and innovation through effective activities such as training, policy, etc. (Gupta & Singhal, 1993; Stern, 1992; Walsworth & Verma, 2007). Furthermore, scholars such as Shipton et al. (2006) and Yussof and Kasim (2003) have suggested that HR plays a significant role in promoting innovation within firms.

In this dissertation, the role of HR in promoting creativity and innovation through a variety of means such as learning, training and development, on-the-job training, organizational development, and other means are emphasized.

1.3 Problem Statement

Innovation has long been a topic of discussion among researchers and practitioners for many decades. However, the phenomenon of creativity has been studied primarily at the individual level (e.g., Amabile, 1988; Feist, 1999; Lovelace, 1986; Sternberg, 1996), where individual personality, traits, ability, and experiences are the major variables. Later on, more recent work has focused on the organizational contextual variables that influence innovation, for example, organizational characteristics (Bhattacharya and Bloch, 2004; Damanpour, 1992; Fennell, 1984; Woodcocket al., 2000). However, this stream of research mainly explored organizational factors regardless of the individual variables that could influence the study.

Nevertheless, the researchers viewed innovation as a connected phenomenon where one level can influence other levels of analysis (Amabile, Conti, Coon, Lazenby, & Herron, 1996; Janssen, Van de Vliert, & West, 2004; Woodman et al., 1993). Little empirical research has been conducted on creativity in organizations by exploring the variables at different levels (e.g., Amabile et al., 1996; Martins & Martins, 2002; Woodman, Sawyer & Griffin, 1993).

Although the literature on creativity and innovation has been dominated by a number of scholars (Davenport & Prusak, 1998; Oldham & Cummings, 1996; Salaman, 2001), the empirical study on this topic is still underexplored (Becheikh, Landry, & Amara 2006; Oldham & Cummings, 1996). In spite of the knowledge provided in the previous literature, some of this literature is ambiguous and moreover still lacks empirical evidence. In addition, many models have been proposed in the past literature; however, the need to conduct multi-level study is crucial in order to create an integrated framework that contributes to innovation study (Crossan & Apaydin, 2010; Damanpour, 1991).

Furthermore, this study aimed to recruit Thai SMEs to participate in this research because Thai SMEs are likely to encounter more serious competition compared to technologically-driven, larger companies in terms of innovation (Afuah, 1998). Challenges to competitive advantages for the Thai SMEs are predicted to come from a lack of funds, skills, technology, and access to information (Chittithaworn,

Islam, Keawchana, & Yusuf, 2010). In addition, the Thai SMEs have not been fully competitive because of the lack of marketing capabilities, low-quality laborers, the inability to use up-to-date technologies, and emphasis only on the differentiation of original products (Thailand National Innovation Agency [NIA], 2014).

One of the strategies to enhance competitiveness and business sustainability is through creativity and innovation because "the chances of a small firm to survive and to be successful are becoming ever more dependent on innovation" (Heunks, 1998, p. 263). Thus, it is considered vital for small and medium-size enterprises to look for the means to increase their capability to innovate.

In addition, most of the studies related to innovation have been conducted in the western context, which can hardly be adapted to the context of Thailand. More importantly, there are studies on creativity and innovation in the Thai context, but they are mainly focused on different perspectives, for example, the determinants of organizational innovation management in the Thai banking industry by Limmanont (2010), the study of the influences of national culture on creativity in Thai SMEs by Rujirawanich, Addison, and Smallman (2011), and the factors affecting individual innovation proposed by Pratoom and Savatsomboon (2012).

However, cross-level analysis on the individual, group, and organizational level among Thai SMEs is still limited. Hence, this dissertation will fill the gap in terms of exploring the relationship of the antecedent factors from different levels of analysis that lead to innovation in Thai SMEs, a context that has essentially been underexplored (Rujirawanich, Addison, & Smallman, 2011).

Moreover, as HR plays a significant role in promoting creativity and innovation within firms, empirical study on this topic is called for in order to increase the existing knowledge in the field of HR. The study will benefit both researchers and practitioners in terms of utilizing the knowledge to create effective HRM and HRD activities that enhance individual creativity, which will in turn result in innovation.

1.4 Purposes of the Study

The purposes of the study on the antecedent factors that lead to innovation among Thai small and medium-size enterprises are listed as follows:

1.4.1 To explore the conception of innovation from employee and management points of view.

1.4.2 To investigate the antecedent factors that lead to innovation at the individual, group, and organizational levels.

1.4.3 To investigate the antecedent factors that impede innovation in Thai small and medium-size enterprises.

1.4.4 To propose an exploratory model that fosters and impedes innovation in Thai small and medium-size enterprises

The research aims to explore, first, the employees' and management's point of views toward innovation and how it contributes to the organization's success. Secondly, the antecedent factors that lead to successfully-implemented innovation within the organization are investigated. Lastly, after gaining an in-depth understanding of the antecedent factors that lead to innovation, an exploratory model is proposed.

1.5 Research Questions

The research questions for this study are as follows:

1.5.1 What are the concepts and perceptions of innovation among workers and executives in small and medium-size enterprises in Thailand?

1.5.2 What are the antecedent factors that foster innovation in small and medium-size enterprises in Thailand?

1.5.3 What are the antecedent factors that inhibit innovation in small and medium-size enterprises in Thailand?

1.5.4 What is a possible exploratory model for the factors fostering and impeding innovation in small and medium-size enterprises in Thailand?

1.6 Research Scope

This research explores the antecedent factors that lead to innovation in the Thai SME context. To achieve this, the researcher would like to explain the standpoint of this dissertation.

First, this study applies the inductive approach in order to investigate the antecedent factors of innovation at the multi-level analysis. An exclusive review of the literature is described in Chapter 2. In addition, the researcher has attempted to compare the proposed conceptual framework after reviewing the literature and the framework derived from the field study.

Second, this study focuses on innovation regardless of the types of innovation. For example, product, process, and service innovation are included in the study. In addition, as state previously that the concept of creativity and innovation is frequently used interchangeably in the literature, the researcher will try to make clear those two terms in this dissertation.

Third, the participants of this study are Thai SMEs in variety of industries, including the bio-business, eco-industry, and design and solutions. Only the firms that are located in Bangkok and metropolitan areas, and the firms that achieved innovation awards from the NIA, were randomly selected. The rationale concerning how the case studies and the participants were selected is discussed in Chapter 3.

Last, this dissertation deployed only a qualitative study using a multiple case study-based approach. A semi-structured interview with open-ended questions from an exclusive review of the literature and verified by HRD experts were used in this study. Further, participatory observation was deployed in this study in order to gain more understanding of this particular issue. The detail of the research design is described in Chapter 3.

1.7 Significance of the Study

The significance of innovation research, in general, benefits many industries where innovation is important. This study of the antecedent factors leading to creativity and innovation is significant in several ways.

First, it adds to the knowledge of innovation literature. As stated above, there have been few empirical studies carried out on the multi-level analysis of innovation (Becheikh, Landry, & Amara 2006; Oldham & Cummings, 1996), and multi-level analysis is called for in order to understand the multi-facets of innovation. This study is devoted to refining the previous models, and to exploring new variables that might influence innovation from the point of view of multi-dimensional analysis.

Second, this study contributes to the understanding of the antecedent factors that lead to creativity and innovation in the Thai context. Generally, most of the innovation research is conducted in the western context where some elements such as culture and environmental contexts are different compared to Thailand. The majority of the study in Thailand, and the key informants of much of the research, still focus on public organizations and international companies (e.g., Limmanont, 2010). In addition, the key informants of this study are Thai SMEs that have been granted innovation awards or that have been recognized as innovative organizations from the NIA. The case-study companies could be considered as role models for the rest of the SMEs in Thailand in terms of creating a competitive advantage through innovation strategies.

Third, on the practical front, HRM and HRD practitioners could gain an in-depth understanding of various determinant factors that influence creativity and innovation from the present study. With the aim of supporting the organization to improve creativity and innovation, HRM and HRD practitioners could exhibit activities that influence creativity through training and development, learning, and organizational development.

Last, McLean and McLean (2001) suggested that the development of HR not be restricted to only organizations, but should include society and the community setting as well. This study could be significant for the Thai government sector to gain more understanding of the antecedent factors that influence innovation among Thai SMEs. Moreover, Thai policy makers could develop effective policy to strengthen the competitiveness of the country as well as prepare for the challenges that the country might confront in the future.

1.8 Operational Definitions of Key Terms

There are several key terms that are important for understanding the constructs and variables used in this study. The following operational definitions of key terms are used.

Creativity: Stein (1953) defined creativity as a process that leads to novelty and that is significant to a group at a certain point in time. In line with Stein, Amabile et al. (1996) defined creativity as the process of producing novel and useful ideas.

In summary, the researcher defines creativity as the ability of an individual or group of people to generate new ideas.

Innovation: Brown (1994) suggested that innovation is the process of producing new products, services, or processes which create more value than existing ones. In line with Brown (1994), Amabile et al. (1996) defined innovation as "an implementation of creative ideas within an organization" (p. 2).

In summary, the researcher defines innovation as the process of transforming new ideas into something new, which is commercialized, in order to increase the customer's satisfaction as well as to increase organizational effectiveness and performance. The production of new ideas which are not useful for the target audiences will not be included in this dissertation.

Furthermore, the majority of research focuses on product innovation (Brown & Eisenhardt, 1995); however, increasing business dynamics create a uni-dimensional approach to innovation (Miller, 2001). Thus, in this dissertation, not only product innovation, but also process and service innovation is regarded significant.

Small and Medium-Size Enterprises: Veerayankul (1985) defined SMEs as the businesses that are operated by a person or a group of persons. Further, a business's operation must not be influenced by other groups of people. In addition, The Office of Small and Medium Enterprises Promotion in Thailand (OSMEP) categorizes small and medium-size enterprises based on the value of fixed assets and the number of full-time employees. The business activities of SMEs can be classified into 4 categories: manufacturing, retail, wholesale, and service sector (OSMEP, 2013).

In this dissertation, SMEs are defined as businesses that are operated by an individual or a group of people and the operation must not be interfered by other

groups of people. In addition, the businesses have to have their fixed assets and number of employees based on the regulation of the OSMEP.

Human Resource Management: Pettigrew and Whipp (1991) defined HRM as a set of activities and policies including training and development, people selection, employees' relations, and performance management.

In this dissertation, HRM is defined as the process or activities that aim to manage employees at all levels of the organization in order to achieve organizational goals.

Human Resource Development: Mclegan (1989) proposed that HRD is a set of activities that include training and development, career development, and organizational development. The aim of the activities is to enhance the effectiveness of an individual as well as the organization. Further, McLean and McLean (2001) suggested that HRD is a process that could develop expertise, the productivity of the individual, group, and organization, as well as the community and nation.

In this dissertation, HRD is defined as the process provided by the organization to develop the individual's skills and knowledge with the aim of increasing organizational effectiveness.

1.9 Author's Background Related to this Topic

I was born in Bangkok, Thailand. I am the only child of my family. I had studied in the Faculty of Humanities, majoring in Japanese Language, at Kasetsart University, Thailand for four years when I was granted a scholarship from the Japanese Government (Monbusho) to join the "Japanese Studies Program for International Students 2006-2007" at Chiba University, Japan.

After completing my Bachelor's Degree from Kasetsart University in 2008, I started my first job as a Japanese interpreter and secretary to the Japanese management team at Promise (Thailand) Co., Ltd., which is a local office of Japan's No.1 micro-financing firm, and worked there for 2 years and 8 months.

While I was working at Promise Co., Ltd., I enrolled in the Master of Business Administration (MBA) program at Assumption University, Thailand, for one and a half years. I completed my Master's Degree in December 2010 and then. I started

another job at Asian Honda Motor Thailand Co., Ltd., in the Automobile Department, Product Planning Division, in 2011.

I learned various valuable things from these companies, for example, about the cross-cultural problems between the Japanese and Thai staff in the organizations, and organizational culture problems within the organizations. These experiences lead me to find out many things as follows.

First, HR is a very important part for an organization because an organization consists of people from diverse backgrounds that come to work together, and cross-cultural problems within an organization are to be expected. Effective HRM allows an organization to maximize the advantages of diversity while minimizing its potential issues.

Second, a multi-national company needs an organizational structure that enables people with diverse backgrounds to excel in their respective roles for the company while maintaining the company's core values and standards.

Third, the organizational culture and climate of each organization can lead the organization to succeed in different ways. Creating an appropriate organizational culture with an alignment of the organization's policy is an essential aspect of the organization. These experiences and beliefs tremendously inspired me to further my study in Human Resource and Organization Development at the doctoral level at the National Institute of Development Administration (NIDA).

In 2013, I decided to resign from the company and began my career path as a freelance Japanese interpreter. I have been working as a translator for many conferences, and for meetings at companies in film production, automobiles, media agencies, and the digital content and manufacturing industry. One thing that I found that those industries have in common is innovation-driven strategies. None of these businesses neglects the importance of individual creativity or organizational innovation.

This experience in translating and working inspired me to further conduct research under the scope of creativity and innovation. In addition, after reviewing a variety of literature, I found that there are a number of antecedent factors that lead the organization to become innovative. Thus, I decided to gain an in-depth understanding of this phenomenon and to conduct this dissertation.

In order to gain this information, I obtained cooperation from the National Innovation Agency, Ministry of Science and Technology. The NIA assisted me with a sampling process for this dissertation.

1.10 Dissertation Outline

This dissertation is organized into five chapters. Chapter one, the introduction, provides readers with overview information of this study. It includes the purpose, the problem statement, the research questions, and the significance of the study.

Chapter two, the literature review, is organized into five major categories, including the concept and overview information on innovation, the concept and overview of Thai small and medium-size enterprises, the theoretical background and review of the literature, information on innovation and human resource development, and the conceptual framework of this dissertation.

Chapter three, the research methodology, is outlines the research design and describes the qualitative study which are utilized in this dissertation. Further, sampling procedures, participant selection, data collection, and analysis procedures are identified.

Chapter four, the data analysis and result are presented. The findings of the collected data are transcribed in order to be beneficial for the data analysis. In addition, this chapter is dominated by a discussion of the findings in an effort to establish the conclusion.

Chapter five devoted to a discussion and conclusion of the research. In addition, the implications of this dissertation as well as suggestions for the future research are discussed.

1.11 Chapter Summary

This chapter has proposed the purposes, research questions, the problem statement, and a summary of the theoretical underpinnings of the study in order to explore the antecedent factors that promote or inhibit creativity on the part of Thai small and medium-size enterprises. This study attempts to examine the variables that

lead to creativity and innovation from different levels of analysis, specifically at the individual, group, and organizational levels, in order to establish an integrated framework for innovation study. In addition, this chapter also presented the researcher's background related to this topic as well as operational definitions of key terms which will be beneficial for gaining greater understanding of this topic. The next chapter is devoted to the literature review where the theoretical underpinnings the study are described.

CHAPTER 2

LITERATURE REVIEW

This chapter presents an overview of the related literature in the creativity and innovation area. The objective of this research is to gain an in-depth understanding of the background of innovation. Related definitions, past research studies, theoretical background, and the conceptual framework of this research study have been explored and outlined as follows.

2.1 Concept and Overview of Innovation

2.1.1 Significance of Innovation and the Need for Innovation

2.1.2 A Review of the Definitions of Creativity, Innovation, and Innovative Organization

2.1.2.1 What are the Differences between Creativity and Innovation?

2.1.2.2 Innovative Organization

2.1.3 Typologies of Innovation

2.1.3.1 Types of Innovation

2.1.3.2 Degree of Innovation

2.1.3.3 Other Dimensions of Innovation

2.1.4 The Development of Innovation in Thailand compared with Other Countries

2.1.4.1 Investment in R&D compare with GDP

2.1.4.2 The Global Innovation Index (GII) Scores

2.1.4.3 The Global Competitiveness Index (GCI)

2.1.4.4 The Global Innovation Index (GII) Ranking

2.1.5 Overview Information on the Thai Government and the National Innovation Agency (NIA) regarding Innovation Strategy

2.1.5.1 The Thai Government and Innovation Strategy

2.1.5.2 The National Innovation Agency and Innovation Strategy

2.1 Concept and Overview of Innovation

2.1.1 Significance of Innovation and the Need for Innovation

In today's turbulent and uncertain business environment, organizations require an ability to develop a culture that embraces flexibility and adaptiveness in order to become successful. A significant stream of research (Coakes & Smith, 2007; Egan, 2005; Sullivan, 2008) has examined the numerous factors that companies face today, both internal and external, and this creates the need for the development of innovation. For example, Steel and Murrey (2004) and Egan (2005), who stated that in today's globalization, the market seems to be narrow and the competition among firms has dramatically intensified. Thus, companies seek to find a way to differentiate themselves from others. This is in line with Coakes and Smith (2007) suggested that the turbulent environment forces the organization to become innovative in order to achieve a competitive advantage. This is similar to Sullivan (2008), who pointed out that technological advancement, ideas from customers as well as stakeholders, and the environment are the drivers of innovation.

Furthermore, in many cases, innovation is renowned as an essential strategy. Innovation is important to the growth and performance of government, business, and non-profit organizations (Drucker, 1999; Gaynor, 2002; Mumford, Hester, & Robledo, 2012). It has been a dominant factor that allows businesses to sustain their viability in global competition (Gaynor, 2002). Many studies and evidence also have shown that innovation can lead to organizational success (Damanpour, 1991; Damanpour & Evan, 1984; Koberg & Hood, 1991) and is essential to organizational survival (Drucker, 1999; Ortt & Van der duin, 2008; Parry & Proctor-Thompson, 2003). Many authors have argued for the positive relationship between innovation and organization growth (Fabling & Grimes, 2007; Freel & Robson, 2004; Thornhill, 2006).

The study of innovation has received attention among researchers, managers, politicians, entrepreneurs, and practitioners. There has been a great number of interdisciplinary work carried out related to innovation. For instance, there is innovation and organization effectiveness (Li & Atuagene-Gima, 2001; Roper & Love, 2002); innovation and leadership (Howell & Higgins, 1990; Kanter, 1983; Peters & Waterman, 1982; Shin, 1997); and innovation and organizational culture and climate (Amabile et al., 1996; Giugni, 2004; Martins & Terblanche, 2003; Woodman, Sawyer, & Griffin, 1993). Furthermore, many studies have pointed out that the innovation of the firm derives from individuals as well as group creativity (Amabile et al., 1996; McLean, 2005; Thompson & Brajkovich, 2003).

Thus, in order to gain a full understanding of innovation, the definitions of key terms, the typologies of innovation, as well as the related theoretical background will be clarified in the next section.

2.1.2 A Review of the Definitions of Creativity, Innovation, and Innovative Organization

As noted in Chapter 1 that the term innovation is used in a variety of ways in various studies, it is difficult to arrive at consensual agreement. Furthermore, the confusion between creativity and innovation is frequently seen in the literature. To clarify the distinction between creativity and innovation, and to gain a full understanding of each key term, the researcher has summarized the meanings in the following section.

2.1.2.1 What are the differences between creativity and innovation?

In the academic literature, the terms creativity and innovation are frequently used conversely (Basadur, 2004; Csikszentmihalyi, 1999; Jacka, 2014; McLean, 2005). This might result from the different background of the researchers in the fields of creativity and innovation. The researchers that study creativity often come from the behavioral sciences. In contrast, the researchers that study innovation mostly come from the management field (Fernando, Pellissier, & Ileana, 2012). The following will clarify the distinction between these concepts.

The term “creativity” has been defined by many authors as the process whereby an individual generates new ideas (Martins & Terblanche, 2003; Shalley,

2004; Stenrberg & Lubart, 1999). In addition, creativity is a process that leads to novelty and is significant to a group at a point in time (Amablie & Mueller, 2008; Stein, 1953; Stenrberg & Lubart, 1999). Some authors also have suggested that creativity is comprised of the ideas that are generated yet never implemented (Schoenfeldt & Jansen, 1997).

On the other hand, Schumpeter, who is acknowledged as the first theorist that introduced the term innovation, discussed a broad vision of the concept of innovation encompassing the creation of new products or services, new production processes, new markets, new suppliers, and changing organization or management systems (Schumpeter, 1934). The author described innovation as "doing things differently in the realm of economic life" (Schumpeter, 1939, p.84). Schumpeter put forward a theory of innovation and argued that innovation is a key factor in economic growth and in a capitalist economy (Schumpeter, 1934).

Later on, innovation was defined by many scholars as a production of new products or processes that are different or better than existing ones (e.g., Brown, 1994; Dehoff, Jaruzelski, & Kronenberg. 2005; Kuniyoshi & Tadao, 1988). In addition, innovation also has been defined as the production of something that provides higher customer benefit (Chandy & Tellis, 1998). Many scholars also have viewed innovation as a way to create wealth for the organizations (Drucker, 1985; Kuniyoshi & Tadao, 1988) and as a key factor creating competitive advantages and sustainability for the organizations (Brown, 1994: Brown & Eisenhardt, 1995; Kanter, 1997; Martins &Terblanche, 2003; Tushman & O'Reilly, 1997).

Furthermore, a broader definition of innovation has been suggested by Thailand's National Innovation Agency [NIA] (2015) as the ability to exploit knowledge, experience, and creativity to develop something new which can serve the customer's demand and increase organizational effectiveness as well as the country's economy and society.

Given the definitions of creativity and innovation provided, they imply that creativity and innovation are connected phenomena. Amabile et al. (1996) stated that creativity is a fundamental aspect of all innovation. The good ideas of an individual or team can develop into successful implementation of new products and services. Hussey (1997) discussed the idea that some businesses can create a lot of

new ideas but fail to take action. Similar to this, Thompson, and Brajkovich (2003), pointed out that innovation is a result of creative ideas.

This concept of creativity and innovation are also in line with McLean (2005), who stated that "without creative ideas to feed the innovation pipeline, innovation is an engine without any fuel" (p.227). According to McLean, creativity is mostly exhibited at the individual level. In contrast, innovation has been seen to be related to the group and organizational levels of study. In addition, the distinction between creativity and innovation were also described by Mascarenhas (2011), creativity is defined in terms of meaningful novelty, whereas innovation is a new way of doing things that is commercialized.

In sum, the most common definitions found in the innovation literature view creativity as an idea which is a fundamental aspect of innovation (Amabile et al., 1996; Thompson & Brajkovich, 2003), whereas innovation is considered the development of an idea into a service, process, procedure, system, or product that is new to the organizational practices (Damanpour, 1987; Perri, 1993; Scott, 1990) in order to increase organizational performance (Brown, 1994; Drucker, 1985).

Based on the definitions of creativity and innovation mentioned in previous studies, the researcher would like to clarify the conceptualization of creativity and innovation for this dissertation. The researcher views creativity as an individual or group level analysis whereas innovation is at the organizational level. Furthermore, the researcher views innovation in the organization as a result of the individual and group effort within the organization (Amabile et al., 1996; Shalley & Gilson, 2004).

2.1.2.2 Innovative organization

Another phrase that is widely used in the innovation literature is the "innovative organization." Ahmed (1998) suggested that the organizations where innovation can be liberally performed are likely to become successful. The innovative organization has been defined as one that motivates its employees to create and share new ideas within the firm in order to enhance its effectiveness (Catlin & Matthews, 2002). It has also been defined as a place where employees can share ideas with each other and among groups (Zhou & Shalley, 2008; West & Sacramento, 2012).

Vrakking (1990) found that several factors, such as human resource management and organizational circumstances, influence innovative organization. In addition, Jaskyte and Riobo (2004) found that searching for new ways, solutions, or unconventional forms of work is an important characteristic of an innovative organization. A summary of the concepts of creativity, innovation, and the innovative organization from a variety of scholars are shown in the tables below.

Table 2.1 Definitions of Creativity

Authors/Year	Definitions of creativity
Stein (1953)	Creativity is a process that leads to novelty and is significant to a group at a point in time.
Schoenfeldt and Jansen (1997)	Creativity is defined as the ideas that are generated, yet never implemented.
Stenrberg and Lubart (1999)	Creativity is the ability to produce a novel task.
Shalley (2004)	Creativity is the ideas developed by an individual which are novel and benefit an organization.
Amablie and Mueller (2008) p.35	"Creativity is the ability to produce new ideas which are novel to the idea producers themselves."

Table 2.2 Definitions of Innovation

Authors/Year	Definitions of innovation
Schumpeter (1939, p.84)	"Innovation is doing things differently in the realm of economic life"
Drucker (1985)	Innovation is a way to enhance organizational wealth through new resources or existing resources.
Kuniyoshi and Tadao (1988)	Innovation is a process of transforming new ideas into something new which creates profit for an organization.

Table 2.2 (Continue)

Authors/Year	Definitions of innovation
Brown (1994)	Innovation is to create products or processes that are different or better than the existing ones in order to increase performance.
Thailand National Innovation Agency [NIA] (2015)	Innovation is the ability to exploit knowledge, experience, and creativity to develop something new which can serve the customer's demand and increase organizational effectiveness as well as the country's economy and society.

Table 2.3 Definitions of the Innovative Organization

Authors/Year	Definitions of the innovative organization
Catlin and Matthews (2002)	The innovative organization is an organization that motivates its employees to create and share new ideas within the firm in order to enhance its effectiveness.
Zhou and Shalley (2008)	The innovative organization is a place where employees can share ideas with each other and among groups.
West and Sacramento (2012), p.359-360	"Innovative organizations are places where there is a firm and shared belief among most members in an inspirational vision of what the organization is trying to achieve."

According to the study of previous literature, the researcher would like to summarize the definition of creativity, innovation, and the innovative organization used in this dissertation as follows.

Creativity: Creativity is the ability of an individual or group of people to generate new ideas.

Innovation: Innovation is the process of transforming new ideas into something new which is commercialized in order to increase the customer's satisfaction as well as increase organizational effectiveness and performance.

Innovative organization: An innovative organization is the organization where employees are motivated to raise new ideas liberally among the groups in order to increase organizational performance.

In the next section, typologies of innovation will be described in order to obtain an in-depth understanding of innovation.

2.1.3 Typologies of Innovation

When innovation is discussed, many people might think of tangible products of innovation such as cars, planes, television, music players, medicine, etc. However, the terms innovation are also associated with services, processes, markets, business models, and strategic operations.

Schumpeter distinguished innovation into five categories: new products, new production methods, new markets, new sources of supply, and new forms of organization (Schumpeter, 1934). Referring to Schumpeter and other researchers (e.g., Chandy & Tellis, 2000; Damanpour, 1991; Germain, 1996; Mole & Elliot, 1987), innovation is considered as a complex phenomenon. Several scholars have classified innovation into a number of categories.

The most widely-studied typologies include the type of innovation, that is, a product-process typology (Chandy & Tellis, 2000; Damanpour, 1991; Thailand National Innovation Agency [NIA], 2006) and the degree of innovation; and radical versus incremental innovation typologies (Germain, 1996; Mole & Elliot, 1987). The definitions of each typology are presented below.

2.1.3.1 Types of innovation

There are a variety of approaches to classifying types of innovation. Researchers have adopted various approaches to the classification of the distinction among those types. In terms of the scope of this dissertation, the classification of several authors and researchers is listed as follows.

According to several studies (Chandy & Tellis 2000; Damanpour, 1991; Thailand National Innovation Agency [NIA], 2006) innovation can be divided into 2 types: product and process.

Product innovation: Product innovation consists of the innovation of tangible products and intangible products. It encompasses a change in the product that a company offers in the market. This type of innovation is easily recognized because customers can evidently see the changes.

Process innovation: This type of innovation includes the technological process of innovation and the organizational process of innovation. Frequently, this results from the changes in the process used by the company. Usually, the changes in the process are invisible to the customers because they are applied in the production process.

Apart from product and process innovation proposed by the authors above, another study by Yosyingyong (2009) divided innovation into 6 categories:

1) Business innovation: This concerns increasing or reducing business transactions in order to satisfy the customer and survive in a highly-competitive market.

2) Strategy innovation: The represents changes in shared values, visions, goals together with the structure of the organization in order to create a new direction that can sustain business growth.

3) People innovation: This concerns developing employees' skill and knowledge under an innovation process.

4) Process innovation: New operations or production processes that reduce the organization's costs and increase effectiveness.

5) Product/service innovation: This concerns creating new products or services or developing existed products or services in order to satisfy the customers' needs. Moreover, service innovation involves introducing new services or changing in the service the company offers to the market.

6) Marketing innovation: This concerns creating new distribution channels, new communication channels, and packaging in order to serve the consumers' needs.

2.1.3.2 Degree of innovation

The degree of innovation is another typology that is widely used in the innovation literature. It focuses on radical innovation and incremental innovation.

Scholars in the field (Greenwood & Hinings, 1996; Mole & Elliot, 1987; Tidd, Bessant & Pavitt, 2005; Tushman & Anderson 1986) have diffirentiated innovation into 2 types: radical versus incremental innovation.

Radical innovation: This concerns products that result from advances in technology and that offer higher benefit to customers or users. Radical innovation may result in creating new products, processes, services, a new market or completely changing the existing products. In other words, radical innovation is built on new sets of knowledge.

Incremental innovation: On the other hand, incremental innovation involves a continual process of improvement of existing products, processes, and services. In other words, incremental innovation deploys existing sets of knowledge in order to implement new things.

2.1.3.3 Other dimensions of innovation

Since not only incremental and radical innovation classification account for changes in the industry, Henderson and Clark (1990) proposed two other classifications: architectural and modular innovation.

Architectual innovation: Architectural innovation or design innovation (Sood & Tellis, 2005) involves the reconfiguration of the linkages and layout of components. However, this change relies on the same core technology as existing products, services, or processes. Furthermore, the change is small and the core concepts of the components remain the same. Thus, this kind of change is difficult to realize by customers or competitors. A good example of an architectural innovation is the development of diameter disks from a large size to one that is smaller (Christensen, 1997).

Modular innovation: This type of innovation involves changing one or more components without changing the overall product architecture. It requires new knowledge to change or replace one or more components. The development of the analog phone to the digital phone is an example of modular innovation. The system of the phone is changed but the phone is still the same.

Apart from the classification of innovation above, other dimensions of innovation that are frequently found in the innovation literature are presented below.

Business model innovation: This involves changes in the marketing and value propositions offered by a product or service provider. For example, Amazon.com is an innovative business model because it offers customer a new distribution channel with a variety of products and promotions (Velu, Prabhu & Chandy, 2010).

Competence-destroying innovation: This kind of innovation relies on new skills and new knowledge to develop products in order to replace existing ones. For example, automobiles substitute steam locomotives (Tushman & Anderson 1986).

Competence-enhancing innovation: This type of innovation is an improvement in performance, price, or efficiecy that builds on existing products or processes. Furthermore, it requires knowlegde that enhances the development of an "old" technology The development of the machanial typewriter to the electric typewriter is a good example if this type of innovation (Tushman & Anderson 1986).

Taking these innovation typologies into account, the standpoint of this research is to explore the antecedent factors that lead to innovation. Product, process, service, business model, and other innovation types are included in this study. The table below shows the concept of innovation typologies summarized from past literature.

Table 2.4 Typologies of Innovation

Typologies of innovation		Thailand National Innovation Agency (2006); Damanpour (1991); Chandy and Tellis (2000)	Tushman and Anderson (1986); Mole and Elliot (1987); Greenwood and Hinings (1996); Tidd amd Pavitt (2005)	Yosyingyong (2009)	Henderson and Clark (1990)	(Velu, Prabhu, and Chandy, (2009)	(Tushman and Anderson, (1986)
1.Innovation types	1.1 Product innovation	X		X			
	1.2 Process innovation	X		X			
	1.3 Service innovation			X			
	1.4 Business innovation			X			
	1.5 Strategy innovation			X			
	1.6 People innovation			X			
	1.7 Marketing innovation			X			
2.Degree of novelty	2.1 Radical innovation		X				
	2.2 Incremental innovation		X				

Table 2.4 (Continue)

Typologies of innovation		Thailand National Innovation Agency (2006); Damanpour (1991); Chandy and Tellis (2000)	Tushman and Anderson (1986); Mole and Elliot (1987); Greenwood and Hinings (1996); Tidd amd Pavitt (2005)	Yosyingyong (2009)	Henderson and Clark (1990)	(Velu, Prabhu, and Chandy, (2009)	(Tushman and Anderson, (1986)
3.Other types	3.1 Architectual innovation				X		
	3.2 Modular innovation				X		
	3.3 Business model innovation					X	
	3.4 Competence-destroying innovation						X
	3.5 Competence-enhancing innovation						X

2.1.4 The Development of Innovation in Thailand compared with Other Countries

As innovation plays a significant role in creating businesses sustainability to compete in the global market, several countries are attempting to invest in research and development (R&D). The next sections discuss investment information regarding R&D based on the countries' gross national product (GDP).

2.1.4.1 Investment in R&D compared with GDP

The statistics from the World Bank Group showed the investment in R&D compared with the country's GDP in 2012 (World Bank, 2015); it concluded that Asia, South Korea, and Japan accounted for the highest percentage of research and development expenditure compared to their countries' GDP at 4% and 3.39% respectively. Singapore accounted for 2.23% of R&D expenditure, which was over the average of the world R&D expenditure of 2.0%. Nevertheless, Thailand invested only a small expenditure of 0.25% on R&D and was lower than the world average ratio of 2%. Data from the World Bank Group indicating the investment in R&D expenditures comparing countries in 2011 and 2012 are shown in Figure 2.1. It is noted that only Thailand did not have data for 2011 and 2012. Thus, the researcher used the data of the investment in R&D in 2007 and 2009 for comparison.

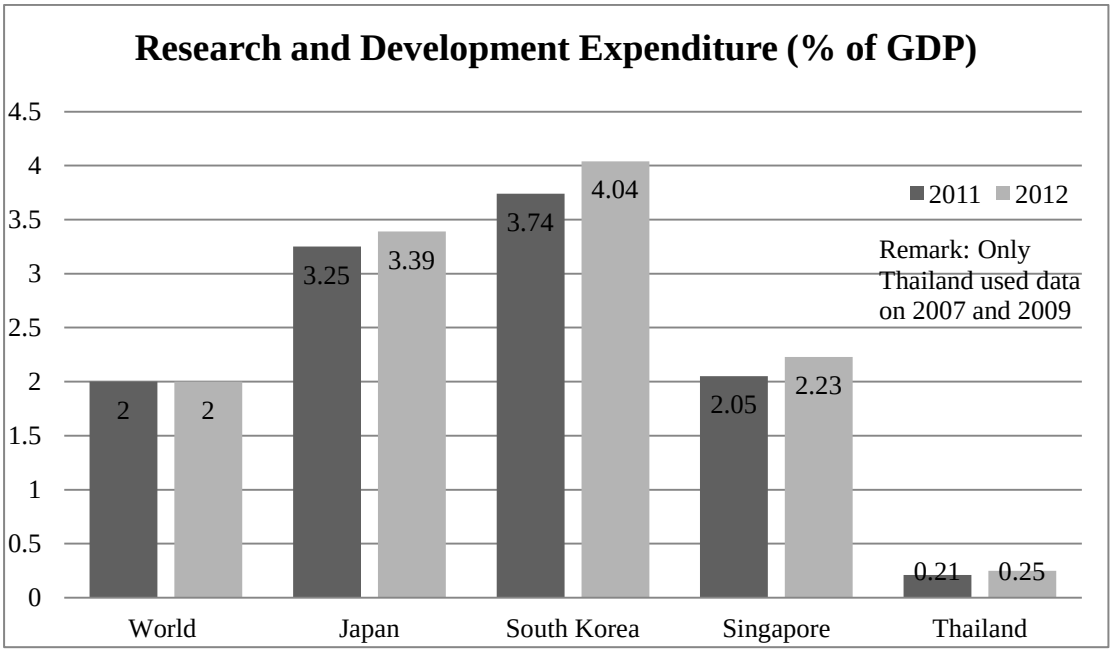

Figure 2.1 Comparisons of Research and Development Expenditures (% of GDP) among Countries

Source: Adapted from World Bank Group, 2015.

2.1.4.2 The Global Innovation Index (GII) Scores

Essentially, the study above is also aligned with the Global Innovation Index [GII] 2014 (Global Innovation Index, 2014). The GII recognizes innovation as a key to driving economic growth. The measurement attempted to cover the multi-dimensional facets of innovation. The results indicated gross expenditure on R&D (% of GDP) in 2011 and it was concluded that in Asian countries, only Korea and Japan showed strength in R&D investment compared to the national GDP. The data showed the score ranking from 0-100. Korea had a full score which was the highest in the world ranking, whereas Japan scored 76.64 from a total score of 100. Most of the countries in Southeast Asia scored low on R&D investment. Singapore scored the highest among other nations in the region by achieving a score of 51.02 whereas Thailand scored only 5.47, as shown in Figure 2.2

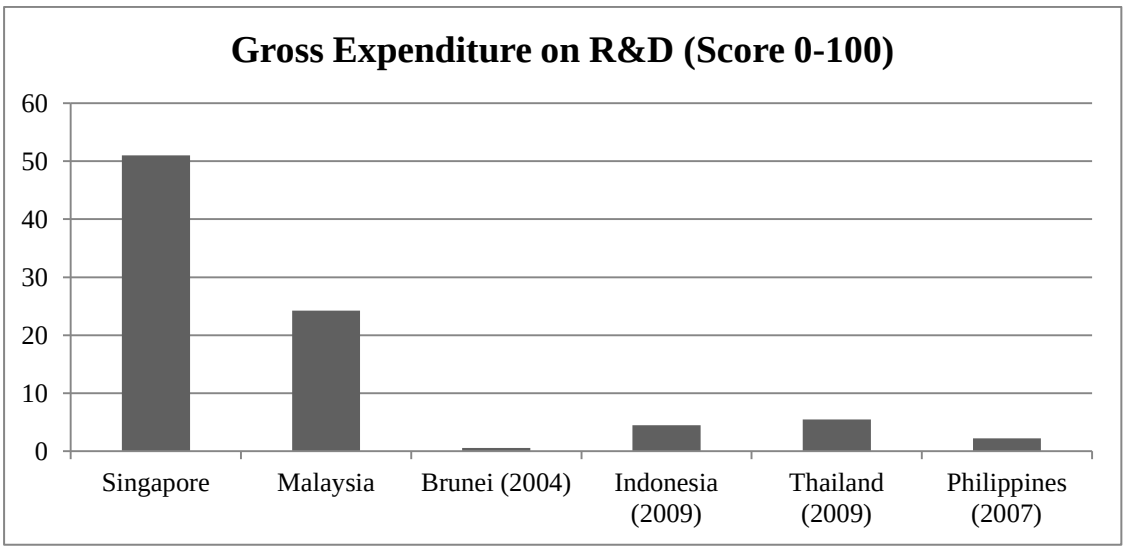

Figure 2.2 Comparisons of the Gross Expenditures on Research and Development (Score 0-100) among Countries

Source: Adapted from Global Innovation Index, 2015.

2.1.4.3 The Global Competitiveness Index (GCI)

The information from the World Bank Group and the Global Innovation Index shown above is also aligned with the data from the World Economic Forum (WEF). The World Economic Forum (WEF) in 2015 reported the Global

Competitiveness Index (GCI), which ranks approximately 142 countries in the world using a series of measurements including technological readiness, market size, government agencies, work conditions, and innovation. The Global Competitiveness Index (GCI) indicated that Thailand was ranked 31st in 2014-2015 whereas Singapore and Malaysia were ranked 2nd and 20th, respectively. Furthermore, the innovation and sophistication factor of Thailand in 2014-2015 was ranked 54th. On the other hand, Singapore and Malaysia were ranked 11th and 17th, respectively (World Economic Forum, 2015). The Global Competitiveness Index and innovation and sophistication factors rank of AEC member countries in 2013-2015 are summarized in the table below.

Table 2.5 Global Competitiveness Index (GCI) and Innovation and Sophistication Factors 2013-2015

Countries / Year	**Global Competitiveness Index (GCI)**			**Innovation and sophistication factors**		
	2014-2015	**2013-2014**	**2012-2013**	**2014-2015**	**2013-2014**	**2012-2013**
Singapore	2	2	2	11	13	11
Malaysia	20	24	25	17	23	23
Brunei	-	26	28	-	54	62
Thailand	31	37	38	54	52	55
Indonesia	34	38	50	30	33	40
Philippines	52	59	65	48	58	64
Vietnam	68	70	75	98	85	90
Cambodia	95	88	85	116	83	72
Laos	93	81	-	80	74	-
Myanmar	134	139	-	139	146	-

2.1.4.4 The Global Innovation Index (GII) Ranking

Additionally, along with the above information, the Global Innovation Index (GII) 2014 also displayed similar results. The Global Innovation Index (GII), with research covering 143 nations across the world, is a measurement for assessing global innovation trends by using 81 indicators with a variety of themes (Global

Innovation Index, 2014). The study showed that among the Asian countries, Singapore was ranked 7th, which was the highest among other nations, followed by Malaysia and Thailand, which were ranked at 33rd and 48th respectively on innovation.

Table 2.6 Global Innovation Index (GII) Ranking in Southeast Asia

Country	The Global Innovation Index Ranking
Singapore	7
Malaysia	33
Brunei	88
Thailand	48
Indonesia	87
Philippines	100
Vietnam	71
Cambodia	n/a
Laos	n/a
Myanmar	140

If we take a closer look at the Global Competitiveness Index (GCI) by the World Economic Forum, we can see the better ranking of Thailand's competitiveness from ranking 38th to 31st in 2015. However, the innovation and sophistication factors of Thailand revealed almost the same ranking for a three-year measurement (55th, 52nd, and 54th from 2013 to 2015). Moreover, Thailand still has a lower ranking compared with the neighboring countries (i.e., Malaysia and Singapore) on both the Global Competitiveness Index (GCI) and the innovation and sophistication factors.

As a result, Thailand will never catch up with the neighboring countries in terms of economic growth and investment attractiveness due to the low level of innovation capacity. Thus, it is considered an urgent matter for Thailand's policy makers to emphasize innovation strategies in order to strengthen the nation's competitive advantage. For this, it is necessary for Thailand to develop innovation

among Thai firms in order to improve the level of Thailand's competitiveness (Chutiwanichayakul, 2005).

Since innovation is one of the core essential factors in driving the Thai economy, several sectors of the Thai government have developed innovation-related strategies in their plans. For example, the Eleventh National Economic and Social Development Plan 2012-2016 of Thailand declared innovation as one of the strategies for creating competitiveness (Thailand Master Plan, 2010).

Furthermore, the National Science Technology and Innovation (STI) has conducted a forum called "Enhancing Innovation for Sustainable Development" in order to increase the opportunity for Thailand to develop innovation as a competitive advantage. Follow the innovation policy, STI targeted the Thai GDP to increase by 1% by supporting the STI's activities such as financial support, R&D support, and human resource support (Wanichkorn, 2014). In addition to the Thai governmental sector referred to above, the Thailand National Innovation Agency (NIA) plays an important role in creating innovation among Thai SMEs. The details of the NIA will be discussed in the next section.

2.1.5 Overview Information on the Thai Government and the National Innovation Agency (NIA) regarding Innovation Strategy

2.1.5.1 The Thai government and the country's innovation strategy

As aforementioned, we can see that innovation strategies have been included in the national policy in recent years. If we track back to 1962 when the first National Economic and Social Development Plan was released until the end of the third plan, which was around 1976, policies such as an increase the production of agricultural and manufactured products were emphasized. The government recognized the importance of science and technology and stated a direction related to this the fourth plan from 1977 to 1981 (Office of National Economic and Development Board) [NESDB], 2015). Unfortunately, the term innovation still has not yet appeared in the plan. Until 2005 the government included innovation as one of the strategic plans. One of the objectives of this strategic plan was to enhance the competitiveness of the country through science, technology, and innovation.

The Thai government first established a government agency dealing with science and technology under the Ministry of Science, Technology and Energy in 1979, currently, the so-called Ministry of Science and Technology (MOST). MOST's vision is to promote economic benefits and enhance the quality of life through the development of science, technology, and innovation. In order to accomplish this, 16 supporting agencies were established which include the National Innovation Agency (NIA), the National Science Technology and Innovation Policy Office (STI), the National Science and Technology Development Agency (NSTDA), and the Thailand Centre of Excellence for Life Sciences (TCELS) (Thailand National Innovation Agency [NIA], 2015).

2.1.5.2 The National Innovation Agency and innovation strategy

While there are several governmental sectors that are responsible for developing and executing innovation strategy, this study will focus mainly on the governmental bureau that involves mostly innovation and human resource development, which is the National Innovation Agency.

On October 1, 2003, the Ministry of Science and Technology established the NIA essentially to promote innovation on the part of Thai small and medium-size enterprises. The establishment of the NIA has 3 main objectives: 1) to support innovation development in order to enhance the country's innovativeness; 2) to create and support innovation culture in Thai society; and 3) to create an effective system of innovation ecosystem .

In order to achieve the main objectives, the NIA has clear directions and strategic plans. For example, the strategy for 2010 was "The Year of Innovation Platform Creation," and 2013 was "The Year of Innovation Business Development to the AEC." Apart from those major directions, the NIA also established innovation awards annually to promote and facilitate innovative business. Currently the NIA focuses on funding and helping the major business areas, including the bio-business, eco-industry, and design & solutions to develop their innovative capacity.

At the present the operational framework of the NIA includes providing technology advice and financial support, skills training, creating innovation and technology awareness, and promoting an innovation culture in all sectors (Thailand National Innovation Agency [NIA], 2015).

2.2 Theoretical Background and Review of the Literature

In order to enhance the quality of how to select the literature for this study, the literature was selected from credible sources. The researcher employed the information from a variety of sources such as ISI, Scopus, and other sources by using the key words “creativity and innovation” and by tracking back to 1990-2016. The next section will devoted to theoretical perspectives on innovation, a review of the antecedent factor research on innovation, and a review of related theory on innovation (major contributions).

2.2.1 Theoretical Perspectives on Innovation

The study of innovation has gained much attention from various researchers and has been a topic of study for many decades. Scholars from various fields have explored innovation from a variety of perspectives in order to gain an understanding of it. The researcher has briefly summarized the innovation perspectives from past literature in the following.

According to King (1990) viewed that there are 2 major approaches to innovation study: 1) the process approach and 2) the antecedent factors approach. He concluded that the antecedent-factor approach is much more common than the process one. It attempts to explore the determinant factors that foster or inhibit innovation. In contrast, the process approach aims to explore the sequence of events which constitute the process of innovation.

Further, Slappendel (1996) mentioned in the study “Perspective on Innovation in Organizations” that there are three major theoretical perspectives: 1) the individualist perspective; 2) the structuralist perspective; and 3) the interactive process perspective.

The individualist perspective concerns individuals as the cause of innovation; its core concept emphasizes champions, leaders, and entrepreneurs. In the innovation literature, the individualistic perspective viewed the trait approach, such as age, sex, cognitive style, education level, goals, and personality, as the source of creativity (e.g., Amabile, 1988; Roger, 1962). However, some theorists (e.g., Saren, 1987; Van de Ven, 1986) argued that focusing on champions and leaders is one sided.

Another perspective, which called the structuralist perspective, views organizational characteristics as the variables that lead to innovation. This concept is different from the individualist perspective, which assumes that innovation is determined by individual characteristics. Much research has contributed to the study of the individual and structural determinants to innovation; however, some scholars believe that it may lead to a misunderstanding of innovation. In other words, some studies which apply the individual perspective tend to emphasize the characteristics of leaders regardless of the environmental context. Thus, this assumption resulted in a third perspective on innovation in organizations, which is referred to as the interactive-process perspective.

In addition, Lin and Chen (2007), from an exclusive review of the innovation area, the authors concluded that innovation study can be categorized into four major streams: 1) type of innovation; 2) diffusion of innovation; 3) the antecedent factors of innovation; and 4) innovation effort and firm performance.

Moreover, one of the streams that is widely applied in the field of organizational behavior is to divide the study into the individual, group, and organizational level of analysis (Hitt, Miller, & Colella, 2006; Staw, 1984). First and traditionally, studies of creativity and innovation have dominated the study of creativity and innovation at the individual level. In other words, the individual level focused on new ideas of the individual and his or her personality, traits, skills, and experiences (Guilford, 1950; Williams & Yang, 1999). The influence of the individual's motivation (Amabile, 1983), personality (Feist, 1999; Martindale, 1989), characteristics (Csikszentmihalyi, 1996), and cognitive factors (Carrol, 1985; Guilford, 1983) suggested a relationship with creativity and innovation.

Second, the study of creativity and innovation has shifted to the social context as an influence on creativity and innovation. The group level has been a major focus of many studies, including group brainstorming (Paulus, 2000), group diversity (Williams & O'Reilly, 1998), and group creativity (Hunter, Bedell-Avers & Mumford, 2007; Scott & Bruce, 1994; West, 2003; Woodman et al., 1993). Furthermore, by the early 1980s, leadership style had become one of the major focuses. Much of the work, such as that of Peters and Waterman (1982) and Kanter (1983), has contributed to the study of the participative and democratic style of

leadership that influences innovation. Later on, transformational leadership and participative leadership continued to be a key determinant of organizational innovation (Howell & Higgins, 1990).

Third, in the 1980s and 1990s, the emphasis in research turned to the investigation of the antecedent factors in the organizational context away from the individual approach; the recent trend of innovation study has focused on the organizational level. Thus, it is not sufficient to investigate only people because other factors such as the external environment also can influence the level of creativity (Amabile et al., 1996). In addition, the role of organizational structure (Damanpour, 1996; Mumford, Hester, & Robledo, 2012), creative climate (Ekvall & Ryhammar, 1999), and organizational culture (Giugni, 2004; Martins & Terblanche, 2003) is also a major influence on innovative efforts.

Although the recent trend has shown that most of the scholarly literature emphasized the role of the organizational context rather than individual characteristics, frequently, study at the individual and group level is carried out to gain a full understanding of the multi-facets of innovation (e.g., Politis, 2004; Tierney & Farmer, 2002). Additionally, there have been attempts to investigate the relations among individual, group, and organization contexts, for instance: the Interactionist Model of Organizational Creativity by Woodman, Sawyer and Griffin (1993); the Systems Model of Creativity by Csikszentmihalyi (1999); the Simple Systemic Model of Creativity by Hennessey and Amabile (2010); the Four Level Innovation Model by Sears and Baba (2011); and the Multilevel Model for the Measurement of Creativity by Batey (2012).

The scope of this study is to explore the antecedent factors leading to creativity and innovation. In order to gain more understanding of these antecedent factors, research on innovation, previous studies at individual, group, and the organizational level will be described in the next section.

2.2.2 A Review of the Antecedent Factor Research on Innovation

The objective of antecedent factor research on innovation is to attempt to explore the variables that foster or impede creativity and innovation regardless of the process in which creativity is formed. The questions for this kind of research are most

likely include “How can the firm innovate more effectively?”, “What are the antecedent factors that lead to innovation?”, or “What factors inhibit creativity?” Essentially, the development of research in innovation begins at the individual level and then proceeds to the group level and lastly the organizational level. The study of each level will contribute to the creativity and innovation field. Samples of the major contributions to each level of analysis are described below.

2.2.2.1 Individual level

At the individual level, much of the research has involved the term individual creativity rather than innovation. Thus, the works draw upon creativity, in which psychology is fundamental. The research on creativity has dominated the relationship between individual characteristics and creativity for the past 50 years.

The discussion in this section will begin with the trait approach where the variables such as motivation (Amabile, 1983; Lovelace, 1986); intelligence (Sternberg, 1996; Sternberg & O’Hara, 1999), and personality (Feist, 1999; Peterson & Carson, 2000) are the determinant factors. Then, the discussion will turn to a situational approach, discretion (Lovelace, 1986; Peters and Waterman, 1982; Glassman, 1986), and leadership (Glassman, 1986; Peters and Waterman, 1982). Some examples of each of the constructs are described below.

Amabile's (1983) social psychological model identifies the process of creativity as having five steps: 1) task presentation; 2) preparation; 3) idea generation; 4) idea validation; and 5) outcome assessment. Those processes are influenced by three components of creativity: domain-relevant skills; creativity-relevant skills; and task motivation. First, domain-relevant skills or expertise is the foundation of all creativity. This component includes knowledge, technical ability, and special talents. Second, creativity-relevant skills include an application of problem-solving techniques, cognitive style, and working style. Finally, task motivation can be divided into two forms: intrinsic task motivation and extrinsic task motivation.

Amabile viewed that intrinsic motivation is a foundation of creativity. On the other hand, extrinsic motivation is an inhibitor of creativity. In addition to Amabile’s perspective, there is growing support for the linkage of intrinsic motivation and creativity (e.g., Choi, 2004; Csikszentmihalyi, 1996; George, 2007; Jesus et al., 2013). For example, Jesus et al. (2013) reported the correlation between intrinsic

motivation and creativity by conducting meta-analytical procedures that included 6,435 participants. The findings concluded that there was a significant association between intrinsic motivation and creativity related to product. Furthermore, this perception has also been supported by the cognitive evaluation theory proposed by Deci and Ryan (1985). These authors argued that motivation is promoted by self-determination and competence. However, extrinsic motivation (rewards) reduces intrinsic motivation by lessening the freedom of an individual.

Although the aforementioned works have supported Amabile's perspective on intrinsic motivation and creativity, some scholars have revealed different viewpoints (e.g., Dewett, 2007; Eisenberger, Haskins, & Gambleton, 1999; Shalley & Perry-Smith, 2001). For example, Eisenberger et al. (1999) conducted research with college students which revealed a positive relationship between reward and intrinsic task motivation.

In addition to Amabile's framework, Lovelace's (1986) motivational framework for stimulating creativity attempted to explain the theory based on Maslow's (1943) need hierarchy theory of motivation. He proposed that self-actualization needs will motivate the person to express creativity. However, it has to be ensured that lower levels of needs are fulfilled. The hierarchy of needs theory proposed by Maslow suggested that the five needs are arranged in a hierarchy. In other words, individuals can move on to higher-level needs when the lower-level needs have been fulfilled. In spite of criticism, Maslow's hierarchy of needs theory has been widely applied in the organizational context and is considered as a fundamental theory for other motivations theories. Lovelace discussed the idea that if people have a need for self-actualization (the highest level of need), that person is likely to have a motivation to exhibit creativity.

Both Amabile and Lovelace proposed a framework for the antecedent factors that stimulate creativity. Amabile's work emphasized the need to minimize extrinsic motivation in order to leverage creativity, while Lovelace recommended that managers should fulfill subordinates' lower-level needs first so that self-actualization can be free and thus creativity will occur. Although Amabile's work deals with creativity, organizational factors have an indirect influence on motivation. These

organizational factors will again be discussed in detail in a review of the related theoretical background.

Furthermore, the particular strand of creativity research at this level also pointed out the characteristics and the personality traits of a creative person. For instance, Gough (1979) created the Creative Personality Scale (CPS), which is an instrument that assesses the creativity of a person. Gough obtained data from 1,701 individuals from a wide range of ages and occupations. For example, scientists, architects, and engineering students were included in the study.

Similarly, the antecedents of creative components proposed by Costa and McCrae (1992) identified the five-factor model traits, which consisted of conscientiousness, openness to experience, agreeableness, extraversion, and emotional stability. The five-factor model has been used as a way to view the personality correlates of creativity. However, only a few of the empirical studies have measured the five-factor model (Feist, 1999).

Brolin (1992) suggested that strong motivation, endurance, deep commitment,strong desire for self-realization, and openness from within and without are the characteristics of a creative person. These characteristics are also in line with the study of Dacey and Lennon (2000), where it was indicated that self-control, sustained hard work, determination, and perseverance are the distinctive set of attitudes of a creative person. In addition, self-leadership is another personality trait at the individual level that has been found to have a correlation with innovation (Carmeli, Meitar, & Weisberg, 2006; DiLiello & Houghton, 2006).

Apart from the trait approach described earlier, a substantial body of work has contributed to the situational variables that lead to creativity, for example, freedom of time, leadership, and organizational structure. Freedom of time or discretion is one of the antecedent factors at the individual level that has been cited as a positive determinant of creativity (Lovelace, 1986; Peters and Waterman, 1982; Glassman, 1986).

Another antecedent factor at the individual level that has been widely debated among scholars is leader characteristics. The interactions between leadership and innovation have gained increasing attention in empirical studies. According to Ivancevich et al. (1994) and

Schollhammer and Kuriloff (1979), the leader characteristics that support innovation tend to indicate a high level of knowledge, and these individuals are energetic, independent, open to new ideas, and are able to accept high risk, as well as be dynamic leaders.

In the Thai context, there are some works that have explored the relationship of creativity and individuals. For example, Pawakanan (2005) and Kambannarak and Metheeponkul (2008) discussed the Spiritual Quotient (SQ) as an antecedent factor to creativity. It is a significant factor for leveraging creativity, which leads to organizational innovation (Promsri, 2005). Additionally, Jampadee (2011) in her study of the effect of self-efficacy, creative styles, and individual factors on innovative work behavior suggested that creative style is important in predicting work behavior.

In summary, a substantial amount of research at the individual level has been carried out on the characteristics of an individual that lead to creativity. Many theorists (e.g., Amabile, 1988, 1996; McLean, 2005; Oldham & Cummings, 1996; Scott, 1995) have argued that creativity which is derived from an individual is a fundamental step to developing innovation. A number of variables such as individual characteristics, personality, intelligence, and self-efficacy have emerged in the literature. However, the major problem of the study at this level is the neglect of other determinant factors such as interpersonal factors and environmental factors that could lead to creativity and innovation.

2.2.2.2 Group level

The group level of analysis frequently discussed leadership, team work, diversity, team cohesiveness, and group structure, which are the antecedent factors to creativity and innovation. Although much of the literature have pointed out that both individual and social environmental variables influence the level of creativity at the group level (e.g., Amabile et al., 1996; Oldham and Cummings, 1996), the group level of analysis has received the least attention from researchers compared to individual and organizational level of analysis.

There is limited empirical study regarding the antecedent factors that influence creativity and innovation at the group level (Amabile et al., 1996).

Furthermore, lack of a theoretical foundation at the group level is also a problem for the study of this level of analysis (King, 1989).

Traditionally, the antecedent factor at this level is group structure. The first scholars that contributed to the topic of group structure and innovation were Burns and Stalker in 1961 (McLean, 2005). Burns and Stalker's (1961) concept of "organic" the organizational structure of small working groups demonstrated the model by investigating 20 manufacturing firms and exploring whether differences in the technological and market environments affected the structure and management process of the firms. Finally, the notion of the mechanistic organization and organic organization were derived.

A mechanic organization is hierarchical and is used in a stable environment whereas an organic organization is arranged with and is adaptable to unpredictable situations. In other words, organic organizations are formed to deal with unpredictability and volatility in organizations more effectively than mechanistic organizations. A study involving managers in a research and development department and the relationship between organic organizational structure and group innovativeness was carried out; however, the relationship of these factors and innovative performance remains to be tested (King, 1989).

Another contribution is the work of Mintzberg in 1979. Mintzberg pointed out that organizations are likely to be dominated by one of five archetypes: 1) simple structure, 2) machine bureaucracy, 3) professional bureaucracy, 4) divisionalised form, and 5) adhocracy. Mintzberg also classified simple structure and adhocracy structure as organic organizations where innovation is to be expected. In contrast, machine bureaucracy, professional bureaucracy, and divisionalised form are structure that rely on direct supervision by one person and are unlikely to be able to handle change. This is in line with Kirton (1984), who indicated that that a highly-controlled bureaucratic culture increases caution and impedes individual creativity.

By the early 1980s, leadership style had become one of the major focus antecedent factors leading to innovation. At a group level perspective, leaders are advised to create a group environment, and influence group innovation (King, 1989). In the study of Quinn, Baruch and Zien (1997), it was concluded that the most important factor in stimulating innovation is leadership because only managers can

make decisions concerning the organizational visions and supportive environments that foster innovation. Much of the work such as that of Peters and Waterman (1982) and Kanter (1983) have contributed to the study of participative and democratic styles of leadership which influence innovation.

Later on, transformational leadership and participative leadership continued to be considered a key determinant of organizational innovation (Howell & Higgins, 1990). More recent works draw much attention to management as the source of innovation. For instance, Jung, Wu, and Chow (2008) and Gumusluoglu and llsev (2009) argued for a positive relationship between transformational leadership and organizational innovation. Furthermore, Kelley and Lee (2010) also suggested that a leader's role is significantly related to the management of innovation.

Early work at the group level of analysis on innovation was also carried out by many scholars. More recent work such as that of Mohamed (2002) investigated the antecedent factors of team innovation by recruiting 902 participants from 150 teams in the United Arab Emirates. A number of the antecedent factors such as group satisfaction, managerial attitudes, and decentralization were found to have a relationship with team innovation. However, diversity was found to have a weak correlation with innovation in that study.

Chen, Farh, Campbell-Bush, Wu and Wu (2013) investigated the role of team support in innovation. The participants—428 individuals from 95 research and development (R&D) teams from 33 Chinese organizations in a variety of industries—were recruited for this study. The study found that a facilitating supportive team climate had a significant impact on innovation. Additionally, the study also indicated that team support for creativity was significant regarding individual innovative performance.

In summary, although study at the group level regarding innovation has gained the least attention among researchers, there is a substantial amount of research devoted to the study of innovation at this level. For example, Burns and Stalker (1961) discussed the distinction between group structures that lead to innovation. Moreover, five archetypes of organizations also were explained to have an influence on creativity and innovation by Mintzberg in 1979. In addition, leadership style has become one of the key factors related to innovation. The transformational leadership

and participative leadership concept has been seen to have a relationship with innovation (Howell & Higgins, 1990; Kanter, 1983; Peters & Waterman, 1982).

2.2.2.3 Organizational level

Organizational level research in the innovation area has received much more attention than other levels (King, 1989). A number of variables involving the characteristics of the organization such as organization size (Damanpour, 1992; Fennell, 1984), structure (Blau & McKinley, 1979), and organizational culture (Giugni, 2004; Martins &Terblanche, 2003) were seen to be associated with the level of innovation. Especially, study on climate and culture has gained the attention of researchers recently.

The relationships between size, the age of the firms, and innovative performance have long been a topic discussed among scholars. There are several studies that have found that large organizations are more likely to overcome small firms in terms of innovation (Bhattacharya & Bloch, 2004; Gudmundson, Tower & Hartman, 2003; Woodcock, Mosey, & Wood, 2000). However, this hypothesis has been argued against by some scholars, who suggest that new and small firms have produced high-value research and development output as well (Nelson, 1993) and that firm size has no relationship with innovative output (Hansen, 1992).

One of the scholars that have contributed work to creativity and innovation is Teresa Amabile. In 1988, Amabile stated in the study “A Model of Creativity and Innovation in Organizations” that the componential model of creativity and innovation in the organization consists of three broad organizational factors: (1) organizational motivation to innovate, (2) resources, and (3) management practices.

Later on, Woodman, Sawyer, and Griffin (1993) extended the model by including external influences and intra-organization influences as two other dimensions in their study “Toward a Theory of Organizational Creativity.” The authors suggested that individual characteristics (i.e. cognitive ability, personality, intrinsic motivation, knowledge), group characteristics (i.e. norm, size, diversity, problem-solving approach), and organizational characteristics (i.e. culture, resources, rewards, strategy, structure, technology) are the input that could trigger organizational creativity.

In 1996, Amabile et al. developed a study emphasizing the support factors for innovation in “Assessing the Work Environment for Creativity.” The study was designed to assess the work environment factors that were considered important in prior studies. Amabile and associates argued that there were six support scales that influence creativity: organizational encouragement, supervisory encouragement, work group supports, freedom, sufficient resources, and challenge.

Another study that contributed to this level of analysis is that of Martins and Martins (2002). The authors proposed the idea that the determinant factors of organizational culture to innovation included strategy, purposefulness, trust relationship, behavior that encourages innovation, working environment, customer orientation, and management support. Although this framework has never investigated in terms of empirical study, it is one of the studies that made an enormous contribution to this area.

In the Thai context, a variety of studies placed a great deal of attention on the organizational level. For example, Proyanont (2011) explored the work-environment factors that affect creativity by applying case-study research of Thailand’s most innovative companies in 2009. They concluded that work-environment factors were positively related to creativity at work. Other studies attempted to explore the antecedent factors of organizational culture to innovation, for example, the study of Satsomboon and Pruetipibultham (2013). These authors attempted to explore organizational culture in Japanese multinational companies in Thailand. The findings revealed that factors such as learning and development, communication, and leadership were significant variables that promoted innovation within the firms.

In summary, the study at the organizational level has gained the most attention from many researchers because it is suggests that interpersonal factors and environmental factors also have an influence on individual creativity (Amabile et al., 1996; Mclean, 2005). Many works, such as “A Model of Creativity and Innovation in Organizations” by Amabile (1988), “Toward a Theory of Organizational Creativity” by Woodman, Sawyer, and Griffin (1993), and “Assessing the Work Environment for Creativity” by Amabile et al. (1996), have been carried out at this level.

The research studies discussed above at every level of analysis have made an enormous contribution to the area of creativity and innovation research. After reviewing the multi-faceted studies, the researcher found that the cross-level studies and analyses still lacked empirical work.

In order to obtain a clearer picture, the researcher categorized the variables that have been shown to have an influence on creativity and innovation from the past studies and grouped them by the level of analysis, as shown in Figure 2.3

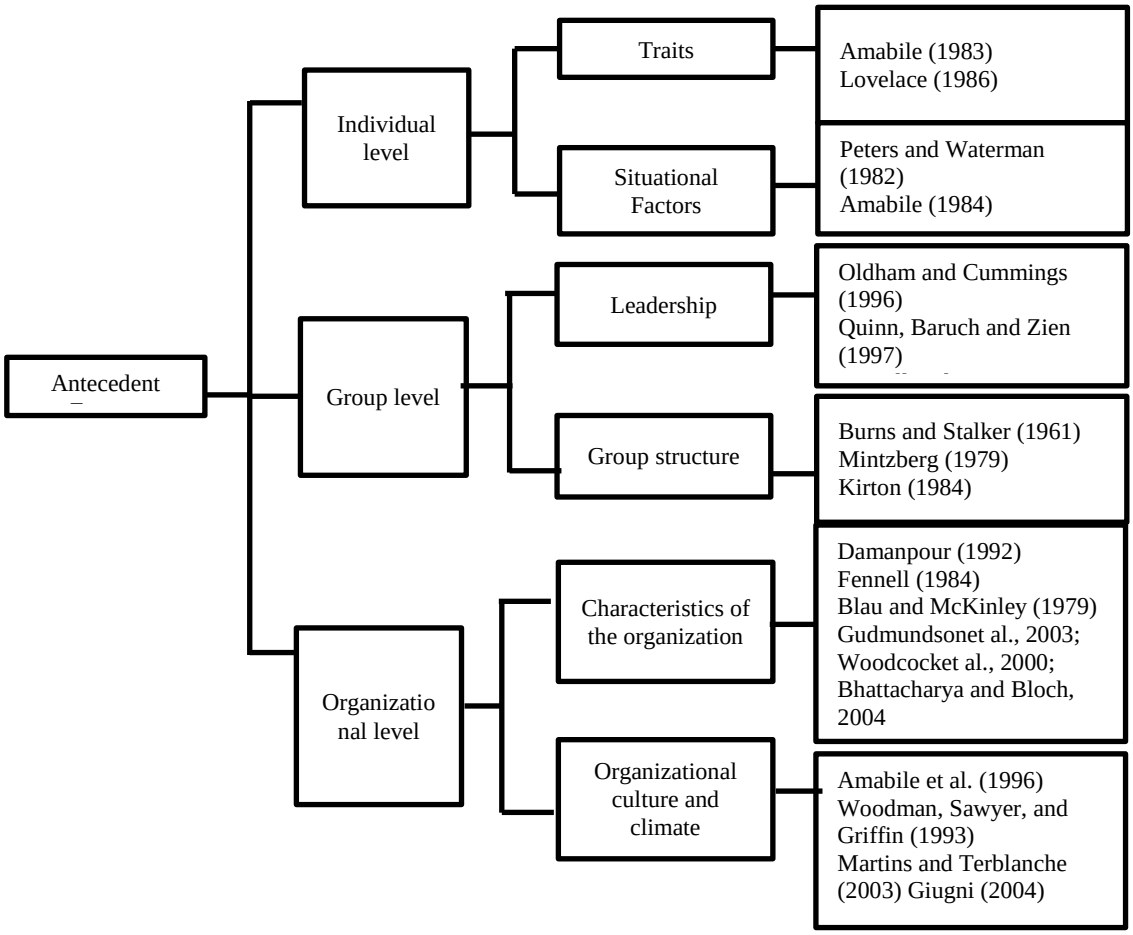

Figure 2.3 Antecedent Factor Research

This dissertation aims to explore the multi-dimensional aspect of the antecedent factors that hinder or facilitate creativity and innovation from different levels of analysis. Thus, the multi-level analysis (individual, group, and organizational

level) will be the major focus of this dissertation. The researcher decided to study the antecedent factors that lead to innovation at the individual, group, and organizational levels for many reasons.

First, most of the past creativity research had only emphasized the individual level. Often the researchers focused only one dimension of analysis, where a discussion of the personality traits of creative people was the major contribution. Although studying at the individual level might result in the production of new creative ideas, some ideas do not result in new products or services that are useful for an organization.

Second, the researcher views innovation as a multi-level construct where creativity and innovation are connected phenomena. Previous researchers pointed out that one level of innovation analysis may influence other research levels (e.g., Amabile, 1988; Janssen, Van de Vliert, & West, 2004; Woodman et al., 1993). Furthermore, it is necessary to understand the context in which the individual exhibits creativity, as Amabile (1996) and McLean (2005) suggested that creative behavior can be influenced by the social environment.

Third, although a variety of innovation models have been formulated, a number of studies called for the need to develop research that is multidimensional (e.g., Crossan & Apaydin, 2010; Damanpour , 1991) in order to develop a holistic and integrated framework of innovation. Furthermore, as stated earlier, in the Thai context, there have been a number of works carried out on antecedent factor study. However, the majority of the studies focused on only one facet of analysis (e.g., Limmanont, 2010; Pratoom & Savatsomboon, 2012; Rujirawanich, Addison, & Smallman, 2011).

Thus, in the next section, the researcher will present the theoretical background of this study. The models widely recognized from previous literature will be described.

2.2.3 A review of related Theory on Innovation (Major Contributions)

As aforementioned that the objective of this study is to explore the antecedent factors that influence creativity and innovation from individual, group and organization perspectives, a number of different theoretical frameworks that aim to

explore the antecedent factors from a cross-level point of view have been used to determine the factors that might influence creativity and innovation. Among numerous theoretical frameworks, the frameworks that have been cited frequently in literature are: the Interactionist Model of Organizational Creativity (Woodman, Sawyer, & Griffin, 1993); the Situational Outlook Questionnaire (SOQ) (Ekvall, Frankenhaeuser, & Parr, 1995); the study of organizational culture and climate influencing creativity at the individual level (Tesluk, Farr, & Klein (1997); the Model of Influences of Organizational Culture on Creativity and Innovation (Martins & Martins, 2002); and the Componential Model of Creativity and Innovation in Organization (Amabile et al., 1996). The details of each model are described as follows.

2.2.3.1 Interactionist Model of Organizational Creativity

Woodman, Sawyer, and Griffin (1993) conducted their studies based on a conceptual framework of organizational creativity in social settings in a study called "Toward a Theory of Organizational Creativity." To elaborate, this study was essentially based on the model of creative behavior at the individual level developed by Woodman and Schoenfeldt (1989). The interactionist model of creativity proposed that the antecedent factors of individual creativity include cognitive style, personality, motivation, and knowledge, which are influenced by social and contextual factors. The theoretical framework proposed that organizational characteristics have a contextual influence on both individual and group creativity.

The framework consisted of the input of creativity (individual, group, and organization), the transformation process (creative behavior and creative situation), and output (organizational creativity). The authors suggested that individual, group, and organizational characteristics have an influence on the creative procedure and situation, which result in organizational creativity. In order to gain an understanding of this model, the researcher will briefly summarize this conceptual model.

First, individual characteristics mean cognitive, personality, knowledge, and intrinsic motivation. Second, group characteristics consist of norms, size, and diversity. Lastly, organizational characteristics include culture, resources, rewards, strategy, and structures. From the interactionist perspective, creative behavior and a

creative situation (such as environmental influences of behavior) can create a process of organizational creativity, and the creative process results in new products, processes, and services of the organization (Woodman, Sawyer, & Griffin, 1996).

Later on, the three propositions of this conceptual model were summarized to develop testable hypotheses such as "organizational creative performance will be increased by the availability of slack resources," and "organizational creative performance will be increased by the employment of organic organizational designs" (p. 314). The antecedent factors leading to creativity and innovation proposed by Woodman, Sawyer, and Griffin (1996) are listed in the below table.

Table 2.7 Antecedent Factors Leading to Creativity and Innovation in the Interactionist Model of Organizational Creativity

Antecedent factors leading to creativity and innovation	
Individual characteristics	- Cognitive abilities, styles,
	- Personality
	- Intrinsic motivation
	- Knowledge
Group characteristics	- Norms
	- Cohesiveness
	- Size
	- Diversity
	- Roles
	- Task
	- Problem-solving approach
Organizational characteristics	- Culture
	- Resources
	- Rewards
	- Strategy
	- Structure
	- Technology

Source: Adapted from Woodman, Sawyer and Griffin, 1993.

2.2.3.2 The study of organizational culture and climate influencing creativity at the individual level

Tesluk, Farr, and Klein (1997) have conducted research on that aspects of organizational culture and climate that are likely to influence creativity at the individual level. Five dimensions of organizational climate were proposed in the study (e.g., goal emphasis, means emphasis, reward orientation, task support, and socio-emotional support). Each variable proposed by the authors is briefly reviewed as follows.

1) Goal emphasis is the clear vision and direction of the organization toward creativity and innovation strategy. It has to make clear that these goals have been communicated and known to employees in the organization.

2) Mean emphasis is the extent to which the methods of creativity and innovation are communicated to employees. If these methods are conveyed to them, it is more likely that employees will engage in creative activities.

3) Reward orientations involve a recognition and evaluation system. It could be either intrinsic or extrinsic motivation.

4) Task support means the allocation of time, funding, materials, and other facilities provided by the organizations to employees in order to promote new creative projects.

5) Socio-emotional support means the work environment and interpersonal support of the organization. If the organizations provide a work environment that is open to discussion as well as create a trusting relationship among employees, it is more likely that creative ideas will be leveraged.

A summary of the antecedent factors and descriptions is shown in Table 2.8

Table 2.8 Description of Organizational Culture and Climate Influencing Creativity at the Individual Level

Dimensions	Description
Goal emphasis	The clear vision and direction of the organization toward creativity and innovation strategy.
Mean emphasis	The extent to which the methods of creativity and innovation are communicated to employees. If these methods are conveyed to them, it is more likely that they will engage in creative activities.
Reward orientations	Reward orientations involve a recognition and evaluation system. It could be either intrinsic or extrinsic motivation.
Task support	The allocation of time, funding, materials, and other facilities provided by the organizations to employees in order to promote new creative projects.
Socio-emotional support	The work environment and interpersonal support of the organization.

Source: Adapted from Tesluk, Farr Klein, 1997.

2.2.3.3 Situational Outlook Questionnaire (SOQ)

Dr. Ekvall is a Swedish professor Emeritus in Industrial and Organizational Psychology at the University of Lund, Sweden. Most of his work related to the creativity climate and leadership behavior. One of his major contributions to the creativity and innovation area is the Creative Climate Questionnaire (CCQ). In 1981, Ekvall made a major contribution to the measurement of creative organizational climate. Ekvall conducted the assessment called the Creative Climate Questionnaire (CCQ), which measures the climate that fosters and inhibits creativity at the individual, group, and organizational levels.

The early version of the CCQ had only four dimensions, including mutual trust, challenge and motivation, freedom, and pluralism (Scott & Ekvall, 2013). The questionnaire was revised and other important dimensions were added in

1986, including challenge/involvement, freedom, trust/openness, idea time, playfulness/humor, conflict, idea support, dynamism, debate, and risk-taking. The ten dimensions proposed by Ekvall are summarized as follow.

1) Challenge/involvement is the degree of emotional involvement along with motivation of the individual toward the goals.

2) Freedom is the extent to which the individual has the autonomy to acquire information related to the work.

3) Trust/openness is the degree of emotional safety and interrelation with the groups.

4) Dynamism/liveliness is defined as the eventfulness of life in the organization.

5) Idea time means sufficient time for the individual to carry out new projects.

6) Playfulness/humor is the degree of joyfulness and joking.

7) Conflict is the degree of tension or hostility.

8) Idea support means the degree to which new ideas are supported by management.

9) Debate means discussing different viewpoints, ideas, and experiences among employees.

10) Risk-taking means the tolerance of uncertainty and promptness in confronting opportunities.

The questionnaire was revised and the name changed to the Situational Outlook Questionnaire (SOQ) in 1995, and the idea of dynamism was deleted from the assessment. Out of nine dimensions, eight represented dimensions that were positively related to creativity and innovation whereas only one dimension (conflict) had a negative relation to creativity (Isaksen, Lauer, & Ekvall, 1999). The table below shows the nine dimensions of the Situational Outlook Questionnaire (SOQ).

Table 2.9 Description of the Dimensions in the Situational Outlook Questionnaire (SOQ)

Dimensions	Description	Sample of questions
Challenge/ Involvement	The degree of emotional involvement along with motivation of the individual toward the goals.	The work atmosphere here is filled with energy.
Freedom	The extent to which the individual has autonomy to acquire information related to the work.	People here make choices about their own work.
Trust/ Openness	The degree of spontaneous safety and affiliation with the groups.	People here do not steal each other's ideas.
Idea time	Sufficient time for the individual to create new projects.	Time is available to explore new ideas.
Playfulness/ Humor	The degree of joyfulness and joking.	People here exhibit a sense of humor.
Dimensions	Description	Sample of questions
Conflict	The degree of tension or hostility.	There are power and territory struggles here.
Idea support	The degree to which new ideas are supported by management.	People usually feel comfortable when presenting new ideas here.
Debate	Discussion of different viewpoints, ideas, and experiences among employees.	A wide variety of viewpoints are expressed here.
Risk-taking	Tolerance of uncertainty and promptness in confronting opportunities.	People here often venture into unknown territory.

Source: Adapted from Ekvall, 1996.

2.2.3.4 Model of the Influence of Organizational Culture on Creativity and Innovation

Another contribution to organizational culture and innovation was that of Martins in 1987 and 1997. Martins found that variables such as mission and vision, the external environment, means of achieving objectives, image of the organization, the management process, interpersonal relationships, and leadership were the determinants of organizational culture that influenced the degree of innovation.

In addition, in 2000, Martins developed a model based on his own work in 1987 and 1997 in order to further explore the determinant factors that influence creativity and innovation. Martins concluded in the study that strategy, structure, support mechanisms, behavior that encourages innovation, and communication were the key determinants of organizational culture that lead to innovation (Martins & Martins, 2002).

Later on, Luu and Sundar (2010) conducted a study entitled "Organizational Culture and Technological Innovation Adoption in Private Hospitals" based on the work of Martins in 1987 and 1997. The study concluded that, quantitative research needed to be conducted in order to ascertain the similarities and differences in the determinant factors of organizational culture regarding creativity and innovation between the preliminary model and the new model. The results showed both similarities and differences in the determinant factors between the previous and new model. The antecedent factors such as strategy, purposefulness, a trusting relationship, behavior that encourages innovation, work environment, customer orientation, and management support were derived from the study and associated with creativity and innovation.

The authors also conducted a statistical test and item analysis using Cronbach's Alpha where the reliability coefficient varied between (0.643) and (0.863). According to the results, these items were reliable (acceptable) because they were all above 0.6. Innovation behavior and strategy were the only items accepted as very good since the test results showed a reliability coefficient at (0.83) and (0.86) accordingly.

Even though organizational culture is an important aspect of the organization in terms of achieving organizational strategy and objectives,

organizational cultures are complicated and ambiguous (Martins, 2002). To study organizational culture, several points have to be emphasized. Although the findings of the study of determinants of organizational culture that influence creativity and innovation based on Martins and Martins (2002) highlighted the important antecedent factors leading to creativity and innovation, empirical tests with other organizations would be very useful for further research. However, this study has made another step toward the understanding of creativity and innovation research.

A summary of the antecedent factors of organizational culture that influence creativity and innovation based on Martins and Martins (2002) can be found in the below table.

Table 2.10 Determinants of Organizational Culture that Influence Creativity and Innovation

Determinants of organizational culture that influence creativity and innovation	
Strategy	- Customer-focused marketing orientation
	- Integration of core values
	- Reaction to change
	- Knowledge of management with a future perspective
Purposefulness	- Understanding of vision, mission, goals, and objectives
	- Involvement
	- Availability of standards
Trusting relationship	- Trust
	- Support for change
Behavior that encourages innovation	- Idea generation
	- Risk taking
	- Decision making

Table 2.10 (Continue)

Determinants of organizational culture that influence creativity and innovation	
Work environment	- Integration of goals and objectives
	- Conflict handling
	- Cooperative teams
	- Participation
	- Control of own work
Customer orientation	- Flexibility regarding customer service
	- Improvement of service
	- Understanding of customer needs
Management support	- Open communication
	- Availability of equipment and resources
	- Tolerance of mistakes
	- Adaption to rules and regulations

Source: Adapted from Martins and Martins, 2002.

2.2.3.5 Componential Model of Creativity and Innovation in the Organization

Another author that has made a noteworthy contribution to the field of creativity and innovation research is Teresa Amabile. She is currently a Professor in Business Administration in the Entrepreneurial Management Unit at the Harvard Business School. Amabile conducted several studies focusing on individual creativity, and expanded this to team creativity and organizational innovation. She studied the work environment factors that influence individual creativity as well as assessing methods (Harvard Business School, 2015).

Her work such as “Assessing the Work Environment for Creativity” (1996), “A Model of Creativity and Innovation in Organizations” (1988), “How to Kill Creativity” (1998), and “Affect and Creativity at Work” (2005) have gained a lot of attention from many researchers. In this dissertation, Amabile’s noteworthy study,

the Componential Model of Creativity and Innovation in the Organization, will be discussed.

In the Componential Model of Creativity and Innovation in the Organization, Amabile was guided by her previous research (Amabile, 1983, Amabile & Gryskiewciz, 1988). Her findings led to three major factors: 1) organizational motivation; 2) resources; and 3) management practices (Amabile & Conti, 1999). The theory suggests the influence of the work environment on creativity and innovation.

First, organizational motivation refers to the orientation of an organization toward innovation, which includes rewards, recognition, support for creativity, etc. Second, resources refer to the materials, funds, and sufficient time for working on creativity that support the development of creativity. Lastly, management practices include freedom, challenging work, specification of a clear vision and goals, and the work team.

The theory also suggests that the variables of the work environment will influence an individual or a team's creativity. Amabile (1983) suggested that individual creativity consists of three major components (expertise, creativity skills, and task motivation), as stated earlier.

Even though a number of scholars have conducted research about the antecedent factors to innovation (Woodman, Sawyer, & Griffin, 1983; Martins & Martins, 2002), empirical work done in this field is still limited. According to a review of the literature, few instruments such as "The Siegel Scale of Support of Innovation" (Siegel & Kaemmerer, 1978) were conducted in order to assess the perceptions of leadership.

Nevertheless, the assessment was verified by teachers and students despite the fact that the participants represented other occupations. Thus, this calls for practice in the business context. In drawing up the measurement, Amabile and associates (1996) developed an instrument to assess the work environment regarding creativity and innovation called KEYS. The instrument drew upon previous study—the Componential Model of Creativity and Innovation in the Organization (Amabile, 1988).

KEYS is an instrument designed to measure organizational work environment perceptions that tend to be associated with creativity. KEYS was

developed by Amabile and associates in 1996. It is intended to serve as a tool to assess the work environment concerning whether it fosters or inhibits creativity in many aspects including organization encouragement, supervisory encouragement, work group support, freedom, sufficient resources, challenging work, organizational impediments, and workload pressure. Among eight dimensions, six dimensions show a positive influence on creativity, while the remaining two are negative dimensions that inhibit creativity (Amabile et al., 1996). In order to understand the concepts of each dimension proposed by Amabile and associates, the author has summarized the key concepts as follows:

1) Organizational encouragement promotes an organizational culture that supports the creative process, such as a culture that accepts high risk, and offers rewards and recognition when creative ideas are proposed.

2) Supervisory encouragement stimulates the creative process of the individual and team by setting a clear vision for innovation and supporting new ideas from employees.

3) The work group supports the communication within the organization in order to share information within the group which fosters creativity.

4) Sufficient resources include budgets in terms of finance, information, time and materials that support the work.

5) Challenging work environments energize people to take responsible for projects.

6) Freedom allows individuals to choose what projects to do and how to do the task completely.

7) Organizational impediments inhibit the creative process in the organization. These include an organizational culture that avoids taking risks and political conflicts in the organization.

8) Workload pressure has an adverse effect on creativity because employees have to give too much attention to unnecessary projects.

The antecedent factors proposed in KEYS have been tested for reliability using Cronbach's alpha. The results were ranked from acceptable (.66) to extremely strong (.91), with a solid median of .84. Only two of the items (freedom and workload pressure) showed reliabilities below .80 (Amabile & Conti, 1999). The

current version of KEYS has a total of 87 questions. The table below shows the meaning of each dimension.

Table 2.11 Dimensions of Work Environment in KEYS

Dimension	Meaning	Sample questions
Organizational encouragement	An organizational culture that supports creativity for example, reward and recognition system, active flows of idea sharing, and mechanism of how to share organization vision.	People are encouraged to solve problem creatively in this organization.
Supervisory encouragement	Supervisor who behave as a good leader and support for new ideas from subordinates.	My supervisor serves as a good work model.
Work group support	A work group that has flow communication among workers as well as helping each other to accomplish the task.	There is free and open communication within my work group.
Freedom	Autonomy to control over the work that one has a responsible to.	I have the freedom to decide how I am going to carry out my project.
Sufficient resources	Able to assess sufficient resources include funds, material, and information.	Generally, I can get the resources I need for my work.
Challenging work	A degree of having to work on challenging project.	I feel challenged by the work I am currently doing.

Table 2.11 (Continue)

Dimension	Meaning	Sample questions
Organizational impediments	An organizational culture that inhibits creativity includes political issues within the organizations, criticism from other employees against new ideas, and an avoidance of risk.	There are many political problems in this organization.
Workload pressure	Impractical expectation on work productivity or time limitation to do the project.	I have too much work to do in too little time.

Sources: Adapted from Amabile, Conti, Coon, Lazenby and Herron, 1996.

As stated earlier that KEYS has been widely applied in many organizations, the author would like to explain in more detail the related literature that has adopted KEYS as an assessment tool. First, there was a study by Carol Yeh-Yun Lin and Feng-Chuan Liu in 2012 on organizational creativity climate. The participants in this study were employees from different companies in Taiwan—around 398 employees. Five out of eight dimensions which included organizational encouragement, work group support, supervisory encouragement, sufficient resource, and challenging work were positively related to perceived innovation. This study also suggested that work motivation is a mediating link with innovation (Lin & Liu, 2012).

Second, Politis (2004) conducted a study entitled “Transformational and Transactional Leadership Predictors of the ‘Stimulant’ Determinants to Creativity in Organizational Work Environments” in order to explore the specific variables of leadership and environment factors that lead to creativity and innovation by deploying the Transformational and Transactional Leadership Model proposed by Bass (1985) and the determinants of the work environment for creativity (Amabile et al., 1996).

The author used a quantitative questionnaire survey with service organizations operating in the United Arab Emirates (UAE). The study showed that both transformational and transactional leadership behavior influenced the

determinants of the work environment that led to creativity in the organization. The results of the study emphasized the componential model of Amabile (1988).

Apart from the academic purposes, KEYS has also been adopted for business purposes by many organizations. For example, Cargill, one of the largest American companies, also applied KEYS to improve its organization creativity and innovation (Center for creative leadership, 2015).

According to Mathisen and Einarsen, (2004) there are five instruments that can be used to assess the work environment: KEYS: Assessing the Climate for Creativity; the Creative Climate Questionnaire (CCQ) (Ekvall, 1996); the Situational Outlook Questionnaire; the Team Climate Inventory (TCI); and the Siegel Scale of Support for Innovation (Siegel & Kaemmerer, 1978). Among these instruments, the TCI was exhibited to assess team climate regarding creativity.

However, only KEYS: Assessing the Climate for Creativity and the Team Climate Inventory (TCI) was accepted as a high-quality instrument. On the other hand, KEYS approach attempts to assess the perceptions of all of the important work environment dimensions that influence individual and team creativity and innovation in the organization (Mathisen & Einarsen, 2004). Additionally, Moultrie and Young (2009) compared KEYS (Amabile et al., 1996) and the CCQ (Ekvall, 1996) and concluded that KEYS is more detail than CCQ. Furthermore, the CCQ is too broad to explain the meaning of creativity.

In summary, five major theories that are widely recognized in the field of creativity and innovation have been presented in this dissertation. Each of the theories has made a major contribution to the innovation arena. In brief, the interactionist model of Woodman, Sawyer and Griffin (1993) explored creativity as a phenomenon that is influenced by behavioral factors, situational factors, and organizational characteristics.

On the other hand, the Situational Outlook Questionnaire (SOQ) (Ekvall, 1996) is an instrument that assesses nine dimensions that are either positively or negatively related to creativity and innovation. Furthermore, Tesluk, Farr, and Klein (1997) discussed the idea of how organizational culture and climate influence creativity at the individual level. The authors proposed five dimensions of

organizational climate that are likely to influence creativity (goal emphasis, means emphasis, reward orientation, task support, and socio-emotional support).

In addition to these antecedent factors, the model proposed by Teresa Amabile and associates in 1996 as well as the instrument called KEYS attempts to assess the work environment influences on creativity and innovation in the organization. The eight stimulating and inhibiting factors in relation to creativity have been presented.

Lastly, Martins and Martins' (2002) model of the Influence of Organizational Culture on Creativity and Innovation explores the organizational culture that leads to creativity and innovation. Many factors including reward, strategy, purposefulness, a trusting relationship, and so on have been proved to support creativity.

After reviewing the antecedent factors and related theoretical frameworks of innovation, the historical development and the levels of the studies presented in this dissertation are summarized in Table 2.12.

Table 2.12 Summary of Research on Creativity and Innovation

Year	Authors	Level of analysis			Research
		Individual	Group	Organization	
1959	Guilford	X			Personality and creativity
1961	Burns and Stalker		X		Mechanistic versus organic forms of organizing
1979	Mintzberg		X		Adhocracy structure as organic organization
1979	Blau and McKinley			X	Organizational structure
1979	Schollhammer and Kuriloff	X			Leader characteristics that support innovation

Table 2.12 (Continue)

Year	Authors	Level of analysis			Research
		Individual	Group	Organization	
1982	Peters and Waterman		X		Participative and democratic style of leadership
1983	Kanter		X		Participative and democratic style of leadership
1983	Amabile	X			Social psychological model of creativity
1984	Fennell			X	Organization size
1984	Kirton		X		Bureaucratic culture increases caution and impedes individual creativity
1986	Lovelace	X			Motivational framework for stimulating creativity
1988	Amabile	X			Personality of individual
1990	Howell and Higgins		X		Managers as source of innovation
1992	Damanpour			X	Organization size affects innovation
1993	Woodman, Sawyer and Griffin			X	Interactionist Model of Organizational Creativity
1994	Scott and Bruce		X		Team creativity
1995	Ekvall. Frankenhaeuser, and Parr			X	Situational Outlook Questionnaire (SOQ)
1996	Csikszentmihalyi	X			Motivation affects creativity

Table 2.12 (Continue)

Year	Authors	Level of analysis			Research
		Individual	Group	Organization	
1996	Amabile et al.			X	A Model of Creativity and Innovation in Organizations
1996	Amabile et al.			X	KEYS: Assessing the Climate for Creativity
1997	Tesluk, Farr, and Klein			X	The study of organizational culture and climate influencing creativity at the individual level
2002	Nijstad and Dreu		X		Group innovation
2002	Matins and Martins			X	Model of the Influence of Organizational Culture on Creativity and Innovation
2003	Martins and Terblanche			X	Determinant of organizational culture that influence innovation
2003	Oldham			X	Work environment
2003	West		X		Team creativity
2003	Gudmundson et al.			X	Firm size and innovativeness
2004	Giugni			X	Determinant of organizational culture that influence innovation
2004	Amabile et al.		X		Leadership
2007	Hunter, Bedell-Avers and Mumford				Team creativity
2010	Kelley and Lee		X		Leaders and innovation

Table 2.12 (Continue)

Year	Authors	Level of analysis			Research
		Individual	Group	Organization	
2010	Luu and Sundar			X	Organizational Culture and Technological Innovation Adoption in Private Hospitals
2011	Patricia, Haozhe, and Bruce			X	Organizational structure and innovation
2012	Lin and Liu			X	A cross-level analysis of organizational creativity climate and perceived innovation: the mediating effect of work motivation
2013	Chen, Farh, Campbell-Bush, Wu and Wu		X		The role of team support of innovation

2.3 Concept and Overview of Thai Small and Medium-Size Enterprises

2.3.1 A review of the Definitions of Thai SMEs

The term SMEs typically stands for small and medium-size enterprises. However, the definitions of SMEs vary and there is no consensus (Thongpakde, Puppahavesa, & Pussarangsri, 1994; Rujirawanich, Addison, & Smallman, 2011). Another definition from Veerayankul (1985) is that SMEs are businesses that are operated by a person or a group of persons. In addition a business's operation must not be influenced by other groups of people.

According to the Office of Small and Medium Enterprises Promotion in Thailand, the criteria used to categorize SMEs are different in various countries. For

example, in the European Union (EU), the definitions of SMEs are based on employment criteria as follows: a) micro–fewer than 10, b) small–10 to 50, and 3) medium–50 to 250 employees. Singapore categorized SMEs by using fixed assets of less than 12 million US dollars for manufacturing and employment criteria of less than 100 employees for service sectors (OSMEP, 2002).

In Thailand, the Institute for Small and Medium Enterprises Development in Thailand classified SMEs according to 3 major categories: 1) the production sector - agriculture processing, manufacturing, and mining; 2) the trading sector - wholesale and retail; and 3) the service sector (Norlaphoompipat, 2008). Small and medium-size enterprises were classified based on the value of fixed assets and the number of full-time employees by the Office of Small and Medium Enterprises Promotion in Thailand, as shown in Table 2.13.

Table 2.13 Category of the Small and Medium-Size Enterprises

Sectors	**Fixed assets**		**Numbers of full-time employees**	
	Medium enterprises (million THB)	**Small enterprises (million THB)**	**Medium enterprises (persons)**	**Small enterprises (persons)**
Production sector	<200	<50	<200	<50
Trading sector (wholesale)	<100	<50	<50	<25
Trading sector (retail)	<60	<30	<30	<15
Service sector	<200	<50	<200	<50

Source: The Office of SMEs Promotion (OSMEP), 2009.

2.3.2 Significance of Thai SMEs to the Thai Economy

Thailand is a country with an economy depending largely on the export of goods and services. Exports come largely from the industrial sector, which has been supported by small and medium-size enterprises for many decades. According to the SMEs white paper report 2014 conducted by the Office of Small and Medium Enterprises Promotion in Thailand, the total Thai gross domestic product in 2013 was worth 11,898,710 million Baht. Such an amount means that SMEs accounted for 37.4% or 4,454,939.6 million Baht of the total Thai gross domestic product, an increase from 2012 of around 0.4% (OSMEP, 2014).

Furthermore, the number of small and medium-size enterprises has been increasing each year. According to the Office of Small and Medium Enterprises Promotion in Thailand, SMEs accounted for 99.60 % of 2,924,912 enterprises in Thailand. As such, the employment rates of SMEs are the major contribution of the Thai economy, accounting for 77.86 % of the overall employment rate in Thailand in 2007 (OSMEP, 2007).

What about the number of Thai SMEs in recent years? The number of small and medium-size enterprises was in total 2,375,368 enterprises in 2007. Moreover, the SMEs concentrated in Bangkok and suburban areas at approximately 31%. Additionally, the number of SMEs increased to 2,900,759 enterprises in 2009. From the total numbers of enterprises, the number of small-size enterprises was 2,884,041, whereas the number of medium-size enterprises was 12,065, concentrated in Bangkok and suburban area at around 20 % (SMEs Summary Report, 2013).

Yeung (2007) suggested that most economic activities in developing countries have been based on small and medium-size enterprises. It can be estimated that the SMEs in Indonesia, Taiwan, India, and Thailand employ a workforce at around 70-80%. Thus, SMEs are considered the backbone of the country and play a very important role in driving the economic growth and significantly help to reduce the unemployment rate in most developing countries (Asasen, Asasen&Chuangcham, 2003; Yeung, 2007). Table 2.14 shows the role of SMEs in the Thai economy from 2004 to 2006.

Table 2.14 SMEs' Role in the Thai Economy

SMEs' role in Thai economy	2004	2005	2006
Number of SMEs (Unit)	2,199,130	2,239,069	2,274,525
Employment in SMEs (persons)	8,352,804	8,453,170	8,863,334
-Ratio to overall employment (%)	(76.1)	(76.0)	(76.7)
GDP by SMEs (million THB)	2,580,336	2,790,414	3,041,896
-GDP by SMEs: Overall GDP (%)	(39.8)	(39.4)	(38.9)

Source: The Office of SMEs Promotion (OSMEP), 2015.

In spite of the significance of Thai SMEs for the Thai economy, the SMEs there are still confronting many difficulties. Poonpatpibul and Limthammahisorn (2005) pointed out the problems that Thai SMEs are facing, such as lack of funds, lack of marketing and management knowledge, not being able to access high technology, and scarce resources and labor.

Furthermore, studies on the factors influencing Thai SMEs by Chittithaworn, Islam, Keawchana, and Yusuf in 2010 also mentioned similar problems that Thai SMEs are facing and include the following: 1) the difficulties that Thai SMEs experience in obtaining funding support from financial and government sectors; 2) the scarcity of skilled labor; 3) the intense competition from international companies (Asian Free Trade Area (AFTA) member countries, multinational companies (MNCs), and new competitors); 4) limitations in accessing and using new technology to increase productivity; 5) limitations in conducting research and development; and 6) a lack of creativity and innovation to sustain business growth.

In line with the research from the OSMEP in 2006, the issues regarding 1) financial; 2) management; 3) technological; 4) marketing; and 5) human resource problems and; 6) accessing governmental services are the major problems of the Thai SMEs. In addition, in terms of innovation, SMEs lack adequate potential to develop innovation because they consider innovation as an investment with high risk.

Furthermore, the ability to link themselves with knowledge is still an obstacle to enhancing creativity and innovation (SMEs Summary Report, 2013).

2.4 Innovation and Human Resource Development

As stated earlier, innovation is a vital strategy for the organization nowadays because it allows an organization to adjust itself to the market demand. However, innovation depends upon the employees' creative ideas. McLean (2005) expressed the idea that organizations rely on creative ideas from employees, which feed into the innovation pipeline in order to increase customer expectation and sustain organizational growth. Creativity has been recognized as a key driver of organizational competitive advantage (Rajan & Martin, 2001) and significantly adds to levels of innovation (Nonaka, 1991). In spite of its importance, levels of creativity in many organizations remain low. Even though the organization applies several strategies such as recruiting and selecting people based on their personal attributes for creativity, oftentimes they end up quite unsuccessful in what they were recruited for. Thus, it comes to the questions of what important role human resource development plays in fostering creativity.

2.4.1 The Definitions of Human Resource Management and Development

Human resource development has been defined by a number of researchers. Debate in journal writing has shown an attempt on the part of many of them to identify the meaning of HRD; however, there is no consensus on the definition. First of all, to gain insight into what HRD is, the present researcher would like to summarize the definitions of HRD found in the literature as follows.

Nadler and Nadler (1989) defined HRD as organizational activities designed to change the behavior of the individual.

McLagan (1989) proposed that HRD is a set of activities including training and development, career development, and organization development. The aim of these activities is to enhance the effectiveness of an individual as well as the organization.

Werner and DeSimone (2006 p.5) defined human resource development as "[a] set of systematic and planned activities designed by an organization to provide its members with the opportunities to learn necessary skills to meet current and future job demands."

McLean and McLean (2001) suggested that HRD is a process that can develop expertise, the productivity of the individual, the group, and the organization as well as the community and the nation.

From the definitions stated earlier, in this dissertation, HRD is defined as the process provided by the organization to develop the individual's skills and knowledge with the aim of increasing organizational effectiveness.

2.4.2 The Relationship between HR and Innovation

There is a great deal of evidence showing the relationship between HR and organizational creativity and innovation.

In recent studies, many studies have pointed out the association between HRM and innovation (e.g., Jiang Wang & Zhao, 2012; Ling & Nasurdin, 2010; Snell, Youndt & Wright, 1996; Wright, Dunford & Snell, 2001). For example, Ling and Nasurdin (2010) suggested that in order to foster innovation, supportive HRM practices that stimulate employees to create innovation should be applied. Further, according to Leede and Looise (2005), in order to create an innovative culture, supportive HRM policies and practices should be aligned with the organization's strategies.

In the study, "The Relationship between Human Resource Development and Corporate Creativity in Japan," by Stern (1992) it was pointed out that HRD policy, and effective training and development can influence corporate creativity. These findings are also in line with those of Gupta and Singhal (1993), who stated that effective human resource policy can make an organization become innovative and creative.

Additionally, Yussof and Kasim (2003) pointed out the importance of the role of HRD in promoting organizational growth and innovativeness, as well as productivity, through the existence of skilled human capability. A study by Shipton et al. (2006) also indicated that the role of HR has a significant influence on innovation.

More importantly, the finding also suggested that organizations are more likely to survive if innovation strategies are promoted.

Numerous studies (e.g., Camelo-Ordaz et al., 2008; Rothaermel & Hess, 2010; Walsworth & Verma, 2007) have also established a link between effective HR policy and innovation. In order to achieve the aim of enhancing creativity and innovation within firms, HR practitioners have to understand that new ideas derive from the employees that work in the organization.

As Spender and Strong (2010) stated, “most great ideas for enhancing corporate growth and profits aren't discovered in the lab late at night, or in the isolation of the executive suite. They come from the people who daily fight the company's battles, who serve the customers, explore new markets and fend off the competition” (p.11). According to this statement, the author implied that creative ideas are often derived from employees. Thus, HR practitioners have to play an important role in creating processes and a culture that can promote creativity across the organization through the use of organizational development (OD) interventions, and training and development (T&D).

In addition, as learning is considered to be one of the major roles of HRD and it has been found to have a significant association with creativity and innovation, HR practitioners could shade light on organizational learning culture in order to achieve the goals of innovation. Furthermore, the Thai small and medium-size enterprises, which are the major participants of this study, tend to operate according to the management system, which is likely to be less complicated than that of large multinational companies where professional staff is dominant (Siengthai & Bechter, 2001). Thus, there is an urgent need for how to create an effective HR system to make an organization more innovative.

2.5 Conceptual Framework

In order to draw a framework for this study, antecedent factors derived from past literature have been explored. Many factors identified by the aforementioned authors have been synthesized and categorized by theme in the following tables. Table 2.15, 2.16, and 2.17 below show the important antecedent factors at an

individual, group, and organizational level. Surprisingly, the names of the categories at an organizational level closely align with the subscales of KEYS proposed by Amabile et al. (1996).

Table 2.15 Antecedent Factors at an Individual Level

Level of analysis	**Theme**	**Dimensions**	**Woodman, Sawyer and Griffin (1993)**	**Amabile (1988)**	**Lovelace (1986)**	**Csikszentmihalyi (1996)**	**Carmeli, Meitar, and Weisberg (2006)**
Individual level	Motivation	Intrinsic motivation	X	X	X	X	
		Extrinsic motivation	X	X			
	Skills and knowledge	Knowledge	X	X			
		Technical skill		X			
		Special talent		X			
		Problem solving techniques		X			
	Others	Cognitive abilities	X	X			
		Styles	X	X			
		Personality	X				
		Self-leadership					X

Table 2.16 Antecedent Factors at the Group Level

Level of analysis	Theme	Dimensions	Woodman, Sawyer, and Griffin (1993)	Williams and O'Reilly (1998)	Kirton (1984)	Wiersema and Bantel, (1992)	Watson, Kumar, and Michaelson (1993)	Brown and Eisenhardt (1995)	Ford (1996)
Group level	Group Characteristics	Group structure			X				
		Size	X						
		Norms	X						
	Social Cohesion	Cohesiveness	X					X	X
	Diversity	Diversity	X	X		X	X		
	Others	Roles	X						
		Task	X						
		Problem-solving approach	X						

Table 2.17 Antecedent Factors at the Organizational Level

Level of analysis	Theme	Dimension	Woodman, Sawyer, and Griffin (1993)	Ekvall et al. (1995)	Tesluk, Farr, and Klein (1997)	Amabile et al. (1996)	Martins and Martins (2002)
Organization Level	Organizational encouragement	Organizational encouragement				X	X
		Culture	X				
		Rewards	X	X	X		
		Task support		X			
		Challenge/Involvement			X		X
	Supervisory support	Management/supervisory support			X	X	X
	Strategy and structure	Strategy	X	X		X	
		Structure	X				
		Purposefulness				X	
	Work environment	Socio-emotional support		X			
		Risk-taking			X	X	
		Resources	X		X		X
		Freedom			X		X
		Trust relationship			X	X	
		Working environment				X	
		Work group supports					X

Table 2.17 (Continue)

Level of analysis	Theme	Dimension	Woodman, Sawyer, and Griffin (1993)	Ekvall et al. (1995)	Tesluk, Farr, and Klein (1997)	Amabile et al. (1996)	Martins and Martins (2002)
	Organization impediments	Organizational impediments					X
		Workload pressure					X
		conflict			X		

After the important antecedent factors of each level of analysis had been grouped, the conceptual framework of this study was obtained, as demonstrated in Figure 2.4.

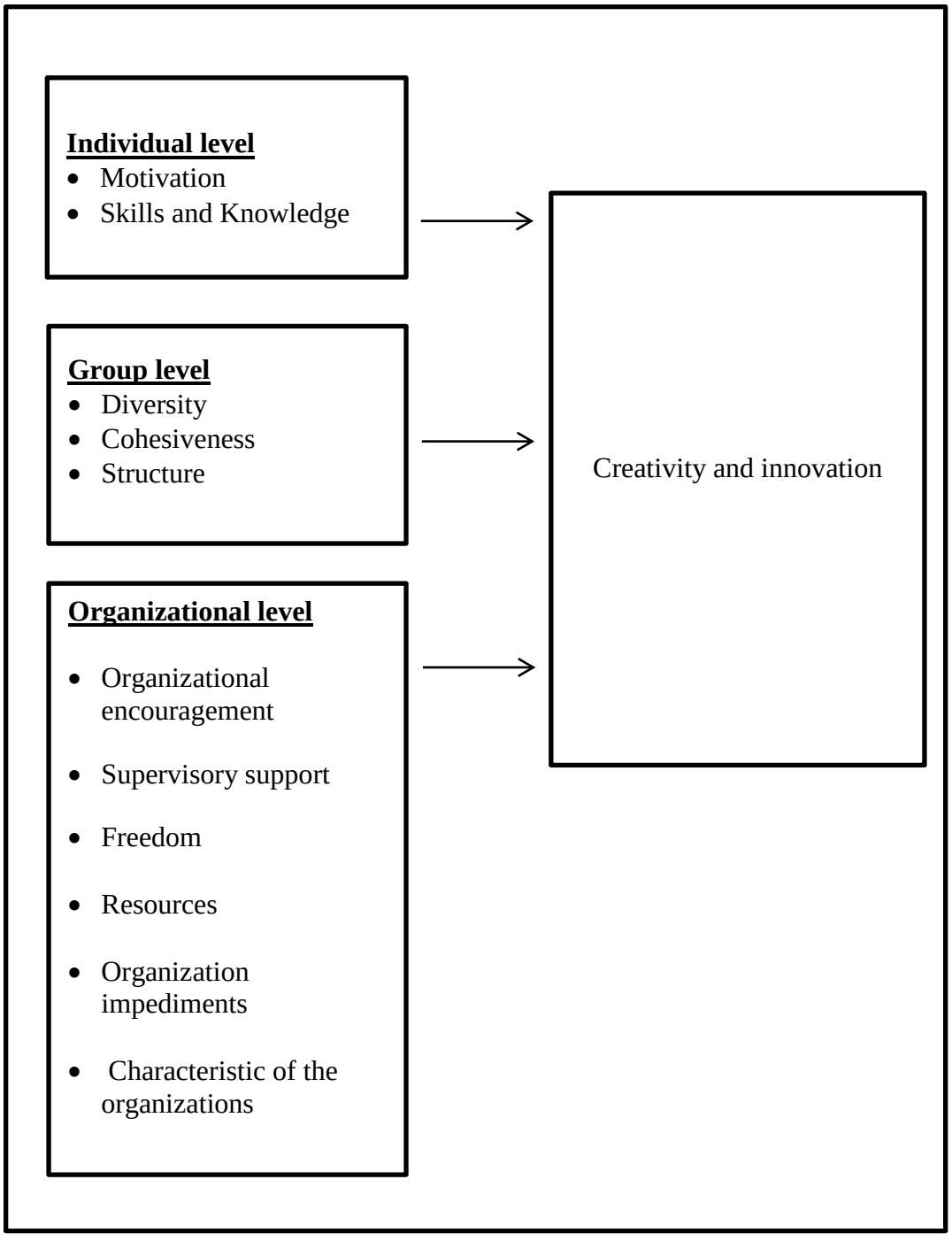

Figure 2.4 Conceptual Framework

In order to gain in-depth understanding of the above constructs, the explanation of each antecedent factor developed for this framework is made below.

2.5.1 Antecedent Factors at the Individual Level

2.5.1.1 Motivation

Motivation is one of the antecedent factors at the individual level of study widely recognized to have a relationship with individual creativity (Amabile, 1988; Collins & Amabile, 1999; Torrence, 1987). Motivation is defined as the process which promotes and sustains the behavior of persons in order to achieve goals (Schunk, 2008). Moreover, Amabile suggested that intrinsic motivation is "the motivation to work on something primarily for its own sake, because it is enjoyable, satisfying, challenging, or otherwise captivating" (Amabile, 1987, p. 224), whereas extrinsic motivation is defined as "the motivation to work on something primarily because it is a means to an end" (Amabile, 1987, p. 224).

Motivation is one of the domains in Amabile's Componential Model of Individual Creativity (1988), and he pointed out the importance of intrinsic motivation over creativity. The author suggested that "people will be most creative when they feel motivated primarily by the interest, satisfaction, and challenge of the work itself" (Amabile, 1988, p.78).

Similarly, Torrence (1987) insisted on the importance of intrinsic motivation—that people will be more creative if they do what they love. However, some scholars have pointed out that extrinsic motivation (rewards) is also associated with a person's motivation (Eisenberger, Haskins, & Gambleton, 1999). To gain more understanding of this different viewpoint, the motivation construct in this study will focus on both intrinsic and extrinsic motivation.

In sum, in this dissertation, motivation is defined as the process which can promote the goal-directed behavior of persons.

2.5.1.2 Skills and knowledge

Skills and knowledge are other criteria leading to individual creativity (Amabile, 1988; Woodman et al., 1993; Zhou & Shalley 2003). Skills and knowledge refer to the extent of knowledge an individual possesses. One of the domains stated in Amabile's Componential Model of Individual Creativity (1988) is domain-relevant skills. These include expertise, technical skills, special talent, and problem-solving techniques. Amabile described knowledge as all of the information the person has in order to handle a problem and which bears on the creative effort. Many theorists have

argued that creative ideas are unlikely to be generated without specific knowledge related to the work (Woodman et al., 1993; Mumford, 2000).

Skills and knowledge can be increased through training, job rotation, and on-the-job training (Morrison & Brantner 1992). Thus, employees can improve their creative performance if they acquire more knowledge and skills relevant to their job through learning. Lock and Kirkpatrick (1995) and Tidd, Bessant, and Pavitt (2005) discussed the idea that learning is a way to enhance the utilization of skills and knowledge which can assist employees in generating new ideas.

Similarly, in the study of Tohidi, Seyedaliakbar, and Mandegari (2012) it was found that learning within the organization was associated with higher creativity. Thus, the more skills and knowledge the employees have through the learning process within the organization, the more chance there is that employees will generate more creativity.

In sum, in this dissertation, skills and knowledge are defined as the information that the person possesses in order to handle a problem and to generate creative ideas.

2.5.2 The Antecedent Factors at the Group Level

2.5.2.1 Diversity

Another factor at the group level which has been shown to have a positive relation with innovation is diversity. Diversity refers to the extent to which a given group has members that come from diverse backgrounds, for example, a different education background, gender, age, social affiliation, and so on. When teams include people from a variety of backgrounds, it is more likely that the new perspectives and various ideas will combine. Wiersema and Bantel (1992) and Watson, Kumar, and Michaelson (1993) suggested that diversity brings more ideas to the group, which is the source of creativity and in turn innovation.

Furthermore, a study of 50 teams in a Fortune 500 company by Cady and Valentine (1999) found that diversity had a positive associated with the number of ideas generated. Although there is growing support for the study of diversity regarding creativity and innovation, some scholars have argued differently. Some studies have suggested that diverse groups tend to have a higher turnover rate and

lower group cohesiveness compared with the members of homogeneous groups (Harrison, Price, and Bell 1988; Lau and Murnighan, 1988).

In a global business environment, many businesses employ workers from diverse backgrounds. This could enhance the different viewpoints and in turn creativity. In this study the scope of diversity covers all aspects of diverse backgrounds, including cultural background and demographic differences.

In sum, in this dissertation, diversity refers to the extent to which a given group has members that come from a variety of backgrounds, including, gender, nationality, educational background, age, and social affiliation.

2.5.2.2 Cohesiveness

Cohesiveness is another antecedent factor proposed by Woodman et al. (1993). Cohesiveness or social cohesion is defined as the degree to which a person can express his or her ideas to others without any disruption (Scott and Bruce, 1994). A team with a high degree of cohesiveness tends to have a sense of interpersonal attraction and close relationships within team members (Brockman and Morgan, 2003). In addition, a team with a high level of social cohesion frequently resolves conflict problem and increases the amount of information sharing among members on the team, which results in higher creativity (Brown & Eisenhardt, 1995; Ford, 1996).

Another factor often seen in the literature which has a close relation to cohesiveness is the factor called trust and relationship. Trust refers to the extent to which a person is willing to behave based on others' decisions (Kanawattanachai & Yoo, 2002). In a trusting environment, it is more likely that new ideas and the viewpoints of team members will be accepted (McAllister, 1995). In this dissertation, trust and relationship with team members was another factor included in cohesiveness.

Cohesiveness is defined in this study as a trust relationship among members of the groups within the organization.

2.5.2.3 Structure

Structure has been a discussion topic since 1961 when Burns and Stalker proposed the concept of the organic and mechanic structure of working groups in the organizations. They suggested that organic structure is formed to deal with a

turbulent environment more effectively than a mechanic structure of organizations (Burns & Stalker, 1961).

Further, Mintzberg (1979) also pointed out that adhocracy structure is formed to handle change more effectively than other archetypes of structure such as machine bureaucracy, professional bureaucracy, and divisionalised form. This is in line with Lovelace (1986), who stated that an organic and decentralized structure could enhance individual creativity and freedom.

In this study, structure refers to a system used to identify a hierarchy within an organization. Moreover, structure also determines job function and the report system within the organization.

2.5.3 The Antecedent Factors at the Organizational Level

2.5.3.1 Organizational encouragement

Organizational encouragement is one of the subscales in KEYS instrument. It covers many aspects of organizational culture, for instance reward and recognition, supportive evaluation of ideas, encouragement of taking risks, idea sharing, and a mechanism for how to share the organization's vision (Amabile et al., 1996). The concept of the organizational encouragement subscale is also closely aligned with the concept held by other scholars. For example, the idea of reward and recognition is similar to that of Woodman, Sawyer and Griffin (1993) and Tesluk, Farr, and Klein (1997). These authors demonstrated this concept by defining reward and recognition as an evaluation system that encourages employees to share ideas. It could be either intrinsic or extrinsic motivation (Tesluk, Farr, & Klein, 1997).

Furthermore, the idea of the encouragement of taking risks is also related to the concept proposed by Ekvall et al. (1995). These authors pointed out that risk taking is comprised of resistance to uncertainty and the readiness to confront opportunities. This idea is also in line with that of Pfeffer and Sutton (2000)—that the organization has to encourage employees to generate new ideas by accepting failure and never punishing employees for trying new things. This idea is similar to that of Tushman and O'Reilly (1997), where it is suggested that creativity can be stimulated through a culture that accept failures. Moreover, idea support, which is one of the

dimensions suggested by Ekvall, is also similar to this category. Ekvall and associates defined idea support as the degree to which new ideas are supported by management.

In this study, organizational encouragement covers many aspects of organizational culture, including reward and recognition, encouragement of taking risks, and supportive evaluation of ideas.

2.5.3.2 Supervisory encouragement

Supervisory encouragement is also one of the dimensions proposed in KEYS. According to Amabile and associates (1996), supervisory encouragement includes the support of new ideas, the group's project, and clarity of team goals as well as an environment where open interactions are supported. This concept of supervisory support is similar to the notion of many of scholars. For example, Martins and Martins (2002) discussed management support as including open communication, sufficient resources, tolerance of mistakes, and adaption of rules and regulations. This concept also aligns with the concept of participative leadership (Peters and Waterman, 1982; Kanter, 1983) and transformational leadership (Howell & Higgins, 1990), where the importance of the leader's role in innovation is pointed out. Leadership is an integral part of innovation because leaders can create an environment that fosters creativity (Shalley and Gilson, 2004).

On the other hand, the clarity of the team's goals is similar to what Tesluk, Farr, and Klein (1997) suggested as goal emphasis. The authors proposed that goal emphasis means the clear vision and direction of the organization toward creativity and innovation strategy. In general, people tend to react negatively to new, creative ideas. As a result, it can create a negative climate where people are afraid of raising new ideas. Thus, supervisors or management need to improve their attitude toward failure, which is the key to promoting creativity.

In addition, the supervisory support factor has been described by Oldham and Cummings (1996) in their study of the contextual factors affecting creativity. The results revealed that support from supervisors can lead to creative action. More importantly, innovation will not take place within the organization if the management or supervisors does not have a clear vision regarding innovation. In other words, the management's purposefulness is a fundamental aspect of creating successful innovation (Drucker, 1999).

In this study, supervisory encouragement covers the action of supervisors toward creative ideas raised by employees, for example, supporting new ideas and clarity of team goals. This aspect also encompasses the concept of transformational leadership.

2.5.3.3 Freedom

Freedom is one of the dimensions proposed by many scholars. For example, Amabile et al. (1996) suggested that freedom is comprised of the autonomy to control one's work. This concept also aligns with that of Ekvall and Ryhammar (1999), who suggested that freedom is the extent to which the individual can have autonomy to acquire information related to the work.

Additionally, the concept of freedom or autonomy also is in line with the concept of the work environment derived from the study of Martins and Martins (2002). These authors concluded that the concept of the work environment is the integration of goals and objectives, conflict handling, cooperative teams, participation, and control of one's own work. In addition, freedom or autonomy to control one's job is of utmost important in terms of enhancing an individual's creativity.

According to Mauzy and Harriman (2003), the organization in which creativity is supported, such as 3M, allows employees to spend 15% of their time doing their own projects. As a result, this could lead to successful creative outputs. Thus, if the company gives autonomy to employees to do their own projects, it is more likely that employees will generate more creativity.

In summary, freedom in this study is defined as the autonomy of employees in managing their own projects.

2.5.3.4 Resources

Resources are the subscale that many scholars have mentioned regarding the antecedent factors to innovation. Woodman, Sawyer, and Griffin (1993) included resources in one of the organizational characteristics that enhance creativity and innovation. Resources were also discussed by Amabile and associates (1996) as a subscale called sufficient resources. The authors defined resources as funds, materials, facilities, and information. Furthermore, Ekvall and Ryhammar (1999) also included

the idea time in his discussion of resources, which means sufficient time for an individual to create new projects.

The development of innovation requires sufficient time and facilities related to the projects (Amabile et al., 1996; Mumford 2000). In an organization where innovation is supported, the human resource department should allow employees to think and do their creative projects by providing time for them, for example, allowing employees to spend 15 percent of their time working on their favorite projects (Filipczak, 1997). Thus, if employees have sufficient resources in terms of time, funding, and materials, they are more likely to come up with novel thinking (Amabile et al., 1996; Shalley and Gilson, 2004).

In summary, resources refer to the funds, facilities, time, information, materials, and other resources that are sufficient in order to manage a creative project.

2.5.3.5 Characteristics of the organizations

The characteristics of organizations refer to the size and age of firms and have long been a topic of discussion among researchers for the past decades. Many studies have found for example that large organizations are more likely to overcome small organizations in terms of technological advancement and innovation capacity (Bhattacharya & Bloch, 2004; Gudmundson, Tower & Hartman, 2003; Woodcock, Mosey, & Wood, 2000). Authors such as Kimberly and Evanisko (1981) have pointed out that firm size can facilitate the firm's innovativeness—larger firms have a greater capability in terms of financial status and resources (Schumpeter, 1950).

In addition, the age of the firm is also associated with innovation because the firms that have been established for a longer period of time can have be standardized in terms of working routines and relationships between members (Kelly & Amburgey, 1991). Lukas, Hult, and Ferrell (1996) suggested the relationship between a firm's age and innovation capacity. The authors pointed out that innovation can be derived from creative ideas both internally and externally. Older firms have an advantage in building a longer relationship among stakeholders and are more experienced in employing information that is relevant to innovation.

However, some theorists (Hansen, 1992; Nelson, 1993) have suggested that the relationship between firm size and age is still questionable. Nelson (1993)

pointed out for example that both new and small firms also have a capability to produce innovative output as well as large and older firms.

In summary, the characteristics of the organizations in this study cover organization size, age, and type of the organization.

2.5.3.6 Organizational impediments

Organizational impediments are one of another dimensions proposed by Amabile (1996). Organizational impediments are a culture that impedes creativity, such as political issues among groups of employees, criticism of new ideas, and avoidance of risk. However, in this dissertation, organizational impediments include the factors that are likely to inhibit creativity, such as workload pressure and conflicts within the organization. Ambile described workload pressure as having a negative effect on creativity because employees have to give too much attention to unnecessary projects.

Furthermore, Ekvall and Ryhammar (1999) described conflict as the degree of tensions or hostilities. When there is a conflict within the organization arising from the different perspectives of employees, the organization should handle the conflict constructively. In other words, the organization should provide a mean to handle the conflicts as well as try to understand the distinct viewpoints of an individual, which in turn will support the culture of creativity and innovation.

In this study, organizational impediments refer to the organizational culture that impedes innovation, which include political issues among groups of employees, criticism of new ideas, avoidance of risk, workload pressure, conflicts within the organization, and other aspects that negatively influence creativity and innovation.

The following table summarized the operational definitions of the antecedent factors for this study.

Table 2.18 A Summary of the Operational Definitions of Antecedent Factors

Level of analysis	Antecedent factors	Definitions and descriptions
Individual	Motivation	The process which can promote the goal-directed behavior of persons.
	Skills and knowledge	The information that the person possesses in order to handle a problem and to generate creative ideas
Group	Diversity	The extent to which a given group has members that come from a variety of backgrounds, including, gender, nationality, educational background, age, and social affiliation.
	Cohesiveness	A trust relationship among members of the groups within the organization.
	Structure	A system used to identify a hierarchy within an organization. Moreover, structure also determines job function and the report system within the organization.
Organization	Organizational encouragement	Many aspects of organizational culture, including reward and recognition, encouragement of taking risks, and supportive evaluation of ideas that support for innovation.
	Supervisory encouragement	The action of supervisors toward creative ideas raised by employees, for example, supporting new ideas and clarity of team goals. This aspect also encompasses the concept of transformational leadership.

Table 2.18 (Continue)

Level of analysis	Antecedent factors	Definitions and descriptions
Organization	Freedom	The autonomy of employees in managing their own projects.
	Resources	The funds, facilities, time, information, materials, and other resources that are sufficient in order to manage a creative project.
	Characteristics of the organizations	The characteristics of the organizations cover organization size, age, and type of the organization.
	Organizational impediments	The organizational culture that impedes innovation, which include political issues among groups of employees, criticism of new ideas, avoidance of risk, workload pressure, conflicts within the organization, and other aspects that negatively influence creativity and innovation.

2.6 Chapter Summary

The ideas presented in this chapter suggest that creativity and innovation are of utmost importance for the turbulent economy nowadays. The antecedent factors that support and impede creativity and innovation based on the previous literature have been reviewed. Previous studies focused on individual creativity and extended their investigation to group-level analysis. Later, the study was extended to the analysis of the work environment or organizational level.

However, due to a lack of empirical cross-level analysis, either of the supports or impediments of creativity and innovation, this study aims to shed light on antecedent factor research, especially regarding Thai small and medium-size

enterprises. Research on the antecedent factors leading to creativity and innovation have suggested several variables that influence creativity and innovation and these have guided the research framework of the present study.

The literature raised interesting questions for this research, for example, what are the antecedent factors leading to creativity and innovation and how do those antecedent factors foster or inhibit creativity and innovation among Thai SMEs? The next section will discuss the methodology that guided this study.

CHAPTER 3

RESEARCH DESIGN AND METHODS

This chapter presents the research design and methods applied in this dissertation, including the research design, scope of the study, data collection, and data analysis. The details are listed as follows:

3.1 Research Design

In order to understand the research design of this study, the following definitions of research and the epistemology of research that was elaborated into quantitative and qualitative methods are first presented. Then, the rationale for selecting the appropriate method will be discussed.

Grinnell (1993, p.4) stated that “research is a structured inquiry that utilizes acceptable scientific methodology to solve problems and creates new knowledge that

is generally applicable." More simply, Burns (2000) defined research as a way to explore the answers to problems systematically. Further, Kumar (2011) stated concerning the research process that it begins with exploring a research problem, conceptualizing the research design, creating a tool for data collection, selecting the sample, creating the research proposal, collecting and analyzing the data, and writing the research report.

The most frequently-adopted methods for research are the quantitative and qualitative methods (Ghauri, Grønhaug, & Kristianslund, 1995). Bryman and Bell (2007) stated that the quantitative methods involve quantifying through the use of mathematics and statistics. The questionnaire survey is the most frequently-applied method of quantitative research. Bartlett (2005) stated that the purpose of a survey is "to collect information from one or more people on a set of organizationally relevant constructs" (p. 99). The questionnaire survey is convenient to apply because it is less time consuming, and costs less to implement compared to interviews. However, some researchers have argued that surveys are not able to gain an in-depth understanding of the respondents' beliefs and attitudes toward particular issues (Gall, Gall & Borg, 2003).

In contrast, Creswell (1994) defined qualitative study as a process of finding the answers to a problem and to gain more understanding of complex phenomena. Qualitative research also has been defined by Denzin and Lincoln (2005) as follows:

> "Qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible. These practices transform the world. They turn the world into a series of representations, including fieldnotes, interviews, conversations, photographs, recordings, and memos to the self. At this level, qualitative research involves an interpretive, naturalistic approach to the world. This means that qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them." (p.3).

According to Lincoln and Guba (1985), qualitative methods are appropriate for the research that seeks an in-depth understanding of complexities and processes, for research on little known phenomena, research that explores cultural explanation, researchers that delves into tacit knowledge and interpretation, and research on informal and unstructured linkages and processes in organizations. Five commonly-used qualitative approaches include narrative, phenomenology, grounded theory, ethnography, and case study (Creswell, 2007). In order to gain greater understanding of case study research, which is the method applied in this study, the researcher will briefly describe case study research as follows.

Case study research is the process of inquiry in order to gain greater understanding of the complex situations related to the cases (Yin, 2012). Hartley (2004) defined case study research in the following.

> "Case study research is a heterogeneous activity covering a range of research methods and techniques, a range of coverage (from single case study through carefully matched pairs up to multiple cases), varied levels of analysis (individuals, groups, organizations, organizational fields or social policies), and differing lengths and levels of involvement in organizational functioning" (p.332).

In addition, it is suggested that case studies are an appropriate way to explore a situation where an investigator has less control over the event and when studying the real-life context of a phenomenon (Yin, 1984). Further, Yin (2012) suggested applying the case study method when the researchers aim to address descriptive questions that can help them understand a situation more clearly.

Case study consists of a single or multiple cases (Yin, 2012). The multiple-case design is difficult to implement compared with the single-case design. However, it can provide greater data in the findings because it allows the researcher to gain more insight into a particular situation (Creswell, 2002; Yin, 2003). The multiple-case study design that has been chosen for this research allowed the researcher to compare the results of the findings from various cases and enable her to consider the common and different points across the cases. In other words, each case study was identified

and produced relevant concepts before comparing the findings across the different cases (Parkhe, 1993).

In conclusion, following Eisenhardt (1989) and Yin (1989), the qualitative multiple-case study approach was employed here to investigate 13 Thai small and medium-size enterprises in Bangkok and the metropolitan areas. The researcher's was on the "what" and "how" antecedent factors and how they influence innovation, which is an appropriate method for case study research (Yin, 2012).

In addition, the qualitative multiple-case study is different from quantitative study because it allows the researcher to investigate aspects that have not yet been explored through quantitative study. Furthermore, the qualitative multiple-case study allows the researcher to perceive similarities and differences and to compare the findings across cases.

This dissertation aimed to fill the gap in innovation study by applying the qualitative multiple-case study approach for Thai small and medium-size enterprises, which is a context that has been underexplored. In addition, the information presented in this dissertation can also be used to guide Thai small and medium-size enterprises in terms of understanding human resource management policy regarding innovation and it is also believed that it will add to the present body of HR literature.

3.2 Research Approach

It is important to clarify the standpoint of this study in terms of the research approach used. In general, there are two approaches to conducting research: the deductive and inductive approach (Saunders, Lewis & Thornhill, 2003). Deduction has traditionally been applied in the natural sciences. On the other hand, induction emerged with the social science in the 20th century (Saunders, Lewis & Thornhill, 2009).

According to Saunders et al. (2003), the deductive approach is a way to test a theory or hypotheses. Researchers frequently begin by collecting data from previous literature. In contrast, the inductive approach is a way to build a theory. Data collecting from fieldwork are commonly used to develop a theory. Further, authors

also have suggested that the inductive approach allows researchers to have a chance to investigate phenomena in order to find more explanations of a particular situation. In this dissertation, the inductive approach was applied to explore the antecedent factors that influence innovation.

3.3 Scope of the Study and Participants

The sample selection methods of quantitative and qualitative research are different. In quantitative research, the researcher attempts to select a sample in an unbiased way and which represents the entire population. On the other hand, in qualitative research, the consideration of the selection of a sample may be influenced by the ease of accessing potential respondents, the judgment of the researcher that the selected group of respondents has knowledge of particular issues, or having the idea that the selected respondents are different from others (Kumar, 2011).

The sampling strategies can be classified into 3 categories: 1) random/probability sampling designs; 2) non-random/non-probability sampling designs; and 3) systematic sampling design/mixed sampling designs (Kumar, 2011). In brief, 1) with random sampling or probability sampling is imperative that each element in the population has a chance to be selected equally and that the selection is not influenced by personal preference.

There are 3 commonly-used types of random sampling design: simple random sampling (SRS), stratified random sampling, and cluster sampling. In contrast, 2) non-random/non-probability sampling is commonly applied when the population is unknown. Thus, the selection of the population is influenced by other considerations. The types of non-random sampling design include quota sampling, accidental sampling, judgment sampling or purposive sampling, expert sampling, and snowball sampling. Lastly, 3) mixed sampling design has both the characteristics of random and non-random sampling design.

In addition, the concept of saturation in qualitative study is widely discussed by many theorists; however, it is difficult to obtain a consensus on the appropriate sample size for each study. However, it has been suggested that “25 participants are

adequate for smaller projects" (Charmaz, 2006, p.114) and "15 is the smallest acceptable sample" (Bertaux, 1981, p.35).

As stated, that this dissertation employed the qualitative method using a multiple case study approach, and a mixed sampling design was applied in order to obtain access to the case companies.

3.3.1 The Scope of the Case Study

The following section is devoted to an explanation of the criteria used for the case studies. Then, how the case studies were selected is described.

First, as the aims of this study were to explore the antecedent factors that lead to innovation, the selected companies had to have achieved innovation awards or to have been recognized as innovative companies by the NIA.

Second, as this study focuses on the study of Thai small and medium-size enterprises, thus, the targeted companies needed to be small or medium size organizations. The detailed classification was derived from the Office of Small and Medium Size Enterprise, Thailand (OSMEP) (OSMEP, 2009).

Third, due to the time limitations of this study, location was considered as one of the criteria. The case companies had to be located in Bangkok and the metropolitan areas in order to have convenient access to the case companies.

In order to accomplished this task, the researcher contacted the NIA in order to obtain cooperation for the sampling process. There were 75 companies recommended by the NIA as the companies that had achieved an innovation award or the companies that had been recognized as innovation from 2008 until 2015.

Then, the researcher selected 40 companies that were located in Bangkok and metropolitan areas across a variety of industries based on the stratified random sampling technique. This technique served as a tool to divide the entire population into different subgroups (bio-business, eco-industry, and design and solutions), which allowed the researcher to randomly select the final cases proportionately from the different subgroups.

The response rate for this study was 32.5%. That means that only 13 companies allowed the researcher to have an interview. Then, 13 Thai small and medium-size enterprises from a variety of industries were contacted.

3.3.2 The Scope of the Participants

The researcher decided to apply the purposive sampling technique for selecting the participants because this technique is normally used to choose small numbers of participants that are particularly informative (Nueman, 2005). Further, qualitative work is concerned with how to select participants that provide relevant information in the investigation area rather than randomness and representativeness (Popay, Roger, & Williams, 1998). The criteria of how to select the participants are listed as follows.

First, the participants had to be persons that were working in the research and development (R&D) department, or persons that have been working in a department related to innovation, or the persons that were key in helping the organizations achieve an innovation award from the NIA.

Second, the participants had to have worked for the company for at least 3 years in order to understand the culture and system of the organizations.

The researcher decided to interview two levels of participants at each company in order to gain an in-depth understanding for the innovation study. Management level refers to a person that can make decisions concerning the company's policy as well as the direction of the organization. However, how those directions cascade to lower levels of employees was cross-checked by interviewing the workers. Furthermore, different viewpoints of those two levels of participants were expected to arise.

In order to gain multiple perspectives, the participants in this study were both workers and managers at Thai small and medium-size enterprises. However, with time limitations and the regulations of some companies, there were some restrictions. First, because of the time limitation, 1 out of 13 companies allowed the researcher to conduct a focus group interview instead of individual interviews. Second, some companies allowed fewer than 6 participants to attend the individual interview. Thus, there were 2 focus groups (3 persons for each group) and 54 individual interviews in this study.

3.4 Data Collection

3.4.1 Data Collection Phase

In order to gain an in-depth understanding into the study, the researcher applied data triangulation method in this dissertation. As Duneier (1999) has suggested, researchers should investigate the consistency of the findings from both the same and different sources. In line with this, Gibbs (2007) suggested that the advantage of using multiple methods, or triangulation, is that it can reveal new dimension of social reality from different points of view that allow the researcher to reveal the complexity of a situation

Further, in collecting the data, Yin (2003) listed 6 common sources of data collection for case study as follows: a) direct observation; b) interviews; c) archival records; d) documents; e) participant-observation; and f) physical artifacts (p.83, 85-96). According to Gillham (2000), and Yin (2003), it is the key characteristics of case study research to utilize a multiple sources of information. Based on Yin (2012)'s data collection method, in this dissertation, interviews, document, and participant-observation were adapted to acquire the data.

Minichiello, Aroni, Timewell and Alexander (1995) suggested that interviewing allows the researchers to obtain a great deal of information from the participants in order to answer the research questions. The objective of adopting the semi-structured interview is to allow the researcher to facilitate an open discussion during the interview. Furthermore, semi-structured interviews also allow the researcher to probe into other contextual issues that are limited by a survey method (Creswell 2008).

In addition, participatory- observation was also applied to gain more understanding of this topic. Participant-observation is one of the data collection methods frequently used in qualitative research and is a way to collect data by observing or taking part in the activities in the field being studied (Dewalt & Dewalt, 2011). There are some advantages of participant-observation over other data collection methods. For example, the participant-observation method can address problems that are not available to other data collection methods. Furthermore, it

enables researchers to understand the culture or social setting, which helps the researcher design relevant interview questions (Bernard, 2006).

Furthermore, the researcher followed the step of participant-observation suggested by Mack et al. (2005, p.27). The authors concluded that there are 9 steps in participant observation, including: 1) determining the purpose of the participant observation; 2) determining the participants to be observed; 3) choosing the participants and venues being studied; 4) investigating possible sites; 5) selecting the site(s), date(s), and the duration for collecting the participant observation data; 6) choosing the field staff to cover all of the sites effectively; 7) considering how to present yourself in terms of appearances and the purposes of the study; 8) planning how to take notes during the observation; and 9) taking notes when doing the fieldwork (filed notes).

3.4.2 Pilot Study

It is considered important in conducting a pilot study to develop meaningful interview questions (Lincoln &Guba, 1985): “Pilot study can be useful, not only for trying out strategies but also to buttress the argument and rationale for a genre and strategy” (Marshall and Rossman, 2011, p.95). In addition, Yin (2003) suggested conducting a pilot case study in order to help the researcher be able to refine the data collection plans and procedures (p.78-80).

For this study, a pilot study was conducted in order to check the following elements: 1) if the questions applied in the interview were easy to understand and if the research questions could be answered properly; 2) if the overall length of the interview was appropriate; and 3) if the language and substance of the questions allowed the researcher to probe and gain greater understanding of the situation.

Glesne (2011) stated that there is no consensus on how many participants are needed for a pilot study. However, the number and variability should be sufficient to allow the researcher to explore the problems.

There were 6 participants in pilot study. Three of them were drawn from the target population of 60. The interview results of the first 3 pilot studies were not included in the study because the interview questions were not clear enough for the participants to answer.

After the first 3 pilot study participants were interviewed, the researcher reflected on the questions and revised the interview protocol that could be more easily understood by the participants.

Then, 3 other pilot study participants were interviewed. The interview results of the latter 3 pilot study participants were included and reported in the findings. The pilot studies were conducted on 5th October, 2015 at the participants' office. The interviews took around 45 to 60 minutes for each and were digitally recorded.

3.4.3 Interview Protocol

Following Yin, a case study protocol was developed to implement the research design. The interview questions were developed based on the research questions and the established model, which helped the researcher to find out the "what" and "how" answers.

In order to find the answers to the research questions, the interview protocol was categorized into 5 general sections as follows:

1) Perceived meaning of innovation
2) Past experience with projects and activities
3) The antecedent factors that influence innovation
4) The antecedent factors that inhibit innovation
5) Guidance in creating innovation within the firms

Each main question consisted of sub-questions and tentative probe questions. Generally, the interview began by asking interviewees about their perception or perceived understanding of innovation. Then, the importance of innovation to the firm performance was inquired about. Later, the interviewees were asked about their past projects and experiences related to innovation or creativity. Examples of tasks or activities were elaborated. Next, the interviewees were asked to think about the antecedent factors that foster innovation, beginning with the individual, group, and organizational contextual factors. Later, the antecedent factors that inhibit innovation from their viewpoints were clarified. Last, the interviewees were asked to provide their ideas about the roles of HR as well as guidance in terms of promoting innovation within the firms.

In addition, a demographic sheet was provided in order to inquire about gender, age, level of education, and work experience, etc. The details of the interview protocol and demographic sheet are displayed in appendix A, and B.

The interview protocol was finalized by HR experts and a pilot study was launched before conducting the individual interview.

The interview was based on the guiding questions and was conducted in a conversational manner. Each personal interview took around 60 to 90 minutes and was tape-recorded. The participants were informed about the objectives of the study, general information, and the benefit and risks of the study. Furthermore, the participants were told of their right to not answer any question.

With the support of the NIA, e-mails were sent to the participants asking them if they would participate in the personal interview before the researcher collected the data. The companies were informed of the following: 1) the objectives of the study; 2) the benefits of the study; and 3) the researcher's contact information.

The background of case study companies and participants are described in Chapter 4.

3.5 Data Analysis

This study used individual interviews and participatory observation as the ways to explore the research questions. Thus, it was a critically-important task to transcribe and translate the texts before categorizing them for data analysis. In the translation process, all of the information from the participants was translated from Thai to English by a certified translator.

Microsoft Word files and Excel files were created to collect the data from the interviews, participatory observation, and documents. All of the data were saved in the researcher's notebook computer and the password was set in order to protect the data. Confidentiality was a strict concern in this study. All of the transcripts, audiotapes, and notes were stored in a lockable cabinet. The detail of the methods of data analysis is presented in Chapter 4.

3.6 Trustworthiness

Reliability and validity are generally applied to assess the worth of a project in most quantitative research. However, accessing the worth of quantitative and qualitative research is different. In addition, the way of assessing the trustworthiness of qualitative research is often criticized by positivist researchers because of the method by which validity and reliability are assessed (Shenton, 2004).

The trustworthiness that guided this study was based on Lincoln and Guba's (1985) trustworthiness criteria. They suggested that there are 4 types of trustworthiness criteria in qualitative research: a) credibility (internal validity); b) transferability (external validity); c) dependability (reliability); and d) confirmability (objectivity) (Lincoln & Guba, 1985, p. 301-327). Each of the criteria is explained in more detail as follows.

3.6.1 Credibility

Credibility is one of the key criteria critiqued by positivist researchers. In line with internal validity, credibility seeks to ensure that the study measures or tests what the researchers intend to study. In other words, credibility deals with the accuracy of identifying the subject of the study (Lincoln and Guba, 1985). Thus, in order to enhance the credibility of this study, the researcher ensured that the rephrased response process accurately represented the participants' thoughts. Furthermore, triangulation in acquiring the data was applied in order to obtain multiple sources of information.

3.6.2 Transferability

Transferability is concerned with external validity. It is the criterion that measures whether the findings of one study can be applied to another setting. Lincoln and Guba (1985) proposed that unlike quantitative research, in qualitative research readers are the person that can determine whether the findings can be transferred or applied to other contexts. To assist the readers in deciding whether the findings are applicable in another context, the researcher provided the readers with rich and thick descriptions.

3.6.3 Dependability

Guba (1981) stated that dependability refers to the consistency of findings. In other words, the results of the findings are consistent over time. In the quantitative area, researchers employ techniques to ensure that similar results are obtained when similar contexts are repeated. To ensure the dependability criterion of the study, the researcher assured all participants of the confidentiality of the interview before starting an interview session. In this way, it was felt that the participants would be more willing to provide accurate information about particular issues.

Furthermore, during the data-collection phase, the researcher asked the participants the same questions with different words to ensure that they understood the questions correctly. Last, in the data analysis phase, the researcher conducted a code-recode procedure. In other words, after the first coding was conducted, the researcher recoded the same data in order to compare the results of the first coding and the second coding.

3.6.4 Confirmability

Confirmability is the criterion dealing with the researcher's objectivity. In other words, it is the technique that ensures that the results of the findings are derived from the participants, not the researcher's own perception or preferences. In this study, the researcher enhanced the confirmability by bracketing her own assumptions about the particular topic of interest.

Bracketing is a process often used in qualitative research to create a distance from previous theories or assumption (Bertelsen, 2005; Tufford & Newman, 2010). The researcher applies the bracketing technique when engaging in interviews as an outsider in order to eliminate preconceptions and biases. Bracketing interviews can increase the capacity to understand the phenomena in question and increase the researcher's engagement with participants (Rolls & Relf, 2006).

Furthermore, the triangulation of multiple methods was employed in order to strengthen the findings. According to Lincoln and Guba (1985), triangulation allows the researcher to utilize multiple sources of data to provide corroborating evidence. Additionally, in the interpretation phase, the researcher employed at least two

translators to confirm the accuracy of the interpretation and to avoid bias in the interpretation.

In addition to the criteria of trustworthiness stated earlier, the researcher assessed the quality of the case study by using Stake's critique checklist. Stake (1995, p. 131) stated that there are 20 criteria checklists that assess the quality of the case study as follows:

1) Is this report easy to read?
2) Does it fit together, each sentence contributing to the whole?
3) Does this report have a conceptual structure (i.e. themes or issues)?
4) Are its issues developed in a series and scholarly way?
5) Is the case adequately defined?
6) Is there a sense of story to the presentation?
7) Is the reader provided some vicarious experience?
8) Have quotations been used effectively?
9) Are headings, figures, artifacts, appendices, indexes effectively used?
10) Was it edited well, then again with a last minute polish?
11) Has the writer made sound assertions, neither over- nor under-interpreting?
12) Has adequate attention been paid to various contexts?
13) Were sufficient raw data presented?
14) Were data sources well chosen and in sufficient number?
15) Do observations and interpretations appear to have been triangulated?
16) Is the role and point of view of the researcher nicely apparent?
17) Is the nature of the intended audience apparent?
18) Is empathy shown for all sides?
19) Are personal intentions examined?
20) Does it appear individuals were put at risk?

In sum, the purpose of the qualitative research was to provide rich and informative findings that could explain the particular interested phenomena. However,

qualitative researchers deal with the effect of subjectivity in many cases, such as data collection bias and data interpretation bias (Patton, 1990).

In this study, the researcher attempted to cope with the concerned points by using several approaches. For example, for the data collection phase, the researcher used as many sources as possible. The data from various sources, such as documents, literature review, interviews, focus groups, and participant-observation, were used to strengthen the findings. Further, for the interview, the researcher divided the participants into 2 levels (manager and staff) in order to gain an in-depth understanding of the different points of view.

In addition, for the data analysis phase, although the researcher did not employ other persons to re-code the data, but the researcher transcribed the data and read the transcript several times. Moreover, after the codes were assigned for the first time, they were re-coded again in order to ensure that the codes fit with each category.

Lastly, for the data interpretation, although there were no inter-raters, the researcher illustrated her interpretation by using supporting quotations from the participants as much as possible. In addition, the researcher attempted to confirm the findings by using the triangulation method for the data collection. The data gathered from participant observation were also included in order to confirm the interview findings. Although the researcher minimized bias as much as possible, some bias might be considered a limitation of this dissertation, which should be further improved in future study.

The process of data collection and analysis is shown in Figure 3.1.

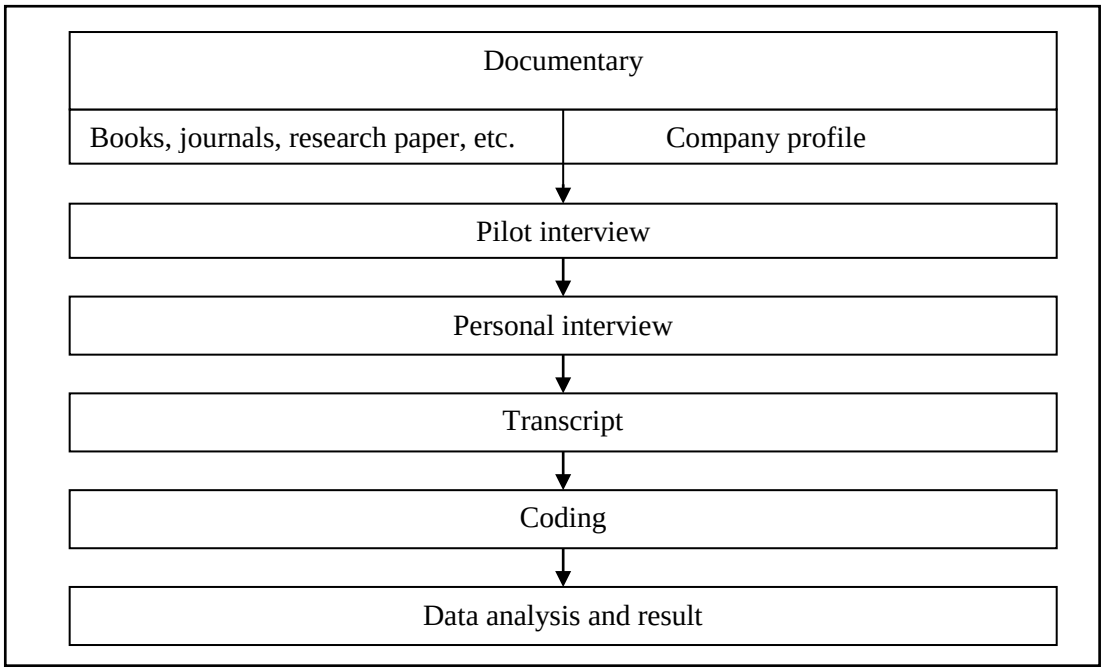

Figure 3.1 Data Collection and Analysis Process

3.7 Ethical Considerations

The ethical guidelines of the American Psychological Association (APA) were a foundation of this study. Furthermore, risks regarding participation in this study were of concern and were communicated to the participants.

First, all of the participants were informed of the objectives of the interview as well as its expected duration and procedures. Furthermore, the participants were informed that they had the right not to answer questions that they were uncomfortable with or questions that touched on the company's confidential information.

Second, all of the participants were told that they could withdraw from the interview at any time once it had begun.

Third, the participants were asked to sign a consent letter before beginning the interview. Every step of the data collection was considered carefully to ensure that the participants felt comfortable answering the questions and participating in the interview.

3.8 Chapter Summary

This chapter described the research methodology, which included both quantitative and qualitative approaches. However, the qualitative approach using multiple case study was considered appropriate for answering the research questions of this dissertation. Furthermore, the participants in this study were 13 Thai SMEs located in Bangkok and the metropolitan area. The contact details of the targeted companies were provided by the NIA. Thirty staff and 30 managers, for a total of 60 interviewees, were recruited for this study in order to gain multiple viewpoints. The data collection process involved both a primary and secondary data collection process. In other words, both interviews and literature review were applied in order to gain an in-depth understanding of innovation study. Last, trustworthiness and ethical considerations were described. The results of the data collection are presented in Chapter 4.

CHAPTER 4

RESULTS OF THE QUALITATIVE INVESTIGATION

The purposes of this research study were to explore the concept of innovation as well as to investigate the antecedent factors that foster and impede innovation at the individual, group, and organization levels.

The study sought to answer the research questions by applying the qualitative method. Data were collected through individual semi-structured interviews, a focus group interview with manger and staff involved, and observations of the workplaces and work environment, as well as participants during their working time. The qualitative method served as a tool to provide rich information from various participants. The following topics are presented:

4.1 Background of Case Study Companies and Participants

The participants of this study comprised 60 participants (30 managers, and 30 staff members) from 13 companies in Bangkok and metropolitan provinces. The companies selected in this study were recommended by the NIA as those that had earned an innovation award or the companies that were recognized as innovative from 2008 until 2015.

There were 75 recommended companies. From these companies, the researcher selected 40 located in Bangkok and the metropolitan areas across a variety of industries based on the random sampling technique. The response rate for this study was 32.5%. That means that only 13 companies allowed the researcher to interview their employees.

With the time limitations, 1 out of 13 companies allowed researcher to conduct a focus group instead of individual interviews. Thus, there were 2 focus groups (3 persons for each group) and 54 individual interviews. The following statements describe the information on the case study companies.

1) Company K

The company K was established in 2012. The core business of the company is to provide problem solving and solutions for functional food related to agricultural products. The company has received numerous awards related to innovation from many organizations, including the NIA in 2014 for an economic award. The product can help reduce the amount of imported products from overseas which have a value of around 1,400 million Baht a year. The company has currently 6 employees excluding the production function.

2) Company EC

Company EC was established in July, 2004 and provides software solutions for both web-based and enterprise location-based applications. The company has received numerous awards related to innovation from many organizations, including the NIA in 2014 for an economic award. The company has presented an outstanding software solution in order to analyze consumers' behavior in purchasing products in department stores. This software can help department stores understand the behavior of consumers, information which marketing departments can utilize for other activities related to sales. The company has currently 80 employees. The company's goal is to become the number one software solution company in Thailand.

3) Company I

This company is a medical device producer and was established in 2012. The company has created many products related to the medical industry. The current product, which was granted an innovation award from the NIA in 2014 in the social award category, is mangosteen extract-coating technology. This technology has been

developed to hygienic mask, wound dressings, and air filters. These products can reduce the importation of other brands from overseas. Currently there are 10 employees, excluding the production department.

4) Company C

This company was established in 2010. There are currently approximately 50 employees. The company provides oriental medicine products in order to serve high-quality medicine to the market. The company has received numerous awards related to innovation from many organizations, including the NIA in 2013, for an economic award. The product that achieved this award was a medicine that can cure fever. It contains Thai traditional herbs which have no side effects compared to other medicines. Moreover, this product can reduce the importation of products from overseas.

5) Company EI

This company is a semi-conductor producer serving the electronics industry. There are currently 150 employees including the production section. The company has already operated for 33 years and has a research and development department to provide and test new solutions to serve customers' needs and to create products that are different from and better than those of competitors.

6) Company T

This company is a chemical producer, and the chemical products provided can be applied with many types of products such as the roof of houses, and color painting for exteriors and interiors. There are currently 100 employees working for the company. The company has been established for 15 years. There is a research and development department in this company testing new chemical ingredients to satisfy users' needs.

7) Company S

This company was established in 1987 and produces auto parts for the domestic market and overseas. There are currently 200 employees working for the company. Approximately 10 persons are working for the research and development department. The company has put much effort into continuously developing research and technology in order to drive innovation and production processes for the company, thus helping to satisfy customers' needs.

8) Company Y

This company is an auto parts manufacturer serving the automotive industry both in Thailand and overseas. The company was established in 2001 and aims to provide high-quality and innovative parts to serve customers' needs. There are currently 200 employees working for the company and there are 15 employees working for the research and development department.

9) Company SN

This company was established in 2007. The core business is to design and produce surface covering by using advanced technologies. The company designs and creations have received many awards, both domestic and international. Moreover, the company also received an innovation award from the NIA in 2015 for an economics award. The product that was awarded from the NIA was a tile which has a Thai traditional design. Moreover, the products are light, durable, and can be used with many types of surfaces. The company has currently 30 employees, excluding the production staff.

10) Company B

This company began in 1983 with only 3 employees, and now there are currently 200 employees working with the company in many departments. The core business of the company is to provide a high-quality medicine that serves the Thai people. The production process is strictly followed by the Good Manufacturing Practice (GMP). Moreover, the company attempts to continuously improve its production process as well as the quality of the products to satisfy customers.

11) Company TO

This company was established in 1990 and is an umbrella and umbrella parts manufacturer and designer in Thailand. There are currently 180 employees working with this company, and it has a research and development department which takes care of umbrella design and the innovative production process. Further, the company has achieved ISO 9001:2000, which guarantees the quality of the products as well as the high standard of the production process.

12) Company O

This company was established in 2012. There are currently 6 employees, excluding the production function. The core businesses are to research, design, and

produce medical tools. The company achieved an innovation award from the NIA in 2013 in the social category. The product is a tool to cure trigger finger problems. This product can help reduce rehabilitation time from 14 days to 24 hours. Moreover, it can reduce surgery costs.

13) Company YD

This company was established in 2006 and there are currently 110 employees working there. The company is a leading digital content producer in Thailand. The company's mission is to be the number one digital content producer in Thailand. Moreover, the company has achieved many awards related to creativity and innovation from a variety of organizations in Thailand.

A summary of the information on the case study companies and the date of interview are presented in the following table.

Table 4.1 A Summary of the Information on the Case Study Companies

No.	Company codes	Number of employees	Types of business	Location	Established year	Date of interview	Number of participants	Type of interview
1	Company K	6	Agricultural industry	Bangkok	2012	5th Oct, 2015	3	Individual
2	Company EC	80	Software and application producer	Bangkok	2004	6th Oct, 2015	6	Focus group
3	Company I	10	Medical tool manufacturing	Bangkok	2012	12th Oct, 2015	2	Individual
4	Company C	50	Medicine manufacturing	Bangkok	2010	10th Oct, 2015	4	Individual
5	Company EI	150	A semi-conductor producer	Bangkok	1983	1st Dec, 2015	8	Individual
6	Company T	100	Petrochemicals & Chemical manufacturing	Samutprakarn	2001	14th Dec, 2015	5	Individual
7	Company S	200	Automobile parts manufacturing	Samutprakarn	1987	11st Dec, 2015	6	Individual

Table 4.1 (Continue)

No.	Company codes	Number of employees	Types of business	Location	Established year	Date of interview	Number of participants	Type of interview
8	**Company Y**	**200**	**Automobile parts manufacturing**	**Bangkok**	**2001**	**15th Dec, 2015**	**7**	**Individual**
9	Company SN	30	Tile manufacturing	Bangkok	2007	11st Apr, 2016	6	Individual
10	Company B	200	Medical manufacturing	Nonthaburi	1983	3rd Dec, 2015	3	Individual
11	Company TO	180	Umbrella manufacturing	Samutprakarn	1990	3th May, 2016	3	Individual
12	Company O	6	Medical tool manufacturing	Bangkok	2012	4th May, 2016	3	Individual
13	Company YD	110	Digital content producer	Bangkok	2006	4th May, 2016	4	Individual

The ages of the participants ranged from 24 years old to 52 years. The average age of the participants was 35.6 years. There were 44 male and 16 female participants participating in this study. On average, the participants had 6.16 years of experience working with the current company. Demographic information about the participants and their characteristics is presented as the following tables

Table 4.2 Demographic Information on the Participants

No.	Gender	Age	Educational background	Position	Department	Service years	Company
1	M	49	Master	Director	Marketing	3	K
2	F	32	Bachelor	Staff	Accounting	3	K
3	M	29	Bachelor	Staff	Marketing	3	K

Table 4.2 (Continue)

No.	Gender	Age	Educational background	Position	Department	Service years	Company
4	M	35	Master	Manager	IT	3.1	EC
5	M	33	Bachelor	Manager	QA	3.8	EC
6	M	38	Bachelor	Manager	SA	4.8	EC
7	M	26	Bachelor	Staff (IT Developer)	IT	5	EC
8	M	29	Bachelor	Staff (IT Developer)	IT	6	EC
9	M	32	Bachelor	Staff (IT Developer)	IT	4	EC
10	M	48	Ph.D.	Director	Marketing	4	I
11	M	25	Bachelor	Staff	Production	4	I
12	M	33	Master	Manager	Marketing	3	C
13	M	34	Bachelor	Manager	R&D	4	C
14	F	26	Bachelor	Staff	Marketing	3	C
15	F	27	Bachelor	Staff	R&D	3	C
16	M	33	Master	Manager	R&D	8.1	EI
17	M	43	Master	Senior Manager	Marketing	13	EI
18	M	35	Master	Manager	Purchasing	10.1	EI
19	M	33	Master	Staff (Engineer)	Process Engineering	3	EI
20	M	32	Bachelor	Staff	R&D	4.8	EI
21	M	45	Bachelor	Staff (Chief)	Maintenance	20	EI
22	M	39	Bachelor	Staff (Chief)	Assembly	15.3	EI

Table 4.2 (Continue)

No.	Gender	Age	Educational background	Position	Department	Service years	Company
23	M	26	Bachelor	Staff	R&D	4.8	EI
24	M	38	Bachelor	Manager	R&D	3	T
25	F	45	Bachelor	Manager	Technical	4	T
26	F	52	Bachelor	Manager	Marketing	3	T
27	F	23	Bachelor	Staff	R&D	4.1	T
28	F	27	Bachelor	Staff	R&D	4.6	T
29	M	50	Bachelor	Assistant Director	R&D	15	S
30	M	42	Bachelor	Manager	R&D	16	S
31	M	35	Bachelor	Manager	Production	11.6	S
32	M	36	Bachelor	Staff	R&D	3.4	S
33	M	28	Bachelor	Staff	R&D	3	S
34	M	31	Bachelor	Staff	R&D	4.2	S
35	M	50	Bachelor	Manager	Product Design	5	Y
36	M	40	Bachelor	Assistant Manager	Product Design	9.1	Y
37	M	40	Bachelor	Manager	R&D	11	Y
38	M	32	Bachelor	Staff (Chief Engineer)	R&D	7.6	Y
39	M	36	Bachelor	Staff (Chief Engineer)	R&D	8	Y
40	M	32	Bachelor	Staff (Chief Officer)	R&D	3	Y
41	F	33	Bachelor	Staff (Chief Officer)	Product Design	3.6	Y
42	F	52	Bachelor	General Manager	R&D	10	SN

Table 4.2 (Continue)

No.	Gender	Age	Educational background	Position	Department	Service years	Company
43	F	48	Bachelor	Manager	Business Development	10	SN
44	F	47	Bachelor	Manager	R&D	8	SN
45	F	30	Bachelor	Staff	R&D	3	SN
46	M	31	Bachelor	Staff	R&D	5	SN
47	M	30	Bachelor	Staff	R&D	3.8	SN
48	M	38	Bachelor	Manager	R&D	3	B
49	M	37	Bachelor	Manager	Marketing	5	B
50	F	28	Bachelor	Staff	R&D	3	B
51	M	35	Bachelor	Assistant Director	R&D	10	TO
52	M	36	Bachelor	Manager	Production	8	TO
53	F	36	Bachelor	Staff	Production	6	TO
54	M	45	Bachelor	Manager	R&D	4	O
55	M	29	Bachelor	Staff	R&D	4	O
56	M	30	Bachelor	Staff	R&D	4	O
57	M	37	Bachelor	Director	Marketing	10	YD
58	M	36	Bachelor	Director	Production	10	YD
59	F	35	Bachelor	Manager	Production	5	YD
60	F	24	Bachelor	Staff	Marketing	3	YD

Table 4.3 Characteristics of the Participants

Characteristic	Detail	Frequency	Percentages
Gender	Male	44	73.33
	Female	16	26.67
Degree earned	Bachelor	52	86.67
	Master	7	11.67
	Doctorate	1	1.67
Age	24 years old or younger	2	3.33
	25-30 years old	14	23.33
	31-35 years old	18	30.00
	36-40 years old	13	21.67
	41-45 years old	5	8.33
	46-50 years old	6	10.00
	More than 51 years old	2	3.33
Department	R&D	28	46.67
	Production	6	10.00
	Product Design	3	5.00
	Marketing and Sales	11	18.33
	Information Technology (IT)	4	6.67
	Others	8	13.33
Position	Director	6	10.00
	Manager	24	40.00
	Staff	30	50.00
Service years	3-5 years	39	65.00
	6-8 years	6	10.00
	More than 9 years	15	25.00

4.2 Methods of Data Analysis

The data were acquired through the interview process and were analyzed using the inductive approach. Conventional content analysis where the researcher uses frequency by counting the occurrences of a word, and themes, were applied in this study as an initial method to filter the data. Conventional content analysis is considered as inductive category development (Mayring, 2000) since it avoids using preconceived categories acquired from the literature (Kondracki & Wellman, 2002).

In order to accomplish this task, the three-phase procedure of data analysis proposed by Miles and Huberman (1994) was applied. This three-phase procedure included: a) data reduction; b) data display; and c) conclusion drawing and verification as described in the following.

During the data reduction phase, a data transcription was conducted before analyzing the data. Data transcription is a process that encompasses what is represented in the transcript, for example, discussion, nonverbal actions, translations, and physical orientation (Green, Franquiz, and Dixon, 1997, p. 173).

Further, it is especially complex to translate from one language to another language. According to Riessman (2006), cultural considerations have to be taken into account when transcribing the data. Moreover, it may require interpreters to transcribe the data if the researcher is not a native speaker of the language (Moerman, 1996). For the transcription process, the researcher transcribed the transcripts and saved them in Word files.

Then, the data were first analyzed using open coding. Open coding is defined as a method to study the data with the purpose of comparing, conceptualizing, and placing the data into categories (Strauss and Corbin, 1990). Later, in order to identify all of the important aspects of the data, axial coding was utilized. Axial coding helps to interconnect the categories. According to Bryant and Charmaz (2007), axial coding supports the researcher in being able to draw relationships of the categories in order to obtain a holistic view of the data.

The researcher began to read through each transcript carefully to ensure that the data would not get lost. Once the researcher highlighted the text or phases that appeared as keywords for each research question, the researcher applied the codes as

preliminary codes for each category. Then the researcher coded the remaining transcripts and applied preliminary codes and assigned new codes if the data could not fit the existing codes. Finally, the researcher examined the codes again in order to avoid co-occurrences.

The data display is the second phase of the data analysis described by Miles and Huberman (1994). It is a tool to present the findings of the data reduction. The researcher applied tables, matrices, and quotations in order to organize and demonstrate the results of each individual and focus-group interview.

During the final phase of the data analysis, or the so-called conclusion drawing and verification phase, the researcher drew conclusions concerning the results based on the data displays and then verified the findings by evaluating the trustworthiness of the data findings based on Lincoln and Guba (1985), as mentioned in Chapter 3.

In addition, the researcher was aware of the subjectivity and the researcher's bias that might have arisen in the study. Especially, for the data analysis phase, the researcher did not use other researchers to confirm the coding and correctness of the data interpretation. However, the researcher minimized this bias by re-coding the data in order to ensure the correctness of the findings. In addition, the researcher used as many supporting quotations as possible, as well as observational data, in order to confirm the results. The following section describes the findings of this study.

4.3 Study Findings

In this study, the researcher described the results based on the following research questions.

1) What are the concepts and perceptions of innovation among workers and executives in small and medium-size enterprises in Thailand?

2) What are the antecedent factors that foster innovation in small and medium-size enterprises in Thailand?

3) What are the antecedent factors that inhibit innovation in small and medium-size enterprises in Thailand?

4) What is a possible exploratory model for the factors fostering and impeding innovation in small and medium-size enterprises in Thailand?

The research findings were reported based on the analysis of both the verbal and nonverbal interactions from the interview. The researcher used numbers to represent the interviewees (e.g., interviewee #1) in order to ensure anonymity of the participants. Direct interview quotes were used to highlight and personalize the data. The quotes were edited for grammatical clarity. However, a transcription was done in order to preserve the original meaning of each comment as much as possible.

4.3.1 RQ 1: Perceived Meaning of Innovation

Research question 1 that informed this study was to explore the meaning and concept of innovation. The research question for this issue was stated as follows:

1) What are the concepts and perceptions of innovation among workers and executives in the small and medium-size enterprises in Thailand?

This research question led me to develop interview questions about the perceived meaning of innovation in order to gain a better understanding of the participants' view. These definitions encompassed the participants' perceptions of how they viewed innovation.

The interviewees contributed differing amounts of information and the concept of innovation can be divided into 5 major themes, which included: 1) new and unique products and services, 2) the improvement of existing products and services, 3) new technology, 4) new solutions and processes, and 5) long-term investment.

After analyzing all of the transcripts, there were 91 clauses referring to 5 themes. Forty-four out of 91 clauses were allocated to new and unique products and services (theme 1), 31 clauses were allocated to the improvement of existing products and services (theme 2), 8 clauses to new technology (theme 3), 7 to new solutions and processes (theme 4), and 1 clause to long- term investment (theme 5). Each of these themes, along with sub-themes, are illustrated below.

Table 4.4 A Summary of Interviewees' Responses to RQ 1

No.	Themes	Sub-themes	All participants		Managers		Staff	
			Occurrence	Percentages	Occurrence	Percentages	Occurrence	Percentages
1	New and unique products and services	New things	29	31.87	15	27.27	13	36.11
		Uniqueness	11	12.09	5	9.09	6	16.67
		Creativity	4	4.40	4	7.27	1	2.78
		Total	44	48.35	24	43.64	20	55.56
2	An improvement of existing products and services	Adding value	17	18.68	10	18.18	7	19.44
		Improving function	14	15.38	11	20.00	3	8.33
		Total	31	34.07	21	38.18	10	27.78
3	New technology	Technology	8	8.79	5	9.09	3	8.33
		Total	8	8.79	5	9.09	3	8.33
4	New solutions and processes	Processes	5	5.49	3	5.45	2	5.56
		Solutions	2	2.20	1	1.82	1	2.78
		Total	7	7.69	4	7.27	3	8.33
5	Long-term investment	Investment	1	1.10	1	1.82	0	0.00
		Total	1	1.10	1	1.82	0	0.00
Grand total			**91**	**100.00**	**55**	**100.00**	**36**	**100.00**

When the participants were asked about the perceived meaning of innovation, they revealed common perceptions and concepts of innovation as follows:

4.3.1.1 Theme 1: New and unique products and services

This theme refers to the products and services that were new to the market and moreover had unique characteristics. For forty-four out of 91 clauses, the participants indicated their perceived meaning of innovation as something that is new and unique. There were 3 sub-themes derived from the findings: a) new things; b) uniqueness; and c) creativity. The following quotes began with each sub-theme accordingly.

1) New things

This sub-theme refers to the products and services that were new to the market. For the question "How would you define innovation?," some of the participants, for example, interviewee #1, a manager from company K, suggested that innovation is about new things.

Interviewee #1 is a director of this company. The company was established in 2012 with an aim of providing a solution for functional foods that are environmentally-friendly for consumers. He has been involved in all of the activities in the company. Most of the projects began from his ideas that, later on, have been developed by his employees. He also shared his experience about an innovative project that he had been involved in in the past to elaborate about how he viewed innovation. He addressed his experience with the following words.

> Interviewee #1 (personal communication, October 5, 2015)
>
> "Nowadays, there are many products in the market which still cannot serve customers' demands. I would like to share my experience about the past projects we have done. Actually, I was a veterinarian before I started this company. I wanted to create something that hasn't existed in the market at that time. So I produced chicken food that can help them produce better eggs. Moreover, there is a lot of nutrition inside the eggs that benefit consumers' health. Now we can gain profit from this product. There has been very good feedback from customers."

2) Uniqueness

This sub-theme refers to the differentiation or the distinct characteristics of the products and services compared to competitors.

Interviewee #51, assistant director of company TO, addressed an issue of differentiation or uniqueness of the products and services. Interviewee #51 is an owner of the company. Having more than 10 years of experience working in the research and development department, he has been involved in many innovative activities in his own company. He shared his experience about the concept of innovation in the following statement.

> Interviewee #51 (personal communication, May 3, 2016) "Um, in my idea, innovation is how to develop products that are different than those of others and have more functions to work with more efficiently. Actually, we are both a manufacture and a designer of umbrellas. Our products are distributed to both the government and private sectors in Thailand. Well, innovation is not only about thinking but implementing new and original products. This is the key."

3) Creativity

This sub-theme defined innovation as a result of creative ideas. Some of the participants believed that innovation is a result of creativity.

The quotation from interviewee #30, a manager of Company S, is related to this finding. Interviewee #30 has been working for the company for around 12 years. Company S is a spare-parts production supplier to many well-known automotive companies in Thailand. Interviewee #30 has worked as a manager in the R&D department.

> Interviewee #30 (personal communication, December 11, 2015) "Innovation deals with creativity. It is creative ideas which have never been presented by anyone. After that we apply these ideas to real products….Moreover, I think that there are many companies that have a lot of

creative ideas but they haven't put these ideas into action. So innovation can't happen."

Moreover, interviewee #43, a manager of company SN, added information about this issue.

Interviewee #43 (personal communication, April 11, 2016) "Well, as you know innovation is a result of creative ideas. I believe that everyone in the company can come up with good ideas to develop our company. Even maids or drivers, they really have good ideas. You know, many small and little creative ideas will become bigger creative ideas which result in innovation. The task is that we need to unleash those ideas."

4.3.1.2 Theme 2: The improvement of existing products and services

This theme defined innovation as products or services that already existed but have been improved or added more functions in order to satisfy customers' needs.

Apart from new and unique products and services, 31 out of 91 clauses referred to the improvement of existing products and services that were improved for better functions and processes. This theme consisted of 2 sub-themes: a) improving function, and b) adding value. The following examples of reflections on this topic from the participants are cited below.

1) Improving function

This sub-theme defined the ways or methods in which the functions of existing products or services could be improved in terms of performance.

Interviewee #48, a manager at company B who has been working for the company for around 3 years in the R&D department reported about how he viewed innovation.

Interviewee #48 (personal communication, December 3, 2015) "When talking about innovation, I am thinking of something that has been

developed and improved for it function and performance. We are developing a new product that is better than the existing one."

Another example from interviewee #34, a staff member at company S who has been working in R&D department addressed this issue as the following statement.

Interviewee #34 (personal communication, December 11, 2015) "Innovation could be existing products where the quality and functions have been improved."

2) Adding value

This sub-theme refers to the products or services that made something useful for customers.

Interviewee #8, a staff member at company EC who has been working as a developer viewed innovation as something that already exists. They shared their opinions with the following statements.

Interviewee #8 (personal communication, October 6, 2015) "I think innovation is how we add value to the existing products or processes in order to increase change within the organization. For example, we already have products (software) that have been launched to the market. But we added some value to them later, for example, we added some features of the program, and we also changed the packaging design of the products. The new products that have already had some value added to them have resulted in good feedback from the customers"

4.3.1.3 Theme 3: New technology

This theme defined innovation as the productive techniques or new tools that help to reduce production costs and moreover benefit the consumers' life. In eight out of 91 clauses, new technology was indicated by the participants. The following statements are examples that reflect this theme.

Interviewee #4, a manager of company EC who has been involved in developing new software and programs to serve customers' needs presented his idea about the meaning of innovation as new technology.

> Interviewee #4 (personal communication, October 6, 2015)"For me, I am working in the IT department. My work is related to developing new programs and software that fit the users' needs. I view innovation as new technology that can serve the individual's usage. … One of my past projects that was labeled a creative project was developing software similar to Google map. I think it helps users a lot to find their way. I considered it as a new technology that makes users' lives easier."

Furthermore, interviewee #58, a manager at company YD, discussed a similar concept of innovation as the earlier comment. Interviewee #58 is one of the owners of the company and takes care of an entire process of digital content production.

> Interviewee #58 (personal communication, May 4, 2015) "Well, from a producer point of view, innovation deals with new technology. As we are a production house, we have to rely on many new technologies and software to create our work. Most of our innovation projects deal with new software. For example, right now we are trying to use VR, which is quite new in Thailand. We have applied VR to produce content and we plan to use this in many industries in Thailand."

4.3.1.4 Theme 4: New solutions and processes

This theme defined innovation as a solution that was able to handle the problem effectively. Moreover, it also covers the new processes that could lessen the production times and save the production costs. Apart from the meaning of innovation reported earlier, in 7 out of 91 clauses, the participants viewed innovation as a new solution or process. This theme consisted of 2 sub-themes: a) solutions; and

b) processes. The following examples of reflections on this topic from the participants are cited below.

1) Solutions

This sub-theme refers to new solutions that could cope with the problems effectively. Some of the staff replied to this question, saying that innovation is a new solution. For example, interviewee #21, a staff member at company EI, mentioned the following.

Interviewee #21 has been working in the maintenance department. He viewed innovation as new tools that can solve the problems. The following statements portray these results.

> Interviewee #21 (personal communication, December 1, 2015) "Innovation is about new things that have never existed in the world. It deals with how to reduce cost, how to increase efficiency, and how to increase performance. For me, I am working in the maintenance section. We have to think of new tools or methods to handle maintenance problems. So I think innovation could be a solution to handle the problems effectively. For example, someone in an other department reported that there was a problem with the production process with one of those machines. We needed to fix it. But we needed to create and develop new tools that could cope with the problem more efficiently."

2) Processes

This sub-theme refers to the processes that helped to reduce production costs and enhance productivity.

Interviewee #19, a manager at Company EI who has been working with the company for around 3 years in the process engineering department, mentioned the process of innovation.

> Interviewee #19 (personal communication, December 1, 2015) "Innovation deals with how to improve the production process. It can be either a process or new technology which helps lessen the production time. For my

job, I have to be responsible for the production process. I have to think of new solutions or innovative processes that can support our production line."

Another example from interviewee #38, a staff member from company Y who has been working for the R&D department, reported that innovation is about improving the production process.

Interviewee #38 (personal communication, December 15, 2015) "Innovation deals with how to lessen the production time and how to increase the quality of the products."

4.3.1.5 Theme 5: Long-term investment

This theme refers to innovation as a long-term investment or a long-term plan that

is important for the organization to sustain itself in the long run.

Apart from the concept of innovation mentioned earlier, 1 out of 91 clauses revealed the concept of innovation differently. One manager defined innovation as investment. She suggested interesting statement.

Interviewee #42, a manager from company SN, reported that innovation is a long-term investment. She has been working for this company since it was established around 10 years ago. She shared her experience regarding this in the following statement.

Interviewee #42 (personal communication, April 11, 2016) "As I am working in both the marketing and R&D department, I have different viewpoints from others. In my opinion, innovation is something like a long-term investment. Innovation is very important for the organization. I can say that the organization that has no innovation inevitably dies early. Innovation is something like a long-term plan that we think 5 to 10 years into the future."

Moreover, she also reported about the innovation projects in her company so as to provide more examples.

> Interviewee #42 (personal communication, April 11, 2016) “Actually, our company produced only tiles since we established the company. Later, we had more creative ideas to apply to other materials. For example, we used rice to produce the tops of tables. Now we have many other kinds of these products. We also supply some of them to Starbucks. Well, our management has a long vision regarding innovative products. We plan 5 to 10 years into the future. For example, in the next 2 years, we will launch this product. Or even in the next 5 years, we will have to find out the material that is environmentally friendly and serves the needs of the customers’. ”

Although the interviewees described the meaning and concept of innovation variously, all of them agreed that innovation is an important factor for their business success.

For example, interviewee #1, a manager from Company K, mentioned the importance of innovation nowadays.

> Interviewee #1 (personal communication, October 5, 2015) “Right now, it is necessary to create new things for the market. Especially for SMEs, we can’t compete with multinational companies. The only thing that we can do is to design products that are different from those of others. That’s why innovation is needed.”

Similar to this, interviewee #12, a manager at Company C, shared the comments below. Company C is a medicine and herb producer located in Bangkok. This interviewee has been working in the marketing department for around 3 years. He stated that he had to work closely with a managing director of the company in a variety of projects.

> Interviewee #12 (personal communication, October 10, 2015) “There are a lot of medical products in the market. We can’t sell the same thing as others. Here, we have spent a lot of time developing medicine that is safe for consumers and that does not contain artificial things. After we developed the

one and only medicine in the market, our sales increased a lot. People can recall our brand."

The following figure compares the common elements and different viewpoints of the managers and the staff.

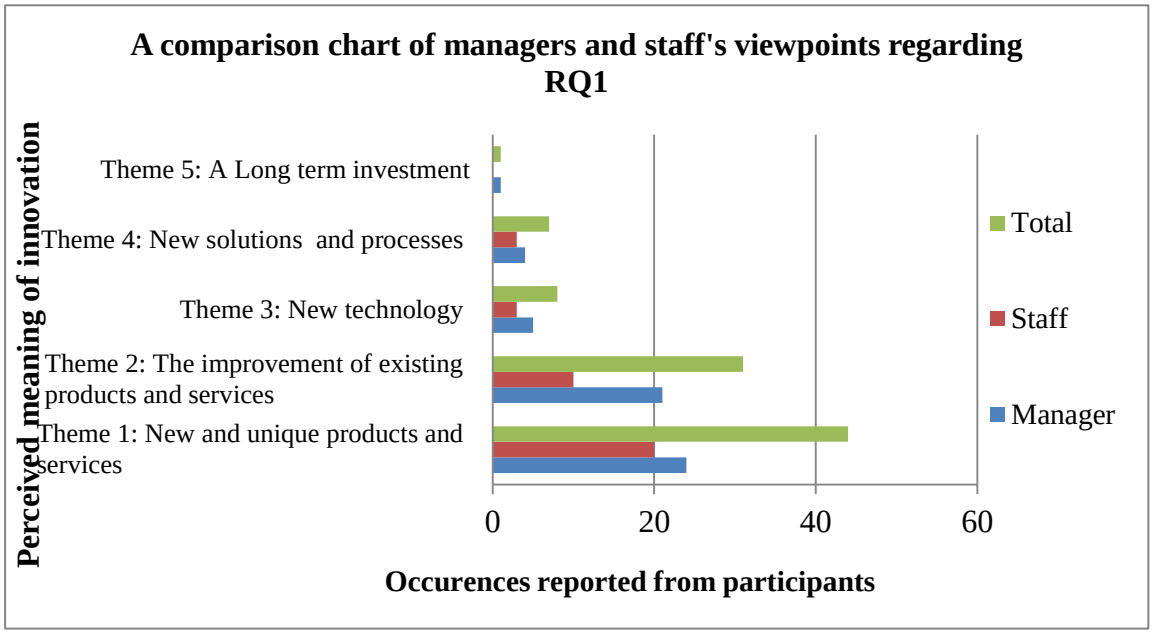

Figure 4.1 A comparison chart of managers' and staff's points of view regarding RQ1

The above figure shows the viewpoints of the managers and staff regarding the concept of innovation, divided into 5 themes.

Both the managers and the staff revealed common viewpoints toward the concept of innovation. The most frequently-addressed theme regarding the concept of innovation was new and unique products and services (theme 1), accounting for 48.35%. The second ranked was the improvement of existing products and services (theme 2), accounting for 34.07%. The third rank was new technology (theme 3), accounting for 8.79%. New solutions and processes (theme 4) and long-term investment (theme 5) accounted for 7.69%, and 1.10% respectively. A comparison of the managers' and staff's viewpoints is elaborated in the following statements.

First, new and unique products and services (theme 1) were addressed by 44 clauses. Twenty-four out of 44 clauses were mentioned by managers, whereas 20 clauses were reported by the staff.

Second, the improvement of existing products and services (theme 2) was addressed in 31 clauses by all participants. Twenty-one out of 31 clauses referring to this theme were mentioned by managers, whereas 10 clauses were reported by the staff.

Third, the issue of new technology (theme 3) was addressed 8 times. Five out of 8 clauses referring to this theme were mentioned by managers, whereas 3 clauses were reported by the staff.

Fourth, new solutions and processes (theme 4) were addressed 7 times by all of the participants. Four out of 7 clauses referring to this theme were mentioned by managers, whereas 3 clauses were reported by the staff members.

Fifth, long-term investment (theme 5) was the factor mentioned by a manager only 1 time.

4.3.2 RQ 2: The Antecedent Factors That Foster Innovation at the Individual Level

The research question for this issue was stated as follow:

RQ 2: What are the antecedent factors that foster innovation in the small and medium-size enterprises in Thailand?

The antecedent factors that support innovation as discussed in this part of the study focused on the factors that foster creativity at the individual level. The researcher used open coding and axial coding to analyze 60 transcripts describing the factors influencing innovation at the individual level. Three themes were derived from the interviews: 1) skills and knowledge, 2) motivation, and 3) personality.

Out of 143 clauses referring to 1 out of 3 themes, 48 were allocated to skills and knowledge, 46 to motivation, and 49 clauses to personality. The following table indicates each theme and sub-theme.

Table 4.5 A Summary of the Antecedent Factors that Foster Innovation at the Individual Level

No.	Themes	Sub-themes	All participants (n=60)		Managers (n=30)		Staff (n=30)	
			Occurrences	Percentages	Occurrences	Percentages	Occurrences	Percentages
1	Skills and knowledge	Broad experience	19	13.29	15	16.48	4	7.69
		Job knowledge	18	12.59	11	12.09	7	13.46
		Technical skills	11	7.69	9	9.89	2	3.85
		Total	48	33.57	35	38.46	13	25.00
2	Motivation	Extrinsic	29	20.28	10	10.99	19	36.54
		Intrinsic	17	11.89	11	12.09	6	11.54
		Total	46	32.17	21	23.08	25	48.08
3	Personality	Creative	40	27.97	26	28.57	14	26.92
		Ambitious	5	3.50	5	5.49	0	0.00
		Curious	3	2.10	3	3.30	0	0.00
		Observational	1	0.70	1	1.10	0	0.00
		Total	49	34.27	35	38.46	14	26.92
Grand total			**143**	**100.00**	**91**	**100.00**	**52**	**100.00**

4.3.2.1 Theme 1: Skills and knowledge

This theme refers to information that the person has possessed in order to perform his/her work, handle a problem, and generate creative ideas.

When the participants were asked about their opinions of the antecedent factors that support innovation at the individual level, skills and knowledge were mentioned 48 times as an important factor. Furthermore, there were

3 sub-themes derived from the findings: a) broad experience, b) job knowledge, and c) technical skills.

1) Broad experience

This sub-theme refers to the knowledge that one has because of the experience of doing or seeing something. There were 19 out of 48 times, the participants mentioned experience that could broaden their vision and ideas. Here is another example from interviewee #43, a manager from company SN.

> Interviewee #43 (personal communication, April 11, 2016) "I think experience and knowledge can support innovation. If that person has a chance to participate in exhibitions, fairs, or company visits, he or she will tend to have more experience and knowledge regarding a particular issue compared to a person that has never participated in such activities."

2) Job knowledge

This sub-theme refers to knowledge related to the job. There were 18 out of 48 times, the participants stated about job knowledge.

Interviewee #1, a manager from company K, and interviewee #10, a manager from company I, viewed that knowledge about one's job influences an individual's creativity.

> Interviewee #1 (personal communication, October 5, 2015) "If we talk about the factors at the individual level, I think that the knowledge of an individual is important. Let's say, if you would like to create a new project related to your job, you have to have at least knowledge about your job first. You have to understand your business, your customer, and your job responsibilities."

Another example from interviewee #12, a manager from company C, represented many of the participants' opinions.

> Interviewee #12 (personal communication, October 10, 2015) "I think knowledge is an impact factor in innovation. We should have knowledge about our job responsibilities. Moreover, if we have enough knowledge we can think of new ideas. HR can support for recruiting creative and knowledgeable persons for the right position that fits them."

3) Technical skills

This sub-theme refers to the technical skills that result from studying or doing one's job. There were 11 out of 48 times, the participants indicated the technical skills related to one's job that might influence an individual's creativity.

Interviewee #29, a 50 year-old assistant director from company S who has been working for this company for 15 years, stated the following statement.

> Interviewee #29 (personal communication, December 11, 2015) "Well, I think before employees can create something, they have to have technical skills in their work first. You see this pen? It's the same. If you don't know what it is, or what the pen is for, you can't develop any new innovative products. You have to at least understand the core function of pens. You have to know how it can be produced. You have to have some technical skills related to the products."

4.3.2.2 Theme 2: Motivation

Motivation was defined as the process that can promote the goal-directed behavior of individuals. Motivation was another factor raised by the participants as an important factor influence creativity at the individual level. Motivation was address 46 times by the participants. According to them, motivation could be divided into 2 categories: a) extrinsic motivation; and b) intrinsic motivation.

1) Extrinsic motivation

Extrinsic motivation refers to incentives, rewards, merit, bonus, or any other outside motivation. Twenty-nine out of 46 times, the participants addressed extrinsic motivation.

Some participants for example, interviewee #28, a staff member at company T, insisted that extrinsic motivation was important for her in terms of thinking about new things, as she described in the following statement.

> Interviewee #28 (personal communication, December 14, 2015) "In addition to this, incentives are also a part of creativity. In my case, if I get an incentive when I have to figure out new ideas, I will be more productive."

Concerning this question, some employees reported that extrinsic motivation seemed to attract their attention more than intrinsic motivation. For example, interviewee #22, a staff member at company EI, commented on this in the following statement.

> Interviewee #22 (personal communication, December 1, 2015) "Money motivates employees to think creatively rather than intrinsic motivation. We work for money, not intrinsic rewards."

However, most of the participants that replied that motivation was an important factor that influences innovation agreed that an extrinsic motivation strategy might not work for some employees. Interviewee #16, a manager from company EI mentioned with the following statement.

> Interviewee #16 (personal communication, December 1, 2015) "I view that one of the important factors for developing employees' creativity is motivation. We do have an incentive system here. If we create a project and it could create benefits for the organization, we may have a chance to get a reward. I think this kind of system can motivate some employees to think creatively. However, it may not motivate some groups of people. This strategy can't be applied to all employees."

2) Intrinsic motivation

Intrinsic motivation refers to the inside motivation of a person, such as how he or she feels about his/her work, or the feeling that he/she wants to do the job because the nature of the job itself challenge him/her. Seventeen out of 46 times, the participants addressed the idea of intrinsic motivation.

Some participants, for example, interviewee #40, a staff member at company Y, also reported that extrinsic motivation is not that important for some group of the people, especially for employees that are working in the R&D department. He described that most of the R&D staff members are motivated by intrinsic motivation.

> Interviewee #40 (personal communication, December 15, 2015) "I think rewards and money can motivate some people. It's hard to answer this question because from the designer's point of view such a thing is not important. We create something because we love to do it. It is fun and it is a challenge when we can think something that is different from others."

4.3.2.3 Theme 3: Personality

The other theme that was revealed from the interviews regarding this research question was personality. Personality refers to the characteristics of a person that are distinct from other persons. This theme covered the types of persons that tend to have a high degree of creativity.

The word of personality appeared 49 times during the interviews. Moreover, there were 4 sub-themes representing the essential characteristics that lead to individual creativity: a) creative; b) ambitious; c) curious and d) observational types of persons derived from the findings.

1) Creative

Creative refers to a personality or characteristic of a person that results in thinking new things or creating something new. Forth out of 49 times, the participants addressed the idea of creative type of person. Some of the participants stated that personality was one of the factors that support creativity. It shapes the way that some people can create new things while some others cannot.

Following are some examples of the responses from interviewee #57, the director at company YD, and interviewee #39, the manager at company Y.

> Interviewee #57 (personal communication, May 4, 2016) "Well, I think the characteristics of a person influence how creative each person is. Actually, apart from the marketing staff, we hire a lot of creative designers and CG producers. Most of our staff tends to have a creative mind. Or we can say that they love to create new projects or raise ideas that are related to their job."

> Interviewee #39 (personal communication, December 15, 2015) "I think it depends on the personality of each person. Because of the difference in personalities, some people like to work on routine jobs but some like to work on creative ones."

2) Ambitious

Ambitious refers to a type of person that is eagerly desirous of achieving or obtaining success. Five out of 49 times, the participants indicated the ambitious characteristics of a person.

Interviewee #1, a manager at company K, described his experiences setting up the company and how he created new and original products. Finally, he received an award from NIA. He reported his experience regarding being ambitious and how such a personality influences innovation in the following way.

> Interviewee #1 (personal communication, October 5, 2015) "I think it depends on the personality and passion of the employees. In my case, I like thinking all the time. I want to produce new things. I don't want to work for anyone so I set up this company. My personality is something like an ambitious type of person. So I came up with several projects and sent them to the NIA."

3) Curious

Curious refers to the type person that is eager to learn something new. Three out of 49 times, curious was mentioned by the participants.

Interviewee #35, a manager at company Y, described his experience about curios types of persons and personality issues in the following words.

> Interviewee #35 (personal communication, December 15, 2015) "Personality shapes how a person is going to be. Some people like to think because they want to know things, but some don't. Some people have creative minds. They like to think new things. It is a challenge for them. Here we have a personality test in the recruiting process. We have to analyze what types the employees are. Managers have to adapt the teaching methods and assigning jobs based on their subordinates' personalities. Moreover, managers have been trained to allow employees to think new ideas. So we have to listen to them first and guide them in order to develop their thinking skills."

In addition to this, interviewee #42, a manager at company SN, provided that idea that individual personalities influence creativity in a variety of ways. She addressed the issue of curious types of persons with the following words.

> Interviewee #42 (personal communication, April 11, 2016) "I think the most important factor that supports innovation at the individual level is the person's personality. Some people like to think but some don't. Some people are willing to study new things. They are curious types of persons. They will find out useful information from the Internet or even participate in an exhibition or training courses. For some people, they don't like to study anything. They will just work on their routine jobs."

In addition to the executives' responses, the following are some comments from the staff. Interviewee #27 from company T mentioned the following.

> Interviewee #27 (personal communication, December 14, 2015) “I think it depends on the curiosity level of each individual. Some people want to know everything and they like trying new things but some people just don't.”

4) Observational

Observational refers to the characteristic of a person that likes to observe or perceive something through observation. Only 1 time was, observational indicate by a participant.

Interviewee #51, an assistant director at company TO, addressed the idea of the observational personality of employees. Interviewee #51 is the son of the owner and has been in charge of the R&D department.

> Interviewee #51 (personal communication, May 3, 2016) “In my idea, the personality of a person influences creativity. People that are observational (ช่างสังเกต) of things tend to have more creativity than others. Moreover, the people that have a vision tend to create innovative things. Moreover, if he/she can think or develop a vision that others can’t come up with or can’t imagine, he/she tends to have a creative mind.”

The following figure describes the differences in viewpoints between the managers and the staff.

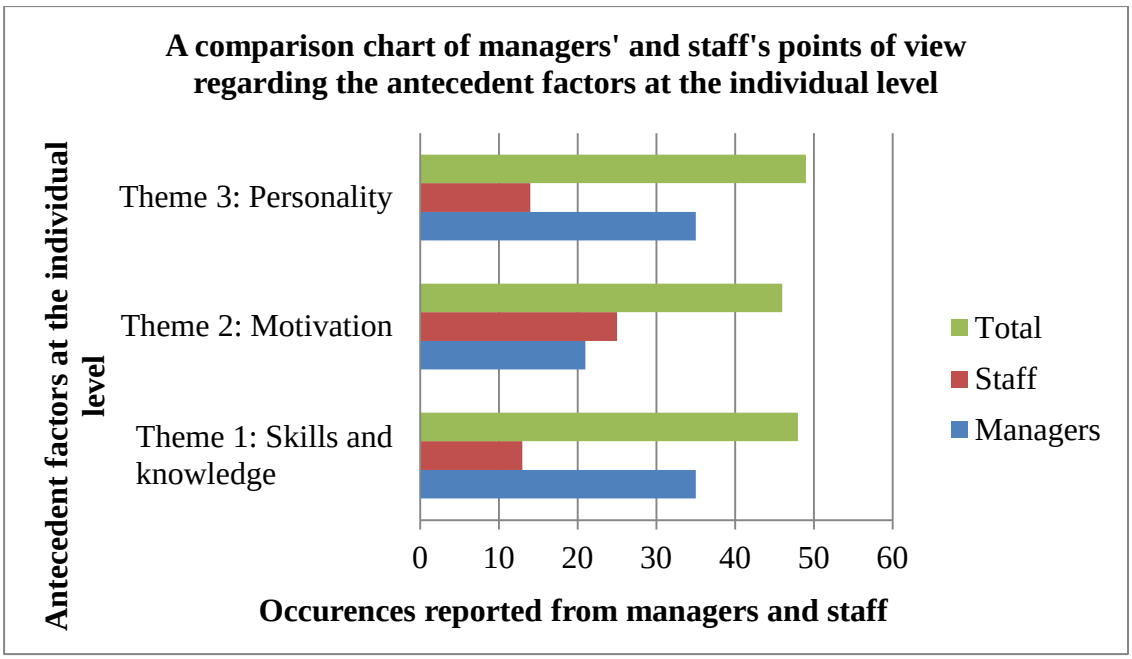

Figure 4.2 A comparison chart of the managers' and staff's points of view regarding RQ2 (at the individual level of analysis)

The above figure illustrates that the most frequently-addressed factors by all participants at this level were personality (theme 3) 34.27%, skills and knowledge (theme 1) 33.57%, and motivation (theme 2) 32.17%.

However, from the managers' viewpoint, skills and knowledge (theme 1) and personality (theme 3) were the most commonly-addressed factors, followed by motivation (theme 2). Each theme accounted for 38.46% and 23.08% respectively.

In contrast, motivation (theme 2) was the most frequently-addressed factor by the staff, followed by personality (theme 3) and skills and knowledge (theme 1). Each theme accounted for 48.08%, 26.92%, and 25%. The following statements describe each theme by comparing the managers' and staff's viewpoints.

First, the issue of skills and knowledge (theme 1) was raised 48 times by the participants. The managers addressed this factor 48 times, while the staff mentioned it only 13 times.

Second, motivation (theme 2) was suggested to have an influence on creativity at the individual level by the participants 46 times. The managers mentioned it 21 times whereas it was mentioned 25 times by the staff.

Third, personality (theme 3) was reported as one of the important factors leads to creativity at the individual level and was addressed 49 times by the participants. Managers reported it 35 times and the staff 14 times.

4.3.3 RQ 2: The Antecedent Factors That Foster Innovation at the Group Level

The antecedent factors that support innovation in this part focused on the factors that foster creativity by looking only at the group level. Four themes were derived from the findings; 1) diversity/group structure, 2) cohesiveness, 3) group leader, and 4) team climate.

Out of 99 clauses referring to 1 of the 4 themes, 42 were allocated to the diversity/group structure, 7 to cohesiveness, 19 to the group leader, and 31 clauses to the team climate. The following table indicates each theme.

Table 4.6 A Summary of the Antecedent Factors That Foster Innovation at the Group Level

No.	Themes	All participants		Managers		Staff	
		Occurrences	Percentages	Occurrences	Percentages	Occurrences	Percentages
1	Diversity/group structure	42	42.42	29	50.00	13	31.71
2	Cohesiveness (trust/openness)	7	7.07	5	8.62	2	4.88
3	Group leader	19	19.19	7	12.07	12	29.27
4	Team climate	31	31.31	17	29.31	14	34.15
	Total	**99**	**100.00**	**58**	**100.00**	**41**	**100.00**

4.3.3.1 Theme 1: Diversity/group structure

Diversity refers to understanding and valuing the differences among people that are from different backgrounds, for example, a diverse education background, gender, age, nationality, culture, and social affiliation (Esty, Griffin, & Schorr-Hirsh, 1995). Diversity differentiates one group of members from another (Loden & Rosener, 1991).

An overwhelming majority of the participants addressed the idea that diversity and group structure were the most important factors at the group level. The participants mentioned diversity 42 times. The following statements highlight the importance of diversity, which was regarded as a factor that leads to creativity at the group level.

Interviewee #10, the director of company I that had been involved in marketing activities, described his experience by sharing the following words.

> Interviewee #10 (personal communication, October 12, 2015) “In my company, we need various backgrounds of people to sell the products. For example, in my company there are 4 persons working together. One of my staff is working for R&D. Another one is handling production. The other one, which is my cousin, works for the sales department. He is also a doctor at the hospital. So he has a connection with many hospitals in Thailand. Well, I think that having people with different backgrounds of education and experiences can help the team think differently. This will eventually lead to innovation. Sometimes, we have a meeting together, and we can brainstorm. The ideas don’t start from me all the time.”

Furthermore, one participant (interviewee #24, manager) that had worked as a manager in the R&D department at company T for 3 years, shared his experiences about this issue in the following statement.

> Interviewee #24 (personal communication, December 14, 2015) “I think people of different ages and genders work differently. I mean in our team, we do have different generations of people. The older people have more

work experiences and they can guide the younger ones. Furthermore, in our organization, we have a Korean staff. We have more and different ideas."

Interviewee #42, a manager at company SN, addressed the notion of diversity and group structure. She shared her experience about how they train employees by utilizing a specific group structure, as mentioned in the following statement.

Interviewee #42 (personal communication, April 11, 2016) "I think group structure is a factor that supports innovation. We have operated our business for around 10 years. But before that we had another company, or we can call it a group company. Now, we have both old and young employees working together. Most of the older generation has served the company for at least 20 years. I can say that when we have this kind of structure, the older people can support the younger people in many cases, including promoting innovation. We train our new generation with a marketing trick or motivate them to think creatively. We will urge them to think outside the box. Moreover, we hold a weekly meeting to encourage the new generation to think activity by providing them with many tools. For example, we give them a design textbook, or let them see new products of competitors so that they can have new ideas."

In addition to this, interviewee #57, who is an owner of company YD, addressed the ideas of group diversity and structure as important factors. Moreover, he shared his experience about how to allocate group members for each team.

Interviewee #57 (personal communication, May 4, 2016) "Well, when talking about the factors at the group level, I think of the structure of the group. It is important how the manager allocates the team members into each group. Especially for our company, it is very important to work as a team. We have a lot of teams here. Of course, managers have to allocate members for a well-balanced structure of the group. For example on one team, you have to

> have a producer that can create the project, you have to have a coordinator to interact with customers, you have to have persons that have varied experience working on the same team."

Apart from the managers' points of view toward diversity, some examples arose from the interviewee #38, a staff member at company Y, and interviewee #7, a staff at company EC. They described their viewpoints as follows.

> Interviewee #38 (personal communication, December 15, 2015) "Diversity is an important factor that supports innovation. Here, before we assign a job to a team we have to diversify the members. We have to put many people with various backgrounds in the same group. Each group has to have a balanced number of members. I think this system can enhance team performance and team creativity."

Regarding another observation at EC Company, the researcher conducted a focus group interview with 2 groups (3 persons for each group) due to the time limitation and the company's regulations. What can be observed was that all of the participants looked young and were all male. During an interview with the first group (staff group), one of the interviewees reported on the diversity issue with the following statement.

> Interviewee #7 (personal communication, October 6, 2015) "Um, I think most of the employees in our company are quite young. For the staff level, I think they are around 25-30 years old. For the management level, they are around 30-35 years old. Most of our employees are male. We have no foreigners. In my opinion, I love working with people in the same generation. It's more fun and it makes me enjoy working. Even though most of the employees are of the same age, they do have different educational backgrounds and experiences. Our managers have more experience than us. They always give us advice about the job. I think we have a variety of ideas."

4.3.3.2 Theme 2: Cohesiveness

Cohesiveness was defined as a dynamic process which supports the members of the group in terms of "sticking" together in order to pursue the same objectives (Carron, 1982). This factor was addressed by the participants 7 times. The following is an example of this issue.

Interviewee #43, a manager at company SN, mentioned that the relations of a group could positively promote innovation. However, too much cohesion may negatively influence innovation. She shared her experience with this issue in the following statement.

> Interviewee #43 (personal communication, April 11, 2016) "I think the relationships among the group members can influence innovation both in negative and positive ways. For the positive side, when we trust and have a good relationship with other teammates, we will share knowledge or ideas with them. We will have the confidence to do so. For the negative side, I think when people have good relationships with other employees they tend to think that those ideas from their colleagues are good even if sometimes they are bad. They tend to take sides. We can often see this in the Thai culture—the seniority and "kreng jai" culture."

Another observation was made at company YD, when the researcher had a chance to talk with the director of the company regarding diversity and cohesiveness issues. What I could observe was that there was a diverse background of employees, for example, Thai, American, French, and Russian. At lunch time, I saw many groups of people having lunch together at the company's cafeteria. However, in each group, there were not only Thai employees sitting together, but there were other nationalities of employees sitting and chatting with each other in the group too. The Thai employees are trying to explain a lot of things regarding the Thai culture and Thai food. What I could observe was that they had a very good relation with each other. I furthered discussed with the director about how he managed diversity in the organization, and how he can build cohesiveness. Interviewee #57, the director at company YD, responded to me as follows:

> Interviewee #57 (personal communication, May 4, 2016) “Well, actually, we have to hire a diverse background of employees. Especially, people from overseas, because we need their distinctive ideas. I have tried to diversify the groups in a team by including members with many backgrounds. Moreover, foreign employees have to be added to a team. Communication problems may sometimes be a problem because of the different cultures and languages. However, we try to keep good a relationship among employees by creating a lot of activities for them. For example, we have a company trip every year. We try to ask everyone to participate in the trip. Sometimes, we have a party after work when we have done a project. I think these things help to create a good relationship among team members because when they have a good relationship, they will support other members in the term work. Conflict and politics can be minimized.”

4.3.3.3 Theme 3: Group leader

Group leader was defined as someone that provides guidance, instruction, direction, and that encourages innovation.

There were 19 clauses mentioned about the group leaders during the interviews. The following is an example from interviewee #52, a manager of company TO. He has been working in the production department around 8 years.

> Interviewee #52 (personal communication, May 3, 2016) “Well, for me the leader of the group is important. If the head doesn’t care about innovation, other employees won’t do anything related to innovation. We, as the managers, have to encourage our members to think creatively. …Of course, in our organization, the managers in each department put much concern into innovation. Since there are many competitors in this industry, we have to think differently to others. Now we have software to allow customers to design and customize their products and see the real products beforehand. We are now developing many tools to support customers.

Another example from interviewee #56, a staff member at company YD, was provided with the following statement.

> Interviewee #56 (personal communication, May 4, 2016) “For the group level factor, I think the leader of a group is important. For me, I haven’t had much experience with R&D jobs. We need to have a good leader that can support every aspect of the job. Moreover, if the group leader focuses on innovation, he/she will encourage the rest of the team members to do so. We have to follow them.”

4.3.3.4 Theme 4: Team climate

Another antecedent factor that was seen to foster innovation at the group level was the team climate. Team climate refers to the shared perceptions of behaviors, practices, and procedures within a work environment that are important for the team (Basaglia et al., 2010, p. 544). There were 31 clauses in which the team climate was mentioned by the participants. The following quotes are examples of the participants’ viewpoints.

Interviewee #13, a manager at company C, reported that a positive team climate influences innovation in a variety of ways.

> Interviewee #13 (personal communication, October 10, 2015) “In my point of view, a good climate and environment in a team can support innovation activity. Let’s compare 2 teams. The first team has a climate that allows all of the team members to have freedom to think. Moreover, team members can propose their ideas to others. In contrast, the second team has a negative climate. In other words, the members are working only on their routine job. The managers or leaders of the team haven’t given any authority or freedom for employees to think about new projects. These members have been less participative in group activities. As a result, I confidently believe that the first group is more likely to produce innovation rather than the second group.”

Moreover, another comment from interviewee #41, a staff member that worked at company Y, elaborated his ideas in the following.

> Interviewee #41 (personal communication, December 15, 2015) "In my idea, the team climate is significant to innovation. For our team, we have a positive climate for innovation. The leader of the team has emphasized innovation strategies. Of course, these strategies cascade from the top management of our company. Moreover, other members in our team love to think. They are all creative. Their job is to test and create new projects. When we have this kind of environment, I mean when other members think and present their ideas to the managers, I myself will do it as well. I think it depends mostly on the team climate."

The following figure compares the difference of viewpoints between the managers and staff.

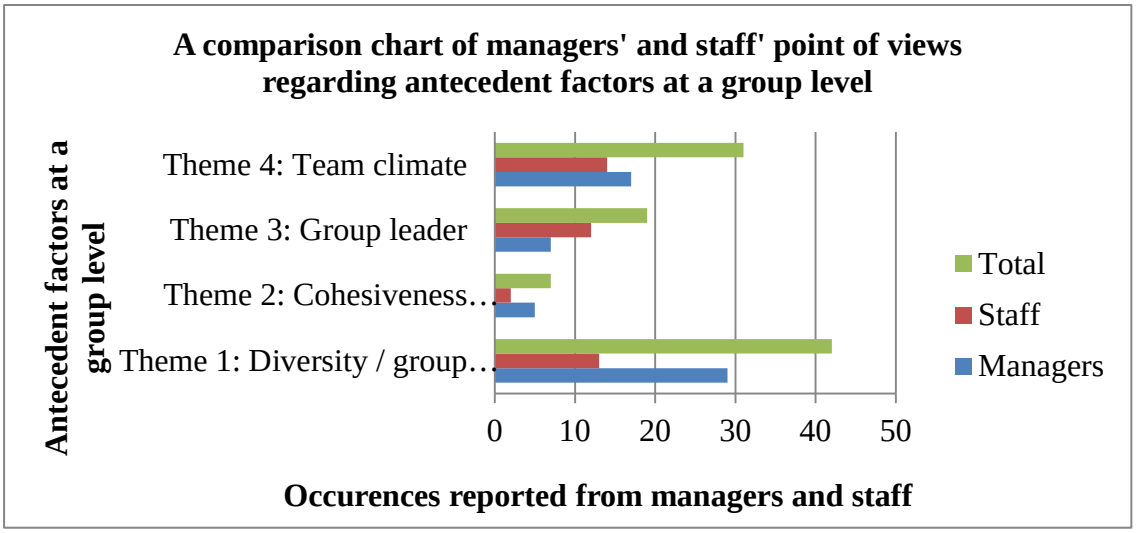

Figure 4.3 A comparison chart of the managers' and staff's points of view regarding RQ2 (at the group level of analysis)

According to the above figure, there were 4 themes mentioned by the participants. The most frequently-addressed factors mentioned by participants were

diversity/group structure (theme 1) 42.42%, team climate (theme 4) 31.31%, group leader (theme 3) 19.19, and cohesiveness/trust openness (theme 2) 7.07%.

However, from the managers' points of views, diversity/group structure (theme 1) was the most frequently-addressed factor, accounting for 50%. Team climate (theme 4) was at 29.31%, group leader (theme 3) at 12.07%, and cohesiveness/ trust openness (theme 2) accounted for 7.07%.

In contrast, from the staff's point of view, team climate (theme 4) was the most frequently-addressed factor, accounting for 34.15% of all the factors reported by the staff. Diversity/group structure (theme 1) accounted for 31.71%, group leader (theme 3) accounted for 29.27%, and cohesiveness/ trust openness (theme 2) accounted for 4.88%. The following statements describe each theme by comparing the managers' and staff members' viewpoints.

First, diversity/group structure (theme 1) was raised 42 times by all the participants. The managers addressed this idea 29 times whereas it was mentioned 13 times by the staff.

Second, cohesiveness/trust openness (theme 2) was addressed only 7 times. The managers addressed it 5 out of 7 times whereas it was suggested 2 times by the staff.

Third, the idea of the group leader (theme 3) was addressed 19 times by all participants as a factor influencing innovation at the group level. Out of this amount, the managers mentioned it 7 times and the staff 12 times.

Last, team climate (theme 4) was addressed by the participants 31 times. The managers reported it 14 out of 17 times whereas it was reported 14 times by the staff.

4.3.4 RQ 2: The Antecedent Factors That Foster Innovation at the Organizational Level

For this part, the research questions attempted to explore the factors that led to innovation at the organization level. Several questions were applied to find out the experience of the participants regarding this issue.

There were 6 themes derived during data collection phases: 1) organizational encouragement, 2) supervisory encouragement, 3) freedom, 4) sufficient resources, 5) HR activities and policies, and 6) customer orientation.

Out of 202 clauses referring to 1 out of 6 themes, 49 were allocated to organizational encouragement, 58 to supervisory encouragement, 13 to freedom, 56 to sufficient resources, 15 to HR activities and policies, and 11 to customer orientation. Each theme and sub-theme is described in the following table.

Table 4.7 A Summary of the Antecedent Factors That Foster Innovation at the Organizational Level

			All participants		**Managers**		**Staff**	
No.	**Themes**	**Sub-themes**	**Occurrences**	**Percentages**	**Occurrences**	**Percentages**	**Occurrences**	**Percentages**
1	Organizational encouragement	organizational culture	36	17.82	21	18.26	15	17.24
		work environment	13	6.44	7	6.09	6	6.90
		Total	**49**	**24.26**	**28**	**24.35**	**21**	**24.14**
2	Supervisory encouragement	Leadership's role and vision	42	20.79	31	26.96	11	12.64
		Managers' support	16	7.92	5	4.35	11	12.64
		Total	**58**	**28.71**	**36**	**31.30**	**22**	**25.29**
3	Freedom (work autonomy)	Freedom	13	6.44	6	5.22	7	8.05
		Total	**13**	**6.44**	**6**	**5.22**	**7**	**8.05**
4	Sufficient resources	Time	21	10.40	13	11.30	8	9.20
		Budget	17	8.42	6	5.22	11	12.64
		Facilities	10	4.95	4	3.48	6	6.90
		Technology	8	3.96	3	2.61	5	5.75
		Total	**56**	**27.72**	**26**	**22.61**	**30**	**34.48**

Table 4.7 (Continue)

No.	Themes	Sub-themes	All participants		Managers		Staff	
			Occurrences	Percentages	Occurrences	Percentages	Occurrences	Percentages
5	HR activities and policies	Kaizen activity	8	3.96	3	2.61	5	5.75
		HR policies	7	3.47	7	6.09	0	0.00
		Total	**15**	**7.43**	**10**	**8.70**	**5**	**5.75**
6	Customer orientation	Customer orientation	11	5.45	9	7.83	2	2.30
		Total	**11**	**5.45**	**9**	**7.83**	**2**	**2.30**
Grand total			**202**	**100**	**115**	**100.00**	**87**	**100.00**

4.3.4.1 Theme 1: Organizational encouragement

Organizational encouragement refers to the extent to which the organization promotes an organizational culture that supports innovation, for example, a culture of the organization that has an open communication, and a culture that motivates employees by offering rewards and recognition when employees can propose creative ideas. There were 2 sub-themes, a) organizational culture and b) work environment, derived from the findings. When the participants were asked "What are the factors you think promote innovation at the organization level?, they addressed the idea of organizational encouragement 49 times.

1) Organizational culture

Organizational culture refers to the culture that supports innovation, such as shared value regarding innovation among group members, a culture where open communication is emphasized. Thirty-six out of 49 times, the participants reported organizational culture.

Replying to this question, interviewee #4, a manager at company EC, shared his experience in the following statement.

> Interviewee #4 (personal communication, October 6, 2015) “At our company, most of the employees have creative ideas. I think it depends on the culture of the organization. Here, we have a culture which is quite open to new ideas. Management tends to listen to new ideas. We always have meetings to report the progress of our new projects. However, when new ideas are proposed in the meeting, these ideas are not always accepted or implemented. It depends on the current situation and the customers' demands as well. Some ideas may be rejected or pending until the right time for the market.”

Similar to interviewee #4, interviewee #5, a manager at company EC, discussed the open-minded culture.

> Interviewee #5 (personal communication, October 6, 2015) “I think the work environment which includes the facilities provided by the organization is important to drive innovation. More importantly, the organizational culture is also essential. If the organization has an open-minded culture, employees would dare raise creative ideas.”

2) Work environment

Work environment refers to the surrounding conditions of the organization that support innovation, such as the setting of the workplace environment. Apart from the open-minded culture mentioned earlier, the participants reported on a work environment that encourages employees to think creatively 13 times.

Regarding this, the researcher would like to report an observation made at company Y. When the researcher waited for the interview to start, I accidentally met a man wearing a very casual red and black jacket with jeans. He had a tattoo on his left hand. He was very good looking with his very unique style. At first, I thought that he was not an employee working at this company. However, five minutes later after he passed by me, he came to the interview room

again. He told me that he would participate in the interview. I was shocked by style of dressing. I have never thought that a company would allow employees to wear such clothing. After I talked to him, he told me that he was a creative producer and worked for the product design department. He further told me that the company allowed creative producers to wear casual attire. He added that, for some reasons, wearing a uniform may interfere with the creative thinking of employees. He stated the following.

> Interviewee #35 (personal communication, December 15, 2015) "I love to wear stuff like this. I think we should not be restricted to uniforms. Uniforms can obstruct people's creativity. Here, our management and HR allow designers to wear anything they like. They understand our nature and our thoughts. Moreover, they don't want to block our ideas. In my opinion, this kind of freedom and environment can support us in coming up with new creative ideas."

At the end of the interview, I also met another lady that was wearing a very fashionable outfit. She also worked for the product design department. She was a subordinate of interviewee #35, whom I mentioned earlier. She addressed the idea that clothing can make her produce more creative ideas.

> Interviewee #41 (personal communication, December 15, 2015) "Well, actually it is our regulation to allow designers to wear private suits. For me, creativity is dealing with thinking. Just to think about what to wear every day is how we use our imagination to think about what we are going to wear. I think it allows our brain to work. It may sound like an exaggeration, but I think it helps me to become creative."

Moreover, an observation was made at company YD. The researcher was guided by a staff member to visit and observe their workplace. From the researcher's viewpoint, company Y has a very unique work environment

compared to other companies. For example, they have a free space where employees can relax and discuss with other members regarding their projects. Moreover, they also have a cafeteria where juice, coffee, and snacks are provided for free to all employees at their break time.

In addition, the researcher also observed the workplace during their working time. There were some musical instruments there, such as a keyboard and a guitar. The director said that these musical instruments made their employees more relaxed so that they could work happily and be more productive.

The researcher was allowed to take some pictures of their work place. The following pictures illustrate the findings regarding the work environment issue.

Figure 4.4 A free space for employees to work for their projects at company YD

Figure 4.5 Relaxation zone for employees at company YD

Figure 4.6 Cafeteria at company YD

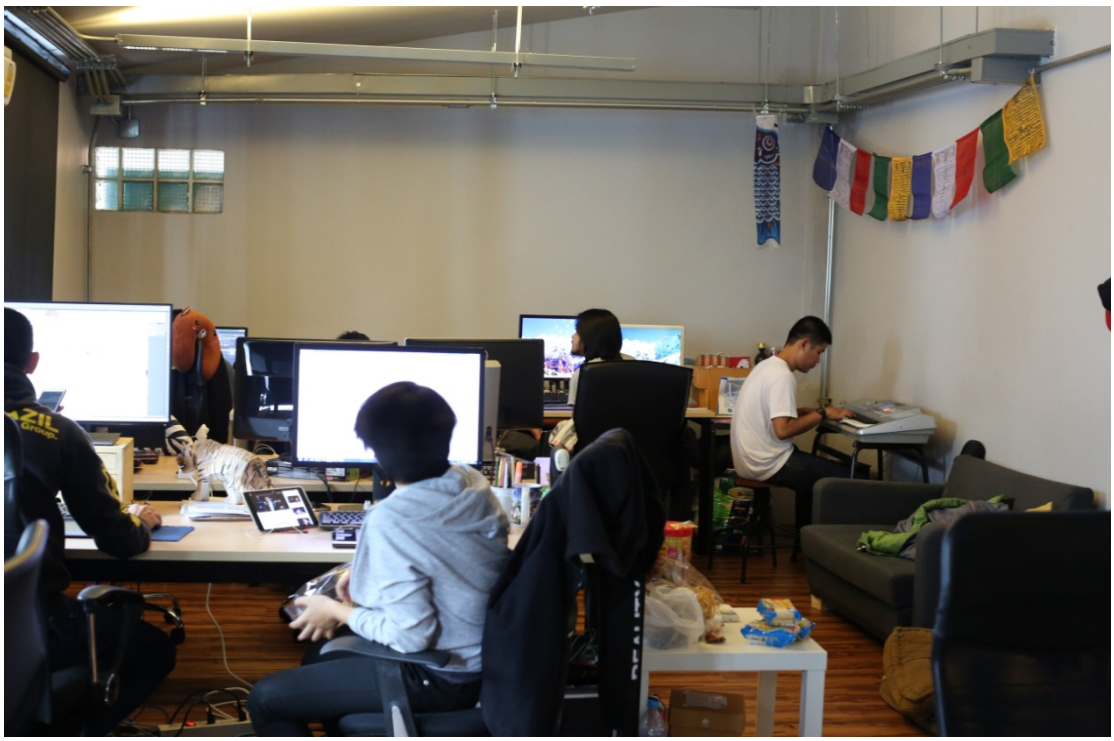

Figure 4.7 Workplace setting with some musical instruments at company YD

4.3.4.2 Theme 2: Supervisory encouragement

Supervisory encouragement means the extent to which supervisors or managers create a process that supports innovation, such as the support of new ideas, the group's project, and creating an environment where open communication is emphasized (Amabile et al., 1996). There were 2 sub-themes: a) the leadership's role and vision, and b) the managers' support derived from the findings.

An overwhelming majority of the participants replied that supervisory support was the most important factor that promoted the creative process within the firm. The participants reported this issue 58 times. Here are some viewpoints from the participants.

1) The leadership's role and vision

This sub-theme refers to the roles and vision of the leaders regarding innovation, such as how they set strategy related to innovation. Forty-two times this issue was raised by the participants.

Interviewee #10, a manager at company I, shared his experience about supervisory support in his organization as follows.

> Interviewee #10 (personal communication, October 12, 2015) "The leader is an influential person who creates innovation within the firm. If the leader has a passion to drive innovation, there will be an ambitious determination to do that."

Another example from interviewee #17, a manager at company EI, provided the idea that innovation had been placed in the company's vision and it was applied to all departments.

> Interviewee #17 (personal communication, December 1, 2015) "I think the management policy related to innovation is important. Here, our management is focused on innovation. If we have no innovation, we can't compete with the global markets. We can't stop developing new innovation so that all the departments in the organization have to follow this vision."

Moreover, a comment from interviewee #25, a manager at company T, and interviewee #39, a staff member at company Y reported about the organization's vision related to innovation.

> Interviewee #25 (personal communication, December 14, 2015) "A clear vision of the organization is also support for innovation. If one of the managers views innovation as important but another does not, innovation will hardly be implemented perfectly within the organization. It is like a government; you can see that when we change the government, the policy always changes. Thus, we have to have the same vision and same goals."

> Interviewee #39 (personal communication, December 15, 2015) "The leader here puts tremendous effort into creating innovation. We have a

vision that relates to innovation and the leader will declare that vision every time we have a meeting."

2) The managers' support

This sub-theme refers to the support provided by the managers such as begin open to new ideas and providing sufficient resources for their employees to work on creative projects. Sixteen times this issue was mentioned by participants.

Interviewee #12, a manager at company C, reported how his leader placed much focus on the creative process in the following statement.

> Interviewee #12 (personal communication, October 10, 2015) "For most of the products that are developed here, the ideas came from the leaders. Employees will develop the product based on their ideas. Essentially, our leaders have interest in innovation. They put much effort into implementing innovation. For example, the management provided sufficient resources and budget for the team to develop the products."

Furthermore, interviewee #18, a manager at company EI, shared his experience working in the R&D department as follows.

> Interviewee #18 (personal communication, December 1, 2015) "The managers in all of the departments have to focus on innovation and to listen to new ideas from employees as well. We have to create a good and a better job for our company. Especially, the R&D team always has new ideas to present to the manager. Even the purchasing department, our staff may think of a new process that could help reduce working time. It could be considered as process innovation."

During an interview at company SN, what I could observe was that every participant reported that most of the innovation projects began with the leader or the owner of the company. Unfortunately, the researcher had no chance to

interview the leader. However, from discussing with many people in the organization, they addressed their leader in a very positive way. They reported that the company had become innovative because of the top leader, who supported employees in many ways. When the researcher observed the environment inside the company, the researcher noticed that there was a company vision and mission board that mentioned innovation.

In addition to this, interviewee #42, a manager at company SN, shared her experience about the leader in her company. She addressed the idea that the leader was the most important factor in promoting innovation. She mentioned this in the following words.

> Interviewee #42 (personal communication, April 11, 2016) "I think the most important factor at the organization level is the leader. Leader plays a very important role in giving direction to the company. I can give you an example about this. If there are a lot of creative employees in the organization, but the leader doesn't support anything, the projects can't happen. But for our organization, almost all of the projects or ideas are started from the leaders. He will come up with new ideas and discuss with marketing and R&D every time they have new projects. For example, he will come to us and ask if we could create a table top with rice or recycled products. After that, R&D has to put his project into action."

Another observation was made at company TO when the researcher had a chance to meet an assistant director. He showed me many places in his office. The researcher observed the PR board on the first floor. The board has a piece of A4 paper on it that declares their vision. Their vision is "to produce creative products and services with a high quality as well as to continuously improve the production process in order to enhance customers' satisfaction."

When talking with the assistant director, he further explained that although the vision statement does not emphasize the word "innovation," management always encourages employees to focus on this. The following picture illustrates the PR board at company TO.

Figure 4.8 A PR board at company TO

In addition, another observation at company TO described the situation related to this issue very well. On the interview day, the company allowed the researcher to observe the home room meeting of R&D department from 9 am to 10 am before the interview began. Ten employees participated in the meeting. First, each division reported on their progress or problems regarding the particular issues they were facing. Then, the manager encouraged his or her staff to figure out ideas or solutions to solve the problem.

During an observation, one employee reported a problem related to the production process. Another employee raised the idea that this problem could be solved by reducing the number of some of the processes. After he raised this idea, the manager encouraged other employees to think by asking them if they had any comments regarding this issue. Some comments were made by the rest of employees. Finally, the solution of the problem seemed clearer.

The observation results were similar to what an interviewee reported during an interview. Interviewee #51, the assistant director of company TO,

who shared his thoughts about the factors related to innovation at the organization level.

> Interviewee #51 (personal communication, May 3, 2016) "Well, in my thought, the factor that influences innovation is the manager support. Managers have to promote innovation by motivating other employees to think creatively. For example, I have tried to conduct a meeting every morning—here we call it a home-room meeting. Employees in R&D department have to report their progress and problems. After that I encourage others to find a solution to each particular problem. Sometimes, they raise very good ideas and solutions related to the production process."

The following statements are the opinion of the staff. First, interviewee #28, a staff member at company T, and interviewee #33, a staff member at company S, provided examples about their supervisory support for innovation with the following statements.

> Interviewee #28 (personal communication, December 14, 2015) "Managers always support us when we have new ideas. They will listen to us and give us advice."

> Interviewee #33 (personal communication, December 11, 2015) "Our management has focused a lot on innovation. As we produce parts for the automotive industry, we have to create innovation both in process and product to catch up with competitors."

4.3.4.3 Theme 3: Freedom (work autonomy)

Autonomy or freedom relates to the extent to which the staff has the freedom to control its own job (Amabile et al., 1996; Ekvall & Ryhammar, 1999).

The participants mentioned freedom to do their projects 13 times. The following are some samples of the responses to this issue.

Interviewee # 54, a manager at company O, mentioned how freedom was related to innovation.

> Interviewee #54 (personal communication, May 4, 2016) “Well, here we work as a team and we have quite a lot of freedom to control our job. We have only 6 employees here. I am taking care of the R&D department. I definitely have freedom to work on new projects. In my thought, creativity can happen if the company allows employees to have freedom to control their jobs.”

Interviewee #40, a staff member at company Y and interviewee #45, a staff member at company SN, replied regarding the issue of freedom in the following statement.

> Interviewee #40 (personal communication, December 15, 2015) “We have freedom to think. I think we have 80% free time to figure out creative ideas apart from our routine jobs. Moreover, I think I have a chance to control my own job.”

> Interviewee #45 (personal communication, April 11, 2016) “I am a R&D staff member in this company. I spend most of my time on creating new projects or testing the material that can be applied to new products. I have 100% freedom to do my job. The managers will give us advice when we needed it. There are around 5 persons in my department.”

4.3.4.4 Theme 4: Sufficient resources

Resources refer to the materials, funds, and sufficient time for working on creativity that support the development of creativity. A majority of the participants raised sufficient resources as one of the important aspects related to innovation. Sufficient resources were addressed 56 times by the participants during the interviews. Moreover, 4 sub-themes were described by participants: 1) time, 2) budget, 3) facilities, and 4) technology.

1) Time

This refers to the time that the organization provides for the employees to engage in new creative projects.

Replying to this question, 21 out of 56 times, time was mentioned by some participants. The following example from interviewee #8, a staff member at company EC and interviewee #32, a staff member at company S, were described.

> Interviewee #8 (personal communication, October 6, 2015) "Here we have an R&D department. There are 3-4 employees developing new ideas and new projects to serve customers' needs. They have a lot of time to work for new projects and to think creativity."

> Interviewee #32 (personal communication, December 11, 2015) "We have enough time to work on new projects here, especially the R&D team. Our managers give us sufficient time to think about and develop new projects. For other departments, actually they have routine jobs to do. But I think they have sometimes to think about other projects. It's about how to manage time."

2) Budget

This sub-theme refers to the financial support from the companies that allows workers to engage in new projects.

Seventeen out of 56 times the participants addressed the idea that the budget or funds was the most necessary factor. Interviewee #1, a manager at company K and interviewee #42, a manager at company SN, replied as below.

> Interviewee #1 (personal communication, October 5, 2015) "Financial capacity is also an important factor for innovation. If we have only know-how but no money to implement it, innovation will not take place."

> Interviewee #42 (personal communication, April 11, 2016) "Luckily, our management focuses a lot on innovation. So we have enough budget to implement new projects all the time."

Another example from interviewee #9, a staff member at company EC, mentioned the budget with the following statement.

> Interviewee #9 (personal communication, October 6, 2015) "Here we have sufficient budget to implement our new projects. We have to present new project to the manager first. And then the management will approve the budget needed for the project."

3) Facilities

Facilities refer to the space or equipment necessary to implement a creative project. Apart from funding and time, 10 out of 56 times the employees mentioned the facilities that support the project. Interviewee #58, a director at company YD, reported on need to have sufficient facilities.

> Interviewee #58 (personal communication, May 4, 2016) "Well, apart from the budget, I think the facilities provided by the organization can support innovation. In our company, we are provided facilities such as computers, software, and other equipment related to do the projects for employees. Um...we have sufficient facilities. It is an important aspect for implementing creative projects."

In addition to the managers' comments regarding the facilities issue, interviewee #40, a staff member at company Y, addressed this issue with the following words.

> Interviewee #40 (personal communication, December 15, 2015) "I think sufficient facilities are important to successfully

conduct a new project. We have good facilities that support our work here."

4) Technology

This refers to machinery and equipment provided by the organizations to their employees. There were 8 out of 56 times the employees mentioned that technology that provided by the organizations is essential to implement new projects.

Interviewee #33, a staff member at company S addressed about technology as the following statement.

Interviewee #33 (personal communication, December 11, 2015)

"In my view, our organization has sufficient equipment, especially new machinery or new technology that support us to work on creative projects. When we design prototypes for automobile parts, we have to test them before launching them to the market. So it is necessary to use new technology."

4.3.4.5 Theme 5: HR activities and policies

HR activities and policies refer to the activities and policies of HR that encourage an individual's creativity and innovation within the firm.

Fifteen out of 202 times the participants addressed the issue of HR activities and policies. They agreed that HR activities and policies were a significant factor supporting the creativity process and led to innovation. There were 2 sub-themes: 1) kaizen activity and 2) recruiting policy derived from the findings. The following statements are some example regarding this issue.

1) Kaizen activity

Kaizen activity or management is a Japanese practice. It is a continuous improvement process which improves the manner of work (Chen, Dugger, & Hammer, 2000). Generally, kaizen is one of the strategies that can improve productivity, quality, organizational climate, and business performance (Dean & Robinson, 1991). Kaizen was mentioned by the participants 8 times.

Interviewee #18, a manager at company EI, also reported on the activity implemented by HR, which was called kaizen (continuous improvement).

> Interviewee #18 (personal communication, December 1, 2015) "We do have a Kaizen activity. The activity is held every year by the HR. Employees that participate in this activity have to raise ideas related to the improvement that benefits the organization. The winner will get an award. It sounds like an incentive to motivate employees to think of something different."

In addition to Kaizen activity, interviewee #19, a staff member at company EI, mentioned this in the following words.

> Interviewee #19 (personal communication, December 1, 2015) "We do have a QCC project (quality control circle). It is a project where employees have to brainstorm. It can help develop our thinking. It's similar to Kaizen. We have to improve something that we think is a problem. We have to find out the solution to handle it. We also have a chance to get a cash reward from this project. In my opinion, QCC is a very good project to motivate employees to think. As I have been visiting Japan for a company trip, they conduct something like QCC, and very successfully. All of the staff members have knowledge like at the engineer level. The projects motivate and help employees to understand how to think logically and creativity."

2) HR policies

This sub-theme refers to the human resource policies, such as recruiting and staffing, training and development, and so on. This sub-theme was addressed 7 times.

Interviewee #18, a manager at company EI, mentioned the HR policies with the following words.

> Interviewee #18 (personal communication, December 1, 2015) "HR also plays an important role in recruiting employees that tend to have creativity, especially the new generation, like Generation Y. Gen Y has very creative ideas because they use various technologies and also they are good at using social networks. HR needs to survey what Gen Y needs for their work. Here, HR has now been presenting new ideas to attract Gen Y. Their ideas are to reduce the work days from 6 days to 5 days a week. Moreover, flexible time to start the job is also one of their ideas. Furthermore, in order to attract smart people, we will have policy to support education (Master, and Ph.D.) for employees. But they have to share their research with the company in return."

In addition, interviewee #17, a manager at company EI, mentioned the training held by HR in the following statement.

> Interviewee #17 (personal communication, December 1, 2015) "Here we have training courses but most of the courses are related to the job or the process of doing a job better. I think if employees have knowledge or skills to do their work through training, it is more likely that creative ideas may arise."

Furthermore, one of the participants at company Y (interviewee #40, staff) also shared his experience, which was similar to HR activity, in the following statement.

> Interviewee #40 (personal communication, December 15, 2015) "We have an activity that is held annually that encourages employees to think about new projects. We love to participate in that activity because we can present our ideas."

In addition to interviewee #40's comment, interviewee #60, who worked as a marketing staff member at company YD, addressed a similar issue.

> Interviewee #60 (personal communication, May 4, 2016) “As most of our projects are related to creativity and innovation, we need a lot of ideas from the staff to implement the work. Moreover, we have many chances to present our ideas. For example, every year there is an event where employees can present their ideas to the management. Since most of us are creative producers, it is quite a challenge for us to present new creative ideas. We don’t need any reward. We just want to present our ideas. It is very challenging.”

4.3.4.6 Theme 6: Customer orientation

Customer orientation refers to flexibility regarding customer service, and an understanding of the customer’s needs in order to produce new products and services.

The participants addressed customer orientation 11 out of 202 times. They shared their experiences regarding customer orientation—that it is important to understand customers’ needs before producing any products. Here are some examples of this issue.

Interviewee #1, a manager at company K and interviewee #5, a manager at company EC, addressed how important it is to listen to the customers’ voice, as stated in the following.

> Interviewee #1 (personal communication, October 5, 2015) “Another important factor that I can think of for creativity is the customer. We get new ideas from customers. Because before we conduct anything, we need to analyze the customers’ needs first. We have to understand whether the product will be able to satisfy the customers’ needs or not.”

> Interviewee #5 (personal communication, October 6, 2015) “Most of the projects that we create tend to be related to the customers' needs. When employees come up with a new project, as a manager, we have to decide whether it can effectively serve customers’ needs or not.”

Lastly, interviewee #26, a manager at company T, shared her experience about the innovation implemented by her company to get customer feedback about the products. She addressed this issue with the following words.

> Interviewee #26 (personal communication, December 14, 2015) “We hold an event called "innovation show" when we launch new products. With this event, we can gain a lot of attention from customers. Moreover, we will receive comments and suggestions that can be used to develop a new product in the future.”

The following figure illustrates the different viewpoints between the managers and staff.

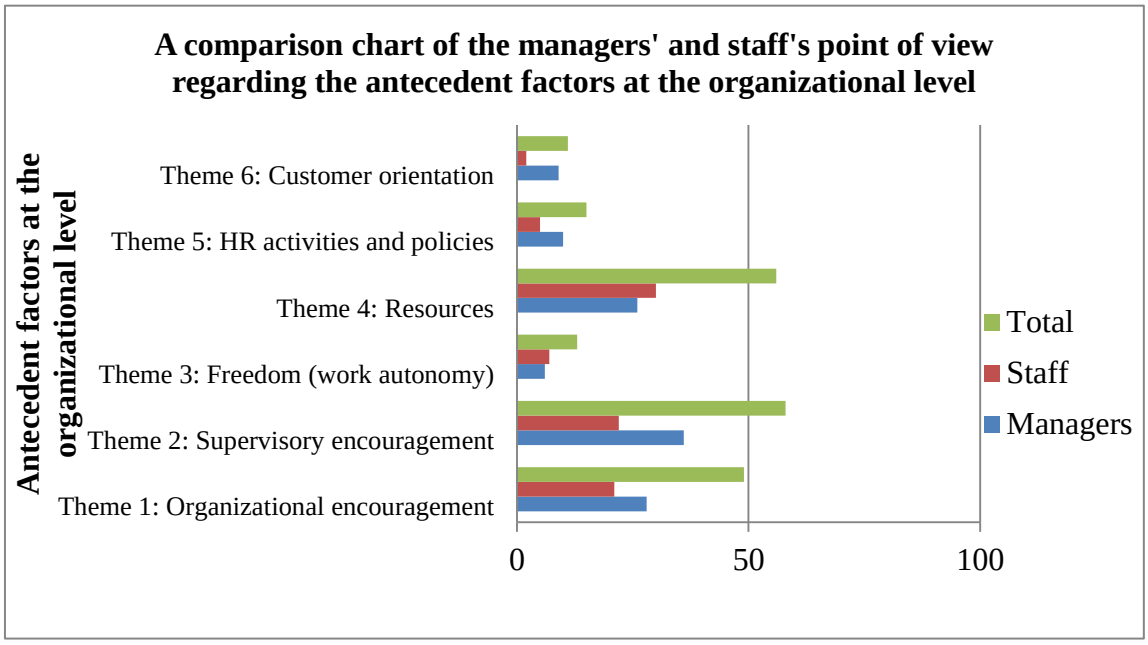

Figure 4.9 A comparison chart of the managers’ and staff’s point of view regarding RQ2 (at the organization level of analysis)

According to the above figure, the most commonly-addressed factors by all of the participants were supervisory encouragement (theme 2), which accounted for 58 times or 28.71%, followed by sufficient resources (theme 4), accounting for 56

times or 27.72%. Organizational encouragement (theme 1) was addressed 49 times or 24.26%, HR activities and policies (theme 5) accounted for 15 times or 7.43%, freedom (theme 3) was addressed 13 times or 6.44%, and customer orientation (theme 6) was accounted for 11 times or 5.45%.

However, from the managers' point of view, supervisory encouragement (theme 2) was the most frequently addressed. It occurred 36 times (31.30%). The second ranked was organizational encouragement (theme 1) at 28 times (24.35%). The third ranked belonged to sufficient resources (theme 4), which accounted for 26 times (22.61%). HR activities and policies (theme 5), customer orientation (theme 6), and freedom (theme 3) were mentioned for 10 times (8.70%), 9 times (7.83%), and 6 times (5.22%) respectively.

In contrast, from the staff's viewpoint, sufficient resources (theme 4) were the most frequently-addressed factor, mentioned 30 times or 34.48%. The second rank belonged to supervisory encouragement (theme 2), which was mentioned 22 times or 25.29%. The third rank was organizational encouragement (theme 1), which was mentioned 21 times or 24.14%. Freedom (theme 3), HR activities and policies (theme 5), and customer orientation (theme 6) were accounted for 7 times (8.05%), 5 times (5.75%), and 2 times (2.30%) respectively. The details of each theme by comparing the managers and staff's viewpoints are stated below.

First, the idea of organizational encouragement (theme 1) was raised 49 times by the participants. Twenty-eight out of 49 were addressed. The managers addressed this issue 28 out of 49 times whereas it was addressed 21 times by the staff.

Second, supervisory encouragement (theme 2) was one of the factors frequently addressed by both managers and staff, as mentioned earlier. This factor was mentioned by managers and staff 36 times and 22 times accordingly.

Third, freedom (theme 3) was raised 13 times by the participants, 6 and 7 times by the managers and staff respectively.

Forth, sufficient resources (theme 4) was one of the factors frequently addressed by both managers and staff, as mentioned earlier, 30 times by the staff and 26 times by the managers.

Fifth, HR activities and policies was one of the interesting factors mentioned by the participants. It was address 10 out of 15 times by the managers; however, only 5 times was it reported by the staff.

Last, customer orientation was the least mentioned factor by both the managers and the staff. Eleven times this factor was addressed. Nine out of 11 times it was addressed by managers and 2 times by the staff.

4.3.5 RQ3: The Antecedent Factors That Inhibit Innovation

The following session was devoted to research question 3 which stated as follow

RQ 3: What are the antecedent factors that inhibit innovation in small and medium- size enterprises in Thailand?

There were 7 themes derived from the interviews: 1) time limitation/workload, 2) financial problems, 3) lack of facilities and resources, 4) communication failure, 5) unsupportive management, 6) difficulty in recruiting creative employees, and 7) internal process problem.

There were 164 clauses referring to 1 out of 7 themes, 37 were allocated to time limitations/workload, 41 to financial problems, 26 to lack of facilities and resources, 9 to communication failure, 39 to unsupportive management, 7 to difficulty in recruiting creative employees, and 5 to internal process problem. Each theme and sub-theme is discussed in the following table.

Table 4.8 A Summary of the Antecedent Factors that Inhibit Innovation

No.	Theme	All participants		Managers		Staff	
		Occurrence	Percentages	Occurrence	Percentages	Occurrence	Percentages
1	Time limitation / workload	37	22.56	19	24.05	18	21.18
2	Financial problem	41	25.00	15	18.99	26	30.59

Table 4.8 (Continue)

No.	Theme	All participants		Managers		Staff	
		Occurrence	Percentages	Occurrence	Percentages	Occurrence	Percentages
3	Lack of facility and resources	26	15.85	13	16.46	13	15.29
4	Communication failure	9	5.49	5	6.33	4	4.71
5	Unsupportive management	39	23.78	21	26.58	18	21.18
6	Difficulty in recruiting creative employees	7	4.27	6	7.59	1	1.18
7	Internal process problem	5	3.05	0	0.00	5	5.88
	Grand total	**164**	**100.00**	**79**	**100.00**	**85**	**100.00**

4.3.5.1 Theme 1: Time limitations/workload

Time limitations/workload refers to the degree of the workload and the period of time that a person has in order to manage the work properly. When asking the participants what the antecedent factors were that inhibited innovation at the small and medium-size enterprises in Thailand, there were 37 clauses that the participants replied with concerning time limitations and workload pressure.

The following statement from interviewee #6, a manager at company EC, is example of those that addressed this matter.

> Interviewee #6 (personal communication, October 6, 2015) “One more challenge regarding innovation is time. I think most of the employees have to do their routine job. So there is no time to think of other creative projects. Moreover, we rarely have a chance to conduct a survey regarding customers’ needs. It’s quite important to develop new projects.”

In addition to this, interviewee #51, assistant director at company TO, reported about the obstacle of the workload that might influence innovation.

> Interviewee #51 (personal communication, May 3, 2016) “Well, our company has a KPI system, right? I think most of the employees have tried to achieve this. So sometimes, they ignore other elements such as innovation or creativity. We haven’t used innovation as one of the criteria to evaluate employees. I think this is a problem—that most employees don’t raise or show their thought about innovation.”

In addition to the opinion of the managers reported earlier, interviewee #22, a staff member at company EI, shared his experience about time limitations, stating the following.

> Interviewee #22 (personal communication, December 1, 2015) “I think time could be an impediment to creativity. We are stuck with our routine jobs. So we have no time to think creatively.”

4.3.5.2 Theme 2: Financial problems

Financial problems refer to the limited budget that is insufficient for an organization or individual to implement a project. When asked the same question concerning the impediment factor regarding innovation, there were 41 clauses that the participants mentioned about financial problems or the limited budget provided by the company. The following are the examples of participants that addressed the issue of financial problems.

According to interviewee #10, a manager at company I, the budget is one of the obstacles to innovation. He shared his experience with this issue with the following words.

> Interviewee #10 (personal communication, October 12, 2015) “The budget is a challenge to innovation. Moreover, how to make the product reliable for consumers is also essential. We have to compete with many brands

> in the world so how to make Thais aware of the quality of our products is a difficult task.”

Furthermore, interviewee #42, a manager at company SN, reported on a problem similar to the budget problem. She stated the following.

> Interviewee #42 (personal communication, April 11, 2016) “I think that one of the obstacles to innovation is that most organizations have a lot of creative projects. When you have a lot of creative projects it means that you have to spend a lot of money to implement or test them. A successful innovation focuses on what you are going to do. You can work on it on a seasonal or yearly basis. For example, this season, we need to launch this product or that product. There needs to be a person who can control this process and decide whether to implement the project or not."

4.3.5.3 Theme 3: Lack of facilities and resources

This theme refers to scarce resources such as human resources and equipment related to the implementation of new creative projects. Twenty-six out of 164 participants mentioned this factor.

According to an interview with interviewee #26, a manager at company T, the facilities at his organization were a problem.

> Interviewee #26 (personal communication, December 14, 2015) “The facilities in our organization are not sufficient compared to a big company. We don't have a good environment to create a new project like Apple. We still don’t have a sufficient budget.”

Moreover, interviewee #29, a manager at company S, also mentioned the lack of manpower with expertise in research and development. He shared his experience about this in the following words.

> Interviewee #29 (personal communication, December 11, 2015) “We are still short of research and development officers. I think these kinds of people don't like to work in the company setting. I think they may be working for the government sector or as freelancers.”

4.3.5.4 Theme 4: Communication failure

This theme refers to communication problems that are caused from having employees with different cultural backgrounds. Nine participants shared their experience regarding communication failure.

According to interviewee #6, a manager at company EC, information sharing and communication failure were the problems that impeded innovation.

> Interviewee #6 (personal communication, October 6, 2015) “In our organizations, there is sometimes a problem with the information sharing system and communication among employees. Thus, sometimes Innovation can hardly be implemented.”

Furthermore, during an observation at T Company, the researcher noticed that there was a Korean manager working at this company. The researcher also had a chance to interview him. He had been working for this company around 3 years. He could speak Thai at the conversational level and he could also communicate in English. I felt that he had a good relationship with the employees. However, communication seemed to be a problem. Sometimes he did not understand what Thai employees wanted to say and sometimes Thai employees do not understand his intention either.

When I was waiting for the interview to start, I saw a young female employee talking to the Korean manager in the Thai language. The young employee wanted to report about her project to him. However, it seemed as if the conversation was not going as smoothly as it should have been. She had to ask her colleague to help translate what she wanted to say in English. It took them more than 20 minutes to finish the conversation.

After I finished interviewing the Korean manager, I continued an interview with a Thai manager, who stated that communication was oftentimes a problem.

Interviewee #26, a manager at company T, was a Thai manager that had been working for this company for around 3 years. She shared her experience about communication failure in her company with the following words.

> Interviewee #26 (personal communication, December 14, 2015) "Communication is also a problem within our organization. Actually, we have Korean managers here. Of course, we have to communicate with them in English. We sometimes understand each other but many times we don't. When we don't understand each other, we would ask another Korean manager who can speak Thai very well to translate for us. We don't have any interpreter here. So typically it takes a lot of time communicating about the job. We end up misunderstanding each other quite a lot."

When asked how interviewee#26 thought that she could improve the communication failure in her company, she said that the foreign managers should have learned the Thai language and the English language before they departed to Thailand. She provided a suggestion for this problem in the following statement.

> Interviewee #26 (personal communication, December 14, 2015) "I think that in order to cope with the communication problem in our organization, the Korean managers should have learnt the Thai and English language before they came to work in Thailand. They should be able to speak Thai and English at a business level. Moreover, they should study about the Thai culture too. So they can understand how the Thais perceive, how we work, and so on."

Another observation at company YD made me discover the communication problem that might have impeded creativity and innovation. As I arrived prior to the interview time, I was invited to wait in one of the meeting rooms

on the 1st floor. I accidentally saw 2 foreigners and a few Thai employees discussing their job. One of the foreigners was working as a producer for the company. I believe he was a European. Another foreigner was a Japanese customer. They were trying to communicate in English. However, they did not seem to understand each other even though the conversation took a long time. They were starting to draw a picture to describe their own thoughts.

During the interview, I discussed this issue with one of the participants. Interviewee #60, a staff member that was working in the marketing department shared her experience about communication problems in her organization.

> Interviewee #60 (personal communication, May 4, 2016) “Well, we have many producers who come from overseas, for example, American, Spanish, Russian, and so on. Most of the time we have to communicate with them in English. Sometimes, we have communication problems. If we have to communicate difficult issues or meet with foreign customers, we will hire an interpreter. I agreed that communication failure is one of the obstacles to innovation. Although we have a variety of ideas because we have a diverse background of people, sometimes we can’t understand others’ thought due to the language barrier.”

4.3.5.5 Theme 5: Unsupportive management

Unsupportive management refers to managerial problems that are not supportive of the implementation of innovative activities. Another factor shared by the participants was unsupportive management. The participants mentioned this issue as an impediment to innovation 39 times.

Interviewee #5, a manager at company EC, shared his experience with this issue in the following words.

> Interviewee# 5 (personal communication, October 6, 2015) “A lot of creative ideas will only be stored in the brains of employees if there is no channel to present an idea. An important thing is the management's vision toward innovation. If the company acknowledges that innovation is important

> for the organization, employees will be more likely to present ideas that benefit the organization. Actually, we are quite innovative, but I think if the management gets involved and emphasizes more innovative activity, our company might become more innovative than in the current situation."

Another example from interviewee #8, a staff member at company EC, addressed the idea that unsupportive management was one of the factors that impeded innovation activity within the organization.

> Interviewee #8 (personal communication, October 6, 2015) "The manager and supervisors here have focused a great deal on the routine job rather than on new projects or creative ideas."

Moreover, interviewee #8, a staff member at company EC and interviewee #18, a manager at company EI, also provided a recommendation which represented many of the participants' opinions toward this issue. They stated that HR should be involved in activities related to promoting creativity, mentioned in the following.

> Interviewee #8 (personal communication, October 6, 2015) "There should be a stage or working zone that allows employees to think creatively. Management and HR should support this process."

> Interviewee #18 (personal communication, December 1, 2015) "HR activity might help to motivate employees to think out of the box. HR should implement some courses that help employees to think logically and more creatively."

4.3.5.6 Theme 6: Difficulty in recruiting creative employees

This theme refers to a problem when recruiting potential creative employees. Apart from the above impediment factors influencing innovation, there

were some other factors related to innovation. Seven times the participants mentioned difficulty in recruiting innovative employees.

Interviewee #24, a manager at company T, mentioned the small size of the company, which might not attract good employees. She stated this in the following.

> Interviewee #24 (personal communication, December 14, 2015) “In my opinion, a small company like us does not have the power to attract creative employees. We have a low salary compared to bigger companies. You know, when a highly qualified person chooses a company, he/she will first go to a bigger one. Moreover, if a small company can’t offer more benefits or more salary compared to a bigger one, they will certainly choose a bigger one. No doubt, a small company has no power to recruit qualified and creative employees compared to a big company. I think this is the starting point of why we still lack creative persons working with us.”

4.3.5.7 Theme 7: Internal process problem

This theme refers to difficulty in the internal process in terms of communicating or reporting ideas to top management. Five times the participants mentioned this issue.

Interviewee #21, a staff member at company EI, mentioned the red tape in the process in the following statement.

> Interviewee #21 (personal communication, December 1, 2015) “We have to present our ideas to many levels of managers until they agree that our project is good and beneficial to the organization. This process also takes time. So if HR helps reduce this process by providing a stage to present the ideas directly to management, I think it could motivate many employees to do so.”

The following figure illustrates the differences and common viewpoints between mangers and staff.

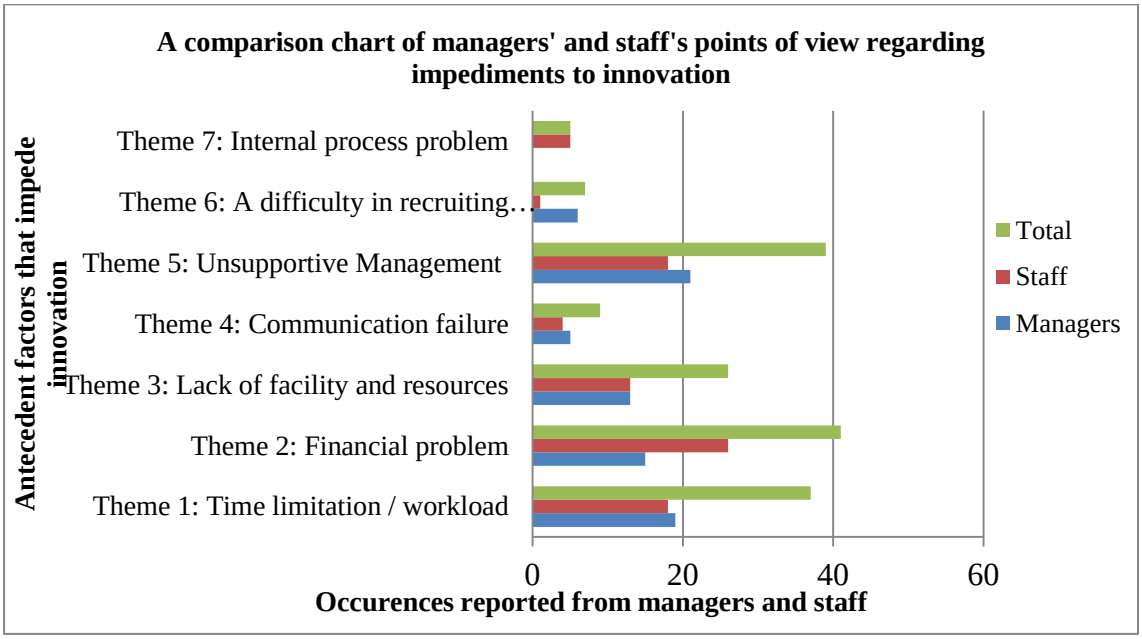

Figure 4.10 A comparison chart of managers' and staff's points of view regarding RQ3

According to the figure above, the most frequently-addressed factors by all participants were financial problems (theme 2), accounting for 41 times (25.00%), unsupportive management (theme 4), accounting for 39 times (23.78%), and time limitations/workload (theme 1), accounting for 37 times (22.56%). Lack of facilities and resources (theme 3), and communication failure (theme 4) were addressed 26 times (15.85%), and 9 times (5.49%) respectively. Lastly, difficulty in recruiting (theme 6), and internal process problem (theme 7) were addressed 7 times (4.27%), and 5 times (3.05%) respectively.

From the managers' point of view, unsupportive management (theme 4) was the most frequently-mentioned factor. It accounted for 21 times (26.58%). The second rank was time limitations/workload (theme 1), accounting for 19 times (24.05%). The third ranked was financial problems (theme 2), accounting for 15 times (18.99%). In contrast, from the staff's viewpoint, financial problems (theme 2) was the most frequently addressed factor. It accounted for 26 times (30.59%). The second

rank was time limitations/workload (theme 1) and unsupportive management (theme 4), at 18 times (21.18%) for each factor.

Both managers and staff commented on each theme as illustrated in the following.

First, time limitations/workload (theme 1) was addressed 37 times. Out of this amount, 19 times were allocated to managers and 18 times were reported be the staff respectively.

Second, financial problems (theme 2) were addressed 41 times by the participants. The managers reported this 41 times the staff reported it 26 times.

Third, lack of facilities and resources (theme 3) was addressed 26 times by the participants. Both managers and staff reported the same amount of occurrences—13 times for each side.

Fourth, communication failure was the least mentioned factor by the participants. Only 9 times was this factor addressed. Five out of 9 times it was reported by the managers whereas it was addressed only 4 times by the staff.

Fifth, unsupportive management was one of the most frequently-addressed factors by participants. Unsupportive management was mentioned 39 times, 21 times by the managers and 18 times by the staff.

Sixth, difficulty in recruiting was addressed 7 times by participants. This theme was mentioned 6 times by the managers and only 1 time by the staff.

Last, the internal process problem was addressed 5 times by the participants. This factor was addressed only by the staff.

4.4 Conceptual Framework

After a field survey, a new framework was derived as can be seen in the following figure.

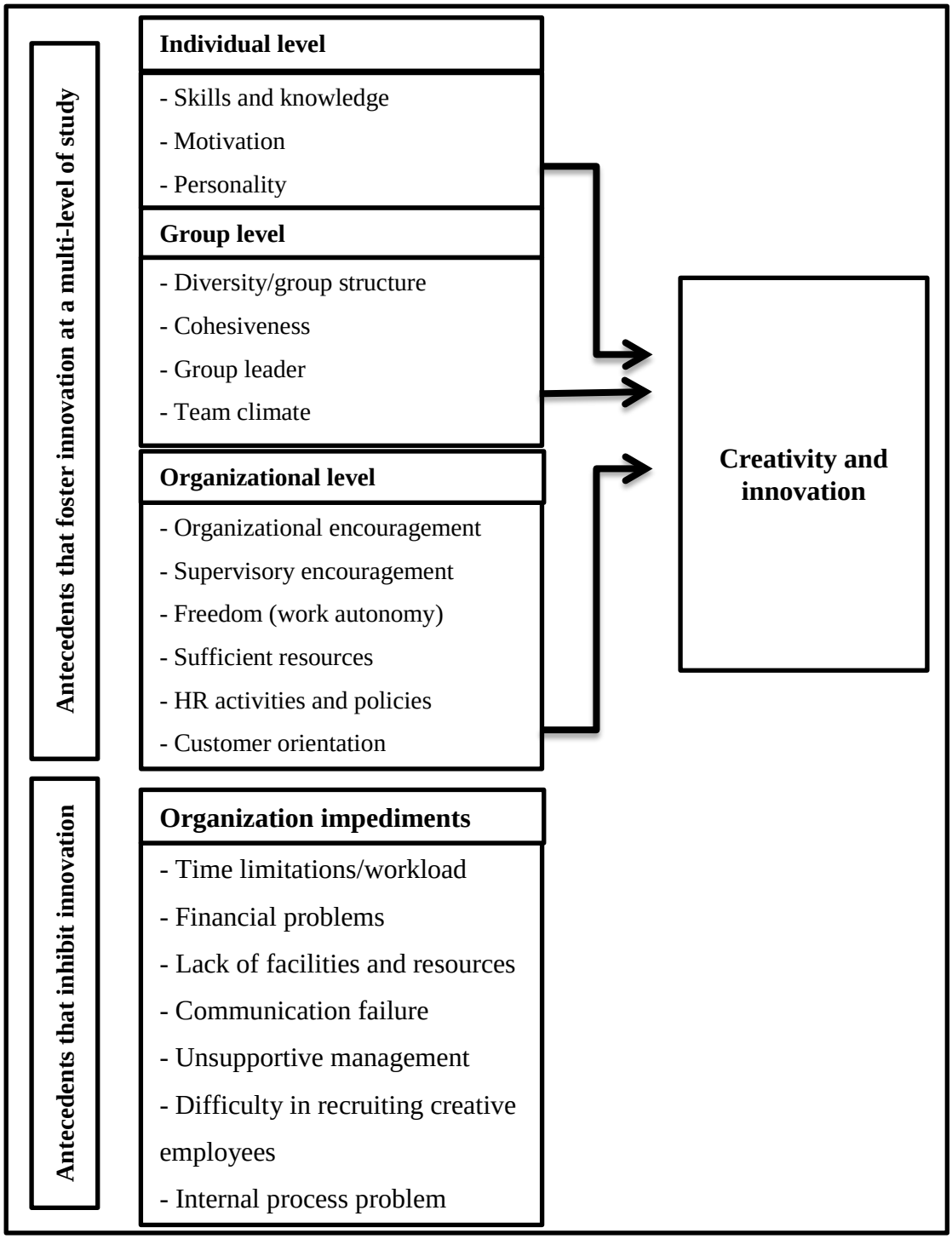

Figure 4.11 A new conceptual framework

Compared with the preliminary framework derived from the literature review, some of antecedents such as personality (individual level), team climate, group leader (group level), HR activities and policies, and customer orientation (organizational level) were added to the new framework. Moreover, the antecedent factors that were considered as impediments to innovation such as time limitations/workload, financial problems, lack of facilities and resources, communication failure, unsupportive management, and other themes were derived during the data collection.

4.5 Chapter Summary

This chapter demonstrated the findings from 60 participants from 13 companies that participated in the in-depth interviews. This research attempted to explore the following research questions.

1) What are the concepts and perceptions of innovation among workers and executives in small and medium-size enterprises in Thailand?

2) What are the antecedent factors that foster innovation in small and medium-size enterprises in Thailand?

3) What are the antecedent factors that inhibit innovation in small and medium-size enterprises in Thailand?

4) What is a possible exploratory model for the factors fostering and impeding innovation in small and medium-size enterprises in Thailand?

The findings of this study suggest a variety of interesting points. First, the concept of innovation from various viewpoints of participants was described. Second, the antecedent factors that foster innovation at the individual, group, and organizational level were explored. Third, the antecedent factors that impede innovation at the small and medium-size enterprises in Thailand were elaborated. The following table illustrates the findings of each category.

Table 4.9 A Summary of the Findings

Research Questions	No.	Themes	Sub-themes
Research Question 1	1	New and unique products and services	Uniqueness
			New things
			Creativity
	2	The improvement of existing products and services	Improving function
			Adding value
	3	New technology	Technology
	4	New solutions and processes	Solutions
			Processes
	5	Long-term investment	Investment
Research Question 2 (Individual Level)	1	Skills and knowledge	Broad experience
			Job knowledge
			Technical skills
	2	Motivation	Extrinsic
			Intrinsic
	3	Personality	Creative
			Ambitious
			Curious
			Observational
Research Question 2 (Group Level)	1	Diversity/group structure	-
	2	Cohesiveness (trust/openness)	-
	3	Group leader	-
	4	Team climate	-

Table 4.9 (Continue)

Research Questions	No.	Themes	Sub-themes
Research Question 2 (Organizational Level)	1	Organizational encouragement	Organizational culture
			Work environment
	2	Supervisory encouragement	Leadership's role and vision
			Managers' support
	3	Freedom (work autonomy)	-
	4	Sufficient resources	Time
			Budget
			Technology
			Facilities
	5	HR activities and policies	Kaizen activity
			HR policies
	6	Customer orientation	Customer orientation
Research question 3	1	Time limitations/workload	-
	2	Financial problems	-
	3	Lack of facilities and resources	-
	4	Communication failure	-
	5	Unsupportive management	-
	6	Difficulty in recruiting creative employees	-
	7	Internal process problem	-

A discussion of the findings in this chapter and recommendations for future research are presented in Chapter 5.

CHAPTER 5

DISCUSSION AND RECOMMENDATIONS

This research was conducted to investigate the antecedent factors that foster and inhibit innovation in SMEs in Thailand. As mentioned earlier, that innovation has been an increasingly interesting topic that has attracted many researchers and practitioners, this research aimed to provide greater understanding pertinent to the topic of interest.

This chapter presented a summary of the findings and discussed the implications of the current study. This study employed the qualitative method in order to explore the research questions. To investigate the meaning of innovation, along with the antecedent factors that foster and inhibit innovation, in-depth interviews and participant observation were employed.

This chapter provides a summary of results and an interpretation of the data. The conclusions drawn from the contribution of the antecedent factors that lead to innovation are presented based on the previous research relevant to this study. The practical and academic implications of this study, its limitations, and recommendations for future research are also presented in this chapter. The following topics are presented:

5.1 Summary

An overwhelming majority of the past literature has focused exclusively on exploring antecedent factors at one level (e.g., individual, group, or organizational level). However, the purpose of this study was to investigate the antecedent factors that foster and inhibit innovation at the multi-level of study by focusing on the individual, group, and organizational level. Specifically, the research questions for this study were:

1) What are the concepts and perceptions of innovation among workers and executives in small and medium-size enterprises in Thailand?

2) What are the antecedent factors that foster innovation in small and medium-size enterprises in Thailand?

3) What are the antecedent factors that inhibit innovation in small and medium-size enterprises in Thailand?

4) What is a possible exploratory model for the factors fostering and impeding innovation in small and medium-size enterprises in Thailand?

The qualitative approach was used to answer the research questions. Sixty participants from 13 SMEs in Bangkok and metropolitan provinces that achieved innovation awards or were considered as innovative by the NIA were contacted. The case companies were selected based on the random sampling technique. The data were collected via interviewing and observing technique by recruiting 60 participants working in the R&D department, the marketing department, the production department, or any department engaged in innovative activity.

In addition, in order to gain multiple perspectives, the participants for this study were 30 managers and 30 staff members. All of the participants were selected based on the purposive sampling technique. This technique served as a tool to select the small numbers of participants that were particularly informative (Nueman, 2005). The time spent for the data collection was around 7 months—from 5th of October 2015 to the 4th of May 2016.

The key findings of this study included the antecedent factors at each level of analysis found to have an influence on innovation. As mentioned earlier, this dissertation was an exploratory research using the inductive approach to explore the research questions. Some antecedent factors were shown to be different from the preliminary antecedent factors that were proposed in the conceptual framework in Chapter 2. The details of each antecedent are discussed as follows.

First, replying to research question 1, which aimed at exploring the concept and perception of innovation from the participants' point of view, 5 themes were derived from the interviews. The participants viewed innovation as: 1) new and unique products and services, 2) the improvement of existing products and services, 3) new technology, 4) new solutions and processes, and 5) long-term investment.

Second, addressing research question 2 which sought to find the antecedent factors fostered creativity at the individual, group, and organizational level, a variety

of themes were derived from the interviews. First and foremost, at the individual level, the following themes were revealed: 1) skills and knowledge, 2) motivation, and 3) personality. Second, the findings at the group level revealed the following: 1) diversity/group structure, 2) cohesiveness, 3) group leader, and 4) team climate were the factors that fostered innovation. Third, the results at the organizational level displayed 6 themes: 1) organizational encouragement, 2) supervisory encouragement, 3) freedom, 4) sufficient resources, 5) HR activities and policies, and 6) customer orientation.

Third, answering research question 3 which sought to find what antecedent factors inhibited innovation, 7 themes emerged: 1) time limitations/workload, 2) financial problems, 3) lack of facilities and resources, 4) communication failure, 5) unsupportive management, 6) difficulty in recruiting creative employees, and 7) internal process problem.

Compared to the previous framework, some antecedent factors such as personality (individual level), team climate, group leader (group level), HR activities and policies, and customer orientation (organizational level) were added to the new framework. Moreover, some antecedent factors that were considered as impediments to innovation such as time limitations/workload, financial problems, lack of facilities and resources, communication failure, unsupportive management, difficulty in recruiting creative employees, and internal process problem were derived during the data collection.

Last, a range of HR interventions and recommendation for enhancing innovation from the participants' point of view were revealed in the findings. These findings included training and development, recruitment strategy, talent retaining, and HR activities that support creativity.

5.2 Discussion of the Research Findings

In this section, the research findings are discussed based on the research questions. Further, the findings from the present study are compared to those of prior research studies.

The following discussion begins with the perceived meaning of innovation, and the antecedent factors that support innovation at the individual, group, and organizational level. Then, the antecedent factors that inhibit innovation are described.

5.2.1 RQ 1: Perceive Meaning of Innovation

The research question in this study is listed below.

RQ 1: What are the concepts and perceptions of innovation among workers and executives in the small and medium-size enterprises in Thailand?

Regarding this research question, there were differing amounts of information and concepts of innovation derived from the findings. There were 5 major themes, which included: 1) new and unique products and services, 2) the improvement of existing products and services, 3) new technology, 4) new solutions and processes, and 5) long-term investment.

Concerning the concept of innovation from the participants' point of views, these findings were consistent with much of the previous literature.

5.2.1.1 Theme 1: New and unique products and services

According to the findings, 48.35% of the participants revealed that innovation was something new and unique. The participants further addressed the notion that innovation involves new and unique products and services that benefit the consumers.

These concepts of innovation are similar to those provided by many scholars (e.g., Brown, 1994; Dehoff, Jaruzelski, & Kronenberg. 2005; Kuniyoshi et al., 1988; Thompson, 1965; Tornatzky & Fleischer, 1990; Wong, Tjosvold, & Liu, 2008). For example, Tornatzky and Fleischer (1990) suggested that the meaning of innovation defined as the introduction of new ideas, new methods, or something new. In addition, as with Tornatzky and Fleischer (1990), Thompson (1965) defined innovation as "the generation, acceptance and implementation of new ideas, processes products or services" (p.2). Similarly, Wong et al. (2008) suggested that "innovation can be defined as the effective application of processes and products new to the organization and designed to benefit it and its stakeholders" (p.2).

5.2.1.2 Theme 2: The Improvement of Existing Products and Services

According to the findings, 34.07% of the participants revealed that innovation was the improvement of existing products and services in order to create better functions or values.

These concepts of innovation are consistent with the definitions provided by certain theorists (Leonard & Rayport, 1997; Lumpkin & Dess, 1996). For example, according to Lumpkin and Dess (1996), innovation can be defined as a process that can create more value for the products or services in order to create a greater degree of novelty for firms. Similarly, Leonard and Rayport (1997) suggested that innovation is the improvement of existing products, services, or processes.

Moreover, this concept of innovation is relevant to the concept of incremental innovation proposed by many theorists (e.g., Greenwood & Hinings, 1996; Mole & Elliot, 1987; Tidd, Bessant & Pavitt, 2005; Tushman & Anderson 1986). These scholars pointed out that incremental innovation involves the continual process of improvement of existing products, processes, and services.

5.2.1.3 Theme 3: New Technology

As seen in the findings, 8.79% of the participants revealed that the development of new technology in order to make people's lives more convenient and better could be treated as innovation. Some of the participants indicated that innovation is new technology that can benefit human life.

These findings from the participants' point of views are closely associated with the concept of innovation proposed by Rahman and Ramos (2013). These authors pointed out that innovation can be regarded as the application of ideas, or an invention of something, or an application of technology to processes or products or services in order to serve customers' needs and to reduce costs. Moreover, among the variety of definitions of innovation, the concept of innovation that was revealed from the participants in relation to this theme is consistent with the concept of technological innovation suggested by Letangule and Letting (2012)—that technological innovation is a process which is science, technology, and system based.

5.2.1.4 Theme 4: New Solutions and Processes

Again according to the findings, 7.69% of the participants revealed that innovation involved production process. Moreover, some of the participants

mentioned that innovation was a new solution that could help workers handle problems efficiently.

These concepts of innovation which considered innovation as a process are similar to the ideas of Avermaete et al. (2003). Moreover, this perception is also relevant to the meaning of process innovation suggested by several authors (e.g., Chandy & Tellis 2000; Damanpour, 1991; Thailand National Innovation Agency [NIA], 2006); Yosyingyong, 2009). For example, Yosyingyong (2009) defined process innovation as new operations or production processes that reduce the organization's costs and increase effectiveness.

5.2.1.5 Theme 5: Long-term investment

According to the findings, 1 participant revealed that innovation was a long-term investment for the organization. According to the participant, it is necessary for the organization to have a future plan regarding products or service innovation in order to survive in the market.

This concept of innovation was pointed out by many theorists and scholars regarding the importance of innovation. For example, Saguy (2011) suggested that innovation is a significant driver to compete under global economic pressure and unstable markets. The author further stated that innovation serves as a facilitator to support organizational growth. In addition, innovation is a change within the organization and it is an important part of ensuring that the company can survive in global markets in the long run (Davila, Epstein, & Shelton, 2006).

5.2.2 RQ 2: The Antecedent Factors That Foster Innovation at the Individual Level

The research question in this study is listed as follows.

RQ 2: What are the antecedent factors that foster innovation in the small and medium-size enterprises in Thailand?

Regarding the research question, there were 3 themes derived from the interviews: 1) skills and knowledge, 2) motivation, and 3) personality. The findings of the study are broadly in line with many of theorists, who proposed a model that explained the relationship between each dimension and creativity at an individual

level (e.g., Amabile, 1983; Feist, 1999; Lovelace, 1986; Peterson & Carson, 2000; Woodman, Sawyer & Griffin, 1993).

One of the outstanding models was proposed by Amabile (1983), explaining three dimensions that are the sources of creativity, namely: domain-relevant skills, including knowledge, technical ability, and special talents; creativity-relevant skills, including the application of problem-solving techniques, cognitive style, and working style; and task motivation, including intrinsic task motivation and extrinsic task motivation.

In addition, Woodman, Sawyer, and Griffin (1993) also pointed out that individual creativity is a function of the following factors, antecedent conditions, cognitive style and ability, personality factors, motivation, and social influence.

As seen in the findings of this study, the first theme (skills and knowledge) is compatible with the domain-relevant skills proposed by Amabile (1983). Although some words such as special talent did not appear in the findings, some of the participants revealed opinions related to this issue, for example, technical skills and expertise in particular work. In addition, the findings of the current are also in line with the cognitive style and ability, personality, and motivation factors proposed in "Interactionist Model of Organizational Creativity" proposed by Woodman, Sawyer, and Griffin (1993).

Moreover, the second theme (motivation) is in line with task motivation, which is the third dimension explained in Amabile's model. Amabile explained that there are two forms of motivation: intrinsic and extrinsic task motivation. Similar to Amabile's work, in this study both intrinsic and extrinsic motivation were discussed by the participants as an essential factor in fostering innovation. Nevertheless, extrinsic motivation did not appear in this study, to have a negative influence on creativity, as Amabile stated in her research.

Lastly, the third theme (personality) is relevant to creativity-relevant skills, which was the second dimension proposed by Amabile. Although the findings were compatible with Amabile's model, there are several areas in which they differed from Amabile's suggestions. In addition, the partial findings of the third theme (personality) are also compatible with the five-factor model traits proposed by Costa

and McCrae (1992). Some sub-themes, such as creative types of persons and curiosity were similar to Costa and McCrae's explanation in their study.

The explanation of each theme in the study at an individual level is described in detail as follows.

5.2.2.1 Theme 1: Skills and knowledge

Wiig (1993) defined knowledge as the understanding or know-how that the person possesses. In addition, knowledge is the basic requirement that enhances the intelligent behavior of a person.

According to the interviews, 33.57% of the participants indicated that skills and knowledge were a significant factor in innovation. Further, there were 3 sub-themes derived from the findings regarding skills and knowledge: a) broad experience, b) job knowledge, and c) technical skills.

Most of the participants that mentioned skills and knowledge commented that it was essential for an individual to have job knowledge and technical skills regarding their job before he or she can administer it for better. These findings are consistent with the previous research of many theorists that suggested that knowledge is an essential pre-requisite for innovation. It is more likely that creative ideas can be generated if one has specific knowledge about the work (Woodman et al., 1993; Mumford, 2000). Moreover, Amabile (1998) pointed out that the more skills the creative employees have, the better is the creativity that can be accomplished.

Further, some of the participants indicated the individual's broad experience that can enhance his/her knowledge. They suggested that participating in training or visiting and exhibition could increase the individual's knowledge related to the job. The findings are consistent with previous study that described skills and knowledge. Training, job rotation, and on-the-job training can enhance skills and knowledge (Morrison & Brantner 1992). In addition, Lock and Kirkpatrick (1995) and Tidd, Bessant, and Pavitt (2005) stated that learning through a variety of ways is one of the methods to enhance the skills and knowledge that can support employees in generating new ideas.

5.2.2.2 Theme 2: Motivation

The above theme mentioned that skills and knowledge are considered as an individual's qualities. However, motivation is one of the factors that make people

act in order to achieve goals, and motivation was one of the important factors raised by the participants in terms of having an influence on creativity. This is in line with previous research studies that explained that motivation is a significant factor that helps with creativity. For example, Runco (2005, p. 609) stated that "creative potential is not fulfilled unless the individual (and his or her social support) is motivated to do so, and creative solutions are not found unless the individual is motivated to apply his or her skills."

According to the interviews, 32.17% of the participants mentioned intrinsic and extrinsic motivation, which seemed to have a positive influence on innovation. Regarding this, Amabile (1984) discussed the ideas of intrinsic motivation and extrinsic motivation. The author further explained that intrinsic motivation was the motivation that comes from inside the person. For example, one would like to do a project because it is challenging and enjoyable (Amabile, 1987, p. 224). On the other hand, extrinsic motivation is an external reward—it is the motivation that organizations provide for employees in order to inspire them to work for something in order to achieve goals (Amabile, 1987, p. 224).

According to the interviews, both extrinsic motivation and intrinsic motivation were mentioned. However, 11.89% out of 32.17% of the participants, especially those that worked in R&D, viewed that intrinsic motivation was more important than extrinsic motivation. They mentioned that it was a challenge for them to create something new. There have been numerous studies that support the idea that intrinsic motivation is a mediator of creativity, for example, Choi (2004); Csikszentmihalyi (1996); George (2007); Jesus et al. (2013), who stated that there is an association between intrinsic motivation and creativity.

Moreover, Amabile viewed that intrinsic motivation is a foundation of creativity. She suggested that people are motivated to do work because the work is interesting, challenging, and captivating.

In contrast, 20.28% out of 32.17% of the participants, especially the staff, indicated that extrinsic motivation promotes creativity rather than intrinsic motivation. Interestingly, an overwhelming majority of the staff agreed that they were motivated by extrinsic motivation. These findings are broadly in line with some theorists that have suggested that extrinsic motivation influences the motivation of a

person (e.g., Abbey & Dickson, 1983; Eisenberg & Cameron, 1996; Eisenberger, Haskins, & Gambleton, 1999). According to Eisenberg and Cameron (1996), extrinsic rewards positively influence the innovation process at the individual level. On the other hand, the findings differed from Amabile's (1998) suggestion that extrinsic motivation tends to decrease creativity.

5.2.2.3 Theme 3: Personality

According to the findings, 34.27% of the participants agreed that personality was an important factor related to innovation. Personality was the most frequently-mentioned factor among the three themes regarding the antecedent factors at the individual level. Moreover, sub-themes were derived from the findings: a) creative, b) ambitious, c) curious, and d) observational.

Personality has been widely recognized as a factor associated with innovation by several researchers (e.g., Costa & McCrae, 1992; Feist, 1999; Gough, 1979; Peterson & Carson, 2000). Moreover, personality appears to be one of the individual characteristics related to creativity in the study of "Toward a Theory of Organizational Creativity" by Woodman, Sawyer, and Griffin (1993).

Similar to the above findings, Costa and McCrae (1992) proposed the five-factor model traits. This model explains the traits of a person, consisting of conscientiousness, openness to experience, agreeableness, extraversion, and emotional stability. This model has been applied to the investigation of the personality of a person as it is related to creativity. Although some sub-themes of this study, such as being creative and curious may seem to be relevant to the openness to experience proposed by Costa and McCrae (1992), the rest of the sub-themes (observational and ambitious types of persons) did not appear in any of the dimensions proposed in the five-factor model.

According to Feist (1999), much of the empirical evidence has demonstrated a positive relationship between the characteristics of a person that tend to engage with innovation, for example, being imaginative and flexible. Moreover, King, McKee, and Broyles (1996) and Patterson, (2002) stated that the most essential characteristic that influences innovation is openness to experience.

5.2.3 RQ 2: The Antecedent Factors That Foster Innovation at the Group Level

Regarding the antecedent factors that foster innovation at the group level, several themes were suggested from the participants, including: 1) diversity/group structure, 2) cohesiveness, 3) group leader, and 4) team climate.

Although the studies on creativity and innovation at the group level are limited (Amabile et al., 1996), a substantial number of antecedent factors have been found to have a relationship with innovation (e.g., leaders, size, structure, team climate, norms, and diversity).

According to King and Anderson (1990), many antecedent factors influencing innovation at the group level have been proposed. This includes leadership, cohesiveness, and group structure. In addition, one of the major contributions to the field of innovation was proposed by Woodman, Sawyer, and Griffin (1993) in their study, "Toward a Theory of Organizational Creativity." The authors considered individual characteristics, group characteristics, and organizational characteristics as the input that could enhance organizational creativity, which is considered as an output. At the group level of analysis, antecedents such as norm, cohesiveness, size, diversity, roles, task, and problem-solving approach were addressed.

Some of the themes in the present study, such as diversity and cohesiveness, are in line with those factors in the group characteristics proposed by Woodman et al. (1993). Moreover, group leader was the factor that appeared to have a positive relationship with innovation in much of the research (e.g., Gumusluoglu & llsev, 2009; Howell & Higgins, 1990; King & Anderson, 1990; Wu, & Chow, 2008). Lastly, team climate was the other factor that appeared in the findings, which was stated in a variety of researches as having a positive impact on innovation (e.g., Chen, Farh, Campbell-Bush, Wu & Wu, 2013). The discussion of each theme is described in detail in the following section.

5.2.3.1 Theme 1: Diversity/group structure

One of the themes that emerged from the current analysis of the antecedent factors at the group level was diversity/group structure. An overwhelming majority of participants stated that diversity and group structure was the most important factor. Forty-two point four two percent of the participants mentioned

diversity. Some of the participants said the diverse background of other team members resulted in increasing new ideas.

This is also in line with many previous studies (e.g., Watson, Kumar, & Michaelson, 1993; Wiersema & Bantel, 1992; Williams and O'Reilly, 1998; Woodman, Sawyer, & Griffin, 1996) that indicated that groups with a variety of backgrounds and perspectives have a chance to be able to generate new ideas if they are given sufficient time to do so.

Moreover, according to the findings, some of the participants suggested encouraging the team to have a balanced level of diversity when assigning projects. They mentioned that in order to diversify a team and to have people with a variety of diverse backgrounds can result in higher creativity. This idea is in line with the study of Amabile (1998), which suggested that diversifying expertise within the team can inspire the rest of the team members. Moreover, most of the problems can be solved through the peer learning process.

In addition, the study "Diversify Your Teams and Collaborate: Because Great Minds Don't Think Alike" by Holtzman and Anderberg (2011) included 32 executives and department managers in the United States. The study found that 84% of the participants (27 out of 32) revealed that they decided to compose a diversified team because they were likely to facilitate multiple viewpoints that would lead to innovation and creative solutions.

Although diversity has a positive benefit concerning the enhancement of employees' creativity, some of the participants reported a negative consequence due to cultural diversity. Some of them stated that they were facing communication failure and conflict-related problems when there were foreign managers on their team. The participants reported that they have to take a long time to communicate with their managers because of differences in language usage. Moreover, they indicated that foreign managers do not understand the Thai culture or working style of Thai people.

These findings are consistent with Anderson and King (1991), who stated that excessive diversity does not facilitate better team innovativeness. In contrast, in some cases, too much diversity may negatively influence team cohesiveness. These findings are also in line with those of Gonzalez-Roma and West (2003), who indicated that a negative consequence may arise in case there is too much

diversity within the team. In addition, the findings are consistent with Martin (2014), who stated that cultural diversity can have a negative influence in numerous ways, such as miscommunication, conflict, and difficulty in achieving unity in group settings.

5.2.3.2 Theme 2: Cohesiveness

According to the findings, 7.07% of the participants revealed a relationship between cohesiveness and group innovation. Some of them suggested that when there is a close relationship among team members, it is more likely that team members will have more confidence in expressing new ideas. In contrast, some of the participants revealed that too much cohesiveness within the team may have a negative impact on innovation. They further elaborated that this seemed to be a common behavior in the Thai culture where some members tended to take sides with their colleagues with whom they had a close relationship.

The study results are consistent with King and Anderson's (1990), who stated that an optimal level of cohesiveness could support group creativity. In addition, Brown and Eisenhardt (1995) and Ford (1996) also pointed out that a team with a high level of social cohesion frequently resolves conflict and problem as well as increases the amount of information sharing among members of the team. This typically results in higher creativity.

5.2.3.3 Theme 3: Group leader

According to the findings, 19.19% of the participants revealed that the group leader had a strong influence on promoting innovation within the firm. Apparently, the group leader can help promote innovation by encouraging employees to think "outside the box" or advising employees on issues related to innovation. Moreover, some of the participants commented on the importance of the role of the group leader regarding innovation.

These findings are broadly in line with many past studies. The relationship between the leader and innovation has been studied for many decades by various scholars (e.g., Dackert, Loov, & Martensson, 2004; Howell & Higgins, 1990; Kanter, 1983; Peters & Waterman, 1982). According to a study of Howell and Higgins (1990), transformational leadership and participative leadership were emphasized as key factors related to organizational innovation. Transformational

leadership was defined as a leadership style that is based on encouraging, stimulating, and inspiring followers to put out extra effort in order to achieve extraordinary targets (Robbins & Coulter, 2007; Sarros, Gray, & Densten, 2002). In contrast, according to Bass (1981) and Mullins (2005), participative leadership is a leadership style that is associated with consultation and involvement with subordinates in the decision making process.

In addition, there has been much evidence demonstrating a relationship between leadership and innovation (e.g., Gumusluoglu & llsev, 2009; Jung, Wu, & Chow, 2008; Kelley & Lee, 2010). For example, Jung, Wu, and Chow (2008) pointed out an association between transformational leadership and organizational innovation in a positive way. Moreover, Sarros, Cooper, and Santora (2008) suggested that transformational leaders have a relationship with organizational innovation. The findings also supported the degree of creativity associated with supportive culture and visionary leaders.

5.2.3.4 Theme 4: Team climate

The word “climate” has been defined in different ways. Climate studies examine people’s perception and their experiences in the work environment that seek to investigate such dimensions as support and autonomy (Mathisen & Einarsen, 2004). Many definitions have been used to explain the meaning of the terms “climate” and “culture.”

According to Ekvall (1991), climate can be defined as the pattern of behaviors and feelings of the people that usually occur in the organization. On the other hand, organizational culture can be defined as the shared basic assumptions, beliefs, or values that are communicated to new employees as appropriate ways to think and behave (Schein 2010).

As a result, Denison (1996) differentiated these two terms by suggesting that organizational culture is a deep structure of the organization where beliefs, values, and assumptions are shared by the members. In contrast, organizational climate is associated with the social environment, which is changeable and can be controlled by leaders.

According to the findings, 31.31% of the participants indicated that team climate is another important factor that influences innovation at the group level.

Some of the participants revealed that positive team climates that encourage employees to think new things are more likely to produce a higher level of innovation. In addition, the participants commented that the team climate in an organization where employees are allowed to have autonomy and freedom to think new ideas is more likely to emerge.

These findings are in harmony with research such as that of Burningham and West (1995) and West and Anderson (1996). A four-factor model of team climate was suggested to have a positive influence on innovation, which includes: a) participative safety – this refers to a positive climate which allows team members to be involved in the decision-making process; b) vision – this refers to clear objectives and directions provided to team members; c) support for innovation – this refers to practical support by the organization to improve the ways of doing things; and d) task orientation/excellence – this refers to shared objectives reflected in tasks, goals, and processes that are concerned with the quality of the task (West and Anderson,1996).

Moreover, a recent study by Chen, Farh, Campbell-Bush, Wu and Wu (2013), which recruited 428 individuals from 95 research and development (R&D) teams from 33 Chinese organizations in a variety of industries, revealed that a facilitative and supportive team climate had a significant impact on innovation.

5.2.4 RQ 2: The Antecedent Factors That Foster Innovation at the Organization Level

Regarding the antecedent factors that foster innovation at the organizational level, 6 themes were derived from the findings: 1) organizational encouragement, 2) supervisory encouragement, 3) freedom (work autonomy), 4) sufficient resources, 5) HR activities and policies, and 6) customer orientation. The study of these factors has been widely discussed among scholars in the field and there have been a variety of models and theories that explained the relationship between the constructs. Moreover, a number of antecedents that involved promoting innovation including size (Damanpour, 1992; Fennell, 1984), structure (Blau & McKinley, 1979), organizational culture (Giugni, 2004; Martins &Terblanche, 2003), and work environment (Amabile et al., 1996) can be seen in various studies.

These findings in the present study are consistent with those of a number of theorists (e.g., Amabile et al., 1996; Martins & Martins, 2002; Woodman, Sawyer, & Griffin, 1993). In the study "Assessing the Work Environment for Creativity" by Amabile et al. (1996), the authors designed a model to assess the work environment which included a variety of dimensions that influence creativity, such as organizational encouragement, supervisory encouragement, work group supports, freedom, sufficient resources, and challenge. Many of the themes in the present findings such as organizational encouragement, supervisory encouragement, freedom, and sufficient resources are in line with those in Amabile et al. (1996). However, some determinants such as HR activities and policies, and customer orientation, were not found in Amabile and associates' study.

Moreover, the findings of this study are also compatible with those of Martins and Martins (2002), who explained the organizational level of study. They proposed that the determinant factors of organizational culture of innovation included strategy, purposefulness, a trusting relationship, behavior that encourages innovation, the work environment, customer orientation, and management support. The antecedent factors in the current findings, such as customer orientation and management support, are similar to those of Martins and Martins (2002). However, the antecedent factors such as HR activities and policies were not found in the study by these authors. Each theme is described in detail in the following section.

5.2.4.1 Theme 1: Organizational encouragement

According to the findings, 24.26% of the participants suggested that organizational encouragement influences innovation at the organizational level. Some of the participants revealed that organizational culture, which allows employees to have open communication, accept risk, and offers appropriate rewards and recognition, is are more likely to promote innovation. Moreover, some of the participants stated that the work environment that encourages employees to think is more likely to achieve innovation.

The above comments from the participants are consistent with many research studies (e.g., Amabile et al., 1996; Ekvall et al., 1995; Pfeffer & Sutton, 2000; Tesluk, Farr, & Klein, 1997). Amabile and associates (1996) proposed an instrument called KEYS, which assesses many aspects of organizational culture, for

instance rewards and recognition, support of new ideas, a culture that accepts risk taking, idea sharing, and a mechanism for how the visions of the organizations are communicated. In addition, the concept of the work environment is also aligned with that of Martins and Martins (2002). The authors explained the dimensions of the work environment as including the integration of goals and objectives, conflict handling, cooperative teams, participation, and control of one's own work.

A recent study by Hsu and Fan (2010) with 1,830 participants in Taiwan using the KEYS instrument to access the work environment found that the organizational work environment was associated with creativity and innovation. The study suggested that the work environment is the most important factor that determines the degree of individual creativity which results in organizational level. Moreover, the authors also pointed out that those stimulants and obstacles identified in the study can be influenced by leaders.

5.2.4.2 Theme 2: Supervisory encouragement

This theme presented the roles of the supervisor as well as the roles of leaders regarding their attempt to promote innovation. According to the findings, 28.71% of the participants revealed the importance of supervisory encouragement issues. All of the participants mentioned the vital roles of leaders in terms of promoting innovation. Many of the participants agreed that leaders and supervisors are the key persons in driving innovation. They revealed that leaders influence the innovation process and the roles of leaders significantly impact the organizational climate and culture.

This idea of supervisory encouragement is consistent with many prior researches (e.g., Martins & Martins, 2002; Kanter, 1983; Peters & Waterman, 1982). In addition, the aspect of supervisory encouragement has also been defined as one of the factors that influence innovation in Amabile et al.'s (1996) study. They proposed that supervisory encouragement includes the support of new ideas, the group's project, and support of the work environment that allows open communication. Like Amabile and associates, Shalley and Gilson (2004) suggested that leadership is an essential key element of innovation because leaders can create a supportive environment that enhances creativity.

5.2.4.3 Theme 3: Freedom (Work Autonomy)

According to the findings, 6.44% of the participants mentioned that freedom or work autonomy is one of the important factors that supports innovation. Some of the participants revealed that freedom controlling their own work is essential for creating their own projects linked to innovation.

The findings are in line with Amabile et al. (1996), who stated that freedom is one of the dimensions in the KEYS instrument. Amabile suggested that freedom is the sense of having control of projects or self-determination in how to achieve tasks. Moreover, the author added that the level of creativity can be increased when the goals are clearly specified and employees have autonomy to work in order to achieve those goals.

In addition, the findings of this study are also supported by the study of Mullins (2002), which indicted that freedom or autonomy is an essential tool for fostering the utilization of knowledge which results in promoting teamwork. The findings are in line with West, Hirst, and Shipton (2004), who suggested that autonomy is an essential ingredient of innovation. Similarly, Mullins (2002) and McLean (2005) stated that too much control can inhibit the creative performance of employees.

5.2.4.4 Theme 4: Sufficient resources

According to the findings, 27.72% of the participants suggested that sufficient resources were one of the antecedent factors that lead to innovation. As seen in the interview findings, most of the participants stated about sufficient time, facilities, budget, or even human resources were sources of innovation.

These findings are consistent with many prior researches (e.g., Amabile et al., 1996; Mumford, 2000; Woodman, Sawyer, & Griffin, 1993). For example, Woodman, Sawyer, and Griffin (1993) suggested that resources are one of the organizational characteristics that enhance innovation. In addition, according to Mumford (2000), sufficient time and facilities related to the projects are the most essential factors that help to develop innovation. This is also in line with Amabile et al. (1996) and Shalley and Gilson (2004), who stated that innovation is more likely to be implemented if employees have sufficient resources in terms of time, funding, and materials.

Interestingly, some of the participants in the current study commented about the lack of human resources in the R&D function. They stated that most of the new graduates tend to work with either big companies or the government sector due to the higher salaries and benefits there. The number of knowledge workers is still limited in SMEs. This challenge of a lack of human resources will be further discussed in the antecedent factors that inhibit innovation in 5.2.5.3.

5.2.4.5 Theme 5: HR activities and policies

According to the findings, 7.43% of the participants revealed that HR plays a very crucial role in promoting innovation. Most of the participants stated that HR strategies and activities such as performance appraisal, flexible work practices, training, and reward policies may encourage innovation. In addition to this, some of the participants revealed that kaizen (continuous improvement) and QCC (quality control circle) have a positive impact on creativity and innovation. They further suggested that these activities help employees to think more logically and creatively.

The findings of the current study are also compatible with many prior researches (Camelo-Ordaz et al., 2008; Shipton et al., 2006; Stern, 1992; Yussof & Kasim, 2003). According to Stern (1992), HRD policy, as well as effective training and development, can increase the degree of creativity. These findings also in line with Shipton et al. (2006), who indicated that the roles of HR have a significant impact on the development of innovation.

Moreover, these findings are also supported by a study of Satsomboon and Pruetipibultham (2013). The authors investigated Japanese multi-national companies in Thailand and found that there was an association between kaizen and organizational innovation. The study also suggested that kaizen or small-group activity had a positive impact on organizational innovation.

5.2.4.6 Theme 6: Customer orientation

According to the findings, 5.45% of the participants mentioned customer orientation as one of the variables impacting innovation. They revealed a common comment: that the opinions from customers can help improve products and services that result in innovation. Some of the participants said that they had an annual event where customers were invited to review their products in order to gain their opinions. After they receive the customers' feedback regarding product

development issues, R&D can focus on developing products to satisfy the customers' needs. This can result in producing attractive and innovative products for the market.

These findings are consistent with Akao (1988), who pointed out that customers play an important role in creating effective product innovation. The opinions of the customers can guide R&D in terms of making decisions on the design of products as well as product specifications, which result in innovation. In addition, the findings are relevant with those of Zhou, Brown and Dev (2009), who suggested that firms that have a customer-orientation culture are likely to achieve a competitive advantage through innovation differentiation. Moreover, consistent with other findings, the study of Wang, Zhao and Voss (2016) regarding customer orientation and innovation in 1,646 manufacturing firms and 686 service firms in China also confirmed the relationship between customer orientation and product and service innovativeness.

5.2.5 RQ 3: The Antecedent Factors That Inhibit Innovation

The following section discusses research question 3 as follows.

RQ 3: What are the antecedent factors that inhibit innovation in the small and medium-size enterprises in Thailand?

As stated earlier there are many barriers to the development of innovation. Especially, in Thailand, a number of SMEs are confronting many difficulties in developing effective innovation, such as the lack of marketing capabilities, low-quality laborers, the inability to use up-to-date technology, and emphasis only on the differentiation of original products (Thailand National Innovation Agency [NIA], 2014).

Regarding the research questions related to the impediment of innovation, 7 themes were derived from the interviews: 1) time limitations/workload, 2) financial problems, 3) lack of facilities and resources, 4) communication failure, 5) unsupportive management, 6) difficulty in recruiting creative employees, and 7) internal process problem.

These findings are partially similar to those of Troy (2004), suggesting that the challenges for companies to become innovative are insufficient resources, a lack of innovation strategy, and a misalignment of organizational strategies. In addition,

according to the American Management Association (AMA) and the Human Resource Institute (HRI) Innovation Survey 2006, the top three barriers to innovation within organizations included insufficient resources, lack of formal strategies for innovation, and a lack of clear goals and priorities (AMA/HRI, 2006, p. 16). These findings are also consistent with the study of Galia and Legros (2004), who conducted a survey about community innovation in France. The authors found that the barrier to innovation consisted of the high cost on innovation, lack of qualified personnel, internal resistance to change in firms, and the lack of the commitment of consumers to new products.

In the Thai context, these findings are broadly in line with those of Chittithaworn, Islam, Keawchana, and Yusuf (2010), who stated that challenges for the Thai SMEs are predicted to come from a lack of funds, skills, technology, and access to information. Moreover, these findings are consistent with the study of Saigosoom (2012), suggesting that the main barriers to developing organizational innovation in the Thai food SMEs were the internal factors embedded within their organization. Further, the barriers such as resistance to change by customers, weak employee skills, a lack of finance, and a shortage of time on the part of decision makers were seen to be serious barrier to developing organisational innovations. Moreover, a study by Sukasiriwat and Gerdsri (2014), “Challenges and Limitations of Driving Innovation in Thai SMEs,” demonstrated barriers affecting the development of innovation in Thai SMEs: 1) insufficient government support; 2) high innovation development and R&D costs; and 3) difficult access to financial resources.

Some themes in the current findings such as time limitations/workload, financial problems, and a lack of facilities and resources are broadly in line with those of many theorists, such as the studies by Troy (2004), Saigosoom (2012), and Sukasiriwat, and Gerdsri (2014). In addition, some themes such as communication failure and unsupportive management appeared in some literature such as the work of Satsomboon and Pruetipibultham (2013) and Birley and Niktari (1995). A discussion of each theme follows.

5.2.5.1 Theme 1: Time limitations/workload

According to the findings, 22.56% of the participants revealed that time limitations and workload pressure were the work elements that impeded innovation.

Many of the participants addressed the issue that spending too much time on a routine job can obstruct creativity because there is no time to think about new projects. Moreover, some of the participants suggested that when they had a lot of work to do, they had no time to generate new ideas.

The findings are relevant to past literature, for example the work of Hadjimanolis (1999), who investigated the barriers to SMEs in Cyprus. Hadjimanolis (1999) demonstrated that lack of time was one of the most significant challenges for SMEs in Cyprus. In line with the findings, Amabile et al. (1996) and Andrews and Smith (1996) suggested in their study that workload pressure was the factor associated with fewer creative projects in the organization. Moreover, the findings of this study are also similar to those of Rothwell and Dodgson (1994), who proposed that the challenges of most SMEs can be predicted to come from a lack of time and resources.

5.2.5.2 Theme 2: Financial problems

According to the findings, 25% of the participants admitted that finances was a problem for them in terms of creating projects related to innovation. Some of the participants revealed that the company should provide a sufficient budget for new projects. Moreover, some of the participants suggested that it was necessary to focus only on a potential project rather than on many other projects with less priority in order to reduce costs.

The findings of the present study are consistent with those of Han (2013), who investigated Chinese SMEs in China. The author articulated that financial constraints were the challenges of most SMEs. Not only were there internal financial constraints, but also most of the SMEs had difficulty in accessing financial support from the external sources. Ba (2013) demonstrated that most of the SMEs in China had difficulty in obtaining loans from banks. Thus, it is a challenge for SMEs to gain external funds to improve their machinery and equipment related to the development of innovation (Hall & Khan, 2002). Concerning financial barriers, the study of Saigosoom (2012), which surveyed 100 participating firms, found that the most significant barrier that hampered the development of innovation in Thai food SMEs was insufficient finances.

5.2.5.3 Theme 3: Lack of facilities and resources

According to the findings, 15.85% of the participants demonstrated their opinion regarding the lack of facilities and resources. Some of them said that their company had insufficient facilities compared to those of big companies. Moreover, some of the participants addressed the human resource issue. They added that a lack of R&D workers in their organization was a problem in developing innovation.

These findings are relevant to those of Dewar and Dutton (1986), who suggested that it was important for firms to invest in human capital—firms with a high numbers of qualified members are more likely to have the capacity to innovate. Moreover, Demirbas (2010) provided the notion that the barriers to companies in Turkey was a lack of financial support and budget related to innovative projects, as well as a lack of qualified personnel. These factors were obviously the keys challenges of most companies. In the Thai context, Ngamkroeckjoti et al. (2005) found that the lack of sufficient resources, especially qualified and skillful employees engaged in innovative projects, was the most difficult for Thai food SMEs.

5.2.5.4 Theme 4: Communication failure

According to the findings, 5.49% of the participants discussed the communication failure within their firms. Although having foreign employees in the firms can create a greater diverse background resulting in more creativity, some of the participants stated that they had difficulty when communicating with their foreign managers and foreign customers. Some of them also admitted that their ability to communicate with their foreign managers in English was quite weak. Apparently, it took a long time for them to explain their thoughts to their foreign colleague. In addition, some of the participants revealed that they had had a problem when working with foreigners due to having different working styles.

Communication was seen to be one of the important dimensions in creating innovation within the firms. According to Keyton (2005), organizations cannot exist without effective communication. These findings are also in line with those of Satsomboon and Pruetipibultham (2013), who indicated that in the organization where there is a diverse workforce, language could be a communication barrier. This result appeared to be an obstacle to creating innovation within the firms.

5.2.5.5 Theme 5: Unsupportive management

According to the study findings, 23.78% of the participants agreed that the most important factor in terms of driving the innovation in their companies was management. Thus, many of the participants stated that an unsupportive management regarding innovation strategy might be a challenge for the companies. They further revealed that sometimes their managers had placed too much effort on accomplishing routine tasks rather than creating innovative projects. In addition, some of the participants also suggested that providing opportunity for employees to demonstrate their ideas was one of the activities that might enhance innovation within the firms.

These findings are consistent with those of Birley and Niktari (1995), who pointed out that management expertise was found to be the most common reason for business failure in many SMEs. Moreover, the roles of leaders and managers were found to be the most critical factor in stimulating innovation (Lin and McDonough III, 2011: Quinn, Baruch and Zien, 1997).

5.2.5.6 Theme 6: Difficulty in recruiting creative employees

According to the findings, 4.27% of the participants addressed the challenge of recruiting. Some of the participants stated that recruiting and retaining creative employees in their firms were quite challenging issues. They stated that their organizations were small compared to multi-national companies; the benefits and salary of their company were much lower than those of big firms. It was a challenge for them to attract creative employees.

The findings of the current study are relevant to the study by Creelman (2004), who concluded that a lack of specialized expertise is one of the constraints of most SMEs in United States. Moreover, he explained in his findings that small firms may not be able to afford to invest in tools that help recruit talent effectively, for example, an in-depth assessment of talent management. In contrast, the author also indicated some advantages of small firms over large firms. For example, a few layers of management help drive a talent mindset because employees can directly contact the top management.

5.2.5.7 Theme 7: Internal process problem

According to the findings, 3.05% of the participants revealed their opinion toward the challenges to innovation. Some of the participants addressed the

issue of the long process of decision making when they asked managers to approve their new ideas. They further stated that it took too much time to communicate to the top management when they came up with creative projects to discuss. Sometimes, a new idea was stopped at the supervisor level and it was not conveyed to the top management.

This finding slightly differed from the past study of Creelman (2004), who indicated that small firms have an advantage over large firms in terms of the layers of management. Employees can reach top management much easily than in large firms.

However, the finding of the current study is quite relevant to some previous studies. The internal process problem is often seen in a company that has a formal hierarchy with many layers of management (Urwick, 1956). In addition, according to Simon (1947), it is a waste of time trying conveying a new idea to a top leader because it must pass through many layers of management. More importantly, Inman, Reichl, and Baron (1993) pointed out that there might be some information distortion due to the steep hierarchies.

Interestingly, the findings of this study were quite surprising and unique in comparison to the literature in terms of the negative dimension that essentially influences innovation. In fact, there has been quite a small number of studies suggesting impediments to innovation (e.g., Amabile, 1988; Kimberley & Evanisko, 1981). The factors that have been frequently cited in the literature were conservatism, formal management structures within organizations, and organizational impediments.

Indeed, some of the comments from the participants derived from the current findings were similar to the last dimension proposed in KEYS by Amabile and associates in 1996, called organizational impediments. This dimension suggested that some organizational cultures, such as the culture that avoids taking risks and political conflicts in the organization, might decrease the degree of innovation.

5.3 Discussion of the Differences and Similarities of the Viewpoints between the Manager and Staff

5.3.1 RQ 1: Perceived Meaning of Innovation

For the perceived meaning of innovation, both managers and staff revealed common viewpoints toward the concept of innovation. Five themes were emphasized by both managers and staff. The most frequently-addressed theme was new and unique products and services (theme 1), accounting for 48.35%. The second rank was the improvement of existing products and services (theme 2), accounting for 34.07%. The third rank was new technology (theme 3), accounting for 8.79%. New solutions and processes (theme 4) and long-term investment (theme 5) accounted for 7.69%, and 1.10% respectively.

However, only one theme, which was long-term investment (theme 5), was addressed only 1 time by a manager but not by the staff. This theme was quite distinct from other themes. It reflected a new concept of innovation that was quite different from that of the previous studies.

5.3.2 RQ 2: The Antecedent Factors That Foster Innovation at the Individual Level

The most frequently-addressed factors by all participants at this level were personality (theme 3) at 34.27%, skills and knowledge (theme 1) at 33.57%, and motivation (theme 2) at 32.17%.

However, from the managers' viewpoint, skills and knowledge (theme 1) and personality (theme 3) were the most commonly-addressed factors. Each theme accounted for 38.46% and 23.08% respectively. In contrast, motivation (theme 2) was the most frequently-addressed factor by staff, accounting for 48.08%.

There were some differences between the viewpoints of the managers and staff regarding the motivation factor. The staff tended to emphasize the motivation factor, especially extrinsic motivation. For example, 36.54% out of 48.08% of the staff that replied that extrinsic motivation was important stated that they were willing to do something when they have an incentive to do so. In contrast, only 11.54% out of 48.08% of the staff indicated that intrinsic motivation was an essential factor.

On the other hand, from the managers' point of view, intrinsic motivation was slightly emphasized rather than extrinsic motivation. Intrinsic motivation accounted for 12.09% out of 23.08%. According to the findings, some managers believed that all employees should be motivated for their own sake, or by intrinsic motivation. In other words, some managers quite emphasized intrinsic motivation as a factor to drive innovation. However, most of the staff needed extrinsic motivation in order to create new projects. A misunderstanding regarding extrinsic and intrinsic motivation may create a gap which results in the misuse of HR interventions.

5.3.3 RQ 2: The Antecedent Factors That Foster Innovation at the Group Level

The most frequently-addressed factors by the participants were diversity/group structure (theme 1) at 42.42%, team climate (theme 4) at 31.31%, group leader (theme 3) 19.19%, and cohesiveness/ trust openness (theme 2) at 7.07%.

However, from the managers' point of view, diversity/group structure (theme 1) was the most frequently-addressed factor. It accounted for 50%. Team climate (theme 4) accounted for 29.31%, group leader (theme 3) was at 12.07%, and cohesiveness/trust openness (theme 2) accounted for 7.07%.

In contrast, from the staff's point of view, team climate (theme 4) was the most frequently-addressed factor, accounting for 34.15% of all the factors reported by the staff. Diversity/group structure (theme 1) accounted for 31.71%, group leader (theme 3) accounted for 29.27%, and cohesiveness/trust openness (theme 2) accounted for 4.88%.

There were some differences between the viewpoints regarding the group leader factor. Although this theme was addressed by both participants as a third rank of all factors, there were some interesting points. This theme was emphasized by the staff rather than the managers. Twenty-nine point twenty-seven percent of the staff addressed this issue, whereas only 12.07% of the managers emphasized this point. This might have resulted from the different viewpoints of each level. For example, from the staff's point of view, they may need more encouragement regarding innovation from their supervisor or group leader. According to the findings, some staff members reported that they needed a group leader that could advise them and be

open to new ideas regarding innovation. However, some managers may believe that the current practices or strategy of their group are sufficient enough to drive innovation.

In addition, a majority of the staff emphasized the team climate. This might reflect the staff's thoughts regarding the environment within the team. They might need a group with team members to help each other to achieve goals. Thus, it is essential for managers to provide such an environment that facilitates their creativity.

5.3.4 RQ 2: The Antecedent Factors That Foster Innovation at the Organization Level

The most commonly-addressed factors by all of the participants were supervisory encouragement (theme 2), which accounted for 28.71%, followed by sufficient resources (theme 4), accounting for 27.72%. Organizational encouragement (theme 1) accounted for 24.26%, HR activities and policies (theme 5) accounted for 7.43%, freedom (theme 3) accounted for 6.44%, and customer orientation (theme 6) accounted for 5.45%.

However, from the managers' point of view, supervisory encouragement (theme 2) was the most frequently addressed. It accounted for 31.30%. The second ranked was organizational encouragement, which accounted for 24.35%. In contrast, from the staff's viewpoint, sufficient resources (theme 4) were the most frequently-addressed factor, accounting for 34.48%. The second rank belonged to supervisory encouragement (theme 2), which accounted for 25.29%.

Both the managers and the staff had similar viewpoints regarding the supervisory encouragement factor. It was addressed as the first rank by managers and as the second rank by the staff. A majority of the participants addressed that the leader of the organization is of utmost importance. These viewpoints from both the manager and staff reflected the need to place more emphasize on the role of the leader that can facilitate innovation.

In addition, there were some differences in the viewpoints regarding sufficient resources. It was the most frequently-addressed factor by the staff. Thirty-four point forty-eight percent of the staff addressed this issue. In contrast, only 22.61% of the managers pointed out that this factor was important. This different viewpoint reflected

that the staff believed that sufficient resources provided in the organization, such as time, budget, facilities, and technology, could support their innovative projects. However, for the managers, the organization may need to invest capital for these kinds of things and it might not yield more productivity or higher innovation. Thus, both managers and staff should discuss with the leader to gain a consensus on this issue.

5.3.5 RQ 3: The Antecedent Factors That Inhibit Innovation

The most frequently-addressed factors by all of the participants were financial problems (theme 2), accounting for 25.00%, unsupportive management (theme 4), accounting for 23.78%, and time limitations/workload (theme 1), accounting for 22.56%. Lack of facilities and resources (theme 3), and communication failure (theme 4), accounted for 15.85% and 5.49% respectively. Lastly, the difficulty in recruiting (theme 6) and internal process problems (theme 7) accounted for 4.27%) and 3.05% respectively.

From the managers' point of view, unsupportive management (theme 4) was the most frequently-mentioned factor. It accounted for 26.58%. The second ranked was time limitations/workload (theme 1), accounting for 24.05%. The third ranked was financial problems (theme 2), accounting for 18.99%. In contrast, from the staff's viewpoint, financial problems (theme 2) was the most frequently-addressed factor. It accounted for 30.59%. The second ranked was time limitations/workload (theme 1) and unsupportive management (theme 4), at 21.18% for each factor.

According to the findings, both managers and staff have similar viewpoints regarding the antecedents that inhibit innovation. They placed the same emphasize on financial problems, unsupportive management, and time limitations/workload.

However, there was an interesting point regarding the internal process problem (theme 7). It was addressed 5 times by the staff but not by the managers. The staff members, who indicated this issue, further explained that it often takes a long time to report anything to top management. Moreover, there is no channel for them to communicate and discuss new projects directly to the top leaders. Sometimes, their creative project was stopped by their supervisor. This finding is another example of the different viewpoint between managers and staff. Managers might not think that

this is a problem. Some managers may expect more and better creative projects that are good enough to present to the top management. However, from the staff's point of view, it was a waste of time to present a new project because the projects were disregarded. As a consequence, it might be the case that employees are demotivated to come up with creative projects.

5.4 Implication for Scholars

The main contribution of this research was to provide a broad view of the perception and antecedent factors regarding innovation in Thai SMEs. As this study employed a qualitative method through in-depth interviews as a tool to collect the information from the participants, the findings provided richer and more useful information pertaining to understanding what antecedent factors influence innovation in Thai SMEs and how.

Further, this study applied the inductive approach to explore the research questions. This allowed the researcher to further investigate the phenomena in order to find more explanations about the particular situation. Moreover, by using the inductive approach, the researcher was able to compare the initial framework and the framework derived from the field study. As such, it provided a richer and more complete understanding of the particular issue.

Historically, there has been less research emphasizing the group level of analysis. Moreover, an integrated framework among each level of analysis is still underexplored. Essentially, this study examined the antecedent factors at the multi-level of study (individual, group, and organizational level), which added to the large body of research and empirical evidence on innovation.

In addition, the study had provided insights into how each antecedent factor at each level contributed to innovation in the Thai SMEs. The negative predictors of innovation were also emphasized in this study, and helped to add knowledge to the innovation literature by providing empirical evidence of the Thai context. Further, the study also extended the body of knowledge by comparing the different viewpoints between employees at the different levels in organizations: managers and staff. The

findings concerning innovation provided in this study might be useful for other researchers and scholars in conducting future studies on related issues.

5.5 Implication for Practices

It is considered that in order to increase innovation within firms, effective HR interventions should be implemented at the individual, group and organization level. In this part of the present study, the implications for practice are discussed. Moreover, some of the functions in the HR wheel proposed by Mclagan (1989) are used to illustrate interventions facilitating innovation. As a range of possible HR interventions that may be conducive to innovation was illustrated from the findings, practitioners and policy makers of the companies can utilize each intervention in several ways.

5.5.1 Selection and Staffing

The findings suggested that personality or the characteristics of persons can have a positive influence on creativity. Persons that are ambitious, curious, observational, and creative tend to generate more creative ideas. Thus, HR professionals should utilize this opportunity to recruit persons that tend to have those characteristics by using a personality assessment.

Indeed, there are many instruments to measure the personality of a person, such as the Occupational Personality Questionnaire (OPQ) proposed by Savillein (1973), Jackson's (1976) Personality Inventory, the Innovation Potential Indicator (IPI) proposed by Patterson (2000), and Creative Self-Efficacy proposed by Tierney and Farmer (2002). Each instrument has its unique characteristics that could be utilized based on the purpose of the organization. For example, the IPI may be appropriate for assessing all important motivational dimensions that influence individual innovation.

In addition, as a result of globalization and the implementation of the ASEAN Economic Community (AEC), policy makers should utilize this opportunity to recruit a more diverse workforce in terms of age, gender, ethnicity, and culture. Prior research suggested that diversity was proved to have a positive influence on innovation. As a consequence, it is likely that new and different ideas may be derived

from the different backgrounds of employees. Thus, in order to accomplish tasks, the recruitment policy set by the management of the organizations will enable HR professionals to work more smoothly and efficiently. More importantly, after the company recruits potentially innovative employees, the next process is to provide opportunities for them to further their skills in order to leverage their potential.

5.5.2 Compensation and Benefits

The findings demonstrated that motivation is one of the factors that influence individual creativity. Practitioners could utilize the findings by conducting interventions that are appropriate for each individual, such as the right balance of recognition and reward system. Prior research suggested that external rewards can facilitate creativity and innovation (e.g., Abbey & Dickson, 1983; Amabile et al., 1996; Eisenberg & Cameron, 1996; Eisenberger, Haskins, & Gambleton, 1999.). For example, Amabile et al. (1996) addressed the idea that external rewards such as a bonus or a way to allow employees to engage in more interesting work can facilitate creativity.

In contrast, some studies showed that intrinsic motivation has a positive relationship with creativity rather than extrinsic motivation (e.g., Csikszentmihalyi, 1996; Choi, 2004; George, 2007; Jesus et al., 2013). In addition, McLean (2005) stated that the intrinsic motivation of employees could be established through an environment of freedom and work autonomy.

Thus, it is important to establish a reward system that capitalizes both on intrinsic and extrinsic rewards (Mumford, 2000). Further, interventions can be implemented through the application of skill-based pay, and team-based pay to enhance creativity. In addition, in order to intrinsically motivate employees, autonomy regarding how employees can perform their tasks should be allowed (Tahilraman, 2010).

However, the most important thing is to note that only rewards and incentives system are not sufficient to attract and retain innovative individuals. As a consequence, to be most effective, HR practitioners should speak with each employee regularly in terms of reward system appropriate for each individual.

5.5.3 Innovative Performance Measurement and Management

According to the findings, some participants reported about performance management and KPI issues. Some managers reported that they have KPIs in their organizations; however, most of the KPI indicators are not related to innovation. The participants further suggested that it could be useful if the organizations adjusted the KPIs to link with creative performance. This way might encourage employees to be more creative.

The findings of this study are relevant to those of many previous studies, indicating the relationship between performance management and innovation (e.g., Jeacle & Cater, 2012; Jeyasutharsan & Rajasekar, 2013). For example, it was suggested that performance management has a significant impact on the creative process (Jeacle & Cater, 2012). In addition, a study by Jeyasutharsan and Rajasekar (2013) regarding performance-based-pay culture suggested that performance-based pay can motivate employees to be more creative and to be able to solve problem more effectively. However, these performances can be stimulated by using an appropriate performance measurement and feedback system.

Although a performance measurement linked to innovative performance was utilized by many organizations, most of the cases reported that the indicators were insufficient. In addition, The Global Innovation Excellence Survey, which was conducted during 2009- 2010, including 400 companies from a variety of industries, indicated that most of the companies (72%) rated their performance indicators related to innovation issues as weak (Little, 2012).

Further, in order to design appropriate KPIs for the organizations, many points should be of concern. Little (2012) discussed the procedures for measuring and managing innovation-related strategy: 1) design the framework; 2) measure the performance; 3) manage for success; and 4) sustain deployment (p. 47-49). Moreover, it was suggested from the current findings that many aspects at the group and organization level, such as team climate, organizational encouragement, and supervisory encouragement, influence innovation. Using these elements as indicators to check the current KPIs of the organizations as to whether or not they align with innovation-related strategy could be useful during the first stage.

Further, according to Malinoski and Perry (2000), the most important element in terms of designing and implementing appropriate performance measurement and management is to clearly define the expected results of one's own organization. More importantly, it is essential to link the measurement system to the business strategy in accordance with the objectives of functions, groups, and individuals (Kaplan & Norton, 1996). In addition, using indicators that have been empirically validated to link with innovative performance could overcome the problem.

5.5.4 Training and Development

The findings suggested that the skills and knowledge of the individual are of utmost importance to the implementation of creativity and innovation. Several researches argued that training in a variety of skills is more likely to facilitate one's way of thinking, which results in more creative ideas (Lock & Kirkpatrick, 1995; Tidd, Bessant & Pavitt, 2005; Shipton et al., 2006). However, the most effective training and development interventions are more likely to facilitate innovation when the programs are designed to fit the characteristics of the innovative individual. In addition, HR practitioners can provide opportunity for employees to participate in external conferences, and visit other customers and supplier sites which might enhance their skills and knowledge.

More importantly, as the evidence demonstrated that some innovative employees are more likely to be intrinsically motivated, and people like to work in an environment in which work autonomy is allowed (McLean, 2005), HR practitioners should allow those potential innovative individuals to be able to select training programs that are consistent with their work and interests. This practice is likely to result in higher creativity.

In addition, it was suggested by many scholars and also was suggested by the findings that leaders play a very significant role in supporting innovation (e.g., Peters & Waterman, 1982; Kanter, 1983; Howell & Higgins, 1990; McDonough, 1993; Thamain, 1996; Shin, 1997). The study found that leaders' attitudes influence innovative performance in several ways (McDonough, 1993). Thus, the roles of leaders and managers should not be disregarded. It is a challenge for HR practitioners

to create a training program that focuses on the development of leadership skills in order to manage and retain innovative employees.

5.5.5 Diversity Management

According to the findings, diversity was another factor that was seen to influence innovation at the group level. Moreover, the past literature has shown that diversity has a positive effect on innovation because with it is likely that a variety of ideas can be generated (e.g., Martin, 2014; Watson, Kumar, & Michaelson, 1993; Wiersema & Bantel, 1992; Williams and O'Reilly, 1998; Woodman, Sawyer, & Griffin, 1996). Martin (2014) mentioned that different cultures of the workforce usually have different ways of thinking which results in a variety of perspectives. On the other hand, diversity may have a negative influence on innovation in several ways. Too much diversity is believed to be a factor that decreases group cohesiveness and creates more conflict (e.g., Anderson & King, 1991; Gonzalez-Roma & West, 2003; Martin, 2014).

Thus, managing diversity is a comprehensive process (Roosevelt, 2001). As the current study showed that excessive cultural diversity leads to conflict and miscommunication within the organization, it is an important task for HR to manage diversity effectively. Some organizations conducted training programs consistent with how to manage a diverse workforce; however, it is unlikely that the employees' behaviors will change over time (Koonce, 2001).

Thus, the most important element of managing a diverse workforce may begin with the commitment and perception of management regarding changes and interventions (Rynes & Rosen, 1995). In addition, Jayne and Dipboye (2004) suggested effective procedures for HR practitioners to manage diversity effectively. namely: a) build senior management commitment and accountability; b) conduct a needs assessment; c) develop a well-defined strategy tied to business results; d) emphasize team-building and group process training; and e) establish metrics and evaluate the effectiveness of diversity initiatives (p. 415-419). Regarding diversity management, Adler (2002) identified strategies that could be applied to managing cultural diversity which included cultural dominance, cultural avoidance, cultural compromise, cultural synergy, and cultural accommodation.

Moreover, in order to achieve the positive effect of diverse workforces, diversifying the team members in each team may result in higher creativity. In a team, the different knowledge, experiences, and technical know-how of the diverse background of employees should be included in order to successfully implement the project (Holtzman & Anderberg, 2011). This is consistent with Mello and Ruckes (2006), who stated that the diverse background of people on a team has more advantages in terms of more creative outcomes.

5.5.6 Creating an Organizational Climate That Supports Innovation

According to the findings, one of the most impact factors that facilitate innovation at the group level is team climate. Moreover, a majority of the participants also reported the importance of organizational encouragement concerning the climate of innovation at the organizational level. Thus, for the organizations that wish to become innovative, it is necessary to create positive circumstances and a positive climate that support innovation.

It should be noted that in order to understand the circumstances and climate of one's own organization, assessment of the work environment should be implemented. There are numerous interventions that HR practitioners can utilize in order to achieve this assessment, for example, the Team Climate Inventory (TCI) proposed by Anderson and West (1998) and the KEYS instrument proposed by Amabile et al. (1996). These two assessments are common instruments and are widely recognized and validated in several studies (Mathisen & Einarsen, 2004).

The TCI was designed for assessing the shared perceptions within a team regarding innovation (Agrell & Gustafson, 1994). On the other hand, the KEYS instrument attempts to assess the work environment influences on creativity and innovation. Eight stimulating and inhibiting factors related to creativity have been presented, for instance reward and recognition, supportive evaluation of ideas, encouragement of taking risks, idea sharing, and a mechanism for how to share the organization's vision (Amabile et al., 1996). The variety of stimulants and obstacles suggested in KEYS dimensions can be controlled by the leaders (Isaksen & Akkermans, 2011).

In order to accomplish this task, the leaders of the organization must first commit to the assessment process and change the management. According to Isaksen and Akkermans (2011), the leaders that need to enhance innovation should emphasize creating a climate for innovation. Moreover, HR practitioners can apply these tools and assess the targeted working groups where innovation is a crucial element of work. Further, feedback on surveys should be conveyed by well-trained personnel in order provide the right feedback for the organization.

In addition, at the group level, HR can further observe and interact with the employees that are engaged in creative work, such as R&D employees, in order to explore other factors that might influence creativity and innovation. Moreover, it would be useful to gain greater understanding by comparing the employees that are working in R&D and those that are working in other functions such as the marketing department. Understanding these differences and similarities can help practitioners develop an appropriate environment for employees. In addition, a comparative study among groups that contributes high and low levels of innovation should be conducted in order to further investigate the factors that appear to make a difference.

In addition, according to Leavy (2006, p.39), the world's well-known innovative companies mostly apply at least one of the four factors regarding innovation success: a) placing people and ideas at the heart of the management philosophy; b) giving people room to grow, to try things, and learn from their mistakes; c) building a strong sense of openness, trust, and community across the organization; and d) facilitating the internal mobility of talent. Leavy (2006) further stated that these four fundamental are the most important factors in developing a positive climate for leveraging creativity and innovation.

Moreover, according to recent research findings by Porzse et al. (2012) obtained in Hungary, in order to create a positive climate that facilitates innovation, internal communication and cooperation among groups are the most important issues. Further, debates and discussion among different departments within the organization should be conducted regularly in order to effectively contribute to the transformation of internal information.

5.5.7 Retaining Employees/Talent Management

It should be noted that enhancing creativity is not only about recruiting potential creative employees, but retaining employees that have a tendency to create innovation is also important. HR activities and strategies, such as recruiting and retaining policies, have an impact on employees' attraction and retention in many of ways.

Before HR interventions are applied to the processes, the organization has to understand the factors that keep employees or that make them leave the organizations. Using surveys designed by HR professionals might be helpful at this stage of analysis. Prior studies suggested that organizational structure, career program, and opportunity for advancement and development increase organizational attractiveness (Cable & Graham, 2000; Lievens & Highhouse, 2003). Consistent with prior studies, the current study also found that most of the common factors in retaining innovative employees involved the opportunity for career and skills development, work autonomy, and organization circumstances that support innovation. Thus, HR should change certain working policies in order to attract creative employees and to retain talented individuals.

As stated earlier, creative employees are more likely to work in an environment that provides opportunity for them to learn new things in order to enhance creativity. Thus, HR practitioners should provide training opportunities for potential innovative individuals (the details on training and development were discussed in 5.4.3).

In addition, many of the workforce today is likely to be at the age of 20 to 30 years. These people were born during 1980 and 2000 and are usually called Generation Y (Howe & Strauss, 2000). Thus, as Generation Y comprised the majority of employees in the organization today, HR should understand their nature and work style in order to adjust HR policies to attract and retain those creative individuals. Prior research has suggested that most of Generation Y want freedom to work, flexible working hours, casual dress, and the element of fun at work (Loughlin & Barling, 2001). The current findings are consistent with prior research, which reported that flexible work schedules might be an alternative for the company to attract employees in Generation Y. Thus, HR practitioners might deploy flexible work times,

for example, allowing employees to decide when to begin and finish their work. Moreover, the findings of the current study demonstrated that allowing employees whose work was engaged in creative projects to wear casual dress was one of the alternatives to attract and retain creative employees. Thus, this could be another policy that HR practitioners should further work toward in order to attract the people in Generation Y.

5.5.8 Other HR Practices and Activities

According to the current findings, some of the participants mentioned the opportunities that HR provides for employees in order to present new ideas. Some of the case companies applied the kaizen strategy as one of the ways to leverage employees to think more logically and creatively. Prior research suggested that this strategy is comprised of the continuous effort and commitment of all levels of management. Investing in kaizen is the same as investing in human capital (Imai, 1986).

Thus, HR practitioners can apply kaizen activities in the organization by using kaizen techniques, such as “the 5 why,” “the 5 golden rules of the kaizen management,” and the 5S technique. “The 5 why” is to identify the real cause of the problems by asking “why” 5 times. In addition, “the 5 golden rules of the kaizen management” are the steps to identify problems and causes. Lastly, the 5S technique is a fundamental technique that can increase productivity and create a pleasant organizational climate (Titu, Oprean, & Grecu, 2010).

HR practitioners can divide employees into groups in order to allow them to present projects using the kaizen technique as a way to think about solutions to a problem. Moreover, HR practitioners can reward employees for outstanding ideas that could motivate employees to work on projects.

Further, as has been suggested by many scholars that brainstorming contributes to creativity and innovation (Osborn, 1957; Paulus et al., 2006), and group brainstorming can be another intervention to help employees generate novel ideas. HR practitioners may provide opportunity for employees to brainstorm ideas with other members regarding new projects or solutions to problems. Osborn (1957) suggested that brainstorming was designed to be applied to the group setting. The author also

provided guidelines for those that would like to conduct a brainstorming session. A group of 5-10 participants should participate in a session in order to figure out how to solve the problem. The session should last around 30-45 minutes and should be supported by facilitators that are able to ask stimulating questions, develop plans for generating ideas, and manage the planning and brainstorming session.

5.5.9 Creating a Customer-Oriented Culture

According to the findings, some of the participants pointed out the importance of customer feedback regarding products and services. Some of them revealed that this feedback can in turn helpful for R&D to create and develop products that are relevant to customers' needs. In addition, many studies suggested that the companies where a customer-oriented culture is emphasized are more likely to have a higher degree of innovation (e.g., Akao, 1988; Zhou, Brown & Dev, 2009).

In addition, the study by Al-alak and Tarabieh (2011) demonstrated a relationship between customer orientation and innovation by investigating 16 banks in Jordan. The authors suggested that management should pay more attention to the customer and to ensure that the company has provided adequate services for him or her.

As a consequence, in order to accomplish this task, as suggested in the current study, inviting customers to participate in exhibitions or events may help gain a variety of perspectives. The firms can respond to customers' needs by collecting and analyzing such information from customers (Zhou, Brown & Dev, 2009). This information can be useful in terms of product and service development processes.

5.5.10 Organization Problem Diagnosis

Lastly, the negative predictors that impede innovation, such as workload pressure, financial problems, lack of facilities and resources, communication failure, and unsupportive management, were obviously revealed in this study. Focusing on these factors, practitioners could explore the challenges that might impede innovation within the company. The challenges of each company may not be the same. Thus, in order to understand the real challenge of the company, conducting a survey or observations from various points of view could support the problem analysis. In

addition, HR practitioners may apply the KEYS instrument which, as indicated earlier, can be used to diagnose the obstacle dimensions that impede innovation.

Moreover, after the problems are identified, practitioners might prioritize and focus of the work according to the challenges that are easier to handle, such as communication problems. These challenges are more simply impacted through HR-developed interventions such as learning and development, and hiring and recruiting. For example, HR practitioners may conduct training for foreign managers regarding working with Thai employees. Moreover, language training might be another choice for solving communication problems.

In addition, unlike many other factors, such as individual personalities, the challenges that impede innovation, such as workload pressure and financial problems, lack of facilities and resources, communication failure, and unsupportive management are the factors that can be solved by the immediate control of the leaders. Thus, this study strongly suggests that leaders should pay attention and commit to the change process concerning innovation. Having strong visionary leaders that regard innovation positively is the most crucial element in driving innovation within the firms. Moreover, the strategies regarding enhancing innovation should be clearly communicated throughout the organization.

In conclusion, the interventions proposed in this part of the present study included improving the recruitment and selection processes that attract creative individuals, provide learning and development opportunities for employees, create an appropriate team and organizational climate and culture to stimulate a higher level of creativity and innovation, and so on. Further, a range of HR interventions should be systematically and continuously further developed in order to gain the best fit with the organization in order to enhance creativity and innovation.

It is important to note that HR interventions cannot succeed without the cooperation of everyone in the organization. Moreover, a combination of various interventions should be applied at different phases of the innovation process.

5.6 Limitations of the Study

Although this research has contributed some beneficial findings to the body of literature in this field, there are still some limitations in the study that must be considered.

First, the qualitative approach through interviews and observation was the only major method used to identify the research questions for this study. The researcher reported the findings based on the results derived during the interviews. However, the interview was considered as a self-report where the results relied on the openness of the participants. The answers derived from them might have been stated in order to make themselves look good, and some of the points that may have been considered inappropriate may not have been reported during the interviews. Self-report bias or the tendency for individuals to report about themselves in a desirable ways has been studied in many researches (e.g., Borman, 1991; Moorman, & Podsakoff, 1992; Spector, 1994).

Second, there were limitations in the language used in this study. As stated that this research studied Thai participants from Thai SMEs, all of the interviews were conducted using the Thai language. However, this dissertation has been presented in English and there were some difficulties in finding appropriate terms to describe the participant's feelings and experiences when reporting the findings.

Third, the small number of participants from the 13 Thai SMEs limited the study in terms of being able to generalize the findings beyond the sample group. According to DePaulo (2000), sample size plays an essential role in both quantitative and qualitative research. In order to ensure accuracy and to be able to generalize the findings, the sample size must be large enough.

Fourth, this study was conducted in order to ascertain the antecedent factors regardless of the processes of creativity and innovation. Moreover, the external factors that might have an influence on innovation were not emphasized in this study.

Fifth, although this study conducted interviews and focus groups focusing on different levels of participants (managers, and staff), the research did not have a chance to interview the top executives of most of the targeted companies.

Sixth, although this study presented a multi-level study of the antecedent factors that support innovation, the impediment factors were not categorized into each level of analysis.

Last, although the researcher tried to minimize bias in this dissertation, questions about the subjectivity issue should not be ruled out.

5.7 Recommendations for Future Research

Recommendations for future research are proposed based on the literature review and the findings presented here. The following are recommendations for other researchers to explore and further improve this research.

First, this study applied only a qualitative method. Although this approach can provide deep experiences and explain complicated situations, the quantitative approach could provide a broader view on these very particular issues. However, there might be other aspects that could be explored through the quantitative analysis such as the relationships between the constructs and the relationships between the groups of analysis. Moreover, the mixed method could help to strengthen the findings. In addition, for the future research, data triangulations from a variety of sources, such as observations, surveys, focus groups, and interviews, could enhance the quality of the research.

Second, there were limitations concerning the language used in this study. All of the interviews were conducted in Thai but the findings were written in English. The researcher tried her best to find terms that could describe the participants' thoughts and hired English expert translator to verify the interpretation. In addition, it is worth noting that in order to be able to report the participants' feelings and thoughts completely, cultural elements should be considered. Moreover, during the interviews, the researcher recorded the interviews by using a digital-tape recorder in order to transcribe the transcript. However, when transcribing, some of the non-verbal expressions were disregarded. Thus, for future research, using a VDO recorder might have some advantages over a tape recorder.

Third, because of the time limitations of this study, the researcher employed only 13 companies located in Bangkok and metropolitan areas. Thus, the results may

not be able to be generalized to all SMEs in Thailand. Future research should recruit more participants from different geographical locations in order to explore the phenomena which in turn would strengthen the research findings. In this way, the results could be better generalized.

Fourth, this study focused only on the perceptions of innovation and the antecedent factors that foster and inhibit innovation regardless of the processes that create creativity and innovation. Moreover, some aspects of the external environment such as government policy and social intervention were not included in the analysis. Future study should focus more on the process and the relationship in each element from different levels of analysis. Further, in order to gain more understanding and a holistic view of the antecedent factors that foster and impede innovation, a broader investigation into the external environment should be explored.

Fifth, the key participants in this study were the managers and staff members in SMEs in Bangkok and the metropolitan area. In some cases, the researcher could make an appointment with the top management of the organizations. However, for most of the cases, the researcher could only access middle managers instead of the top management. For future research, it would be beneficial to conduct interviews that included top leaders of the companies in order to gain different perspectives and insightful information.

Sixth, although this study presented a multi-level study of the antecedent factors that support innovation, the impediment factors were not categorized into each level of analysis. For future research, it would be useful to identify the negative factors that impede innovation at a variety of levels of analysis in order to gain a deep understanding of the antecedent factors of innovation study.

Last, although the researcher tried to minimize bias in this dissertation, questions about the subjectivity issue should not be ruled out. In this study, in order to avoid bias in terms for example of data interpretation, the researcher read the transcripts carefully several times and re-coded the data in order to ensure the correctness of the findings. However, future research should employ inter-raters to re-check the coding results as well as the interpretations. Moreover, sending the transcripts back to the participants in order to check for correctness is another alternative for avoiding bias.

5.8 Chapter Summary

This study contributes to the literature by adding knowledge about the antecedents of innovation. By acquiring data from the case companies in Thai SMEs in a variety of industries, this study demonstrated the factors across multi-levels of analysis. Moreover, discussion based on previous literature was drawn in order to compare the findings of this study. In addition, the implications and recommendation for both researchers and practitioners were described in order to add to the existing body of literature and to improve the work of HR practitioners. The researcher expects that this study will be benefit to scholars and practitioners in the field of HR and help them stimulate innovation within the organizations. More importantly, the researcher believes that this study will improve our understanding of the antecedents of innovation in the Thai context. Moreover, it is expected that in the near future, there will be more progress toward some of challenges highlighted in this study.

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APPENDICES

Appendix A

Semi-structure Interview

Opening

- **Welcome:**
  - Greeting and self-introduction
- **Thank you:**
  - Thank you for participating in this interview
- **Explain about interview topic:**
  - "A Multi-Level Study of the Antecedent Factors of Innovation: Cases Studies of Thai Small and Medium-Sized Enterprises"
- **Objectives and significance of this study:**
  - To use data to analyze the finding as part of Ph.D. Dissertation about antecedent factors lead to innovation
  - To gain more understanding about innovation study; the perceived meaning of innovation, the antecedent factors that foster or inhibit innovation, and suggestions to develop innovation within the firms.
  - To provide the guidance for HR practitioners and policy makers to decide the policy related innovation in the organizations.
- **Benefit for participants:**
  - Your information and knowledge will be part of innovation study as well as innovation development in the organizations in the future.

- **Confidentiality:**
  - All data that get from this interview will not be disclosed but it will be used for this study only.
  - Researcher will summarize the information and quote some sentences of participants. However, your name will not be disclosed.

- Participants have a right not to answer the questions that might affect participants.

- **Permission for Tape Recording:**
  - Ask participant for permission to record an interview for data analysis purpose.
- **Duration: Inform participants about the duration for this interview:**
  - This interview will take around 60-90 minutes to complete the interview questions.

Body

Please answer the following questions.

(For research question # 1)

1. **Perceived meaning of innovation. Ice breaking activity**
   1.1 When talk about innovation what do you think of? Could you please explain the concept of innovation in your point of view?
   1.2 How importance of innovation toward your life and organization? Why?
2. **Past experience about projects and activities**
   2.1 Could you please share your experiences about innovation in your organization?
   2.2 Who proposed those projects or activities? Is there any supportive from your organization on those projects or activities? What support and how?
   2.3 How do you think about the projects? How the projects lead to your organizational performances?

(For research question # 2, 4)

3. **The antecedent factors that influence innovation**

   Individual level

   3.1 What are the factors do you think lead to innovation at an individual level? Why someone can create new ideas, while others cannot? Why do you think like that? Please explain more.

   Group level

   3.2 What are the factors do you think lead to innovation at a group level? Why some groups can create new ideas, while others cannot? Why do you think like that? Please explain more.

Organizational level

3.3 What are the factors do you think lead to innovation at an organizational level? What your organization support for creativity? Why do you think like that? Please explain more.

(For research question # 3, 5)

4. **Challenge to innovation**

4.1 While many organizations in Thailand are trying to become innovative for example, SCG, TRUE, AIS, TOYOTA, HONDA, etc. They come up with new and innovative products. Conversely, various organizations do not succeed. What do you think are the challenges to develop innovation within the firms?

4.2 Could you please give an example of any circumstance in your organization today about challenges to develop creativity and innovation?

4.3 Organizational impediment (Variable O5)

What are the factors do you think negatively influence to innovation? How? Please explain more.

(For recommendations)

5. **Guidance to create innovation within the firms**

5.1 Could you please provide some suggestions to develop innovation?

5.2 What activities or policies that HR or policy maker should design to foster innovation?

6. **Other related questions**

6.1 Is there anything else you would like to share?

Ending

- **Permission to follow up**
  - If there is any further inquiry, the researcher may ask for your permission to gather more information at your convenience.
- **Thank you**
  - I would like to express my sincerely thanks to all interviewees for your information, experiences, and suggestions. I hereby apologize for any mistake occurred today.

Appendix B

Demographic Sheet

National Institute of Development Administration

The purpose of this study is to explore the antecedent factors lead to innovation in the Thai small and medium sized enterprises (SMEs). You will be asked to answer the interview questions and demographic information.

There are no risks in participating in this research. Your information will be kept confidential to assure that your job security will not be in jeopardy because of information provided.

Wichuwan Satsomboon
School of Human Resource Development
National Institute of Development Administration (NIDA)

Appendix B

Instruction: Please answer your demographic information.

1. Gender □ Male □ Female
2. Age _____ years old
3. Your highest education □ Less than Bechelor degree
   □ Bechelor degree
   □ Master degree
   □ Doctoral degree
4. Your current position □ Operation
   ☐ Staff
   ☐ First-line manager
   ☐ Middle manager
   ☐ Top manager
   ☐ Other (Please specify)_____
5. Your current department _____
6. Length of work in this company _____years_____months
7. How long does the business operate? _____years
8. Numbers of employees □ Less than 15
   □ 15-30
   □ 31-50
   □ 51-200
9. What is your company's core business? _____

เอกสารแนบท้ายA

แบบสัมภาษณ์กึ่งโครงสร้าง

<u>ส่วนเริ่มต้น</u>

- **กล่าวต้อนรับ:**
  - กล่าวต้อนรับและแนะนำตัว
- **ขอบคุณ:**
  - ขอบพระคุณที่สละเวลาอันมีค่ามาให้สัมภาษณ์
- **อธิบายหัวข้องานวิจัย:**

  “การศึกษาพหุระดับเกี่ยวกับตัวแปรที่ส่งผลต่อนวัตกรรม: กรณีศึกษาของวิสาหกิจขนาดกลางและขนาดย่อมในประเทศไทย”
- **วัตถุประสงค์ และความสำคัญของงานวิจัย:**
  - เพื่อใช้เป็นส่วนหนึ่งของการเก็บรวบรวมข้อมูลงานวิจัยระดับดุษฎีบัณฑิตเกี่ยวกับตัวแปรที่ส่งผลต่อนวัตกรรมในองค์กร
  - เพื่อเป็นประโยชน์ในการศึกษาเกี่ยวกับความเข้าใจด้านนวัตกรรม ตัวแปรที่ส่งผลทางบวกและลบต่อนวัตกรรมในองค์กร รวมทั้งเพื่อหาแนวทางและข้อเสนอแนะเพื่อพัฒนาองค์กร
  - เพื่อเป็นแนวทางให้กับแผนกบุคคลและผู้บริหารองค์กรในการสร้างนโยบายที่เอื้อต่อการสร้างนวัตกรรม
- **ประโยชน์ที่ผู้ร่วมสัมภาษณ์จะได้รับ:**
  - ข้อมูลของท่านจะเป็นส่วนหนึ่งในการวิเคราะห์ข้อมูลด้านตัวแปรที่ก่อให้เกิดการสร้างนวัตกรรมในองค์กร ซึ่งจะเป็นประโยชน์ต่อการพัฒนานวัตกรรมในองค์กรในอนาคต
- **การรักษาความลับ:**
  - ข้อมูลทั้งหมดที่ได้จากการสัมภาษณ์ในครั้งนี้จะถูกเก็บเป็นความลับ และจะใช้ข้อมูลเพื่อเป็นประโยชน์ในเชิงวิจัยเท่านั้น
  - ทางผู้วิจัยจะนำข้อมูลที่ได้จากการสัมภาษณ์ในประเด็นสำคัญมาเขียนในรายงาน โดยมีการอ้างอิงคำพูดของท่านในบางส่วน แต่จะไม่อ้างชื่อของท่าน
  - ท่านสามารถจะไม่ตอบคำถามใดๆ ที่เห็นว่าส่งผลกระทบกับท่าน

- **การขออนุญาตบันทึกเทป:**
  - ผู้วิจัยขออนุญาตบันทึกเทป เพื่อความสะดวกในการถอดความและวิเคราะห์ข้อมูล
- **ระยะเวลาในการสัมภาษณ์:**
  - การสัมภาษณ์จะใช้เวลาประมาณ 60-90 นาที

<u>ส่วนเนื้อหา</u>

กรุณาตอบคำถามต่อไปนี้ตามความคิดเห็นของท่าน

(สำหรับคำถามวิจัย # 1)

1. **ความหมายและความรู้สึกต่อคำว่า "นวัตกรรม"**
   1.1 เมื่อพูดถึงคำว่า "นวัตกรรม" ท่านคิดถึงอะไร ? กรุณาให้คำจำกัดความของคำว่านวัตกรรมที่ท่านคิด
   1.2 นวัตกรรมมีบทบาทสำคัญต่อองค์กรหรือชีวิตของท่านอย่างไร และทำไม ?
2. **ประสบการณ์เกี่ยวกับงานหรือกิจกรรมที่เกี่ยวข้องกับนวัตกรรม**
   2.1 กรุณาเล่าถึงประสบการณ์เกี่ยวกับนวัตกรรมในองค์กรของท่าน
   2.2 กรุณาเล่าให้เราฟังว่าใครเป็นผู้คิดค้นโปรเจคนั้น และทางองค์กรได้ให้การสนับสนุนในการดำเนินการเกี่ยวกับโปรเจคนั้นหรือไม่อย่างไร
   2.3 ท่านคิดอย่างไรบ้างเกี่ยวกับโปรเจคนั้น และโปรเจคสามารถสร้างผลกำไรหรือสร้างประสิทธิภาพให้กับองค์ได้หรือไม่ อย่างไร?

(สำหรับคำถามวิจัย # 2, 4)

3. **ตัวแปรที่ส่งผลต่อนวัตกรรม**

   ระดับบุคคล (Individual Level)

   3.1 ถ้าพูดถึงปัจจัยระดับตัวบุคคลแต่ละคน ท่านคิดว่าอะไรเป็นปัจจัยสำคัญที่ทำให้พนักงานมีความคิดสร้างสรรค์ซึ่งส่งผลต่อการสร้างนวัตกรรมให้กับองค์กร ? กล่าวอีกนัยหนึ่งคืออะไรเป็นปัจจัยที่ทำให้พนักงานคนหนึ่งสร้างผลงานในด้านนวัตกรรมในขณะที่อีกคนหนึ่งไม่? ทำไมท่านจึงคิดเช่นนั้น? กรุณาอธิบายเพิ่มเติม

   ระดับกลุ่ม (Group Level)

   3.2 หากพูดถึงระดับกลุ่มหรือระดับทีม ท่านคิดว่าปัจจัยอะไรที่ส่งผลต่อการสร้างนวัตกรรมในระดับนี้ เช่นทีมหนึ่งอาจมีการสร้างสรรค์ผลงานทางนวัตกรรม แต่อีกทีมหนึ่งไม่สามารถสร้างสรรค์ผลงานได้ และทำไมท่านถึงคิดว่าเป็นปัจจัยดังกล่าว ? ช่วยอธิบายเพิ่มเติมให้เราฟังหน่อย

ระดับองค์กร (Organizational Level)

3.3 หากพูดถึงปัจจัยระดับองค์กร ท่านคิดว่าปัจจัยใดมีผลต่อการสร้างนวัตกรรม เช่นการสนับสนุนจากผู้บริหารหรือองค์กรด้านใดบ้างที่ท่านคิดว่าจำเป็นต่อการสร้างผลงานเชิงนวัตกรรมของพนักงาน อย่างไร ? ทำไมท่านถึงกล่าวเช่นนั้น กรุณาอธิบายรายละเอียด

(สำหรับคำถามวิจัย # 3, 5)

4. อุปสรรคในการสร้างนวัตกรรม

4.1 ในประเทศไทยมีองค์กรมากมายที่ต้องการเป็นองค์การนวัตกรรม ยกตัวอย่างองค์การที่ประสบความสำเร็จ เช่น SCG, TRUE, AIS, TOYOTA, HONDA และอื่นๆ แต่ในทางกลับกันมีองค์การอีกมากมายที่ไม่สามารถบรรลุเป้าหมายในการสร้างสรรค์นวัตกรรมได้ ท่านคิดว่าอะไรเป็นปัจจัยหลักที่เป็นตัวขัดขวางการสร้างนวัตกรรม กรุณาแสดงความคิดเห็น

4.2 กรุณาแสดงความคิดเห็นเกี่ยวกับสถานการณ์ปัจจุบันในองค์กรของท่านที่เป็นอุปสรรคต่อความคิดสร้างสรรค์หรือการสรรสร้างนวัตกรรมภายในองค์กร

(สำหรับข้อเสนอแนะ)

5. ข้อเสนอแนะสำหรับการสร้างนวัตกรรมภายในองค์กร

5.1 ช่วยเสนอแนะแนวทางสำหรับการสร้างนวัตกรรมภายในองค์กร

5.2 ท่านคิดว่ากิจกรรมหรือนโยบายใดที่แผนกบุคคลหรือผู้บริหารควรจัดทำขึ้นเพื่อส่งเสริมนวัตกรรม?

6. คำถามอื่นๆ ที่เกี่ยวข้อง

6.2 ท่านมีข้อเสนอแนะอื่นๆ ที่เกี่ยวข้องกับเรื่องนี้ หรือมีประสบการณ์อื่นๆ ที่ต้องการเล่าให้เราฟังอีกหรือไม่

<u>ส่วนท้าย</u>

- **ขออนุญาต follow up**
  - หลังจากได้ถอดความจากข้อมูลที่ได้รับในวันนี้ ผู้วิจัยอาจจะมีคำถามหรือข้อสงสัย ผู้วิจัยขออนุญาตติดต่อผู้เข้าสัมภาษณ์เพื่อขอข้อมูลเพิ่มเติมในวันและเวลาที่ท่านสะดวก
- **กล่าวขอบคุณ**
  - ขอบคุณผู้เข้าร่วมสัมภาษณ์สำหรับข้อเสนอแนะและประสบการณ์ดีๆ ที่ได้รับในวันนี้ และหากมีข้อผิดพลาดประการใดผู้วิจัยขออภัยมา ณ ที่นี้
- **จบการสัมภาษณ์**

เอกสารแนบท้าย B

ข้อมูลทั่วไป

สถาบันบัณฑิตพัฒนบริหารศาสตร์

แบบสอบถามฉบับนี้เป็นส่วนหนึ่งของงานวิจัยเรื่อง “ตัวแปรที่สำคัญในการสร้างนวัตกรรม ตัวอย่างการศึกษาจากธุรกิจขนาดเล็กและขนาดกลางของประเทศไทย” โดยมีวัตถุประสงค์ที่จะศึกษาเกี่ยวกับตัวแปรสำคัญที่ก่อให้เกิดนวัตกรรมในองค์กร และตัวแปลที่ขัดขวางการสร้างนวัตกรรม โดยสุ่มจากกลุ่มตัวอย่างกิจการขนาดเล็กและขนาดกลางของประเทศไทย ทั้งนี้ คณะผู้วิจัยจึงใคร่ขอความกรุณาจากท่านในการตอบข้อมูลส่วนตัวผู้สัมภาษณ์

ในการตอบแบบสอบถามนี้ข้อมูลต่าง ๆ จะถือเป็นความลับ จะไม่มีการเปิดเผยข้อมูลของผู้ตอบแบบสอบถามในรายงานผลการวิจัยและจะไม่มีผลใดๆ ต่อการปฏิบัติงานของท่าน ผู้วิจัยมีจุดประสงค์เพื่อใช้ข้อมูลเพื่อประโยชน์ในเชิงวิชาการ รวมทั้งเป็นข้อเสนอแนะเพื่อที่จะปรับปรุงกลยุทธ์ขององค์กรให้เอื้อต่อการสร้างนวัตกรรมของประเทศไทยต่อไป

ผู้วิจัยขอขอบพระคุณทุกท่านเป็นอย่างยิ่งที่กรุณาสละเวลาอันมีค่าของท่านในการตอบแบบสอบถามนี้

นางสาววิชชุวรรณ สัตย์สมบูรณ์
นักศึกษาปริญญาเอก คณะพัฒนาทรัพยากรมนุษย์
สถาบันบัณฑิตพัฒนบริหารศาสตร์

เอกสารแนบท้าย B

คำชี้แจง: กรุณาตอบข้อมูลทั่วไปของผู้ตอบแบบสอบถาม

1. เพศ ☐ ชาย ☐ หญิง
2. อายุ _____ ปี
3. ระดับการศึกษาสูงสุด ☐ ต่ำกว่าปริญญาตรี
   ☐ ปริญญาตรี
   ☐ ปริญญาโท
   ☐ ปริญญาเอก
4. ตำแหน่งงานปัจจุบัน ☐ ระดับปฏิบัติการ
   ☐ พนักงาน
   ☐ ผู้จัดการระดับต้น
   ☐ ผู้จัดการระดับกลาง
   ☐ ผู้จัดการระดับสูง
   ☐ อื่นๆ (โปรดระบุ)_____
5. แผนกที่สังกัดปัจจุบัน _____
6. ระยะเวลาการทำงานของท่านในองค์กรนี้ _____ปี _____เดือน
7. ระยะเวลาที่ธุรกิจเปิดดำเนินการ _____ปี
8. จำนวนพนักงานทั้งหมด ☐ น้อยกว่า 15
   ☐ 15-30
   ☐ 31-50
   ☐ 51-200
9. ประเภทธุรกิจของบริษัท _____

ขอขอบพระคุณในความร่วมมือ

Appendix C

Letter of Consent

ที่ ศธ ๐๕๒๖.๑๒/๑๕๒๔

คณะพัฒนาทรัพยากรมนุษย์
สถาบันบัณฑิตพัฒนบริหารศาสตร์
เลขที่ ๑๑๘ ถนนเสรีไทย เขตบางกะปิ
กรุงเทพฯ ๑๐๒๔๐

๒๔ กันยายน ๒๕๕๘

เรื่อง ขออนุญาตให้นักศึกษาไปสัมภาษณ์และเก็บข้อมูลเพื่อประกอบการทำดุษฎีนิพนธ์

เรียน

ด้วย นางสาววิชชุวรรณ สัตย์สมบูรณ์ รหัสประจำตัว ๕๔๑๐๖๓๑๐๐๑ นักศึกษาชั้นปริญญาเอก หลักสูตรปรัชญาดุษฎีบัณฑิต สาขาการพัฒนาทรัพยากรมนุษย์และองค์การ (หลักสูตรนานาชาติ) คณะพัฒนาทรัพยากรมนุษย์ สถาบันบัณฑิตพัฒนบริหารศาสตร์ กำลังทำดุษฎีนิพนธ์เรื่อง "การศึกษาพหุระดับเกี่ยวกับตัวแปรที่ส่งผลต่อนวัตกรรม : กรณีศึกษาของวิสาหกิจขนาดกลางและขนาดย่อมในประเทศไทย" โดย ผศ.ดร.อรนุช พฤฒิพิบูลธรรม เป็นอาจารย์ที่ปรึกษา คณะพัฒนาทรัพยากรมนุษย์ จึงใคร่ขอความอนุเคราะห์จากท่านอนุญาตให้นักศึกษาไปทำการเก็บข้อมูลโดยการสัมภาษณ์ เพื่อนำข้อมูลที่ได้ไปประกอบการทำดุษฎีนิพนธ์ เพื่อประโยชน์เชิงวิชาการและปรับปรุงกลยุทธ์ขององค์กรให้เอื้อต่อการสร้างนวัตกรรมต่อไป ทั้งนี้ นักศึกษาจะทำการสัมภาษณ์กลุ่มตัวอย่างพนักงานและผู้จัดการในองค์กรของท่าน รวมจำนวน ๖ คน ใช้เวลาประมาณ ๑ ชั่วโมง โดยมีเนื้อหาเกี่ยวกับตัวแปรภายในองค์กรที่ส่งผลต่อการสร้างนวัตกรรม

หากท่านประสงค์จะขอข้อมูลเพิ่มเติมโปรดติดต่อ นางสาววิชชุวรรณ สัตย์สมบูรณ์ หมายเลขโทรศัพท์ ๐๘๔-๗๒๐๘๘๘๗

คณะพัฒนาทรัพยากรมนุษย์ หวังเป็นอย่างยิ่งว่าคงจะได้รับความอนุเคราะห์จากท่านเป็นอย่างดี จึงขอขอบคุณล่วงหน้ามา ณ โอกาสนี้

ขอแสดงความนับถือ

(รองศาสตราจารย์.ดร.วิชัย อุตสาหจิต)
คณบดีคณะพัฒนาทรัพยากรมนุษย์

คณะพัฒนาทรัพยากรมนุษย์
สถาบันบัณฑิตพัฒนบริหารศาสตร์
โทรศัพท์ ๐ ๒๗๒๗ ๓๔๙๐
โทรสาร ๐ ๒๓๗๕ ๓๙๗๖

BIOGRAPHY

NAME	Miss Wichuwan Satsomboon
ACADEMIC BACKGROUND	Bachelor's Degree with a Major in Japanese Language from Kasetsart University, Bangkok, Thailand in 2003.
	Master's Degree in Business Administration from Assumption University, Bangkok, Thailand in 2009.
PRESENT POSITION	Japanese Interpreter and Translator
EXPERIENCES	Received a scholarship from Japanese Government (Monbukagakusho) in 2006-2007 to enroll in Japanese Language and Culture Studies Program at Chiba University, Japan.