ENVIRONMENTAL HOSTILITY, INDIVIDUAL LEARNING, AND INTRAPRENEURSHIP AS PREDICTORS OF ORGANIZATIONAL LEARNING: A STUDY APPLIED TO TWO SELECTED MINING COMPANIES IN CHILE

A Dissertation

by

CARLOS EDUARDO MOLINA OYARCE

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

May 2009

Major Subject: Educational Human Resource Development

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Chair of Committee, Jamie Callahan
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ABSTRACT

Environmental Hostility, Individual Learning, and Intrapreneurship as Predictors of Organizational Learning: A Study Applied to Two Selected Mining Companies in Chile.

(May 2009)

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Organizations are faced with competitive and changeable environments which demand more prepared employees to successfully cope with these current and future challenges (Oswick, Grant, Michelson, & Wailes, 2005). Organizations, as a way to cope with more hostile environments, may foster individual learning, intrapreneurship, and organizational learning within their employees in order to potentially increase the organizational level of competitiveness. In other words, individual learning, intrapreneurship, and organizational learning may help organizations increase their levels of productivity and be better prepared to face uncertain scenarios.

The purpose of this study was to examine the path of relationships among Environmental Hostility, Individual Learning, Intrapreneurship, and Organizational Learning for two selected mining companies in Chile. A survey instrument was applied to 383 participants who worked in the mining companies. Structural Equation Modeling was the statistical technique utilized to examine if the collected data supported the researcher's proposed model.

None of the models - the researcher's proposed model, a proposed model based on Exploratory Factor Analysis, and a proposed model based on AMOS; were considered as confirmed models. For this reason, four possible arguments were elaborated to explain why the data did not fit any of the models.

First, there is a lack of empirical support of the potential relationships among the construct/variables of the proposed model. Second, this study is a pioneering work in examining Environmental Hostility, Individual Learning, Intrapreneurship, and Organizational Learning altogether. Third, previous studies related to the construct/variables of this study were mainly conducted in the United States and Australia. Fourth, and finally, the social and economic scenarios that Chile faced during the last century were very different than the social and economic situations confronted by the United States in the same period.

DEDICATION

This dissertation is dedicated to my wife, Maria, and our beautiful daughter, Danielita, for their love, support, and patience during this learning journey where God was our guide and illuminated our lives throughout this endeavor.

ACKNOWLEDGEMENTS

I would like to thank my Chair, Dr. Jamie Callahan, and my committee members, Dr. Homer Tolson, Dr. Fred Nafukho, and Dr. Chanda Elbert, for their great guidance and support during my learning journey.

I want to specially thank the employees of the two mining companies in Chile for their positive attitude and support toward my dissertation. A special thanks to Universidad Catolica del Norte for its support to my learning journey from the very beginning. Thanks also to Shomays for her great help and support throughout the course of this research.

Truthful thankfulness is extended to my parents, Orlando and Margarita, for their love and unrestricted support throughout the years and for teaching me positive values in order to be a better human being. A special thanks to my father and mother in low, Carlos and Marianella, for their great support and prayers during this endeavor.

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CHAPTER I

INTRODUCTION

Organizations are faced with complex scenarios in which critical factors are affecting their capacity to be competitive over time; these factors include the aging of the workforce, a high rate of technological changes, globalization, reorganization of economic boundaries, and changes in customer needs (Bartell, 2001; Beer, Voelpel, Leibold, & Tekie, 2005; Menon & Menon, 1997; Osland & Yaprak, 1995; Rastogi, 2000). The business scenario is highly dynamic so organizations should be prepared daily to face expected and unexpected issues which could damage their market share position in the industry. For instance, the American economy is currently seeing signs of an economic recession that may affect customers' purchasing power and, at the same time, organizations' sales and their financial viability (White, 2008).

To combat this dynamic situation, employees, as individual learners, are called to spread and foster learning within organizations through their interactions with other members of the organization (Panayides, 2007). The way individual learning is transferred to organizational learning is still unknown (Casey, 2005). However, some organizations are able to acquire this strategic knowledge and incorporate it as part of the organizational culture (Graham & Nafukho, 2007).

Organizational learning is mainly seen as a key factor in improving the competitiveness of an organization. However, most organizations do not succeed in fostering learning as one of the critical factors in generating a competitive advantage over

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This dissertation follows the style of *Human Resource Development Quarterly.*

their competitors (Appelbaum & Gallagher, 2000). In other words, promoting organizational learning among employees is not a magic and standard process, so each organization should adapt organizational learning processes according to their particular needs.

Intrapreneurs, as special types of individual learners, may also help organizations make a difference by looking for new ways of conducting business, identifying gaps in market niches, making risky decisions based on potential new opportunities, fostering innovativeness, etc. (Antoncic & Hisrich, 2003; Koen, 2000). Intrapreneurs can also be classified as entrepreneurs within organizations because they have valued the benefit of being an employee in entrepreneurial organizations such as Google, Microsoft, 3M, Genentech, Dell, Sony, AT&T, etc. (Amo & Kolvereid, 2005; Menzel, Aaltio, & Ulijn, 2007; Pinchot & Pellman, 1999).

Organizational culture should be one of the channels of fostering intrapreneurship across organizations in order to develop in their employees an attitude towards valuing the critical role intrapreneurs play in organizations and connect intrapreneurship to organizational learning in order to create a synergy between both strategic factors (Antoncic & Hisrich, 2003). For this reason, several large organizations have incorporated the intrapreneurship concept within their culture and developed training programs and other activities that show their employees how to become intrapreneurs or foster intrapreneurial competencies. These competencies may be useful for employees in order to improve their performances in more unpredictable and changeable environment scenarios (Brunaker & Kurvinen, 2006); they may also be useful for organizations in

order to reduce their levels of bureaucracy and increase their levels of effectiveness (Thornberry, 2002).

Hostile Environments also influence the way individuals learn, interact with others, and perform at work. Environmental conditions, such as a high level of hostility, positively and negatively affect the way and pace at which organizations learn (Popper & Lipshitz, 2000). In addition, intrapreneurs would adapt or change their behaviors according to the environmental conditions with which their organizations have to cope (Menon & Menon, 1997). For this reason, hostile environments currently play a critical role in organizations by impacting their levels of performance, affecting their employees' learning behaviors, and altering organizations' learning capacities.

The purpose of this study was to examine the path of relationships among Environmental Hostiliy, Individual Learning, Intrapreneurship, and Organizational Learning for the selected mining companies in Chile. For this reason, an extensive review of literature was conducted, together with the application of a survey, to frame the potential relationships amongst these construct/variables.

Human Resource Development scholars and practitioners have the challenge of helping to enhance organizational learning. For this reason, the proposed Intrapreneurial Learning Model represents an attempt in this direction and also tries to bridge the gap of understanding how organizational learning is generated. The Intrapreneurial Learning Model considers the following construct/variables: Environmental Hostility, Individual Learning, Intrapreneurship, and Organizational Learning. Environmental Hostility, Individual Learning, and Intrapreneurship interact with organizational learning, so it is crucial to examine their interactions for the purpose of improving the organization's

capacity of becoming a learning organization with the ability to be ahead of their competitors.

Environmental Hostility

Organizations are constantly dealing with their particular environments which bring to them both opportunities and threats (Song, 2001). Organizations should constantly scan their environments in order to proactively define strategies to successfully cope with these opportunities and threats. There are several resources used by organizations in order to track their environments such as time expended on conducting this task and people who use their competencies to examine actual and future environments (Song, 2001).

Hostile environments represent a threat to organizations' goals and survival over time due to the high levels of competition and uncertainty (Khandwalla, 1972; Lindelof & Lofsten, 2006). Several authors (Callahan & Schwandt, 1999; Chiva, Alegre, & Lapiedra, 2007; Fiol & Lyles, 1985) have argued that environmental hostility can foster or block organizational learning. Furthermore, Duta and Crossan (2005) related hostile environments and intrapreneurship by stating that intrapreneurs, due to their special competencies such as risk taking and innovation, are called to take advantage of environmental opportunities.

Hurley and Hult (1998) conducted a study to explore how organizations should adapt to their environments, by linking innovation to organizational learning, in order to generate a competitive advantage. An instrument was applied to 9648 employees from a public organization in the United States. According to Hurley and Hult (1998), more dynamic and hostile environments demand faster organizational responses by using

organizational learning, among other factors. Thus, the direct and indirect effects from Environmental Hostility to Organizational Learning are examined in the present study.

Individual Learning

Organizations are comprised of individuals who create, transfer and/or bring their knowledge to the organizations, which could be considered a long-term investment by the organizations (Wright, 1997). Every individual is different per se so he/she has particular skills and his/her own specific knowledge acquired from different potential sources such as books, the Internet, etc. (Elkjaer, 2003). The learning process starts at the individual level; individuals spread critical knowledge to the organization mainly through interaction with other employees (Aksu & Ozdemir, 2005; Chan, 2003; Huber, 1991; Kim, 1993; Yang, Watkins, & Marsick, 2004).

According to Cunningham and Iles (2002),

> Individual learning was expected to occur when individuals:
>
> - Learn to learn by the use of varied experiences, reflection and experimentation;
> - Acquire the knowledge, skills and behaviours relevant to their job through varied learning experiences;
> - Challenge the status quo and continually seek opportunities to improve themselves and the job they do, thus contributing to the overall growth of the organization (p. 480).

Experiential learning and learning cycles' theories, developed by Kolb in 1984, have been extensively used in studying individual learning (Cunningham & Iles, 2002). Kolb postulated that individuals learn from their experiences, but every person is able to interpret his/her experiences in a different way (Drejer, 2000). For this reason, two people who have faced the same situation may see it in a completely opposite way.

Several scholars (Merriam, 2001; Rowley, 1998; Rowold & Schilling, 2006; Schraeder & Morrison, 2005; Van Der Sluis, 2002) have related individual learning with self-directed learning which is part of informal and incidental learning, self-development, continuous learning, and decision making. These types of learning have been conceptualized in this study as individual learning dimensions due to the capacity that they have to impact on the way individuals learn and behave over time.

Although individuals learn, are organizations able to learn? This is a query that has been widely analyzed by scholars over time. Several scholars (Belasco, 1998; Fiol & Lyles, 1985; Kim, 1993) have agreed that organizations do not learn by themselves. In other words, their employees are the ones who bring, create, and transfer knowledge across the organization. However, organizations through using their memory's systems are able to stock relevant knowledge and manage it according to their employees' needs which could be considered as an organizational learning processes (Huber, 1991). For instance, intrapreneurs can request relevant information, based on the particular issues they are working on, from different departments such as human resources, marketing, R&D, finance, etc. in order to make more efficient decisions in a timely manner, and, in doing so, influence organizational procedures and cultural values.

Individuals bring their knowledge to the organization which can be spread across different departments. Organizations should create conditions to foster interaction among individuals in order to share their knowledge and information and contribute to the generation of critical knowledge which are the basics of organizational learning. Although it is still unknown how individual learning fosters organizational learning (Chan, 2003), individuals play a critical role in the organizational learning process.

Individual learning has been linked to intrapreneurship because intrapreneurs are called on to learn from their risky and innovative experiences (Ortenblad, 2002) and transfer these experiences to the rest of employees to foster an intrapreneurial culture.

Birdi, Patterson, and Wood (2007) conducted research wherein one of the goals was to compare individual learning practices between profit and non-profit organizations. They interviewed, via telephone 368, senior training and development managers in UK organizations from different industrial sectors. The results allowed the researchers to conclude that non-profit organizations are more involved in individual learning practices particularly in education and career-planning activities than profit-making organizations. Although individual learning has different levels of relationship with the construct/variables of the Intrapreneurial Learning Model, direct effects from Individual Learning to Organizational Learning are examined in this study.

Intrapreneurship

The concept of Intrapreneurship appeared in 1976 in Macrae's article with the purpose of highlighting the importance of innovation as an intrapreneur's relevant feature. Intrapreneurship can be understood as entrepreneurship within organizations (Antoncic & Hisrich, 2003). In other words, intrapreneurs make risky decisions from their hierarchical positions within organizations while entrepreneurs make risky decisions as the founders of their organizations. Another difference is that intrapreneurs use the organizations' resources while entrepreneurs use their own resources. In addition, intrapreneurs are influenced by the organizations' policies, rules and procedures while entrepreneurs do not have any organizational regulation because they are the ones who start-up organizations (Antoncic & Hisrich, 2001; Hisrich, 1990).

As was mentioned before, intrapreneurship was initially associated with innovation. However, other characteristics have been associated with the intrapreneur's profile over time such as, risk taking, opportunity-focus driven, willingness to change the status quo, capacity to listen and supporting innovative ideas, and ability to learning from their mistakes (Antoncic & Hirisch, 2001, 2003). In addition, several scholars (Hornsby, Kuratko, & Zahra, 2002; Menzel et al., 2007; Zhang & Li, 2007) have also named intrapreneurship as corporate entrepreneurship, corporate venturing, and theory of intrapreneurship development which may explain the unclear boundaries and lack of agreement about the meaning of this critical concept.

Intrapreneurship as a concept can be analyzed under three different perspectives (Antoncic & Hisrich, 2003). The first one is the individual intrapreneur, which considers the intrapreneur as a human being. The second one is the formation of new corporate ventures which analyze the characteristics of the new ventures, how the new ventures match with the organizations' main purposes, and support the organizations' internal environments. Finally, the third perspective is related to the entrepreneurial organization which centers on the organizations' characteristics.

Why are organizations supporting intrapreneurs within their organizations? Because organizations need a larger number of intrapreneurs to deal with their own problems such as bureaucratic structures, lack of capacity to innovate, among others. In addition, the environmental conditions that organizations are currently facing have increased their need to identify individuals with the capacity of seeing opportunities where almost everybody only sees threats and also compete with smaller organizations which have the ability to act faster than large corporations like IBM and GM

(Thornberry, 2002). In addition, although intrapreneurs have been associated with the R&D department, they may be located in any part of the organization (Ulijn, Drillon, & Lasch, 2007) because from every hierarchical position intrapreneurs have something valuable to add to their organizations.

Organizations need to have several conditions in order to support intrapreneurship as part of their organizational philosophy or values (Hornsby et al., 2002; Menzel et al., 2007). First, top managers should support and spread intrapreneurship within their organizations. They should empower their employees in order to give them the opportunity to make their own decisions. Second, managers have to give resources to intrapreneurs that would allow them to put their ideas into practice. However, the organization should audit those resources under a criterion of costs versus benefits. Third, employees should receive rewards if they are improving the companies' productivity. In other words, the employees' capacity of developing good ideas should be acknowledged, fostered, and rewarded by organizations. Fourth, the organizations' structures should promote and facilitate the evaluation and implementation of good ideas instead of blocking and paralyzing them. For example, middle-managers' fear of losing power if they foster new ideas that were not developed by them could impede the generation of good ideas by their employees and subsequently affect the effectiveness of the organizations. Fifth, and finally, tolerance for failures as a consequence of risk taking by intrapreneurs should be internalized within the organizations. Otherwise, intrapreneurs may be afraid of making wrong decisions, usually made under high levels of pressure with time constraints and incomplete information, because these incorrect decisions may result in an employee being fired.

Individuals can make a difference within organizations, but organizations do not need just any kind of people to be more competitive (Rastogi, 2000). What they need are intrapreneurs who want to be empowered by their organizations in order to make innovative and risky decisions without being afraid of receiving punishment for their mistakes (Pinchot & Pellman, 1999). Cope (2005) has related intrapreneurship with learning by arguing that intrapreneurs prefer to use double-loop learning in order to foster radical changes in their organizations and, in this way, increase the organization's capacity to successfully compete in a global economy. However, this relationship has not been deeply studied yet because both concepts, intrapreneurship and learning, are complex by themselves (Lumpkin & Lichtenstein, 2005). Although Intrapreneurship has different degrees of relationships with the construct/variables of the Intrapreneurial Learning Model, the direct effects of Intrapreneurship on Organizational Learning are examined in this study.

Organizational Learning

Although there is no agreement about when the organizational learning concept originated, some authors (Callahan, 2003; Casey, 2005; Garvin, 2000) have argued that organizational learning as a theoretical concept was first developed in 1958 with the work of Dearborn and Simon. Organizational learning has been studied from different social fields such as psychology, management theory, and cybernetics (Appelbaum & Gallagher, 2000; Friedman, Lipshitz, & Popper, 2005) which may support its potential applicability to any kind of organization. Although organizational learning has gained huge popularity during the past decade, there is no agreement between scholars about its meaning (Bell, Whitwell, & Lukas, 2002; Jeong, 2004). For this reason, it is also possible

to say that every attempt made to define organizational learning has originated the development of new conceptualizations about this critical concept.

Huber (1991) proposed one of the most widely used definitions of organizational learning (Aksu & Ozdemir, 2005; Jimenez-Jimenez & Cegarra-Navarro, 2007; Wright, 1997). Huber postulated that organizational learning is constructed when organizations are able to acquire, distribute, interpret, and store information from their internal/external environment. These are ongoing and critical processes that may help organizations adapt and innovate to successfully cope with environmental complexities through effectively satisfying customers' needs by developing new products and services and generating novel ways of conducting business (Farrell & Oczkowski, 2002).

Several scholars have stated that organizational learning is not the sum of all individual learners because there are other factors that affect the process (Bogenrieder, 2002; Chan, 2003; King 2001; Schwandt & Marquardt, 2000). In other words, organizational learning is produced through an unknown way where individual learners should play a critical role in the process together with other factors such as communication and organizational culture. Cunningham and Iles (2002) postulated that individual learners have to share and discuss their knowledge with other members of the organization in order to spread their knowledge across the organization. Osland and Yaprak (1995) also have tried to understand the process through postulating that individual learning becomes organizational learning when new strategic knowledge is spread across the different organizational structures to other potential customers or employees who can benefit from this knowledge by using it to improve organizational processes, and quality of products and services. Finally, Lien, Hung, and McLean (2007)

argued that individuals are critical in the organizational learning process because they are the ones who "collect, absorb, and transform information into organizational memory and knowledge" (p. 211).

Even though there is a lack of agreement about the meaning of organizational learning, Goh and Richards (1997) have postulated five organizational learning subcategories that are associated with this critical and complex concept. These subcategories help to mold the way organizational learning works or functions in each organization. The subcategories are clarity of purpose and mission; leadership commitment and empowerment; experimentation and rewards; transfer of knowledge; and, teamwork and group problem solving.

Additionally, several authors (e.g., Argyris, 1977; Auluck, 2002; Balbastre & Moreno-Luzon, 2003; De Geus, 1988; Drejer, 2000; Fiol & Lyles, 1985; Huber, 1991; Hurley & Hult, 1998; Lumpkin & Lichtenstein, 2005; Marks & Louis, 1999; Mintzberg, 1991; Nonaka, 1994; Schein, 1999; Sessa & London, 2006; Simon, 1991; Sitkin, 1996; Tucker, Edmonson, & Spear, 2002) have also addressed some of these subcategories as a part of organizational learning. For this reason, the aforementioned subcategories are used to frame organizational learning in this study.

Organizational learning can also be analyzed under a multilevel perspective based on individuals, groups, and organizations (Drejer, 2000; Popper & Lipshitz, 2000) because organizations learn through an interaction of individuals, groups/teams, and organizations. For instance, if an intrapreneur acquires relevant knowledge for his/her work in an external training session, this knowledge should be spread to the organization through his/her interaction with other employees, who are individual/team learners, and

transferred to the organization. However, organizational learning does not imply the sum of all individual learners because there are complex and yet unknown processes that help to generate organizational learning within organizations (Bogenrieder, 2002; Chan, 2003; King 2001; Schwandt & Marquardt, 2000).

Organizational learning also demands different kinds of changes and innovations (Cook & Yanow, 1993; Stata, 1989; Swieringa & Wierdsma, 1992; Templeton et al., 2002) through incorporating new knowledge that may help organizations adapt to the different scenarios they have to face. This knowledge has to be innovative (Bartell, 2001) in order to allow organizations to be the pioneers in everything organizations do which also has to be valued by their customers because this knowledge should add more value to them than other competitors do.

Another characteristic of organizational learning is having a strategic perspective, so organizations may develop a competitive advantage over their competitors by fostering organizational learning within their employees (Khandekar & Sharma, 2006; Panayides, 2007; Templeton et al., 2002). According to Ribbens (1997), organizational learning impacts strategy, so managers need to understand the manner in which organizations learn and why they learned through these ways in order to increase the effectiveness of their strategy formulations. In other words, organizations that are more aware about the way they learn are better prepared to generate and implement more effective strategies.

Organizational learning fosters the creation of knowledge within organizations as a distinctive factor that may allow organizations to obtain a competitive advantage (Hsu & Pereira, 2008). In addition, organizational learning has been described as the fulcrum between individual learning and intrapreneurship (Slater & Narver, 1995) by, for

example, creating the conditions to spread knowledge across organizations. Furthermore, Lumpkin and Lichtenstein (2005) have argued that opportunity recognition, a key intrapreneurial process, helps organizations to translate valuable information into knowledge.

Communication also plays a key role in organizational learning in order to connect the different actors or parts that participate in this process and help to spread organizational learning across organizations (Simon, 1991). In addition, knowledge and information are two of the most critical factors in organizational learning (Fiol & Lyles, 1985; Marks & Louis, 1999; Miller, 1996; Nicolini & Meznar, 1995; Templeton, Lewis, & Snyder, 2002) because both knowledge and information are like the energy that helps organizations move toward their goals.

Organizational learning may be achieved through different methods such as single-loop learning, double-loop learning, organizational level of learning, collective learning, and emotional learning (Argyris, 1999; Chonko, Dubinsky, Jones, & Roberts, 2003; Easterby-Smith, Araujo, & Burgoyne, 1999; Schwandt & Marquardt, 2000; Seo, 2003; Ubeda & Llopis, 2002; Vince, 2004). Although these methods present different approaches to how organizational learning occurs within organizations, they also overlap to some extent (Kim, 1993).

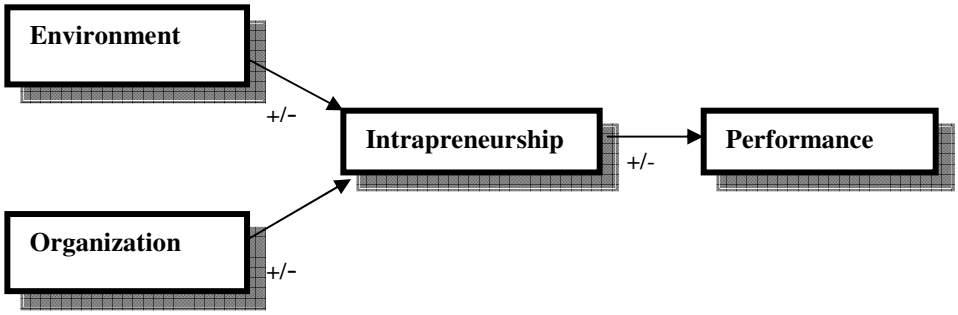
Single-loop learning is related to solving problems as they occur without focusing on proactively avoiding them and altering the organizational process (Argyris, 1977, 1999). Single-loop learning adds new knowledge to the organization, but the organization keeps its mentality about maintaining the same procedures to function or face routine problems. On the other hand, double- loop learning (Argyris, 1977, 1999) implies radical

changes in the organizational processes, policies, and procedures. These changes are made by employees who have the capacity to re-frame their work according to the new environmental demands, can make risky decisions without any fear of failure, and look for opportunities where average employees are unable to see them. In other words, it is possible to link double-loop learning with the intrapreneurs' behavior because they look for changes, innovations, and risks from their positions within organizations. Organizational Learning is considered in this study as a dependent variable which is affected by Environmental Hostility, Individual Learning, and Intrapreneurship.

Intrapreneurial Learning Model

Antoncic and Hisrich (2001) proposed an intrapreneurship model (see Figure 1) that established the theoretical foundations of the role of intrapreneurs within organizations and highlighted the effect of intrapreneurs on the organizations' performance. In addition, the environmental factors play a critical role in either promoting or blocking intrapreneurship.

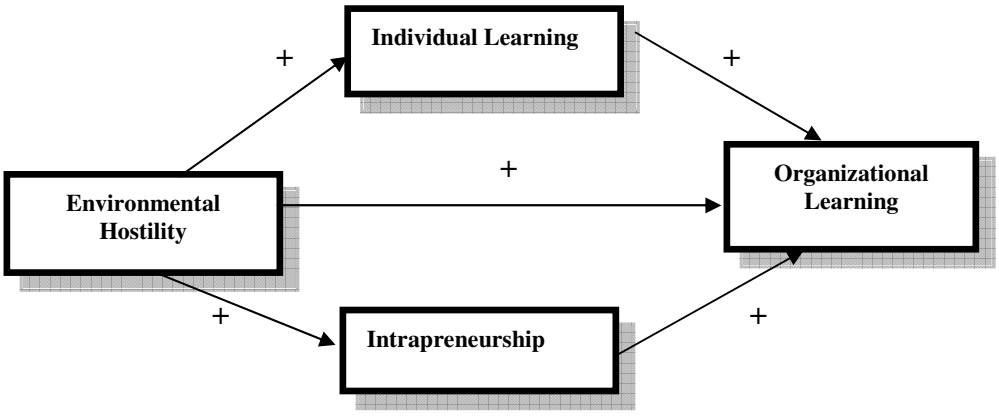
Figure 1: The Intrapreneurship Model



Source: Adapted from Antoncic and Hisrich, 2001.

For the purpose of this study, an extensive literature review was conducted in order to better grasp the meaning and potential relationships amongst Environmental Hostility, Individual Learning, Intrapreneurship, and Organizational Learning. These sources are the foundations of the Intrapreneurial Learning Model (see Figure 2) which is a proposed model generated by the researcher and represents an adaptation of the Intrapreneurship Model (see Figure 1). Individual learning and organizational learning were added because the literature review supported their relevance to the model (e.g., Antoncic & Hisrich, 2001; Harrison & Leitch, 2005; Lumpkin & Lichtenstein, 2005; Ortenblad, 2002; Choo, 2001; Farrell & Oczkowski, 2002).

Figure 2: Intrapreneurial Learning Model



The path relationships among Environmental Hostility, Individual Learning, Intrapreneurship, and Organizational Learning are described in the Intrapreneurial Learning Model. In other words, hostile environments foster individual learning and intrapreneurship and all three promote organizational learning. Each construct/variable of the model was briefly explained for the purpose of describing how they fit together to

inform the Intrapreneurial Learning Model. At the same time, empirical studies have been incorporated to show real links among some of the independent variables of the model: Environmental Hostility, Individual Learning, and Intrapreneurship; and, the relationship of those variables with the only dependent construct of the Intrapreneurial Learning Model, Organizational Learning.

Statement of the Problem

Understanding how Environmental Hostility, Individual Learning, Intrapreneurship, and Organizational Learning, interact among each other is critical because these factors may help organizations enhance their learning processes and obtain sustainable competitive advantages over their competitors over time. However, researchers have not reported any studies in which all those critical factors were analyzed together.

Organizations are open systems which impact and are impacted by their environments, so it is also relevant to understand how hostile environments may affect organizational learning. Currently, there are several researchers who have analyzed a relationship between the environment, in general, and organizational learning or intrapreneurship among other variables (Hostager, Neil, Decker, & Lorentz, 1998; Khandekar & Sharma, 2006; Menon & Menon, 1997), but none of them have reported considering the combination of individual learning and intrapreneurship and their attendant effect on organizational learning.

It is still unknown how organizational learning is produced and interconnected to individual learning (Casey, 2005). In other words, researchers and practitioners do not know how individual learners transfer their knowledge across organizations in order to generate organizational learning. Knowing more about this process is critical because

organizational learning is considered one of the key factors that stimulates the generation of sustainable competitive advantages in the organizations (Hoffman, 2000).

Intrapreneurs have the capacity to foster the creation of knowledge, relevant experience, and innovativeness together with the identification of new opportunities which are competencies highly valued in current organizations (Pinchot & Pellman, 1999; Politis, 2005). However, there are just a few researchers who have analyzed, mainly under a theoretical perspective, some tangential factors of the relationship between intrapreneurship and organizational learning (Antoncic & Hisrich, 2003; Dutta & Crossan, 2005; Honig, 2001; Nielsen 2000).

Honig (2001) postulated a connection between intrapreneurship and organizational learning by pointing out that intrapreneurs prefer using internal rather than external networks to formulate their learning strategies which are coherent with their preferences of working as employees instead of starting up their own businesses. Nielsen (2000) argued that "intrapreneurship can facilitate organizational learning about how to survive and prosper in responsive market systems" (p. 163). In this same direction, Drejer, Christensen, and Ulhoi (2004) argued that intrapreneurship occurs in a content focused on learning. These explorations represent only a first and insufficient approach, mainly theoretical, to seek an understanding on how organizational learning and intrapreneurship foster each other.

Organizations have not always used their employees' knowledge and competencies properly due to several reasons, such as being too bureaucratic, having several hierarchical levels instead of fostering flat structures, and seeing changes as a threat (Friedman, Friedman, & Pollack, 2005; White & Weathersby, 2005). In other words,

organizations in general, have sub-utilized their employees' knowledge and competencies to foster organizational learning and intrapreneurship which may negatively impact the organizations' levels of competitiveness over their competitors.

Purpose of the Study

The purpose of this research was to examine the path of relationships among Environmental Hostility, Individual Learning, Intrapreneurship, and Organizational Learning for two selected mining companies in Chile. Organizations need intrapreneurial individuals, intrapreneurs, who help improve organizational effectiveness through promoting different and novel ways of doing business, developing new products or services, identifying new business opportunities, and fostering risk-making decisions (Antoncic & Hisrich, 2003). In addition, intrapreneurship may foster organizational learning (Nielsen, 2000) through, for example, the development of an intrapreneurial culture (Christensen, 2005). At the same time, organizations should promote an organizational learning culture (Cook & Yanow, 1993) as a way of becoming a learning organization able to adapt and successfully deal with both internal and external hostile environments in a more efficient way than competitors.

Research Questions

The path relationships among Environmental Hostility, Individual Learning, Intrapreneurship and its effects on Organizational Learning were the key components of this research. Several research questions should be examined in order to address the purpose of this study, together with the construct/variables that are involved in every research question, the levels of measurement, and the utilized method/statistical technique (see Table 1). They are as follows:

Table 1: Structure of the Research

Research Questions	Constructs/Variables	Levels of Measurement	Method/Statistical Technique
To what extent does Environmental Hostility foster Organizational Learning?	Environmental Hostility Organizational Learning	Interval Interval	Structural Equation Modeling (SEM) Confirmatory Factor Analysis (CFA)/Path Analysis (PA) or Exploratory Factor Analysis (EFA) SPSS/AMOS
To what extent does Individual Learning foster Organizational Learning?	Individual learning Organizational Learning	Interval Interval	SEM CFA/PA or EFA SPSS/AMOS
To what extent does Intrapreneurship foster Organizational Learning?	Intrapreneurship Organizational Learning	Interval Interval	SEM CFA/PA or EFA SPSS/AMOS
Is the proposed Intrapreneurial Learning Model a confirmed model (see Figure 2) based on different indices of fit?	Environmental Hostility Individual Learning Intrapreneurship Organizational Learning	Interval Interval Interval Interval	SEM CFA/PA or EFA SPSS/AMOS

Hypotheses

Specific relationships of the construct/variables of the proposed Intrapreneural Learning Model (see Figure 2) were analyzed by establishing hypotheses that represent hypothetical variations between them and, then, being substantiated with the empirical data collected from the survey. The research hypotheses were:

1. Environmental Hostility has positive both direct and indirect effects on Organizational Learning.
2. Individual Learning has a positive direct effect on Organizational Learning.

3. Intrapreneurship has a positive direct effect on Organizational Learning.
4. The Intrapreneurial Learning Model is a confirmed model.

Operational Definitions

The following operational definitions will help to understand the findings of this study:

Environmental Hostility: Highly competitive environments which represent a threat to organizations' goals and stability over time (Khandwalla, 1972).

Individual Learning: Individual learning has a utilitarian purpose because it is seen as a system oriented to develop knowledge that helps people survive and adapt to the constant changes that are affecting our organizations (Schwandt & Marquardt, 2000).

Intrapreneurship: A process where "intrapreneurs are those employees who are able to champion new initiatives in established organizations and make some material difference. They come up with new and valuable ideas which they are able to resource and develop in an encouraging, enabling culture" (Thompson, 2004, p.246).

Organizational Learning: "A system of actions, actors, symbols, and processes that enables an organization to transform information into valued knowledge which, in turn, increases its long-run adaptive capacity" (Schwandt, 1997 p. 370).

Independence Model: The Independence Model represents the proposed Intrapreneurial Learning Model without considering any relationship or path among the construct/variables (Schumacker & Lomax, 2004). The Independence Model is also referred to as the Measurement Model or Null Model (Garson, 2008).

Default Model: The Default Model is the researcher's proposed Intrapreneurial Learning Model which considers the paths among the constructs/variables that are theoretically

supported (Schumacker & Lomax, 2004). The Default Model is also known as the Structural Model or the Hypothesized Model (Garson, 2008).

Saturated Model: The Saturated Model represents the proposed Intrapreneurial Learning Model with all the paths included (Schumacker & Lomax, 2004). The Saturated Model is also labeled as the Full Model (Garson, 2008).

Assumptions and Limitations

The main assumptions of this study were the following:

1. The survey was completed by the real respondent selected to answer it.
2. The respondents worked on different hierarchical positions in their respective organizations.
3. The respondents understood the purpose of this study and had the freedom to answer the questions according to their beliefs.
4. The respondents comprehended the main concepts of this study asked of them in the survey, such as individual learning, organizational learning, intrapreneurship, environment, and organizational performance.
5. The interpretation of the data truly reproduces the respondents' answers.

This study had some limitations that will be presented next:

1. The study is limited to the two selected mining companies located in Chile.
2. This study is limited to the information obtained and analyzed from principal and secondary sources of information such as articles, books, and the survey that was applied.
3. The instruments utilized to conduct the survey were created in other countries instead of Chile.

4. Results may be generalized only to the mining companies in Chile.

Methodology

The data was collected by applying an instrument survey to a specific sample size composed for the employees of selected mining companies in Chile. Then, the data were examined by using CFA and PA, which are part of SEM, if the data fit the Independence Model or EFA if the collected data does not fit the Independence Model (Thompson, 2004). SPSS and AMOS were the statistical software utilized to conduct the analysis.

Population

The population of this study was composed of selected mining companies, which mainly produce copper, that currently function in Chile. The empirical part of this study was conducted in the copper mining industry because it represents the most relevant area in the Chilean economy (Spilimbergo, 2002; Vergara, 2008) and the most-valuable marketable commodity (Calvo & Mendoza, 1999). According to De Gregorio (2007), the Chilean production of copper represents about 36% of the world production. For this reason, Chile is the world's largest copper producer. The information related to the population was obtained from the Chilean National Mining Association (SONAMI) which is an organization that represents the interests of the copper mining organizations located in Chile both nationally and internationally.

Instrumentation

The survey instrument included questions that were used to reflect the following construct/variables: Environmental Hostility, Individual Learning, Intrapreneurship, and Organizational Learning. The instrument contained several items for each variable which support its theoretical definitions. The respondents also answered questions regarding

demographic information such as gender, age, position, education level, number of years working in the organization, and the industry. The data gathered from the survey were entered in Microsoft Excel and, then, analyzed with statistical tools such as descriptive statistics, SPSS, and AMOS (Schumacker, 2006).

Significance of the Study

There are no known published studies which have examined the potential relationships among Environmental Hostility, Individual Learning, Intrapreneurship, and Organizational Learning. For this reason, this study, which can be classified as exploratory (Thompson, 2004), should contribute to generating a first approach oriented to confirm and explore the path relationships among the construct/variables mentioned before.

Organizations are considered open systems which affect and are affected by their hostile environments. For this reason, this study should help increase awareness about the importance of periodically evaluating an organizations' environment. In addition, the results of this study may potentially help organizations deal with their hostile environments and identify which variables, in the Intrapreneurial Learning Model, may have a higher impact in positively affecting organizational learning.

Currently, it is still unknown how individual learning is transferred to the organizations in order to produce organizational learning (Elkjaer, 2001) so this study may help to clarify this query. However, being able to totally solve this inquiry is illusory, but it may be possible to identify some factors that would help to better understand how this process works.

Organizational learning is known as a process that stimulates the development of knowledge and information which are also critical sources for intrapreneurs (Lichtenstein, Lumpkin, & Shrader, 2003). However, only a few researchers have addressed some connections between organizational learning and intrapreneurship (Antoncic & Hisrich, 2003; Nielsen, 2000). For this reason, the empirical part of this study may help identify to what extent organizational learning, together with individual learning, and intrapreneurship are connected, which would allow for support or not of this mainly theoretical relationship.

Organizations should foster intrapreneurship and organizational learning as part of their core values in order to promote the development of creative and innovative ideas by their employees as one way to reduce the levels of bureaucracy and increase organizational competitiveness in the hostile environments in which they are dealing. For this reason, this study may mainly allow organizations to increase their awareness about the benefits of incorporating both concepts of organizational learning and intrapreneurship into their strategies, managerial practices, and culture which also may impact the levels of accountability in their employees learning processes.

Intrapreneurs are and will be critical in helping organizations improve their performance over time by looking for new ways of doing business and focusing on novel ways to satisfy customers' needs (Dess et al., 2003). This study may help increase the understanding of intrapreneurs' critical role in their organizations, and their capacity to foster learning as playing a strategic role within organizations.

This is a unique study for several reasons. First, there are few studies which have analyzed organizational learning in the mining industry (e.g., Hagge & Lappe, 2006) and

for this reason more empirical research is needed to bridge this gap. Secondly, the instruments utilized in this study have not been applied in Spanish speaking countries, so this study should be considered as the first approach to examine the reliability of the construct/variables in a very different setting; and, thirdly, there are no known previously published studies in which the construct/variables utilized in this study were analyzed.

Finally, like most of the organizations working all over the world, mining companies in Chile are very concerned about reducing their costs in order to increase their level of competitiveness. For this reason, by applying individual and organizational learning as well as intrapreneurship, organizations could increase their employees' capacity to generate new ideas, enhance the efficiency of their processes, focus on looking for new market opportunities, deal with their environments in a better way, and foster learning as a critical factor for employees and organizations. In other words, individual and organizational learning, and intrapreneurship should also help to generate a win-win relationship between employees and employers.

CHAPTER II

LITERATURE REVIEW

Each of the construct/variables Environmental Hostility, Individual Learning, Intrapreneurship, and Organizational Learning that are mentioned in the Intrapreneurial Learning Model, presented in chapter I, are described in this chapter. An extensive literature review was conducted in order to know the theoretical development of each construct/variable. Then, potential connections among these construct/variables are discussed, together with emphasizing the uniqueness of this study.

Environmental Hostility - Foundations of a Concept

The current chaotic environment with which organizations are faced requires that organizations learn to adapt and cope with unforeseeable future threats (Oswick, Grant, Michelson, & Wailes, 2005). According to Fiol and Lyles (1985), successful organizations are the ones that adapt their strategic plans, human and technological resources, and culture with the environment. In other words, organizations need to diagnose their environments almost daily and make their resources adequate to their demands in order to better and proactively satisfy their customers' needs.

Although environment has to be considered a key factor in analyzing organizations, there is little agreement about its meaning and how it can be measured (Fuentes-Fuentes, Albacete-Saez, & Llorens-Montes, 2004). Environment can be understood as "the surrounding conditions, influences or forces that influence or modify …the aggregate of social and cultural conditions (as customs, laws, language, religion, and economic, and political organization) that influence the life of an individual or community" (Merriam-Webster, 1966, p. 760).Organizations are commonly faced with

more hostile environments than ever before which represent a threat to their goals and stability over time (Khandwalla, 1972; Lindelof & Lofsten, 2006). High levels of competition among competitors and uncertainty are two classic characteristics of these kinds of hostile environments.

Hostile environments foster different kinds of changes which provide opportunities to intrapreneurs who want to develop novel products and services (Rae, 2006). Intrapreneurs have to be innovators and take risks in order to take advantage of the opportunities that are in the environment (Duta & Crossan, 2005). Antoncic and Hisrich (2001) also argued that internal and external organizational environments, especially hostile environments, influence intrapreneurship. They also postulated that intrapreneurship is positively impacted when organizations periodically scan their environments especially if they have a high level of hostility or competitiveness in the industry. By using an internal-external analysis, Hurley and Hult (1998) have argued that organizations which have a greater capacity to innovate, which is one of the key characteristics of intrapreneurship, are better prepared to successfully deal with their environments and to develop competitive advantages.

Several authors (e.g., Bapuji & Crossan, 2004; Callahan & Schwandt, 1999; Chiva et al., 2007; Fiol & Lyles, 1985; Pisano, 1994) have argued that the hostile environments really impact organizational learning. Popper and Lipshitz (2000) also postulated that more turbulent and hostile environments demand a greater need for organizational learning. In other words, competitive environments induce organizations to develop new ways of coping, where learning is critical to increase an organizations' survival rate over time. Hostile environments also affect individuals (Kim, 1993; Fiol &

Lyles, 1985) who must adapt to the environment and, by doing that, impact the way organizational learning is produced in organizations. Environmental Hostility is postulated as impacting Intrapreneurship, Individual Learning, and Organizational Learning in the present study.

Individual Learning - Foundations of a Concept

Although several scholars have argued that any learning process starts from individuals (Barker & Neailey, 1999; Bierly & Hamalainen, 1995; Elkjaer, 2004), it is necessary to review this learning level before analyzing organizational learning (Chonko et al., 2003; Elkjaer, 2001; Oswick, Anthony, Keenoy, Mangham, & Grant, 2000). Individual learning has to be transferred to the organization by social interactions in order to generate organizational learning which represents more than just the sum of the individual learners. Otherwise, individual learning will remain inside individual minds without having a real impact within organizations. Besides, it is important to acknowledge that individuals have different learning styles, so the way they handle and process their experiences would impact preference of a learning style over others (Sessa & London, 2006) which may impact how individual learning is transferred to the organizations.

Even though technical development cycles are faster than ever before, individuals are still a critical resource because they are the ones who have the capacity to apply and create novel technology within organizations (Olivera & Straus, 2004). In addition, Schwandt and Marquardt (2000) argued that individual learning has a utilitarian purpose because it is seen as a system oriented to develop knowledge that helps people survive and adapt to the constant changes that are affecting their organizations. Furthermore,

Chonko et al. (2003) postulated that the need of learning may be superior to each individual learner, so each person should continuously learn new knowledge that will be relevant to his or her specific performance.

Individuals are able to learn and spread knowledge both inside and outside their organizations. Gilley and Maycunich (2000) defined individual learning as "the increase of skills, insights, knowledge, attitudes, and values acquired by a person through training, self-study, technology-based instruction, insight, observation, and reflection" (p. 109). Furthermore, Marsick, Volpe, and Watkins (1999) have described the individual learning process by showing several phases of this process which are

> (1) what one wants to learn (learning goals); (2) how this learning will help further one's own life or career goals and those of the organization (without assuming that these goals are always congruent); and (3) how one can best accomplish this kind of learning, given differences in learning styles, personality and motivation variables, and constraints within the organization (for example, systems, rewards, and cultures that are unfriendly to learning, and limited resources) (p. 92).

According to Cunningham and Iles (2002),

> Individual learning was expected to occur when individuals:
> - Learn to learn by the use of varied experiences, reflection and experimentation;
> - Acquire the knowledge, skills and behaviours relevant to their job through varied learning experiences;
> - Challenge the status quo and continually seek opportunities to improve themselves and the job they do, thus contributing to the overall growth of the organization (p. 480).

Individual learning has been widely studied through the use of Kolb's works, developed in 1984, about experiential learning and learning cycles (Cunningham & Iles, 2002). Kolb (1984) addressed the fact that individuals learn from their experiences, but they do it differently. For this reason, two individuals may face the same problem but obtain different kinds of learning because of their individuality. In addition, Kolb (1984)

postulated that individuals have to follow a learning cycle in order to really learn. Through relating Kolb's learning theories to psychological literature, it is possible to infer "that individuals possess differing degrees of the propensity to learn" (Wright, 1997, p. 6).

Individual learning outcomes are essentially social and cannot be produced without interaction with the environment. People learn and behave according to their social rules or organizational culture (Casey, 2005). For this reason, although decision-making has usually been considered an individual learning process, it also can be identified as a social process that can be incorporated into the organizational routines and transformed into organizational learning (Oliver & Jacobs, 2007).

Several scholars (Chan, 2003; Nair, 2001; Yeo, 2005) have argued that organizations can learn from their individual learners' skills and commitments. These skills can be shared between employees to increase company productivity. Besides, commitment is a relevant attitude that employees should bring to organizations because this commitment is like gasoline or energy that sets the organizations in motion. Here training and development, for example, may play a key role in spreading strategic individual learning across the organization.

By reviewing Ames and Archer's article (1988), who developed the individual learning survey instrument that was applied in this present study to selected mining companies located in Chile, it was possible to identify four sub-dimensions related to individual learning which should help to better grasp individual learning as a concept. These sub-dimensions are as follows: 1) Seeing, Finding, and Recognizing Learning

Opportunities; 2) Gaining and Applying New Knowledge; 3) Self-Directedness; and, 4) Continuous Learning.

Seeing, Finding, and Recognizing Learning Opportunities

According to Van Der Sluis (2002), it is still unknown if situational or individual factors have a higher impact on individual learners which also affect their learning developing opportunities within their organizations. In other words, individuals may learn at work because there is a situation which motivates them to learn or they have personal characteristics that act as motivation to learn. Informal and incidental learning may be one of the ways utilized by individuals to learn in organizations (Marsick & Watkins, 2001). In addition, Rau (2006) argued that learning opportunities at work, by designing jobs that foster learning, have a positive impact on an individual's personal development.

Individual learning may help individuals identify learning opportunities at work by utilizing different perspectives such as conceptual and operational learning, individual level of learning, and lower and higher-level of learning (Chonko et al., 2003; Fiol & Lyles, 1985; Ubeda & Llopis, 2002). Although these perspectives have different denominations, they also have a high degree of overlap.

Conceptual learning happens through know-how, which means that employees have a critical vision for interpreting existing procedures or conditions. In this case, knowledge creation is critical to find new ways to deal with unexpected and/or more complex situations. For instance, employees are encouraged to create innovative ways of performing their tasks or proposing an improvement that is not directly related to their work. Another example could be employees who have worked under a bureaucratic organizational philosophy for many years want to obtain more power to make decisions

that would increase their departments' productivity and enhance the organization's competitiveness. On the other side, operational learning is related to organizational issues that happen day by day in organizations, so individuals would not necessarily need to acquire new knowledge to successfully deal with these situations. For this reason, individuals may think that they do not need new knowledge to do their work.

Gaining and Applying New Knowledge

Hayes and Allinson (1998) argued that "cognitive style is the person's preferred way of gathering, processing, and evaluating information" (p. 850). In other words, individuals are influenced by their cognitive style in seeing, gaining, interpreting, integrating, and applying new knowledge. This may also affect their behaviors when engaged with the different phases of the learning cycle and the way they spread their knowledge to others across the organization. Moreover, Williams (2001) postulated that imitation or modeling also affects individual learning. Individuals are more prone to learning from people they admire. In addition, individuals need to perceive other behaviors as achievable and value the rewards obtained for imitating those behaviors. In addition, Butler, Grice, and Reed (2006) argued that it is crucial to apply the gained new knowledge within organizations. However, this process is not as simple as it seems to be because there are several factors that may affect this transference such as social networks and emotion attributes of business relations (Butler et al., 2006).

Self-Directedness

Self-directed learning is associated with individuals who have the capacity and competencies for learning by themselves, self-managing, self-growing, and adapting to the different scenarios with which they face (Caffarella & O'Donnell, 1987; Costa &

Kallick, 2004). Merriam (2001) highlighted that self-directed learning, which is a kind of informal and incidental learning, is a learning characteristic that adults acquire and utilize throughout their lives without being influenced by an instructor. In addition, O'Hara (1996) argued that individuals are able to learn by themselves and apply their new knowledge when organizations allow them to have full responsibility for their learning.

Self-directed learning in the work place may help to foster among employees the fast acquisition of new knowledge, the identification of the relevance of self-directed learning for their current work, and the employees' positive attitude to spread it among others (Brockett & Hiemstra, 1991; Park & Kwon, 2004). For this reason, self-directedness has played a critical role on improving organizations' competitiveness over time (Smith, Sadler-Smith, Robertson, & Wakefield, 2007).

Continuous Learning

Continuous learning could be associated with individuals' career developments, so employees see continuous learning as a way to improve the competencies needed to assume higher positions in their careers (Rowold & Schilling, 2006). In addition, individuals have to be better prepared to make decisions, by using their logic or intuition, no matter what position they have in organizations because most of the positions in the organization have increased their complexity over time for several reasons (Schraeder & Morrison, 2005). Furthermore, organizations, which want to become a learning organization, currently play a critical role in fostering learning as a self-development process among all their employees (Rowley, 1998). Moreover, Tannenbaum (1997) postulated that organizations with a stronger learning environment foster, in a better way,

continuous learning among their employees which also impacts organizational productivity.

Individual learning has been linked in different ways to the other construct/variables of the Intrapreneurial Learning Model. Chen, Lee, Zhang, and Zhang (2003) have postulated that "individual learning is not organizational learning until it is converted into organization learning". Therefore, having individual learning is a condition that is needed, but it is not enough to develop organizational learning.

As a result of analyzing similarities and differences between individual and organizational learning, Popper and Lipshitz (2000) arrived at the conclusion that,

> Individual learning and organizational learning are similar in that they involve the same phases of information processing namely, collection, analysis, abstraction and retention. They are dissimilar in two respects: information processing is carried out at different systemic levels by different structures (Roth, 1997), and organizational learning involves an additional phase, dissemination, i.e. the transmission of information and knowledge among different persons and organizational units (p. 185).

Hayes and Allinson (1998) also identified some ways organizational learning is fostered by individual learning. They postulated that organizations rely on individuals' mental models to foster organizational learning. Individuals affect the way organizations store, develop, and spread their mental models throughout the organization. In addition, Crossan, Lane, and White (1999) postulated that individual learning is connected to organizational learning by two ways: the creation of knowledge, which could be produced through individuals' insights; and, the application of knowledge, which happens when this knowledge is institutionalized within organizations' culture. However, Chen et al. (2003) have argued that individual learning can not be transformed into organizational learning before the organization has institutionalized the new knowledge.

Furthermore, individual learning is linked to organizational learning through the transfer of critical knowledge and learning, considered sources of a competitive advantage, from individuals to groups/organizations (Tempest & Starkey, 2004).

At the individual level of learning, interpretation is seen as a way to learn how to think critically and see the world in a different perspective. This learning process would develop new mental maps and also behavioral changes that could be linked to intrapreneurial activities. In turn, the interpretation process facilitates a more conceptual approach to learning. Conceptual learning happens through know-how, which means that employees have a critical vision for interpreting existing procedures or conditions (Ubeda & Llopis, 2002). For instance, conceptual learning can be fostered by encouraging employees to create innovative ways of performing their tasks or by proposing an improvement that is not directly related to their work.

Individual learning is integrally connected to intrapreneurship by innovation because intrapreneurs are in a unique position to learn through their innovative, yet risky, work behaviors (Ortenblad, 2002). Although Individual Learning has some degree of likeness with Intrapreneurship and Organizational Learning, Individual Learning is postulated as fostering Organizational Learning in the Intrapreneurial Learning Model.

Intrapreneurship – Foundations of a Concept

The concept of intrapreneurship is rooted in entrepreneurship (Amo & Kolvereid, 2005; Antoncic, 2001; Davis, 1999; Honig, 2001; Morris & Kuratko, 2002). Entrepreneurship has been described as a process to identify opportunities and put them to work under normally risky scenarios. Entrepreneurs have the skills to transform inventions in reliable and profitable businesses (Barringer & Ireland, 2006; Ireland, Hitt,

& Sirmon, 2003). In other words, entrepreneurs have the capacity to gather all resources needed to start-up a business in a timely manner, such as the right people, capital, an attractive strategic business plan and the willingness to cope with risk.

Nevertheless, there are several differences between intrapreneurship and entrepreneurship (Antoncic, 2001; Antoncic & Hisrich, 2001; Honig, 2001). First, intrapreneurs make risky decisions using the company's resources while entrepreneurs make risky decisions using their own resources. Second, intrapreneurship takes place among employees from within their organizations, whereas entrepreneurship tends to mainly be externally focused. Third, entrepreneurs prefer to develop tacit knowledge in new organizations instead of using procedures or mechanisms from other companies. On the other hand, intrapreneurs work in organizations which already have their own politics, languages, procedures, and bureaucracy. Although entrepreneurship and intrapreneurship have several important differences, they also have some connections because intrapreneurship is consistently positioned as entrepreneurship within organizations (Amo & Kolvereid, 2005; Antoncic & Hisrich, 2001; Davis, 1999; Honig, 2001).

Morris, Kuratko, and Covin (2008) also identified several differences between Corporate Entrepreneurship/Intrapreneurship and Entrepreneurship (see Table 2). A detailed list of distinctions between entrepreneurship and intrapreneurship are described in the following table.

Table 2: Major Differences between Corporate Entrepreneurship/Intrapreneurship and Entrepreneurship

Start-Up Entrepreneurship	**Corporate Entrepreneurship (Intrapreneurship)**
Entrepreneurs take the risk	Company assumes the risks, other than career-related risk.
Entrepreneurs "own" the concept or innovative idea	Company owns the concept, and typically the intellectual rights surrounding the concept.
Entrepreneur owns all or much of the business	Entrepreneur may have no equity in the company, or a very small percentage.
Potential rewards for the entrepreneur are theoretically unlimited	Clear limits are placed on the financial rewards entrepreneurs/intrapreneurs can receive.
One misstep can mean failure	More room for errors; company can absorb failure.
Vulnerable to outside influence	More insulated from outside influence.
Independence of the entrepreneur, although the successful entrepreneur is typically backed by a strong team.	Interdependence of the champion with many others; may have to share credit with any number of people.
Flexibility in changing course, experimenting, or trying new directions.	Rule, procedures, and bureaucracy hinder the entrepreneur/intrapreneur's ability to maneuver.
Speed of decision making	Longer approval cycles
Little security	Job security
No safety net	Dependable benefit package
Few people to talk to	Extensive network for bouncing around ideas.
Limited scale and scope initially	Potential for sizeable scale and scope fairly quickly.
Severe resource limitations	Access to finances, R&D, production facilities for trial runs, an established sales force, an existing brand, distribution channels that are in place, existing databases and market research resources, and an established customer base.

Source: Adapted from Morris et al. (2008, p. 36)

Due to the more complex scenarios that companies are facing in this century, it is vital that leaders employ intrapreneurial individuals who can make the difference between their organizations and competitors (Hostager et al., 1998). Knowledge may be seen as a vehicle for making that difference. However, according to Czernich (2003), a

traditional knowledge perspective has often been seen as risk-averse because it suggests that theories should keep their foundations without alterations or modifications over time; as a result, innovative intrapreneurs can modify paradigms because they look both toward changing existing knowledge structures and the making of risky decisions in an uncertain environment which usually lacks information (Oliver & Jacobs, 2007).

The concept of intrapreneurship first appeared in 1976 in Macrae's article called *The Economist* and the focus was to emphasize innovative behaviors among employees (Amo & Kolvereid, 2005). Over time, intrapreneurship has had different labels such as intrapreneuring, corporate entrepreneurship, corporate venturing, theory of intrapreneurship development, and internal corporate entrepreneurship (Antoncic & Hisrich, 2001; Hornsby et al., 2002; Menzel et al., 2007; Zahra, 1991; Zhang & Li, 2007). Although there have been different attempts made by scholars to understand how entrepreneurship/intrapreneurship works, this process is yet in its early stages of maturation and there does not exist a universal acceptance of a definition of entrepreneurship/intrapreneurship (Christensen, 2005; Harrinson & Leitch, 2005; Morris & Kuratko, 2002; Zahra, 1991). Several definitions of intrapreneurship are presented in Table 3 as a way to better grasp this complex concept.

Table 3: Definitions of Intrapreneurship

Author(s)	Year	Definition
Nielsen, Peters, & Hisrich	1985	"is the development within a large organization of internal markets and relatively small and independent units designed to create, internally test-market and expand improved and/or innovative staff services, technologies or methods within the organization" (p. 181).
Zahra	1991	"refers to the process of creating new business within established firms to improve organizational profitability and enhance a company's competitive position …or the strategic renewal of existing business" (p. 261).
Hornsby, Naffziger, Kuratko, & Montagno	1993	"A multidimensional process with many forces acting in concert that lead to the implementation of an innovative idea" (p. 30).
Pinchot & Pellman	1999	"We call the people who turn ideas into realities inside an organization "intrapreneurs." The intrapreneur may or may not be the person who first comes up with an idea. Intrapreneurs roll up their sleeves and get things done" (16).
Antoncic & Hisrich	2001	"Intrapreneurship is entrepreneurship within an existing organization" (p. 497). They also identified several intrapreneurship dimensions such as new business venturing, innovativeness, self-renewal, and proactiveness.
Thompson	2004	"Intrapreneurs are those employees who are able to champion new initiatives in established organizations and make some material difference. They come up with new and valuable ideas which they are able to resource and develop in an encouraging, enabling culture" (p.246).
Farid	2005	"Entrepreneurship in an existing organization" (p. 2). They foster innovativeness inside organizations.
Morris et al.	2008	"Corporate entrepreneurship is a term used to describe entrepreneurial behavior inside established mid-sized and large organizations" (p.11). Corporate entrepreneurship focuses on improving organization's capacity to develop innovativeness on its processes, products, services, etc.

Source: Adapted from the literature reviewed.

Although there is a lack of agreement about the definition of intrapreneurship, it is possible to find some similarities between the definitions presented in Table 3. Some of the intrapreneurial dimensions, which were more commonly acknowledged by the scholars, are the following:

- Opportunity recognition and risk taking
- Fostering innovation and creativity
- Learning from their experiences or utilizing their intuitions (self-renewal)

Opportunity Recognition and Risk Taking

Lumpkin and Lichtenstein (2005) have defined opportunity recognition as "the ability to identify a good idea and transform it into a business concept that adds value and generates revenues" (p. 457). Opportunity recognition, under an intrapreneurial perspective, implies not only the identification of business opportunities that would directly impact their customers, but it also implies discovering organizational routines and procedures that allow organizations to increase the efficiency of their processes which would directly or indirectly impact organizational productivity (Brunaker & Kurvinen, 2006). For example, an employee may create a new procedure to manage the organization's inventories which may be critical to increasing the organization's efficiency and enhancing its capacity to generate a competitive advantage. Moreover, Hostager et al. (1998) argued that more efficient intrapreneurs see opportunities as having lower levels of threats, so they are more willing to take risks. Furthermore, Antoncic and Hisrich (2003) have highlighted the issue that intrapreneurship also fosters risk taking by arguing that "intrapreneurship can be viewed as a curious, constantly searching activity at the frontier, not at the core" (p. 10).

Fostering Innovation and Creativity

Intrapreneurs foster innovativeness within organizations for the purpose of enhancing organizational wealth. In addition, intrapreneurs are the ones who transform innovative ideas into reality (Pinchot & Pellman, 1999). However, intrapreneurs need leaders' support to have the freedom required to achieve their vision. Innovation is also seen as a way of generating and developing new products, change processes and the latest techniques (King, 2006). When intrapreneurs find opportunities related to innovation, they follow their experiences and logical analysis to deal with these innovations, perhaps made by other people, and make these innovations reality and profitable in the business arena (Pinchot, 1985). In other words, intrapreneurs learn as individuals first, and then share this knowledge with their teams. Teams enable intrapreneurs to engage their particular backgrounds or specializations under a strategic perspective to support an organization's goals (Hisrich, 1990).

Intrapreneurs as innovators per se may be directly related to the R&D department because this is the area in charge of developing new products (Hostager et al., 1998; Menzel et al., 2007). However, they may be located in any part of the organizational hierarchy because they possess several competencies such as vision and creativity, initiative, autonomy, risk taking, market knowledge, etc. (Ulijn et al., 2007) which are highly valued by most of the hierarchical positions within organizations.

Learning from their Experiences or Utilizing their Intuitions (self-renewal)

Intrapreneurs are exceptional learners who learn from their experiences (Harrinson & Leitch, 2005) and also through learning by doing where their intuitions play a critical role. In other words, intrapreneurs usually use their experiences and also follow

their intuitions to make their decisions (Pinchot, 1985). Intrapreneurial behaviors allow organizations to transform and change (Antoncic & Hisrisch, 2001, 2003). In addition, intrapreneurs also are able to self-renew through their actions. Furthermore, this process can be categorized as ongoing and endless because organizations need to constantly change through their intrapreneurial individuals to cope with the complexities of their environments.

After reviewing the intrapreneurial dimensions, is it relevant to know why organizations are supporting intrapreneurs within their organizations. A possible answer could be because organizations are faced with turbulent and more competitive scenarios where intrapreneurs may help organizations develop novel and sustainable ways of generating competitive advantages over their competitors (Hornsby et al., 2002). Pinchot (1985) argued that intrapreneurs are inherent innovators which are values and strengths highly valued for organizations that are concerned about developing new products and/or services for their customers. In addition, intrapreneurs are able to identify new business opportunities which are beyond the current patterns of conducting business (Antoncic & Hisrich, 2003). For example, E-Bay is one of the most creative organizations in the world and has changed the way business transactions are made, by creating a web page to buy and sell used products. In other words, this company by promoting an intrapreneurial environment has been able to identify and operate a new market niche and, at the same time, generate high profit.

Intrapreneurship may be fostered inside organizations by utilizing different factors such as rewards, management support, resources, organizational structure, and risk (Hornsby et al., 1993; Hornsby et al., 2002). Zahra (1991) analyzed other factors that

could allow intrapreneurship such as corporate strategies and organizational external factors such as dynamism, hostility, and heterogeneity. Christensen (2005) also identified other factors that may be useful to facilitate intrapreneurship within organizations such as communication, culture, and process. However, it is relevant to mention that every organization is different because of the peculiarities of its human resources. Therefore, identifying intrapreneurship's enablers should be considered as a situational process where some enablers that work in an organization might not function in others.

Intrapreneurs, like entrepreneurs, are focused on creating new business—a potentially difficult process for those who are hesitant to make risky decisions (Koen, 2000). Honig (2001) argued that both intrapreneurs and entrepreneurs consistently look for new business opportunities, just from different positions. Through their risky, yet usually successful decisions, intrapreneurs help companies increase performance and renew organizational structures and strategies for the purpose of better adapting to environmental demands (Antoncic & Hisrich 2001; Davis, 1999). Thus, Antoncic and Hisrich (2001) suggested a model in which the environment and the organization fostered intrapreneurship which, in turn, increased organizational performance.

The Entrepreneurial/Intrapreneurial Learning School was developed as a way to show the intricate connections between entrepreneurship/intrapreneurship and learning (Cope, 2005; Lumpkin & Lichtenstein, 2005). According to Rae (2006), entrepreneurial/intrapreneurial learning "is defined as learning to recognize and act on opportunities, through initiating, organising and managing ventures in social and behavioural ways" (p. 40). Dess et al. (2003) argued that intrapreneurship by itself also fosters organizational learning because it allows organizations to develop new knowledge

and information which are critical in helping organizations question their current assumptions and beliefs. By using newly acquired knowledge and information, organizations are able to foster innovativeness; for example new organizational competencies, which is a source of competitive advantage (Thornberry, 2002).

Although it is still unclear how entrepreneurs/intrapreneurs learn, several researchers have argued that entrepreneurial/intrapreneurial learning is mainly acquired through a unique combination of experiences, skills, and abilities that are necessary to success in risky ventures (Cope, 2003, 2005; Floyd & Wooldrigde, 1999; Harrison & Leitch, 2005; Lobler, 2006; Politis, 2005; Ravasi & Turati, 2005; Warren, 2004). In other words, having relevant experience is critical to transferring this new knowledge into learning that fosters the creation of new businesses with a higher potential of success. Moreover, Warren (2004) also argued that entrepreneurial/intrapreneurial learning can be both unintentional and accidental which increases the complexity of this learning process.

By supporting that entrepreneurial/intrapreneurial learning is mainly acquired, Coulson-Thomas (1999) postulated that not everybody could be an intrapreneur for several reasons such as lack of motivation or preparation to make risky decisions. For this reason, training is essential to prepare potential intrapreneurs (Pinchot & Pellman, 1999). In other words, it is still unknown why some individuals can successfully face new ventures, while others cannot. As was mentioned before, intrapreneurial experience is important. However, Politis (2005) also argued that intrapreneurs need to have cognitive skills to value these opportunities and successfully deal with them. These intrapreneurs help companies increase their performance and renew organizational structures and

strategies for the purpose of better adapting to environmental demands (Antoncic & Hisrich 2001; Davis, 1999).

Intrapreneurs hold particular characteristics and are willing to promote double-loop learning (Cope, 2005) which is created by significant events, like radical changes, that intrapreneurs usually foster within their organizations. By applying radical changes over organizational learning, intrapreneurs may affect the way organizations are currently conducting their businesses. In addition, leaders can promote an intrapreneurial culture within their organizations as the key to foster organizational learning (Harrison & Leitch, 2005). According to Antoncic and Hisrich (2003), intrapreneurship may also impact organizational learning by "improving organizational routines and knowledge" (p. 13). In other words, intrapreneurs may help organizations enhance their learning process by looking for innovative of ways or creating relevant and novel organizational knowledge.

Nielsen (2000) has also postulated that intrapreneurs are able to foster new learning within organizations in order to survive in more demanding and competitive scenarios like the ones organizations are currently facing. After reviewing the different papers that contain some connections between entrepreneurship/intrapreneurship and organizational learning, it is possible to state that more research, both empirical and theoretical, is needed to obtain a deeper understanding of this relationship and to identify potential impacts and opportunities about the organizations and their employees (Rae, 2006). One of the main reasons for just having, at that time, some basic understanding about this relationship between entrepreneurship/intrapreneurship and organizational learning is because each concept is very complex by itself (Lumpkin & Lichtenstein, 2005). Although Intrapreneurship has some degree of connection with Individual

Learning and Organizational Learning, Intrapreneurship is represented as fostering Organizational Learning in the Intrapreneurial Learning Model.

Can Organizations Learn?

There has been an extensive debate about whether organizations can learn or not as individuals do (Callahan, 2003; Popper & Lipshitz, 2000). There are several scholars who postulate that only individuals are able to learn (Belasco, 1998; Kim, 1993; Marsick & Neaman, 1996). On the other hand, there are others who argue that organizations can also learn (Cook & Yanow, 1993; Jones, 1995; Bell et al., 2002). Senge (1990) postulated that individual learning is a required condition for organizational learning, but it is not sufficient because the organizational learning process is a more complex process than individual learning. In addition, Simon (1991) highlighted that "an organization learns in only two ways: (a) by the learning of its members, and (b) by ingesting new members who have the knowledge the organization didn't previously have" (p. 125). In other words, he acknowledges the organizations' learning capacity, but it is based on their individuals.

Cook and Yanow (1993) supported the capacity of organizations as learning entities through arguing that,

> What organizations do when they learn is necessarily different from what individuals do when they learn. Specifically, we believe that organizational learning is not essentially cognitive activity, because, at the very least, organizations lack the typical wherewithal for undertaking cognition: They do not possess what people possess and use in knowing and learning-that is, actual bodies, perceptive organs, brains, and so forth. To understand organizational learning, we must look for attributes that organizations can be meaningfully understood to possess and use (p. 378).

In other words, organizations learn through their individuals when individuals are able to master their knowledge collectively. When organizations are able to institutionalize

individuals' knowledge, it becomes part of their culture. In the same direction, Balbastre & Moreno-Luzon (2003) argued that "organizations do not have brains, but they do have cognitive systems and memories that retain some behaviours, mental maps, norms and values, over time-for instance, the standard operative procedures and the organizational routines" (p. 372).

Ortenbland (2001) argued the critical role of organizations through creating a positive climate to foster individual learning so both individuals and organizations actively participate in the learning process which, finally, transform in a collective process. However, empirical research is needed to support the way organizations learn because this inquiry continues unsolved (Hong, 1999) and how different is organizational learning process compared to individual learning process.

Organizational Learning – Foundations of a Concept

There is no agreement about when this concept was initially developed, but scholars agree that organizational learning has increased in popularity and growth during the past few decades (Bell et al., 2002; Garvin, 2000; Harrison & Leitch, 2005). Callahan (2003) postulated that Organizational Learning was first introduced "in the early 1950s with Herber Simon's work on adaptation processes in organizations (p.161). Templeton et al. (2002) argued that Cyert and March (1963) in their book called *Behavioral Theory of the Firm* were the first to relate learning as part of the organizational theory. However, Chan (2003) argued that organizational learning as a concept was first introduced in management literature in the early 1960s, although there are some theorists who postulated that this concept was first analyzed by Frederick Taylor in the early twentieth century. Ubeda and Llopis (2002) addressed the issue that organizational learning has its

roots in the educational field, but it is also linked with different disciplines such as management, organizational theory, and economic theory. Several authors (Appelbaum & Gallagher, 2000; Easterby-Smith, 1997; Friedman et al., 2005) also postulated that organizational learning is grounded on a multi-disciplinary foundation where its main roots come from organization theory, management science, psychology, anthropology, cybernetic, and etc. Therefore, different scholars have had diverse positions about when organizational learning was created and where its roots come from which are clear signals that organizational learning is yet a complex and unknown concept.

DiBella and Nevis (1998) argued that there are three characteristics that give learning an organizational perspective. First, the development of new skills, values, attitudes, and behaviors in order to support organizational change; Second, the new learning is owned by some group of individuals; and finally, what was learned remains in the organization, although one or a group of individuals have left the organization. These three characteristics mentioned before are dynamic because learning is an endless process. However, they are not automatically produced or created, so organizations need to intentionally work on developing those characteristics in order to become a learning organization. In addition, it is possible to understand organizational learning as a process (Argyris, 1977; Fiol & Lyles, 1985; Nevis, DiBella, & Gould, 1995; Stata, 1989) because there is "a series of actions that someone takes in order to achieve a particular result" (Longman, 2000, p.1145). This vision gives to organizational learning a systemic perspective where several factors play a critical role in order to foster organizational learning in organizations.

Organizational learning is produced through an interaction of individuals, groups, and organizations in an unknown manner (Lumpkin & Lichtenstein, 2005; Oliver & Jacobs, 2007). This query could be one of the reasons that organizational learning is seen as a complex process. Marks and Louis (1999) have also argued that organizations learn collectively. Balbastre and Moreno-Luzon (2003), by comparing organizational learning models, have argued that Crossan, Lane, and White's Organizational Learning Process presents a clearer multilevel connection to individual, group and organizational learning when compared with Kim's Model of Organizational Learning which did not clearly address how this shift among individual and organizational levels of learning is produced. However, more empirical research is needed in order to understand how the multilevel perspective affects organizational learning.

Organizational learning is also contextual (Lam & Pang, 2003), so each organization has its own process or way of engaging in it. In other words, there is no magic recipe that can be used to foster learning within the organization. However, a key factor that conditioned organizational learning was the individuals who belonged to those organizations. Therefore, individuals' attitude and predisposition is necessary to incentive learning (Chan, 2003). In addition, organizational learning is an activity that helps organizations become learning organizations, as a particular organizational form, through internalizing learning as one of its key corporate values (Amy, 2007; Nafukho, Hairston, & Brooks, 2004). However, organizations have to learn faster than competitors do in order to obtain a competitive advantage over time (De Geus, 1988).

Some definitions of organizational learning are presented in Table 4 in order to appreciate the different visions scholars have about this concept. As was mentioned before, almost every scholar has his/her particular interpretation of this complex concept.

Table 4: Definitions of Organizational learning

Author(s)	Year	Definition
Argyris	1977	A process of detecting and correcting errors.
Shrivastava	1983	The process by which the organizational knowledge base is developed and shaped (p.15)
Fiol & Lyles	1985	The process of improving actions through better knowledge and understanding.
Stata	1989	The principal process by which management innovation occurs.
Huber	1991	An entity learns if, through its processing of information, the range of its potential behaviors is changed (p. 89).
Kim	1993	Increasing an organization's capacity to take effective action.
Cook & Yanow	1993	Refers to the capacity of an organization to learn how to do what it does, where what it learns is possessed not by individual members of the organization but by the aggregate itself (p. 378).
Slocum, McGill, & Lei	1994	Organizations should develop learning strategies based on their commitments to learn from previous success and failures.
Nicolini & Meznar	1995	A social construction which transforms acquired cognition into accountable abstract knowledge.
Schwandt	1995	A system of actions, actors, symbols, and processes that enables an organization to transform information into valued knowledge which, in turn, increases its long-run adaptive capacity (p. 370).
Guns	1996	Acquiring and applying knowledge, skills, values, beliefs, and attitudes that enhance the maintenance, growth, and development of the organization (p. 16).
Miller	1996	The acquisition of new knowledge by actors who are able and willing to apply that knowledge in making decisions or influencing others in the organizations.

Table 4: Continued

Author(s)	Year	Definition
Torres, Preskill, & Piontek	1996	Continuous process of organizational growth and improvement and improvement that (a) is integrated with work activities, (b) invokes the alignment of values, attitudes, and perceptions among organizational members, and (c) uses information or feedback about both processes and outcome to make changes (p. 2).
Snell & Chak	1998	Entails meaningful change in the processes, structures, assumptions or concerns connecting individual members (p. 341).
Marks & Louis	1999	The social processing of knowledge or the sharing of individually held knowledge or information in ways that construct a clear, commonly held set of ideas.
Templeton et al.	2002	The set of actions (knowledge acquisition, information distribution, information interpretation, and organizational memory) within the organizations that intentionally and unintentionally influence positive organizational change.
Lumpkin & Lichtenstein	2005	Contains two important processes as are developing externally-generated knowledge or converting internally-stored knowledge to enhance organizations' strategic value.
Askim, Johnsen, & Christophersen	2007	Processing of information which changes an entity's range of potential behavior" (p. 300).

Source: Adapted from Jeong (2004).

Although there is a lack of agreement about the definition of organizational learning, it is possible to find some commonalities among the aforementioned definitions (see Table 4). Some of them are the following:

- It is an ongoing and endless process which fosters incremental and radical changes within organizations.
- It involves a multilevel perspective.
- It demands different kinds of innovations.

- It allows organizations to obtain long term competitive advantages over their competitors. Benchmarking is one of the tools to foster organizational learning.
- It impacts and is impacted by organizational culture where several factors are key such as power, empowerment, leadership, and communication.
- Problem solving and decision making are part of day-to-day work in organizational learning where learning from their mistakes is critical.
- Organizations' structure may support or block learning.
- Self-assessment is seen as an opportunity to learn and to grow.

It is possible to identify several organizational learning dimensions from the aforementioned commonalities. Goh and Richards (1997) postulated five organizational learning subcategories which may be used to group these dimensions. They are as follows: Clarity of Purpose and Mission; Leadership Commitment and Empowerment; Experimentation and Rewards; Transfer of Knowledge; and, Teamwork and Group Problem Solving. A description of each organizational learning subcategory is presented next:

Clarity of Purpose and Mission

Organizations should be able to create their own future, where organizational learning plays a key role (Senge, 1990). For this reason, Voronov and Yorks (2005) have conceptualized "strategy as an organizational learning process" (p. 9) which shows the near relationships that exist between both concepts. Ribbens (1997) has addressed a more detailed explanation of this link by arguing that "because strategy formulation is influenced by an organization's learning ability, the effectiveness of strategy formulation

may be enhanced by a better understanding of how organizations learn and why organizations learn in a particular manner" (p. 59). Ribbens (1997) has gone further by saying that establishing that strategy relies on learning to obtain relevant information that helps to delimit the organizational strategic process while strategy delineates "when, where and how learning occurs" (p. 62). Mintzberg (1991) and Mintzberg, Ahlstrand, and Lampel (2005) have also addressed a clear link between emergent strategy and learning by arguing that emergent strategy allows organizations to learn by experimenting with new situations, so organizations should re-focus their goals based on the new conditions they are facing with. In addition, Pietersen (2002) developed "The Strategic Learning process" where the last step of the process was related to implement and experiment the strategy which would allow organizations to generate new learning from both sides successes and failures.

Organizational learning also allows organizations to identify to what extent a strategic renewal is needed and how critical it is to foster strategic changes, incremental or radical, within organizations in order to achieve their particular missions (Yeung, Lai, & Yee, 2007). An important condition postulated by Hayes and Allinson (1998) in order to have a successful strategic orientation required that organizations should be able to learn faster than competitors in order to generate a sustainable competitive advantage. De Geus (1988) has gone further by giving to organizational learning the value of being the exclusive competitive advantage sustainable over time. In other words, each organization has a particular way to generate and develop learning which is almost impossible to be imitated by other organizations. Crossan and Berdrow (2003) have supported De Geus's perspective by arguing that "organizational learning is seen to develop capabilities that

are valued by customers, are difficult to imitate, and hence contribute to competitive advantage" (p. 1089). Finally, it is also important to acknowledge that most organizations currently fail in utilizing organizational learning as a key factor to generate sustain competitive advantages in a globalized economy (Appelbaum & Gallagher, 2000).

As an effective tool in strategic planning that can be used in organizational learning, benchmarking, is known as the process of comparing an organization with the best in order to improve its productivity (De Sousa, 2006). Benchmarking also allows organizations to evaluate their current goals based on their learning capacities, identify potential gaps in relation to their strategic missions, and potentially make some changes (Goh & Richards, 1997). Auluck (2002) argued that benchmarking allowed organizations to be more focused on learning. In addition, Askim et al. (2007) have related benchmarking to organizational learning by "exploring differences in learning outcome and asking why some organizations learn more than others" (p. 298). According to Yeung, Ulrich, Nason, and Glinow (1999), organizations learn from successful practices implemented by others. Auluck (2002) described the "benchmarking learning process" by expressing that

> The very act of getting a cross-section of people from within and outside the organization to think about and to question, consciously and deliberately, 'how things are within the organization', and to do this within a structured framework, can in itself trigger increased awareness - awareness of 'the need to make things better' and 'how to make things better'-and actively engages in a learning process (p. 120-121).

Schein (1999) has also connected benchmarking to learning by arguing that "if management wants generative learning on the part of its employees, it must create the conditions that would make employees feel in control of their own learning and feel that

their creativity and role innovation would be rewarded rather than curtailed" (168). In other words, organizational learning demands the involvement of all individuals by transferring and creating knowledge, among other things, which should add more value, than competitors do, to their customers.

Benchmarking demands from employees a real or active participation in their learning processes. One way to demonstrate the organization's compromise is by seeing their employees' mistakes as a learning process (McCann III & Buckner, 2004; Sitkin, 1996). In other words, employees are more exposed to making mistakes when they have the power to make their own decisions related to learning, but individuals also learn from their errors. Coles (2000) and Gilley and Maycunich (2000) have also argued that making mistakes is the most important source for learning which represents a different view compared to the traditional vision where is necessary to see that your same work can be done better. Tjosvold, Yu, and Hui (2004) have as well postulated that learning from mistakes, via mainly experiential learning, fosters organizational innovativeness which is required to maintain the organization's competitiveness over time.

Leadership Commitment and Empowerment

Leaders are responsible for starting and spreading organizational learning across organizations (Fiol & Lyles, 1985; Vera & Crossan, 2004). Vera and Crossan (2004) postulated that transactional leadership is more efficient in transferring organizational learning within organizations in times of stability while transformational leadership is more efficient in spreading organizational learning in times of crises. However, leadership could be positive or negative in developing organizational learning within organizations because a leader may promote learning by supporting training and

development processes and also creating opportunities for sharing and spreading this new knowledge throughout the organization.

A leader could also block or impede organizational learning by managing companies as closed organizations without considering the environmental threats and controlling organizational communication channels according to his/her particular interests. Obviously, organizations will be short lived if leaders do not proactively react and see the importance of fostering organizational learning as a strategic process which should allow organizations to cope with their particular environments. It is also important to acknowledge that organizational learning may also impact leaders by fostering their intellectual stimulation, increasing their motivation, and increasing their self-esteem (Garcia-Morales, Matias-Reche, & Hurtado-Torres, 2008).

De Geus (1988) and Snell and Chak (1998) argued that people who have power within their organizations are the only important learners because they are the ones who make the important decisions in organizations. Schein (1999) has adopted an opposite position by arguing that managers should abandon their hierarchical authority and foster a knowledge authority. Crossan et al. (1999) expressed that interpretation, which is the way everybody perceives the world, is a social process where obviously power impacts the freedom people have to express their own points of view. Hurley and Hult (1998) have argued that power sharing and functional conflicts positively impact organizational innovativeness which is closely connected to organizational learning. In addition, several scholars (Lawrence, Mauws, Dyck, & Kleysen, 2005; Vince, Sutcliffe, & Olivera, 2002) have argued that politics, one of the components of power, plays a critical role in organizational learning because it usually determines the way individuals, by their

interactions, can foster organizational learning. Moreover, Schein (1999) has admitted the traumatic and, sometimes, negative utilization of power in organizational learning processes by expressing that "if such imposed culture change is involved we must accept the reality that any learning in an organizational context may involve some painful periods of coercive persuasion" (p. 170).

Experimentation and Rewards

Organizations have to be open to new ideas and accept different opinions, especially the ones that foster double-loop learning (Jerez-Gomez, Cespedes-Lorente, & Valle-Cabrera, 2005). According to Hurley and Hult (1998), innovation is a broad concept that considers, among others, the development of new products, new processes, and the penetration of new markets. Hurley and Hult (1998) argued that "higher levels of innovativeness are associated with cultures that emphasize learning, development, and participative decision making" (p.42). In addition, Nonaka (1994) postulated that learning fostered the innovativeness of the Japanese organizations which helped them to achieve leadership positions in several markets. Hurley and Hult (1998) went beyond other scholars and argued that "organizational learning is synonymous with the capacity to innovate" (p. 45). In other words, they postulated that innovative organizations are also organizations that promote learning. However, more empirical research is needed to support this relationship. In addition, Barker and Neailey (1999) have addressed innovation, as linked to learning, by arguing that learning is a change facilitator, so organizations that foster learning are, at the same time, promoting a culture that sees change as an opportunity to enhance their performance.

Experimentation, as well, needs to be fostered within organizations in order to generate new knowledge that helps them improve their level of competitiveness. For this reason, organizations, as part of their strategies, should reward this new knowledge (Jerez-Gomez, et al., 2005) in order to promote an organizational learning culture that foster innovativeness and risk-taking (Slater & Narver, 1995). For instance, it is possible to link an innovative idea with the increments on organizational productivity in order to associate rewards to real improvements.

Transfer of Knowledge

Organizations should create the conditions to spread the knowledge across their units (Jerez-Gomez et al., 2005) based on their units' particular needs. According to Simon (1991), the "transmission of information from one organizational member or group of members to another" (p. 125) is crucial to foster organizational learning. Simon (1991) and Marsick and Watkins (2001) have also stressed the importance of storing and spreading knowledge in order to make it accessible for people who need to make decisions. Pace (2002) has also made a connection between communication and learning by arguing that "both communication and learning have to do with the processes of creating and interpreting messages and the effects those processes evoke in people" (p. 458). In addition, communication allows organizations promote organizational learning in the different units or departments. Weick and Ashford (2004) have described the way this process, the link between communication and organizational learning, occurs by arguing that "their individual learning is influenced by others at the outset and is amended based on feedback from others. Individual learning is also shared via verbal communication or by action patterns that send messages. They are shared in the new or altered cultural

artifacts that manifest the new learning" (p. 708). Lundberg and Brownell (1993) have addressed this relationship under a different view by analyzing how organizational learning promotes organizational communication. They have found that this benefit occurs "by providing a link between individuals' communicative behaviors and organizational performance" (p. 29). Therefore, it is possible to affirm that communication may impact organizational performance through the impacts communication has on organizational learning.

Team and Group Problem Solving

According to Schein (1999), rivalries between organizational units or departments should transform into teams in order to foster a learning culture. Organizations should have cross functional-teams which have the capacity to extend team frontiers and develop new knowledge beyond their individuals' areas of specialization through their interactions (Clark, Amundson, & Cardy 2002). Hong (1999) has also addressed the idea that cross-functional teams need to have the freedom and power to put into practice their ideas and learn from both successes and mistakes. Additionally, Carroll, Hatakenaka, and Rudolph (2006) have also valued the relevance of generating multidisciplinary teams because they have "better access to information, breadth of knowledge, and credibility with multiple audiences, but need support to overcome misunderstandings and potential conflict" (p. 1051). Furthermore, Carroll et al. (2006) argued that information is critical for team decision making processes. According to Carroll et al. (2006), information should be equated to knowledge transfer in order to foster organizational learning.

Problem solving is a key factor in organizational learning. Tucker et al. (2002) argued that "one way that organizational learning can occur is through problem solving -

identifying and resolving problems that occur in the execution of day-to-day work routines" (p. 124). In other words, the solution of expected and unexpected problems may help to develop new knowledge which is one of the basic resources to generate organizational learning. Tjosvold et al. (2004) addressed that "cooperative goals and problem solving promote learning from mistakes" (p. 1223) because there usually are different ways to accomplish a task. In addition, Tjosvold et al. (2004) argued that making mistakes may help to discover new insights by conducting a deep analysis of the reasons of these mistakes which is one the ways of developing organizational changes.

After reviewing the organizational learning's sub-categories, it is possible to argue that several dimensions overlap to some extent among them. For example, communication is connected with each one of the other dimensions because each of the dimensions needs to use some sort of communication in order to transfer their fundamentals across employees. Fiol and Lyles (1985) have also argued that organizational learning both molds and is molded by corporate culture, strategy, and structure, and the environment which supports a high level of connectiveness among those dimensions. Callahan and Schwandt (1999) reached the same conclusion about connecting organizational learning with strategy, structure, and organizational culture. In addition, Lundberg and Brownell (1993) have linked organizational learning, change, and environment by arguing that the levels of environmental turbulence or environmental hostility generate functional tension in organizations which help to develop learning.

Wise (1996), on the other hand, identified several barriers for learning which are

> (1) The design of the organization, specifically, the traditional hierarchical bureaucracy as a way of organizing people; (2) the design of the "job" as a way of organizing tasks; (3) various human resources planning, control, and development

> systems and processes, including performance appraisal and salary administration systems; and "management development" approaches (p. 154).

These barriers help to support the argument, separately postulated on several of the dimensions, that organizational learning dimensions can play a double role in the learning process by either enhancing or blocking this process.

Organizational Learning's Methods

Organizational learning can be achieved through different methods, as also happens with individual learning, such as emotional learning, single, and double loop learning, organizational level of learning, and collective learning (Argyris, 1977, 1999; Lumpkin & Lichtenstein, 2005; Seo, 2003; Vince 2004). Single and double-loop learning will be briefly addressed in order to show their clear links with some of the organizational learning dimensions.

Single-loop Learning and Double-loop Learning

Single-loop learning occurs when a routine error is detected and corrected. In other words, employees are capable of identifying a problem and correcting it automatically because it could have been a recurring error or represent an incremental change which does not substantially modify the organization's structure, philosophy, or processes. In addition, through solving it, organizations may enhance their efficiency (Argyris, 1977, 1999; Lumpkin & Lichtenstein, 2005).

Double-loop learning takes place when a strategic error is detected by the employees and also corrected. However, employees are challenged to find a solution to a problem that is exceptional and complex, and confront the way organizational processes are traditionally being handled (Argyris, 1977, 1999; Lumpkin & Lichtenstein, 2005; Seo, 2003; Ubeda & Llopis, 2002). Hayes and Allinson (1998) argued that double-loop

learning usually takes place when organizations have deficient performance levels, and after a careful revision of the potential problems that generated the situation, a radical restructuring of the organizations' mental models is required to solve the problem.

Organizational learning is affected by the different variables of the Intrapreneurial Learning Model. For instance, several authors (e.g. Bogenrieder, 2002; Chan, 2003; Chonko et al., 2003; Fiol & Lyles, 1985; King, 2001; Knight & Pye, 2004; McKee, 1992; Schwandt & Marquardt, 2000; Ubeda & Llopis, 2002; Yeung et al., 1999) have addressed that individual learning does not equate to organizational learning because there are other factors that also participate and affect the collective process. Ribbens (1997) has also argued that organizational learning is synergistic based on the issue that "individual learning contributes to organizational learning, but the result is more than the sum of individual cognitions" (p. 60). Any new learning acquired by an individual has to be interpreted, distributed, and institutionalized by the organization through organizational routines (Jones & Macpherson, 2006). While the link between individual and organizational learning is not completely clear, it is nevertheless well-supported theoretically (Casey, 2005; Elkjaer, 2001; King, 2001; Popper & Lipshitz, 2000; Schwandt & Marquardt, 2000).

Only a few scholars have established some connections between organizational learning and intrapreneurship (Harrison & Leitch, 2005; Lumpkin & Lichtenstein, 2005). For example, Lumpkin and Lichtenstein (2005) argued that opportunity recognition, and important intrapreneurial process, implies transforming information into knowledge by assessing the real applicability and quality of the proposed ideas. These scholars also classified opportunity recognition as a specific category of organizational learning.

One important advantage of organizational learning over entrepreneurship/intrapreneurship is that organizational learning fosters and spreads new knowledge throughout the organization, while entrepreneurship/intrapreneurship usually keeps this knowledge among the intrapreneurs (Jones & Macpherson, 2006). For this reason, organizational learning has a higher probability of being institutionalized in the organizational culture and impacts organizational performance. In addition, organizational learning has to be linked to intrapreneurial learning as a way to develop novel ways to apply what is already learned. In this direction, Lumpkin and Lichtenstein (2005) postulated that organizational learning is the key to enhancing entrepreneurship/intrapreneurship by helping intrapreneurs to successfully identify and approach new opportunities. In other words, organizational learning could be considered a key factor that fosters intrapreneurship across organizations. Further, organizational learning can strengthen the employees' ability for discovering, evaluating, and exploiting opportunities that are valuable for their current and potential customers (Lumpkin & Lichtenstein, 2005; Rae, 2006).

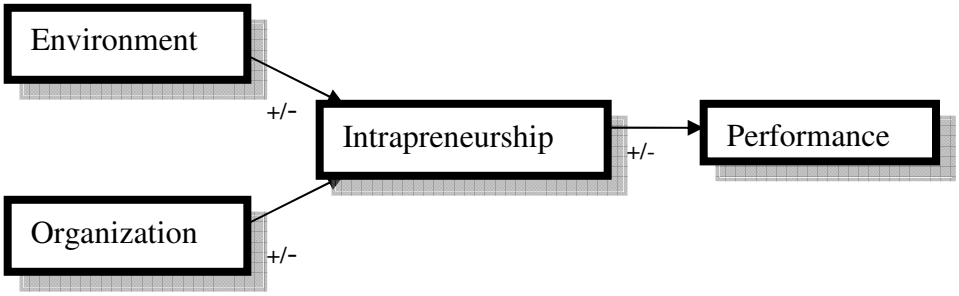
The environmental uncertainty (Popper & Lipshitz, 2000) plays an important role as a factor that supports or restrains organizational learning. As a consequence of this uncertainty, organizations must learn to survive and be able to adapt to the changes (Popper & Lipshitz, 2000). Environmental hostility demands organizations generate knew learning processes and modify their learning paradigms through time, these learning processes transform in routine and occur automatically, in order to be institutionalized (Crossan et al., 1999).

Organizational learning is the most critical factor in the Intrapreneurial Learning Model because it serves as the fulcrum between the learning that stems from the environmental hostility, individual learning, and intrapreneurship. This fulcrum perspective is supported by those who suggest that organizational learning mediates between intrapreneurship and knowledge (Dess et al., 2003; Slater & Narver, 1995). Organizational Learning is represented in this current study as being impacted by Environmental Hostility, Individual Learning, and Intrapreneurship.

The Intrapreneurship Model

Antoncic and Hisrich (2001) proposed "The Intrapreneurship Model" (see Figure 3) to conceptualize how intrapreneurship impacts organizations. This model, considering the authors' expertise on the intrapreneurial field, gives the foundations for the "Intrapreneurial Learning Model" which is proposed later.

Figure 3: The Intrapreneurship Model - A Theoretical Model



Source: Adapted from Antoncic and Hisrich, 2001.

Through an appreciation of the model, it is possible to assume (see Figure 3) that intrapreneurship is mostly affected by the environment which is principally an exogenous factor and the internal and particular conditions of each organization which is

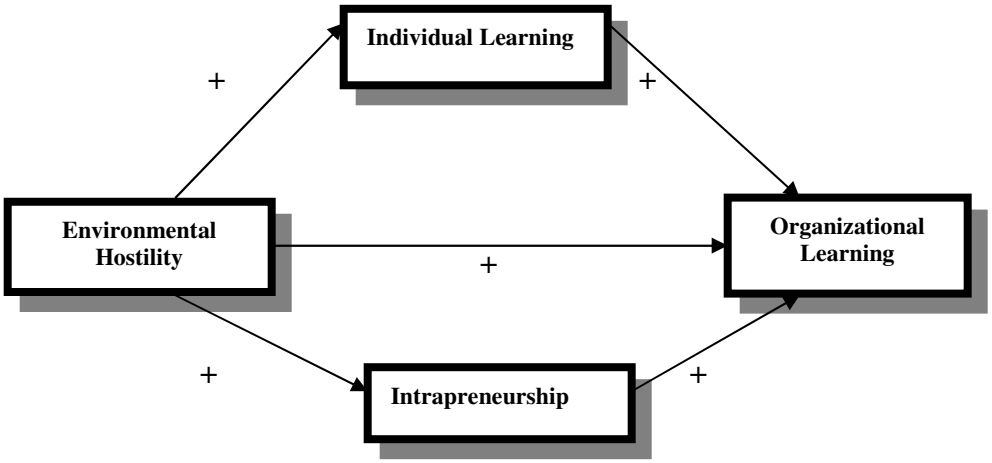
composed of factors such as communication, organizational support, etc. Both the environment and organizational conditions should affect the different intrapreneurial factors such as innovativeness, self-renewal, proactiveness, etc.; which may positively or negatively impact organizational performance. For example, a dynamic environment may restrict the organization's communication channels and limit its level of innovativeness, negatively impacting the organization's financial growth.

Intrapreneurial Learning Model

Based on the review of literature related to individual learning, organizational learning and intrapreneurship; it is possible to postulate that learning, both individual and organizational, may play a critical role in the Antoncic and Hisrich's (2001) model of intrapreneurship. In addition, learning and intrapreneurship are influenced by hostile environmental contexts which affect every organization in a particular way (Antoncic & Hisrich, 2001). Thus, an alternative conceptualization of intrapreneurship is proposed (see Figure 4) in which Environmental Hostility fosters Individual Learning and Intrapreneurship, and altogether promote Organizational Learning.

Organizational Learning is the key component of the model due to its capacity of being a fulcrum among the other construct/variables of the Intrapreneurial Learning Model (see Figure 4). In other words, Organizational Learning receives knowledge from Environmental Hostility, Individual Learning, and Intrapreneurship and spread this knowledge across organizations.

Figure 4: Intrapreneurial Learning Model - A Proposed Model



Conclusion

Organizations, as open systems, are faced with more hostile environments (Oswick, 2005) which could affect their viability over time. However, hostile environments may also foster individual learning, entrepreneurship, and organizational learning among organizations (e.g., Antoncic & Hisrich, 2001; Bapuji & Crossan, 2004; Fiol & Lyles, 1985) as a way of preparing them to successfully cope with adverse and complex scenarios.

The learning process starts through individual learning (Barker & Neailey, 1999) and is then transferred to the organization through certain unknown processes (Lumpkin & Lichtenstein, 2005). However, organizational learning is systemic because organizational learning is able to generate a higher learning than the sum of all individual learners. In other words, when individuals interact amongst themselves, they also spread and share critical knowledge which could be used, for example, to develop novel products or services.

Intrapreneurship, which is rooted in entrepreneurship, is critical in fostering creativity and innovation among employees (Pinchot, 1985). In other words, intrapreneurs look for creative organizational improvements and opportunities that may help organizations enhance their levels of competitiveness.

As a way to better grasp individual learning, intrapreneurship, and organizational learning; several sub-factors were utilized to frame them. Individual Learning contained the following sub-factors: Seeing, Finding, and Recognizing Learning Opportunities; Gaining and Applying New Knowledge; Self-Directedness; and, Continuous Learning. Intrapreneurship considered the following sub-factors: Opportunity Recognition and Risk Taking; Fostering Innovation and Creativity; and, Learning from their Experiences or Utilizing their Intuitions (self-renewal). Finally, Organizational Learning was framed based on a classification postulated by Goh and Richards (1997) which considered five sub-factors: Clarity of Purpose and Mission; Leadership Commitment and Empowerment; Experimentation and Rewards; Transfer of Knowledge; and, Teamwork and Group Problem Solving.

The path relationships among Environmental Hostility, Individual Learning, Intrapreneurship, and Organizational Learning are presented in the Intrapreneurial Learning Model (see Figure 4) and are examined later in this research by applying a survey instrument to selected mining companies in Chile. Organizational Learning in the Intrapreneurial Learning Model is considered as a fulcrum which is fostered by Environmental Hostility, Individual Learning, and Intrapreneurship. In other words, Environmental Hostility, Individual Learning, and Intrapreneurship may help promote Organizational Learning which is considered a critical factor to develop novel knowledge

that may facilitate organizations in developing sustainable competitive advantages over their competitors over time.

A significant contribution of this study is the original relationship among Environmental Hostility, Individual Learning, Intrapreneurship, and Organizational Learning. The Intrapreneurial Learning Model may help to visualize how these factors are connected where hostile environments create the context for Intrapreneurship, Individual Learning, and Organizational Learning. In addition, Intrapreneurship and Organizational Learning play a key role in fostering critical learning which is needed by the organizations' units as a way to develop an organization's competitive advantage. However, this is only a first theoretical approach so more research is needed to better understand this complex relationship.

The Intrapreneurial Learning Model may have several implications for practitioners and scholars. Some relevant issues for practitioners are to find out how Organizational Learning is produced within organizations and how to stimulate some learning strategies that may have a better impact on the way organizations learn. In addition, scholars have to focus on generating a better understanding about each of the construct/variables of the Intrapreneurial Learning Model because, for example, there is not yet a unique definition of organizational learning and intrapreneurship (e.g. Callahan, 2003; Christensen, 2005; Jeong, 2004).

The Intrapreneurial Learning Model suggests some directions regarding how to address the critical relationship among Environmental Hostility, Individual Learning, Intrapreneurship, and Organizational Learning. For example, intrapreneurs should be considered as special types of individual learners who foster Organizational Learning

through the creation and application of novel knowledge. The strength and path of the relationship among the construct/variables of the Intrapreneurial Learning Model such as Environmental Hostility, Individual Learning, Intrapreneurship and Organizational Learning will be examined in chapter IV by applying a survey to selected mining companies in Chile.

Finally, this study has several characteristics that make it unique and, also, these characteristics may have a different impact when examining the data collected from the selected mining companies located in Chile. First, this study is pioneering in analyzing these groups of construct/variables altogether (see Figure 4) in order to examine if the data fit the Intrapreneurial Learning Model. Second, the mining industry has been scarcely utilized to examine individual learning, organizational learning, and intrapreneurship among scholars. Only few researchers (Hagge & Lappe, 2006; Hill, 1996; Mulholland, Zdrahal, Domingue, & Hatala, 2001) have utilized this environment to conduct studies, so more empirical research is needed to bridge this gap. Finally, most of the construct/variables of the Intrapreneurial Learning Model have not been examined in Chile because, for instance, only one article was found, by conducting a literature review, which characterized organizational learning, among other factors, in a Chilean university library (Figueroa & Gonzalez (2006).

CHAPTER III

METHODOLOGY

The methodology utilized in this study was based on the application of statistical concepts and tools, descriptive statistics, Structural Equation Modeling (SEM), and Exploratory Factor Analysis (EFA) that support the purpose of the study. The framework of this chapter contains the research questions, hypotheses, a description of the instrument and an explanation of the items contained in it, the research design and the internal and external validity, data collection procedures, analytical techniques selected, and a description of the sample. Finally, it is important to mention that this study followed the IRB's regulations to protect human subjects' participation in the research.

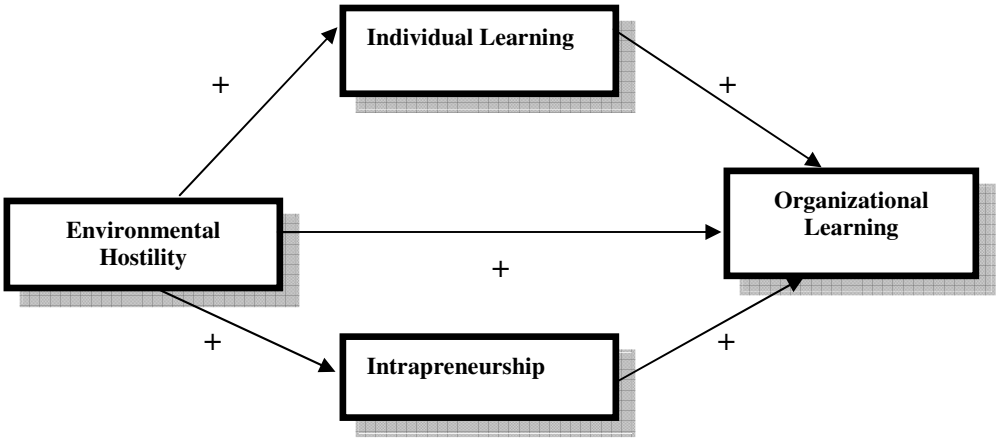
Introduction

The researcher examined the path relationships among Environmental Hostility, Individual Learning, Intrapreneurship, and Organizational Learning by analyzing data gathered from a survey applied to the employees of two selected mining companies in Chile. The research questions and hypotheses were the guide for this study and were the focus of the following chapters.

Research Questions

The purpose of this research was to examine the path relationships among Environmental Hostility, Individual Learning, Intrapreneurship, and Organizational Learning from data obtained from the employees of two selected mining companies in Chile. The proposed Intrapreneurial Learning Model (see Figure 5) is considered a theoretical guide that was explored by analyzing the data gathered in the survey.

Figure 5: Intrapreneurial Learning Model - Researcher's Proposed Model



Source: Adapted from the reviewed literature.

Note: The theorized sign for all the relationships of the figure are positive (+) according to the literature review.

As a way to structure the research, a table was created (see Table 5) to organize and link each research question with its constructs/variables, levels of measurement, and method/statistical technique.

Table 5: Structure of the Research

Research Questions	Constructs/Variables	Levels of Measurement	Method/Statistical Technique
To what extent does Environmental Hostility foster Organizational Learning?	Environmental Hostility Organizational Learning	Interval Interval	Structural Equation Modeling (SEM) Confirmatory Factor Analysis (CFA)/Path Analysis (PA) or Exploratory Factor Analysis (EFA) SPSS/AMOS
To what extent does Individual Learning foster Organizational Learning?	Individual learning Organizational Learning	Interval Interval	SEM CFA/PA or EFA SPSS/AMOS
To what extent does Intrapreneurship foster Organizational Learning?	Intrapreneurship Organizational Learning	Interval Interval	SEM CFA/PA or EFA SPSS/AMOS
Is the proposed Intrapreneurial Learning Model a confirmed model (see Figure 5) based on different indices of fit?	Environmental Hostility Individual Learning Intrapreneurship Organizational Learning	Interval Interval Interval Interval	SEM CFA/PA or EFA SPSS/AMOS

The Intrapreneurial Learning Model (see Figure 5), which is an adaptation of "The Intrapreneurship Model" created by Antoncic and Hirisch (2001), postulates a connection among the variables called Environmental Hostility, Individual Learning, Intrapreneurship, and Organizational Learning. Four hypotheses were established based on the research questions which are presented next.

Hypotheses

The researcher established hypotheses related to the relationships of the construct/variables in the Intrapreneurial Learning Model (see Figure 5), the hypotheses were contrasted with the empirical data obtained from the survey. The research hypotheses were:

1. Environment has positive both direct and indirect effects on Organizational Learning.
2. Individual Learning has a positive direct effect on Organizational Learning.
3. Intrapreneurship has a positive direct effect on Organizational Learning.
4. The Intrapreneurial Learning Model is a confirmed model.

Description of the Instrument

The instrument that was used in this study is supported by a comprehensive examination of the existing literature related to each of the construct/variables of the Intrapreneurial Learning Model which are the independent variables of Environmental Hostility, Individual Learning, Intrapreneurship; while the only dependent construct was Organizational Learning. A detailed description of the construct/variables of the instrument will be presented in the section labeled Study Construct/Variables.

The survey instrument contained 37 items (see Appendix A) associated with the construct/variables of the Intrapreneurial Learning Model (see Figure 5). The instrument was also used to obtain information regarding demographic aspects of the participants such as their job function, educational backgrounds, gender, number of years working in the organization, number of years worked in the mining industry, and number of years of

work experience in general. Participants expressed their beliefs about their organizations' practices related to the construct/variables items contained in the survey instrument.

The variable Individual Learning and the construct Organizational Learning, which come from the same instrument, included 29 items (9 items were associated with Individual Learning and 20 items were associated with Organizational Learning) in a seven-point Likert scale describing the levels of agreement associated with each item (i.e., strongly disagree, disagree, slightly disagree, neutral, slightly agree, agree, and strongly agree). The variable Intrapreneurship contained 5 items in a five-point Likert scale ranging from "strongly disagree" to "strongly agree". The variable Environmental Hostility included 3 items which contained two opposite statements where the participant had to choose the number that best represented his/her belief about the situation presented in a seven-point Likert scale. For instance, participants who chose number 4 expressed a neutral perception about the two opposite statements. The 37 items of the instrument were scrambled in order to minimize response bias error.

Study Construct/Variables

The selection of the construct/variables for this study was made by reviewing the current literature available for Environmental Hostility, Individual Learning, Intrapreneurship, and Organizational Learning. In addition, demographic variables were included to describe participants' profiles.

Dependent Construct

The only dependent construct in this study was Organizational Learning. A description of this construct is presented next:

Organizational Learning. Fiol and Lyles (1985) postulated that "organizational learning means the process of improving actions through better knowledge and understanding" (p. 803). They also argued that organizational learning should be aligned to the environment in order to enhance organizational performance. In other words, organizational learning may help organizations obtain a sustainable competitive advantage over their competitors.

The organizational learning construct (see Table 6) consisted of "characteristics and management practices" grouped on 5 scales which represented a manifestation of Organizational Learning and included the following areas: 1) clarity of purpose and mission, 2) leadership commitment and empowerment, 3) experimentation and rewards, 4) transfer of knowledge, and 5) teamwork and group problem solving. This questionnaire survey, which contained 21 self-reported items, called *Organizational Learning Survey (OLS)*, was developed by Goh and Richards (1997), who applied the instrument to 632 staff, representing all the organizational levels, in 4 organizations focused on developing knowledge; the OLS was subsequently adapted by Chan (2002), who applied the instrument to 189 employees from different areas in an Australian Hospital. The 20 items, which are presented according to the original item number as they appeared in the survey instrument (see Table 6), were coded on a 7-point Like scale describing the level of agreement associated with each item (i.e. strongly disagree, disagree, slightly disagree, neutral, slightly agree, agree, strongly agree).

Table 6: Items Included in Organizational Learning as They Appeared in the Survey Instrument

Number of the item	Statement
1	I often have an opportunity to talk to other staff about successful programs or work activities in order to understand why they succeed.
3	Current organizational practice encourages employees to solve problems together before discussing them with a manager.
5	I do not understand how the mission of the organization is to be achieved.
7	Failures are seldom constructively discussed in our organization.
9	We seldom form informal teams to solve organizational problems.
10	Senior managers in this organization resist change and are afraid of new ideas.
11	From my experience, people who are new in this organization are encouraged to question the way things are done.
12	I can often bring new ideas into the organization.
13	The organization's mission statement identifies values to which all employees must conform.
14	Managers in this organization can accept criticism without becoming overly defensive.
16	There is widespread support and acceptance of the organization's mission statement.
17	New work processes that may be useful to the organization as a whole are usually shared with all.
18	Most problem solving teams in this organization feature employees from a variety of functional areas.
20	Managers in this organization frequently involve employees in important decisions.
21	In my experience, new ideas from employees are not treated seriously by management.

Table 6: Continued

Number of the item	Statement
23	We have opportunities for self-assessment with respect to goal attainment.
24	Managers in this organization often provide useful feedback that helps to identify potential problems and opportunities.
26	Innovative ideas that work are often rewarded by management.
27	Senior managers and employees in this organization share a common vision of how our work should be accomplished.
28	We have a system that allows us to learn successful practices from other organizations.

The coefficient alpha value for the twenty one-item scale applied by Chan (2002) was .91 which supports its reliability. This coefficient alpha was almost the same coefficient alpha obtained for the overall construct by Goh and Richards (1997), .90. The coefficient alpha reliability of this current study for the overall twenty-item was .704 which is higher than .6 which is considered acceptable (Flynn, Sakakibara, & Schroeder, 1995). The coefficient alpha reliabilities of the 5 scales that were calculated by Chan (2002) as well as those obtained in this current study are presented in Table 7.

Table 7: Coefficient Alpha Reliabilities

Scales	Chan (2002)	Current Study
Clarity of purpose and mission	.65	.18
Leadership commitment and empowerment	.81	.42
experimentation and rewards	.73	-.06
Transfer of knowledge	.68	.27
Teamwork and group problem solving	.52	.03

It was possible to observe, by reviewing Table 7, that the coefficient alpha reliabilities of the 5 scales were more reliable or consistent in Chan's study than in the current study. Additionally, the overall low coefficient alpha reliabilities of the current study should negatively affect the independence model fit.

Independent Variables

The three independent variables of this study were Environmental Hostility, Individual Learning, and Intrapreneurship. An explanation of each variable is presented next:

Environmental Hostility. According to Lusthaus, Adrien, Anderson, and Carden (1999), the environment influences how organizations function and what it creates. This variable can help to outline organizations as well as their performance over time. Some of the key environmental hostility aspects that may affect organizations are economical, political, social cultural, and technological.

This variable was measured in the questionnaire survey by using a three self-report items subcategory (see Table 8) created by Khandwalla (1976-77) to assess the *Environmental Hostility* with which organizations were faced at that time, and then adapted by Covin and Slevin (1989) who applied the instrument to 161 senior-most managers of small manufacturers, representing about 25 different industries. This scale would help the organization to both identify its employees' perception about the hostility level of the environment and evaluate its current strategies to deal with it. Zahra (1993) also refers to this variable as "the intensity of competition in a market or segment" (p. 324).This scale was coded on a 7-point Like scale describing the level of hostility with which organizations are currently dealing (i.e. from 1, which means that there is no hostility in the environment, to 7, which means the highest level of environmental hostility and risk). The coefficient alpha value for the three-item subcategory was reported to be .73 which supports its reliability. The Cronbach's alpha for this three-item variable, in the present study, was .742 which is considered as having an acceptable internal consistency.

Table 8: Items Included in Environmental Hostility as They Appeared in the Survey Instrument

How would you characterize the external environmental hostility within which your firm operates?			
Number Of the Item	**Statement**	**Likert Scale**	**Statement**
35	Very safe, little threat to the survival and well-being of my firm.	1 2 3 4 5 6 7	Very risky, a false step can mean my firm's undoing.
36	Rich in investment and marketing opportunities.	1 2 3 4 5 6 7	Very hostile to making new investments and to identifying marketing opportunities.
37	An environment that my firm can control and manipulate to its own advantage, such as a dominant firm has in an industry with little competition and few hindrances.	1 2 3 4 5 6 7	A dominating environment in which my firm's initiatives count for very little against the tremendous competitive, political, or technological forces.

Individual Learning. According to Elkjaer (2003),

> Learning is a specific activity, which happens by acquisition of abstract and general knowledge acquisition initiated by a discontinuity. The acknowledged problem in organizational learning based upon individual learning theory is the individual-organization dissociation, that is, how to make individual learning become organizational (p. 42).

For this reason, it is postulated a connection from Individual Learning to Organizational Learning in this study.

Individual Learning was assessed (see Table 9) by using an instrument adapted by Chan (2002), who applied the instrument to 189 hospital workers in Australia, which was also an adapted version from an instrument developed by Sujan, Weitz, and Kumar

(1994) applied to 190 salespeople, mainly male, who worked in 8 companies from different industries. This instrument also was an adapted version from the original instrument created by Ames and Archer (1988) who applied the instrument to 176 "academically advanced students" in grades 8-11 (p. 262). This scale consists of nine items, item two is reversed scored, considered as a one-dimensional variable (Chan, 2002, 2003; Sujan et al., 1994; Wright, 1997), coded on a seven-point Likert scale describing the different levels of agreement related to each item such as strongly disagree, disagree, slightly disagree, neutral, slightly agree, agree, and strongly agree.

The Coefficient Alpha for the nine-item scale obtained by Chan (2002) was lower than .70, so three items were removed in order to obtain a higher coefficient alpha reliability. The coefficient alpha reliability of the six-item individual learning variable was .7 which is considered satisfactory according to Flynn et al. (1995), who argued that having a coefficient alpha reliability of .6 or higher is considered acceptable.

The Cronbach's Alpha for this variable in the present study was .532, so the nine items were reduced to five items because four poor items were deleted in order to increase the coefficient alpha reliability. The coefficient alpha reliability for the five items was .585 which approximates to the .6 or higher which is considered acceptable (Flynn et al., 1995). In addition, Kim, Fisher, and Elliott (2006) suggested that a coefficient alpha reliability "lower than .7 is used in some studies" (p.577).

Table 9: Items Included in Individual Learning as They Appeared in the Survey Instrument

Number Of the Item	Statement
2	There are not a lot of new things to learn in my job.
4	Making mistakes is just part of the learning process.
6	It is important for me to learn from each of my job experiences.
8	I spend a great deal of time learning new work approaches.
15	Sometimes I put a great deal of effort into learning something new.
19	Learning how to be a better employee/manager is of fundamental importance to me.
25	Making a tough decision is very satisfying.
22	I am always learning something new in my work.
29	An important part of becoming a good employee/employer is to continually improve work skills.

Intrapreneurship. According to Pinchot and Pellman (1999), intrapreneurs can make possible the conversion into reality of ideas that impact organizational performance within their organizations. They also have highlighted some important characteristics of intrapreneurs as innovative, risk taker, and leadership. However, intrapreneurs also need the organization's support to be successful.

This variable was assessed in the survey (see Table 10) by using a subcategory, Risk Taking, from the dimension "Culture" of The Readiness for Organizational Learning and Evaluation Instrument (ROLE) developed by Preskill and Torres in 2000 (as cited in Russ-Eft & Preskill, 2001) which is based on their book called "Evaluative

Inquiry for Learning in Organization" (Preskill & Torres, 1999). The subcategory called "Risk Taking" was selected to measure the variable intrapreneurship because "Risk Taking" clearly considers the most important intrapreneurship' characteristics according to the literature review conducted. This variable, which the researcher has labeled Intrapreneurship, contains 5 items coded on a 5-point Like scale describing the level of agreement related to each item. The coefficient alpha value for the five-item scale was reported to be .85 which supports its reliability. The coefficient alpha reliability for this four-item variable, in the present study, was .641 which could be considered as acceptable based on the argument of Flynn et al. (1995) who postulated that a coefficient alpha reliability of .60 or higher is considered acceptable by some scholars.

Table 10: Items Included in Intrapreneurship as They Appeared in the Survey Instrument

Number of the Item	**Statement**
30	Mistakes made by employees are viewed as opportunities for learning.
31	Employees continuously ask themselves how they're doing, what they can do better, and what is working.
32	Employees are willing to take risks in the course of their work.
33	Employees are committed to being innovative and forward looking.
34	Employees are confident that mistakes or failures will not affect them negatively.

Demographics. These variables allowed the researcher to obtain critical information about the participants' profile and also are relevant for the analysis and generalization of the results (Raad, Bellinger, McCormick, Roberts, & Steele, 2007). The

information included their function in the organization, educational background, gender, age, length of service with the current organization, experience in the industry, and also working experience in general. It is necessary to mention that some questions, as for example respondents' age, were addressed through giving the respondents several ranges to protect their identity and to facilitate a higher level of response.

Research Design

The data collected from the two mining companies was analyzed by their means, through comparing internal scale data, and, then, by a Difference in Proportions Test, through comparing nominal data related to all demographic variables, which allowed the researcher to conclude that the two independent samples were homogeneous. Then, Structural Equation Modeling (SEM), which contains Confirmatory Factor Analysis (CFA) and Path Analysis (PA), applied through the computer programs of SPSS and AMOS, were utilized to examine how well the collected data fit the independence model (Thompson, 2004). The indexes of fit used in CFA, PA, EFA, and AMOS to examine model fit were x^2 ($p > .05$ which is an indicator of good model fit), x^2/DF (less than 3 is considered acceptable), GFI (.90 or higher is considered acceptable), and RMSEA (.06 or less is considered acceptable) (Nugent, 2006; Schumacker & Lomax, 2004; Thompson, 2004). If the independence model is not supported by the collected data, then Exploratory Factor Analysis (EFA) will be utilized, by using several tests as guidelines (see Table 11) and Principal Component Analysis (PCA) as the extraction method, to propose a new model based on the gathered data (Schumacker & Lomax, 2004).

Table 11: Guidelines Used in Conducting EFA

Fitness Indicators	Criteria
KMO test	Measure should be greater than .70, and is inadequate if less than .50.
Bartlett's test of Sphericity	This test should be significant (i.e., a significance value of less than .05).
Eigen values (Scree Plot)	Eigen values have to be greater than 1.0, which is a common criterion for a factor to be useful.
Rotated Matrix	Each group of items should have a loading of .30 or higher (.30 means the absolute value, or value without considering the sign, is greater than .30).

Source: Leech, Barrett, and Morgan. (2005, p.82)

Design Validity

Internal Validity

According to Schram (2005), the internal validity refers to the capacity to describe confident causal conclusions from the study. The researcher's proposed model labeled as *Intrapreneurial Learning Model* (see Figure 5) was examined with the purpose of validating or rejecting the causal relationships among its construct/variables.

Selection, mortality, and instrumentation reliability are considered potential threats to internal validity (Campbell & Stanley, 1963). An explanation of each term is presented next:

Selection. The selection of two Chilean mining companies and their employees who responded to the survey instrument were critical in this phase. The superintendents of the Human Resources Departments, of the selected Chilean mining companies, were contacted by phone in order to, first, request an appointment; second, do a presentation of the main aspects of the dissertation; and, third, request their participation in the survey. The independence model should be accepted or rejected based on the data gathered from the sample which could affect the relationships among the construct/variables

(Environmental Hostility, Individual Learning, Intrapreneurship, and Organizational Learning) (Campbell & Stanley, 1963). In this case, the selected mining companies were non-randomly chosen, so the analysis of the Intrapreneurial Learning Model could be affected (Campbell & Stanley, 1963).

Mortality. According to Borg (1984), mortality means that participants drop out during any of the stages of the survey. Mortality can be a potential threat because there are several potential situations during the research that cannot be controlled by the researcher. For instance, the employees of the sample mining companies located in Chile had the freedom to participate or not in the survey because one of the ethical requirements of any survey is not to apply withdrawal penalties to the participants (De Vaus, 2002). Additionally, this research could have been affected by other reasons, which could not be controlled by the researcher, such as the employees who got sick during the survey and the employees who were working on night shifts who could not be interrupted at work in order to participate in this survey.

Instrumentation Reliability. The instrument could not be considered a threat if the reported alphas (αs) hold true because each construct/variable of the instrument (Environmental Hostility, Individual Learning, Intrapreneurship, and Organizational Learning) is supported by the literature available. In addition, each of the construct/variables obtained, as a result of the application of the different instruments in previous studies, a coefficient alpha equal or higher than .70 which is widely accepted as reliable according to Cudeck (2001). Furthermore, the present instrument was calculated to have an overall reliability of .753 which is higher than .70. Due to the instrument being applied to a Spanish population, the questionnaire was assessed for a readability index

using a Spanish readability test in order to establish a reading level that every employee could read and understand no matter what his/her educational background. For this reason, several questions were slightly modified specially by changing their wording. Additionally, a back-translation from Spanish to English was conducted for the purpose of assuring that there was congruence between the Spanish and English versions of the questionnaires.

External Validity

According to Schram (2005), "external validity refers to the possibility of generalizing the conclusions to situations that prompted the research" (p. 226). The selection of the Chilean mining industry, through applying the survey to the selected Chilean mining companies, may limit the applicability of the conclusions to other types of organizations different to the mining industry because of its particular characteristics. However, the methodology of this study may be replicated to any kind of organization.

It is important to consider several issues that may have affected the validity threat of this instrument such as the confidentiality of the participants and the decision of the Chilean mining companies of distributing the questionnaires among their employees according to their own criteria. One of the potential effects could be the selection of employees who value or support the selected mining companies' policies.

Finally, Currant and Wirth (2004) postulated some differences between external and internal validity to better understand them. A brief explanation of these differences is presented next:

> First, by definition, internal validity precedes external validity; that is, we cannot generalize a causal relation prior to establishing the validity of a causal relation. Second, external validity is focused on the generalization of a causal process to people, places, or times that were not under study in a given sample. Finally, both

> definitions include the term *approximate*, emphasizing that all models are incorrect to some degree and our substantive conclusions must always be tempered by this fact (p. 220).

Data Collection Procedures

The Human Resource Departments' Superintendents of the selected Chilean mining companies were contacted by phone in order to make an appointment, separately, to present the main aspects of this project, together with seeking their voluntary participation in the research. The Superintendents accepted to participate in this research after listening to its characteristics and asking several questions to clarify some doubts. The researcher requested several things such as the total number of employees working in their organizations and, also, the number by hierarchical levels, and the mining companies' authorization to conduct the survey.

After obtaining the mining companies' authorization to conduct the survey, on July 14th , 2008, the employees who worked in the sample Chilean mining companies were contacted by their employers. This was one of the requirements established by the mining companies, and participants received the questionnaire, together with the information sheet (see Appendix B) at the time they answered the survey. The information sheet contained the purpose of the survey and an estimation of the time needed to complete the survey. In addition, specification of important ethical aspects of voluntary participation, confidentiality anonymity, privacy, no withdrawal penalties, and no compensation (Padgett, 1998; De Vaus, 2002) were included in the survey. Furthermore, the exact start day of the survey was July 14th , 2008, and the exact ending day was September 23rd , 2008.

Participants were contacted by the Chilean mining companies based on the following criteria: getting participants from all the hierarchical levels, looking for employees who were working on morning shifts (the night shifts had a minimum allowance of personnel and could not be interrupted), utilizing special activities such as training sessions or workshops which grouped several employees from different functional areas, which allowed the mining companies to get a significant number of participants at one time, and identifying areas or departments which had larger concentration of employees.

Description of the Sample

The potential sample of this study was composed of 2 mining companies, labeled in this study as *Mining Company A* and *Mining Company B*, out of 21 located in Chile which were part of the total universe of mining companies in Chile (SONAMI). The reasons for choosing the selected mining companies located in Chile are supported on the following arguments: (a) convenience because it was possible for the researcher to handle and afford a survey of these characteristics based on the purpose and time frame of this study; (b) the selected mining companies in Chile are associated with the Chilean National Mining Association (SONAMI) which is an association that represents their interests; (c); mining represents the most important area of the Chilean economy, where copper has a leadership position, (Spilimbergo, 2002; Vergara, 2008) and 36% of world production which gives the country the title of main producer of copper in the world (De Gregorio, 2007); (d) Copper represents a key role in the Chilean economy, as was mentioned in the previous point. Since copper is a nonrenewable resource, mining companies should evaluate and incorporate new processes such as organizational learning

and intrapreneurship that would allow them to increase their level of productivity; and, finally, (e) having more than one mining company as a sample would allow the researcher to identify potential gaps between them in relation to the constructs/variables of the Intrapreneurial Learning Model (see Figure 5). The collected data may help to understand the importance that the selected mining companies give to each of these construct/variables and to analyze how well the Intrapreneurial Learning Model fits when contrasting theory versus reality.

The sampling formula developed by Krejcie & Morgan (1970) was utilized in order to obtain the number of participants needed for each mining company located in Chile for the purpose of getting representative results. The required sample size of *Mining Company A* according to its total population at that moment was 175, while the required sample size of *Mining Company B* according to its total population at that moment was122 which totals 297 survey participants (see Table 12). By the end of September, 193 valid survey instruments were received from Mining *Company A* and 150 valid survey instruments were received from *Company B* which give a total of 343 valid surveys which exceeded the 297 survey instruments needed to represent the population. The total sample size for each mining company was also stratified for the different hierarchical levels according to their relative weights compared to the total population. In addition, both mining companies expressed their concern about distributing the survey to all their employees so that the sample size for each company was considered the number of participants required to get valid results by analyzing the collected data through structural equation modeling and path analysis.

Table 12: Sample Size for the Selected Mining Companies Needed to Reflect Population Percentage

Mining Company	**Upper Manager Population**	**Middle Manager Population**	**Administration/ Clerical Staff Population**	**Maintenance/ Operator Population**	**Total Population**
A	35 (5%)	62 (8%)	108 (15%)	534 (72%)	739
B	9 (2%)	123 (24%)	29 (6%)	344 (68%)	505
A+B	44	185	137	878	**1,244**
Mining Company	**Upper Manager Sample**	**Middle Manager Sample**	**Administration/ Clerical Staff Sample**	**Maintenance/ Operator Sample**	**Total Sample**
A	9 (5%)	14 (8%)	26 (15%)	126 (72%)	175
B	3 (2%)	29 (24%)	7 (6%)	83 (68%)	122
A+B	12	43	33	209	**297**

Source: Information obtained from the selected mining companies located in Chile.

The sample for this study comprised male and female participants from 18 to 65 years of age. The hierarchical levels (see Table 13) identified for both mining companies where the Upper Manager which contained Chief Executive Officer (CEO), General Managers, Managers by functional areas, and Superintendents; Middle Managers which included Supervisors, Leader of Areas, and Departmental Managers; Administration/Clerical Staff; and, employees from Maintenance/Operator.

The distribution of the survey was conducted by the Chilean mining companies. The total number of employees who participated in this study was obtained from the number of questionnaires received (see Table 13). A detailed description of the received questionnaires is presented next:

Table 13: Number of Questionnaires Received

	Company A	***Company B***
Upper Manager	9 (5%)	3 (2%)
Middle Manager	32 (17%)	36 (24%)
Administration/Clerical Staff	26 (13%)	23 (15%)
Maintenance/Operator	126 (65%)	88 (59%)
Incomplete survey instruments	10	6
Incorrect survey instruments	14	8
Total by Company	217	164
Total by Company (correct instruments collected)	**193**	**150**
General Total: 381		

A total number of 217 questionnaires were received from *Company A* and a total number of 164 questionnaires were collected from *Company B* (see Table 13) which is logical because *Company A* has a larger population than *Company B*. In addition, a relevant number of questionnaires corresponded to Maintenance/Operator for both companies because this hierarchical level had the largest number of employees than the other three hierarchical levels. Furthermore, the number of incomplete questionnaires and wrongly filled out questionnaires were 38 which represent about ten percent of the received questionnaires.

Conclusion

The survey instrument of this study was elaborated after reviewing the available literature for each of the study construct/variables. The instrument was applied to employees, from the different hierarchical levels, who worked in 2 mining companies located in Chile. The instrument had an overall reliability of .753 which is higher than .6 (Flynn et al., 1995) and, therefore, considered acceptable. The statistical technique applied was SEM to examine, by using CFA, if the data fit the independence model. Path

Analysis would be used to identify relationships among the construct/variables of the Intrapreneurial Learning Model. Additionally, EFA was utilized if the independence model presented a poor model fit. Furthermore, descriptive statistics were gathered in order to obtain profiles of participants. A detailed description of the results is presented in Chapter IV.

CHAPTER IV

RESULTS

This chapter is comprised of five sections which are: descriptive statistics, Structural Equation Modeling (SEM), model fit by company, Exploratory Factor Analysis (EFA), and AMOS proposed model. Each section is presented in detail in order to describe the different steps followed in this study as well as the results obtained.

Descriptive Statistics

The sample of this study was constituted of male and female employees who worked in two mining companies located in Chile and the employees ranged in age from 18 to 65 years old. The hierarchical levels of the participants in their organizations were Upper Manager, Middle Manager, Administration/Clerical Staff, and Maintenance/Operator. An evaluation of the homogeneity of the data, collected from the two mining companies, was conducted by running mean analysis of each construct/variable per company (see Table 14).

Table 14: Descriptive Analysis

Construct/ Variables	**Company**	**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
Individual Learning	A	150	49.02	5.512	.450
	B	193	48.13	4.953	.357
Organizational Learning	A	150	90.93	12.483	1.019
	B	193	90.61	12.597	.907
Intrapreneurship	A	150	18.16	4.003	.327
	B	193	18.76	3.538	.255
Environmental Hostility	A	150	11.10	3.983	.325
	B	193	11.33	3.882	.279

The mean per each construct/variable, by comparing both mining companies, were very homogeneous according to Table 14 which allowed the researcher to combine the groups and analyze the data altogether (total sample size of 343). In addition, a Difference in Proportions Test for all the demographic variables (Dixon & Massey, 1969) was applied which confirmed that the obtained differences between *Company A* and *Company B* were not significant at a 99% level (see table 15).

Table 15: Difference in Proportions Test

Demographic Variables	**Company A**	**Company B**	**Difference**
Position Maintenance/Operator	65%	59%	Not significant
Education High School	39%	37%	Not significant
Gender Male	91%	93%	Not significant
Age 40-49 years	46%	33%	Not significant
Work experience in the industry 11-20 years	52%	50%	Not significant
Years of work experience in general 11-20 years	44%	35%	Not significant

Information regarding demographic aspects of the participants (see Table 16) such as their job function, educational backgrounds, gender, number of years working in the organization, number of years worked in the mining industry, and number of years of general work experience; was also collected.

Table 16: Demographic Information

	Company A		***Company B***	
Demographic Variable	**Frequency**	**% of Participants**	**Frequency**	**% of Participants**
Position				
1) Superintendent	9	.05	3	.02
2) Middle Manager and Supervisor	32	.17	36	.24
3) Administration/Clerical Staff	26	.14	23	.15
4) Maintenance/Operator	126	.65	88	.59
Education				
1) Elementary School	2	.01	3	.02
2) High School	75	.39	55	.37
3) Technical School	59	.31	41	.27
4) College Graduate	47	.24	48	.32
5) Master's Degree	9	.05	1	.01
6) Doctoral Degree	1	.05	0	.00
7) Other	0	.00	2	.01
Gender				
1) Female	18	.09	11	.07
2) Male	175	.91	139	.93
Age				
1) 18-29 years	17	.09	27	.18
2) 30-39 years	55	.29	47	.31
3) 40-49 years	88	.46	50	.33
4) Above 50 years	33	.17	26	.17
Experience in the Company				
1) 01-10 years	92	.48	95	.63
2) 11-20 years	100	.52	42	.28
3) 21-30 years	0	.00	8	.05
4) 31-40 years	0	.00	4	.03
5) Above 40 years	1	.01	1	.01
Experience in the Industry				
1) 01-10 years	79	.43	76	.51
2) 11-20 years	98	.52	55	.50
3) 21-30 years	14	.10	16	.17
4) 31-42 years	2	.02	3	.03

Table 16: Continued

	Company A		***Company B***	
Demographic Variable	**Frequency**	**% of Participants**	**Frequency**	**% of Participants**
General Work Experience				
1) 01-10 years	34	.19	44	.31
2) 11-20 years	82	.44	54	.35
3) 21-30 years	62	.33	44	.30
4) 31-42 years	15	.11	8	.06

Demographic information presented in frequencies and percentages of participants by organization are contained in table 16. Most of the participants worked as Operators and in Maintenance, achieved an education level equivalent to high school, were male, belonged to the range 40-49 years of age, worked for their current organizations for 0-10 years, worked in the mining industry for 11-20 years, and had a general work experience of 11-20 years.

Frequencies and percent of participants by companies based on the construct/variables of the survey instrument: Individual Learning, Organizational Learning, Intrapreneurship, and Environmental Hostility; are included in Table 17. The participants mostly expressed that as individual learners always have something new to learn at work; Organizational Learning has to be spread across organizations where leaders play a key role in conducting this process; Intrapreneurs should take risks and be innovators; and, the environment can be controlled and manipulated to its own advantage by their organizations.

Table 17: Study Variable Information as They Appeared in the Survey Instrument (*Company A*)

Variable	**Q2**		**Q4**		**Q6**		**Q8**		**Q15**	
Individual Learning	F.	%	F.	%	F.	%	F.	%	F.	%
1) Strongly disagree	61	.32	18	.09	5	.03	5	.03	8	.04
2) Disagree	73	.38	30	.16	0	.00	10	.05	6	.03
3) Slightly disagree	21	.11	17	.09	1	.01	11	.06	9	.05
4) Neutral	6	.03	14	.07	1	.01	24	.12	9	.05
5) Slightly agree	20	.10	43	.22	5	.03	56	.29	34	.18
6) Agree	5	.03	47	.24	64	.33	54	.28	74	.38
7) Strongly agree	7	.04	24	.12	117	.61	33	.17	53	.28

Variable	**Q19**		**Q22**		**Q25**		**Q29**	
Individual Learning	F.	%	F.	%	F.	%	F.	%
1) Strongly disagree	1	.01	1	.01	3	.02	0	.00
2) Disagree	1	.01	2	.01	2	.01	3	.02
3) Slightly disagree	1	.01	5	.03	9	.05	2	.01
4) Neutral	5	.03	10	.05	22	.11	9	.05
5) Slightly agree	13	.07	16	.08	33	.17	16	.08
6) Agree	73	.38	81	.42	77	.40	71	.37
7) Strongly agree	99	.51	78	.40	47	.24	92	.48

Table 17: Continued (*Company B*)

Variable	**Q2**		**Q4**		**Q6**		**Q8**		**Q15**	
Individual Learning	F.	%	F.	%.	F.	%	F.	%	F.	%
1) Strongly disagree	47	.31	7	.05	6	.04	5	.03	5	.03
2) Disagree	45	.30	26	.17	0	.00	4	.03	9	.06
3) Slightly disagree	15	.10	13	.09	1	.01	14	.09	4	.03
4) Neutral	12	.08	19	.13	2	.01	12	.08	4	.03
5) Slightly agree	15	.10	28	.19	3	.02	37	.25	13	.09
6) Agree	11	.07	35	.23	35	.23	46	.31	51	.34
7) Strongly agree	5	.03	22	.15	103	.69	32	.21	64	.43

Variable	**Q19**		**Q22**		**Q25**		**Q29**	
Individual Learning	F.	%	F.	%	F.	%	F.	%
1) Strongly disagree	0	.00	1	.01	0	.00	3	.02
2) Disagree	3	.02	5	.03	3	.02	2	.01
3) Slightly disagree	1	.01	2	.01	5	.03	2	.01
4) Neutral	5	.03	3	.02	17	.11	9	.06
5) Slightly agree	9	.06	22	.15	27	.18	10	.07
6) Agree	43	.29	44	.29	55	.37	43	.29
7) Strongly agree	89	.59	73	.49	43	.29	81	.54

Table 17: Continued (*Company A*)

Construct	**Q 1**		**Q3**		**Q5**		**Q7**		**Q9**	
Organizational Learning	F.	%	F.	%	F.	%	F.	%	F.	%
1) Strongly disagree	6	.03	9	.05	40	.21	31	.16	18	.09
2) Disagree	12	.06	13	.07	79	.41	41	.21	39	.20
3) Slightly disagree	15	.08	20	.10	15	.08	29	.15	20	.10
4) Neutral	27	.14	34	.18	20	.10	20	.10	28	.15
5) Slightly agree	51	.26	47	.24	23	.12	33	.17	32	.17
6) Agree	57	.30	54	.28	11	.06	29	.15	43	.22
7) Strongly agree	25	.13	16	.08	5	.03	10	.05	13	.07
Construct	**Q10**		**Q11**		**Q12**		**Q13**		**Q14**	
Organizational Learning	F.	%	F.	%	F.	%	F.	%	F.	%
1) Strongly disagree	52	.27	18	.09	2	.01	0	.00	12	.06
2) Disagree	54	.28	55	.29	4	.02	1	.01	22	.11
3) Slightly disagree	20	.10	17	.09	8	.04	1	.01	20	.10
4) Neutral	31	.16	45	.23	16	.08	20	.10	21	.11
5) Slightly agree	18	.09	22	.11	43	.22	22	.11	57	.30
6) Agree	12	.06	21	.11	79	.41	77	.40	53	.28
7) Strongly agree	6	.03	15	.08	41	.21	72	.37	8	.04
Construct	**Q16**		**Q17**		**Q18**		**Q20**		**Q21**	
Organizational Learning	F.	%	F.	%	F.	%	F.	%	F.	%
1) Strongly disagree	0	.00	7	.04	11	.06	13	.07	15	.08
2) Disagree	1	.01	13	.07	28	.15	22	.11	39	.20
3) Slightly disagree	3	.02	14	.07	25	.13	21	.11	28	.15
4) Neutral	19	.10	26	.14	38	.20	23	.12	21	.11
5) Slightly agree	32	.17	54	.28	36	.19	44	.23	45	.23
6) Agree	88	.46	51	.26	39	.20	45	.23	32	.17
7) Strongly agree	50	.26	28	.15	16	.08	25	.13	13	.07

Table 17: Continued (*Company A)*

Construct	**Q23**		**Q24**		**Q26**		**Q27**		**Q28**	
Organizational Learning	F.	%	F.	%	F.	%	F.	%	F.	%
1) Strongly disagree	6	.03	10	.05	15	.08	4	.02	9	.05
2) Disagree	4	.02	9	.05	21	.11	9	.05	21	.11
3) Slightly disagree	9	.05	19	.10	22	.11	20	.10	21	.11
4) Neutral	20	.10	21	.11	19	.10	22	.11	36	.19
5) Slightly agree	25	.13	54	.28	47	.24	34	.18	49	.25
6) Agree	81	.42	49	.25	48	.25	76	.39	40	.21
7) Strongly agree	48	.25	31	.16	21	.11	28	.15	17	.09

Table 17: Continued (*Company B*)

Construct	**Q 1**		**Q3**		**Q5**		**Q7**		**Q9**	
Organizational Learning	F.	%	F.	%	F.	%	F.	%	F.	%
1) Strongly disagree	12	.8	9	.06	33	.22	13	.09	10	.07
2) Disagree	14	.9	12	.08	54	.36	31	.21	29	.19
3) Slightly disagree	8	.5	8	.05	14	.09	17	.11	16	.11
4) Neutral	20	.13	18	.12	30	.20	23	.15	26	.17
5) Slightly agree	37	.25	40	.27	7	.05	30	.20	31	.21
6) Agree	45	.30	53	.35	6	.04	24	.16	24	.16
7) Strongly agree	14	.9	10	.07	6	.04	12	.08	14	.09
Construct	**Q10**		**Q11**		**Q12**		**Q13**		**Q14**	
Organizational Learning	F.	%	F.	%	F.	%	F.	%	F.	%
1) Strongly disagree	27	.18	20	.13	5	.03	0	.00	14	.09
2) Disagree	36	.24	42	.28	3	.02	4	.03	6	.04
3) Slightly disagree	13	.09	14	.09	2	.01	3	.02	13	.09
4) Neutral	47	.31	22	.15	9	.06	9	.06	12	.08
5) Slightly agree	8	.05	20	.13	30	.20	13	.09	38	.25
6) Agree	10	.07	22	.15	64	.43	56	.37	55	.37
7) Strongly agree	9	.06	10	.07	37	.25	65	.43	12	.08

Table 17: Continued (*Company B*)

Construct	**Q16**		**Q17**		**Q18**		**Q20**		**Q21**	
Organizational Learning	F.	%	F.	%	F.	%	F.	%	F.	%
1) Strongly disagree	1	.01	4	.03	7	.05	9	.06	15	.10
2) Disagree	3	.02	6	.04	12	.08	15	.10	31	.21
3) Slightly disagree	2	.01	14	.09	9	.06	13	.09	32	.21
4) Neutral	25	.17	22	.15	33	.22	12	.08	20	.13
5) Slightly agree	26	.17	26	.17	33	.22	45	.30	23	.15
6) Agree	59	.39	50	.33	45	.30	38	.25	21	.14
7) Strongly agree	34	.23	28	.19	11	.07	18	.12	8	.05
Construct	**Q23**		**Q24**		**Q26**		**Q27**		**Q28**	
Organizational Learning	F.	%	F.	%	F.	%	F.	%	F.	%
1) Strongly disagree	4	.03	2	.01	16	.11	2	.01	7	.05
2) Disagree	14	.09	10	.07	16	.11	5	.03	18	.12
3) Slightly disagree	11	.07	17	.11	15	.10	11	.07	20	.13
4) Neutral	21	.14	18	.12	26	.17	24	.16	33	.22
5) Slightly agree	24	.16	41	.27	37	.25	40	.27	33	.22
6) Agree	47	.31	45	.30	29	.19	47	.31	33	.22
7) Strongly agree	29	.19	17	.11	11	.07	21	.14	6	.04

Table 17: Continued (*Company A*)

Variable	**Q30**		**Q31**		**Q32**		**Q33**		**Q34**	
Intrapreneurship	F.	%	F.	%	F.	%	F.	%	F.	%
1) Strongly disagree	16	.08	1	.01	5	.03	1	.01	39	.20
2) Disagree	23	.12	5	.03	10	.05	6	.03	46	.24
3) Neutral	43	.22	57	.30	35	.18	31	.16	44	.23
4) Agree	54	.28	65	.34	56	.29	63	.33	36	.19
5) Strongly agree	57	.30	65	.34	87	.45	92	.48	28	.15

Table 17: Continued (*Company B*)

Variable	**Q30**		**Q31**		**Q32**		**Q33**		**Q34**	
Intrapreneurship	F.	%	F.	%	F.	%	F.	%	F.	%
1) Strongly disagree	24	.16	5	.03	7	.05	3 7	.02	40	.27
2) Disagree	13	.09	13	.09	6	.04	18	.05	33	.22
3) Neutral	42	.28	29	.19	31	.21	49	.12	30	.20
4) Agree	40	.27	55	.37	46	.31	73	.33	28	.19
5) Strongly agree	31	.21	48	.32	60	.40		.49	19	.13

Table 17: Continued (*Companies A and B*)

Variable	***Company A***		***Company B***	
Environmental Hostility	**Frequency**	**% of Participants**	**Frequency**	**% of Participants**
Q35: From "Very safe, little threat to the survival and well-being of my firm."				
1	19	.10	9	.06
2	27	.14	36	.24
3	28	.15	20	.13
4	46	.24	40	.27
5	40	.21	21	.14
6	22	.11	15	.10
7	11	.06	9	.06
To "Very risky, a false step can mean my firm's undoing."				
Q36: From "Rich in investment and marketing opportunities."				
1	20	.10	16	.11
2	38	.20	31	.21
3	35	.18	19	.13
4	43	.22	36	.24
5	30	.16	24	.16
6	17	.09	17	.11
7	10	.05	7	.05
To "Very hostile to making new investments and to identifying marketing opportunities."				

Table 17: Continued (*Companies A and B*)

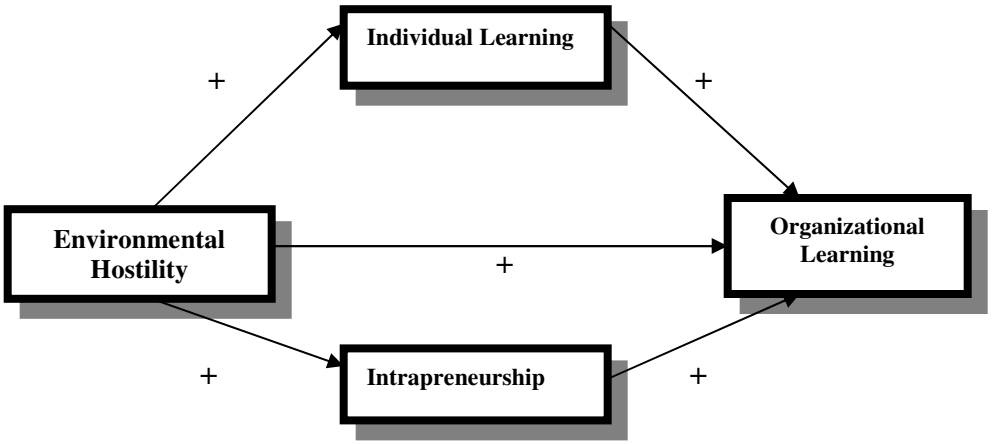
Variable	***Company A***		***Company B***	
Environmental Hostility	**Frequency**	**% of Participants**	**Frequency**	**% of Participants**
Q37: From "An environment that my firm can control and manipulate to its own advantage, such as a dominant firm has in an industry with little competition and few hindrances."				
1	13	.07	8	.05
2	29	.15	27	.18
3	34	.18	31	.21
4	52	.27	44	.29
5	38	.20	21	.14
6	18	.09	13	.09
7	9	.05	6	.04
To "A dominating environment in which my firm's initiatives count for very little against the tremendous competitive, political, or technological forces."				

Structural Equation Modeling

Structural Equation Modeling (SEM) was used to examine if the data supported the Intrapreneurial Learning Model (see Figure 6). In order to do that, Confirmatory Factor Analysis (CFA) was applied to test "how measured variables reflect certain latent variables. Once the measurement model is deemed satisfactory, then the researcher can explore path models (called structural models) that link the latent variables" (Thompson, 2004, p.110). As was mentioned by Thompson (2004), the second step in SEM would be path analysis if the data fit the independence model well. Otherwise, Exploratory Factor

Analysis (EFA), which is a statistical technique utilized "to find a latent structure of observed variables by uncovering common factors that influence the measured variables" (Park, Dailey, & Lemus, 2002, p. 563), should be used.

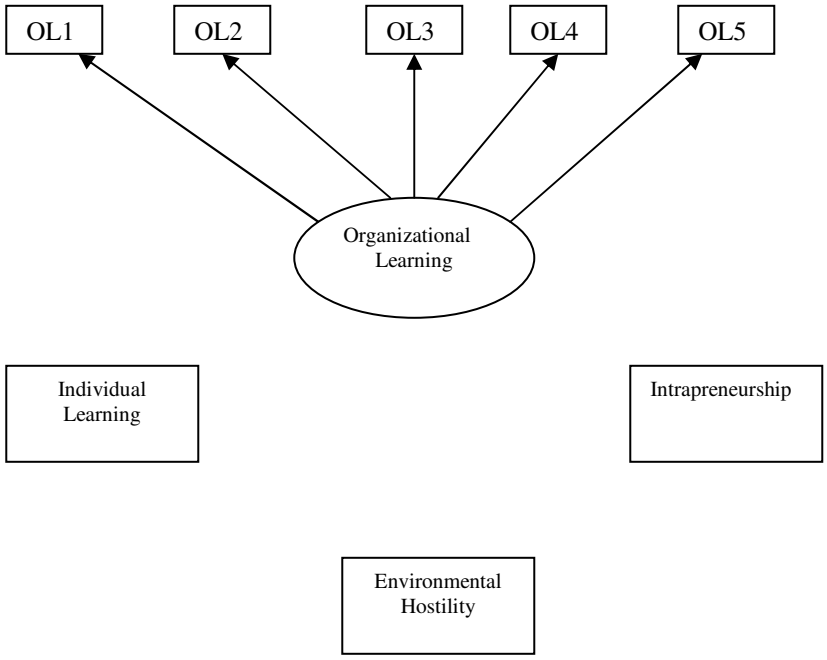
Figure 6: Intrapreneurial Learning Model - Proposed Model



Independence Model

The independence model represents the proposed Intrapreneurial Learning Model without considering any relationship among the construct/variables (see Figure 7). An important step in SEM, specifically CFA, is to examine if the independence model was supported by the data (Schumacker & Lomax, 2004).

Figure 7: Independence Model



Collectively, the different fit indexes lead the researcher to conclude that the obtained data was a poor fit for the Independence Model (see Table 18). For example, the x^2/DF was 17.029 and its value should be 3 or lower in order to be considered as having a good model fit.

Table 18: Fit Indexes - Independence Model

Model	NPAR	x^2	DF	P	x^2/DF	GFI	RMSEA
Default Model	13	154.973	23	.000	6.738	.898	.130
Saturated model	36	.000	0			1.000	
Independence model	8	476.807	28	.000	17.029	.667	.216

According to the Independence Model regression weights (see Table 19) there was a significant **positive** relationship between (1) Organizational Learning and OL2, (2)

Organizational Learning and OL3, and (3) Organizational Learning and OL5. The strongest paths at the **p<.001 level** (see Table 20) in describing Organizational Learning were (1) Organizational Learning and OL2, and (2) Organizational Learning and OL3, which should be taken into consideration only if the independent model has been substantiated.

Table 19: Independence Model Regression Weights

			Estimate	S.E.	C.R.	P
OL1	<---	Organizational Learning	1.000			
OL2	<---	Organizational Learning	1.699	.187	9.065	***
OL3	<---	Organizational Learning	1.825	.206	8.841	***
OL4	<---	Organizational Learning	.110	.101	1.097	.273
OL5	<---	Organizational Learning	1.011	.126	8.000	***

*** Indicates that the path is significant at the p<.001 level.

Table 20: Standardized Regression Weights by Path

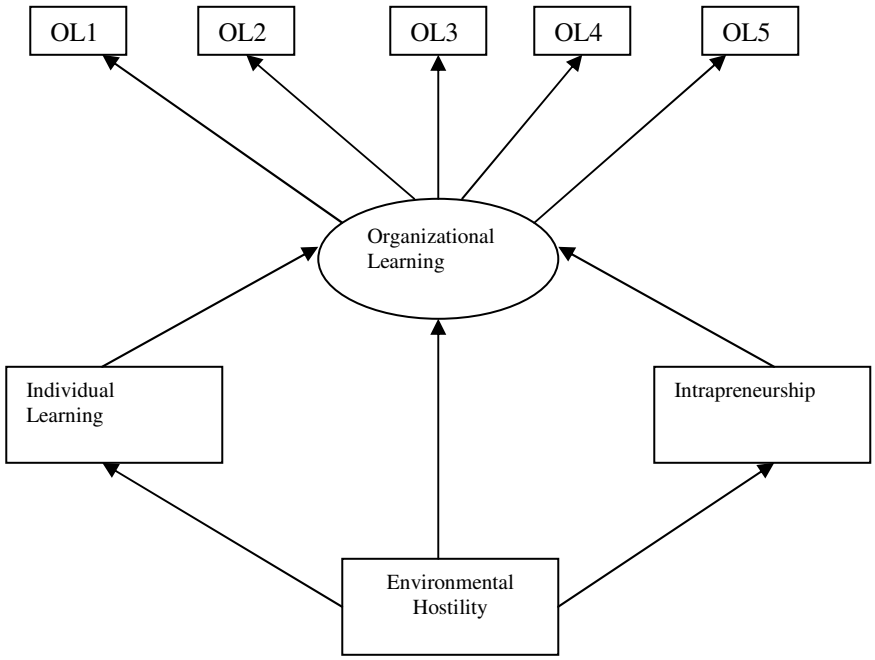
			Estimate
OL1	<---	Organizational Learning	.582
OL2	<---	Organizational Learning	.782
OL3	<---	Organizational Learning	.700
OL4	<---	Organizational Learning	.067
OL5	<---	Organizational Learning	.589

Default Model

Although the independence model was not confirmed, the default model was tested from a descriptive point of view. The default model corresponds to the researcher's proposed Intrapreneurial Learning Model which is based on an extensive review of the

literature. Therefore, this model incorporates the path relationships among the construct/variables (see Figure 8).

Figure 8: Default Model



Note: The Hypothesized sign for all relationships is positive (+).

Only one index of fit (GFI) presented a good value, but the other three indexes of fit (x^2, x^2/DF, and RMSEA) did not support the Default model (see Table 21). For this reason, the Default model should be considered as a disconfirmed model. However, this analysis is only made under a descriptive perspective because new data is needed to examine the validity of the researcher's Intrapreneurial Learning Model.

Table 21: Fit Indexes - Default Model

Model	NPAR	x^2	DF	P	x^2/DF	GFI	RMSEA
Default Model	18	59.879	18	.000	3.327	.959	.082
Saturated model	36	.000	0			1.000	
Independence model	8	476.807	28	.000	17.029	.667	.216

According to the Default Model regression weights (see Table 22), there was a significant **positive** relationship between (1) Intrapreneurship and Organizational Learning, (2) Individual Learning and Organizational Learning, (3) Organizational Learning and OL2, (4) Organizational Learning and OL3, and (5) Organizational Learning and OL5. The strongest paths at the **p<.001 level** (see Table 23) in describing Organizational Learning were (1) Organizational Learning and OL1, (2) Organizational Learning and OL2, and (3) Organizational Learning and OL3, which should be taken into consideration only if the independent model has been substantiated.

Table 22: Default Model Regression Weights

			Estimate	S.E.	C.R.	P
Intrapreneurship	<---	Environmental Hostility	.008	.050	.167	.867
Individual Learning	<---	Environmental Hostility	-.021	.072	-.291	.771
Organizational Learning	<---	Intrapreneurship	.175	.030	5.801	***
Organizational Learning	<---	Individual Learning	.133	.021	6.238	***
Organizational Learning	<---	Environmental Hostility	.013	.025	.524	.600
OL1	<---	Organizational Learning	1.000			
OL2	<---	Organizational Learning	1.581	.164	9.628	***
OL3	<---	Organizational Learning	1.662	.183	9.078	***
OL4	<---	Organizational Learning	.125	.096	1.301	.193
OL5	<---	Organizational Learning	.922	.114	8.058	***

*** Indicates that the path is significant at the p<.001 level.

Table 23: Standardized Regression Weights by Path - Default Model

			Estimate
Intrapreneurship	<---	Environmental Hostility	.009
Individual Learning	<---	Environmental Hostility	-.016
Organizational Learning	<---	Intrapreneurship	.354
Organizational Learning	<---	Individual Learning	.388
Organizational Learning	<---	Environmental Hostility	.029
OL1	<---	Organizational Learning	.611
OL2	<---	Organizational Learning	.769
OL3	<---	Organizational Learning	.671
OL4	<---	Organizational Learning	.079
OL5	<---	Organizational Learning	.563

Model Fit by Company

Since the independent samples of the two mining companies together presented a similar descriptive analysis, the researcher was wondering if each company, separately, did not support the researcher's Intrapreneurial Learning Model. Therefore, their results should be similar, having a poor model fit, to the analysis effectuated with the total sample size (343 observations by considering both companies together).

Independence Model-Company A

The different indices of fit showed overall a poor model fit (see Table 24). For example, the value of GFI was .875 and it should be equal to .90 or higher to support the Independence Model.

Table 24: Fit Indexes - Independence Model Company A

Model	NPAR	x^2	DF	P	x^2/DF	GFI	RMSEA
Default Model	13	108.552	23	.000	4.720	.875	.139
Saturated model	36	.000	0			1.000	
Independence model	8	326.119	28	.000	11.647	.630	.235

According to the Independence Model regression weights (see Table 25), there was a significant **positive** relationship between (1) Organizational Learning and OL2, (2) Organizational Learning and OL3, and (3) Organizational Learning and OL5. The strongest paths at the **p<.001 level** (see Table 26) in describing Organizational Learning were (1) Organizational Learning and OL2, (2) Organizational Learning and OL3, and (3) Organizational Learning and OL5, which should be taken into consideration only if the independent model has been substantiated.

Table 25: Independence Model Regression Weights - Company A

	Estimate	S.E.	C.R.	P
OL1 <--- Organizational Learning	1.000			
OL2 <--- Organizational Learning	2.048	.331	6.192	***
OL3 <--- Organizational Learning	2.798	.453	6.182	***
OL4 <--- Organizational Learning	.059	.166	.354	.724
OL5 <--- Organizational Learning	1.517	.256	5.935	***

*** Indicates that the path is significant at the p<.001 level.

Table 26: Standardized Regression Weights by Path - Company A

	Estimate
OL1 <--- Organizational Learning	.494
OL2 <--- Organizational Learning	.784
OL3 <--- Organizational Learning	.778
OL4 <--- Organizational Learning	.028
OL5 <--- Organizational Learning	.692

Default Model-Company A

Although the independence model was not confirmed, the default model was tested from a descriptive point of view. The default model corresponds to the researcher's proposed Intrapreneurial Learning Model which incorporates the path relationships among the construct/variables. The indices of fit showed overall a poor model fit (see Table 27). The only satisfactory index of fit was GFI which had a value higher than .90.

Table 27: Fit Indexes - Default Model - Company A

Model	NPAR	x^2	DF	P	x^2/DF	GFI	RMSEA
Default Model	18	54.587	18	.000	3.033	.934	.103
Saturated model	36	.000	0			1.000	
Independence model	8	326.119	28	.000	11.647	.630	.235

According to the Default Model regression weights (see Table 28), there was a significant **positive** relationship between (1) Individual Learning and Organizational Learning, (2) Intrapreneurship and Organizational Learning, (3) Organizational Learning and OL2, (4) Organizational Learning and OL3, and (5) Organizational Learning and OL5. The strongest paths at the **p<.001 level** (see Table 29) in describing Organizational Learning were (1) Environmental Hostility and Organizational Learning, (2) Organizational Learning and OL3, (3) Organizational Learning and OL5, and (4) Organizational Learning and OL2, which should be taken into consideration only if the independent model has been substantiated.

Table 28: Default Model Regression Weights - Company A

			Estimate	S.E.	C.R.	P
Individual Learning	<---	Environmental Hostility	.030	.092	.328	.743
Intrapreneurship	<---	Environmental Hostility	.125	.064	1.949	.051
Organizational Learning	<---	Individual Learning	.106	.025	4.321	***
Organizational Learning	<---	Intrapreneurship	.128	.034	3.790	***
Organizational Learning	<---	Environmental Hostility	.024	.027	.894	.371
OL2	<---	Organizational Learning	1.892	.287	6.599	***
OL3	<---	Organizational Learning	2.526	.387	6.532	***
OL4	<---	Organizational Learning	.099	.158	.627	.531
OL5	<---	Organizational Learning	1.363	.221	6.174	***
OL1	<---	Organizational Learning	1.000			

*** Indicates that the path is significant at the p<.001 level.

Table 29: Standardized Regression Weights by Path - Default Model - Company A

			Estimate
Individual Learning	<---	Environmental Hostility	.024
Intrapreneurship	<---	Environmental Hostility	.139
Organizational Learning	<---	Individual Learning	.372
Organizational Learning	<---	Intrapreneurship	.314
Organizational Learning	<---	Environmental Hostility	.066
OL3	<---	Organizational Learning	.754
OL4	<---	Organizational Learning	.050
OL5	<---	Organizational Learning	.666
OL1	<---	Organizational Learning	.526
OL2	<---	Organizational Learning	.779

Independence Model-Company B

The different indexes of fit showed overall that the data did not fit the Independence Model (see Table 30). For this reason, this is a disconfirmed model.

Table 30: Fit Indexes - Independence Model - Company B

Model	NPAR	x^2	DF	P	x^2/DF	RMR	GFI	RMSEA
Default Model	13	77.150	23	.000	3.354	2.572	.887	.126
Saturated model	36	.000	0			.000	1.000	
Independence model	8	211.001	28	.000	7.536	3.444	.673	.209

According to the Independence Model regression weights (see Table 31), there was a significant **positive** relationship between (1) Organizational Learning and OL2, (2) Organizational Learning and OL3, and (3) Organizational Learning and OL5. The strongest paths at the **p<.001 level** (see Table 32) in describing Organizational Learning were (1) Organizational Learning and OL1, (2) Organizational Learning and OL2, and (3) Organizational Learning and OL3, which should be taken into consideration only if the independent model has been substantiated.

Table 31: Independence Model Regression Weights - Company B

	Estimate	S.E.	C.R.	P
OL1 <--- Organizational Learning	1.000			
OL2 <--- Organizational Learning	1.285	.190	6.775	***
OL3 <--- Organizational Learning	1.049	.168	6.257	***
OL4 <--- Organizational Learning	.152	.112	1.348	.178
OL5 <--- Organizational Learning	.573	.119	4.808	***

*** Indicates that the path is significant at the p<.001 level.

Table 32: Standardized Regression Weights by Path - Company B

	Estimate
OL1 <--- Organizational Learning	.741
OL2 <--- Organizational Learning	.757
OL3 <--- Organizational Learning	.625
OL4 <--- Organizational Learning	.126
OL5 <--- Organizational Learning	.462

Default Model-Company B

Although the independence model was not confirmed, the default model was tested from a descriptive point of view. The default model corresponds to the Intrapreneurial Learning Model which incorporates the path relationships among the construct/variables. Two of the indexes of fit, x^2/DF and GFI, showed that the data had a good fit with the Default Model, but the other three indexes of fit did not support the Default Model (see Table 33). However, this analysis was conducted based on a descriptive point of view because this model has to be validated by using new data.

Table 33: Fit Indexes - Default Model - Company B

Model	NPAR	x^2	DF	P	x^2/DF	GFI	RMSEA
Default Model	18	30.523	18	.033	1.696	.958	.068
Saturated model	36	.000	0			1.000	
Independence model	8	211.001	28	.000	7.536	.673	.209

According to the Default Model regression weights (see Table 34), there was a significant **positive** relationship between (1) Individual Learning and Organizational Learning, (2) Intrapreneurship and Organizational Learning, (3) Organizational Learning and OL2, (4) Organizational Learning and OL3, and (5) Organizational Learning and OL5. The strongest paths at the **p<.001 level** (see Table 35) in describing Organizational Learning were (1) Organizational Learning and OL3, (2) Organizational Learning and OL1, and (3) Organizational Learning and OL2, which should be taken into consideration only if the independent model has been substantiated.

Table 34: Default Model Regression Weights - Company B

			Estimate	S.E.	C.R.	P
Intrapreneurship	<---	Environmental Hostility	-.140	.077	-1.831	.067
Individual Learning	<---	Environmental Hostility	-.076	.113	-.674	.500
Organizational Learning	<---	Individual Learning	.167	.038	4.449	***
Organizational Learning	<---	Intrapreneurship	.223	.055	4.053	***
Organizational Learning	<---	Environmental Hostility	-.019	.050	-.389	.697
OL2	<---	Organizational Learning	1.262	.175	7.204	***
OL3	<---	Organizational Learning	1.017	.162	6.280	***
OL4	<---	Organizational Learning	.139	.112	1.232	.218
OL5	<---	Organizational Learning	.561	.117	4.780	***
OL1	<---	Organizational Learning	1.000			

*** Indicates that the path is significant at the p<.001 level.

Table 35: Standardized Regression Weights by Path - Default Model - Company B

			Estimate
Individual Learning	<---	Environmental Hostility	-.055
Intrapreneurship	<---	Environmental Hostility	-.148
Organizational Learning	<---	Individual Learning	.390
Organizational Learning	<---	Intrapreneurship	.355
Organizational Learning	<---	Environmental Hostility	-.032
OL3	<---	Organizational Learning	.606
OL4	<---	Organizational Learning	.114
OL5	<---	Organizational Learning	.450
OL1	<---	Organizational Learning	.744
OL2	<---	Organizational Learning	.747

It was possible to conclude that the data from each mining company also did not fit the Intrapreneurial Learning Model which is coherent with the CFA realized to the two mining companies together. For this reason, EFA was used in order to identify a new and improved theoretical model based on the collected data (Thompson, 2004). An examination of the hypotheses postulated in this study is presented next.

Hypotheses

The research hypotheses of this study were addressed based on the results of the proposed model fit, labeled as "Intrapreneurial Learning Model". They were as follows: hypothesis 1, *"Environment has positive direct and indirect effects on Organizational Learning"*, was not supported; hypothesis 2, *"Individual Learning has a positive direct effect on Organizational Learning"*, was not supported; hypothesis 3, "*Intrapreneurship has a positive direct effect on Organizational Learning"*, was not supported; and finally, hypothesis 4, *"the Intrapreneurial Learning Model is a confirmed model"*, was also not supported.

Exploratory Factor Analysis

According to Park et al. (2002), "the goal of EFA is to find a latent structure of observed variables by uncovering common factors that influence the measured variables" (p. 563). However, the new model not only has to be based on the factor analysis's tests, but also the new model needs to have theoretical support (Schumacker & Lomax, 2004). Several tests and analysis were conducted for each instrument such as Kaiser-Meyer-Olkin test (KMO) which "tells one whether or not enough items are predicted by each factor" (Leech et al., 2005, p. 82); Bartlett's test of Sphericity was used to evaluate whether the variables present a strong enough correlation to run factor analysis (Leech et

al., 2005; Yang, 2005); Eigen Values (Scree Plot) which shows how many components to extract in order to explain the variance (Leech et al., 2005); and the Component Rotated Matrix which contains factors that are uncorrelated between/among them and may contain several items per factor (Leech et al., 2005; Osborne, Costello, & Kellow, 2007).

Extraction methods were utilized in order to identify the smaller number of variables that communicate the higher amount of information in the observed/measured variables (Leech et al, 2005; Yang, 2005). The extraction methods used in this study were as follows: Principal Component Analysis (PCA), Principal Axis Factoring (PA), and Alpha Factoring (AF). By reviewing the three extraction methods results, it was possible to conclude that they were consistent.

Factor Analysis – Environmental Hostility

Both the KMO test and Bartlett's test of Sphericity presented good values (see Table 36). By reviewing the Eigen Values (Scree Plot), the researcher concluded that this construct is one-dimensional (see Figure 9 and also see Tables 37, 38, and 39). No rotated component matrix was needed since the factor was judged to be one-dimensional.

Table 36: KMO and Bartlett's Test - Environmental Hostility

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.684
Bartlett's Test of Sphericity	Approx. Chi-Square	228.234
	Df	3
	Sig.	.000

Figure 9: Scree Plot - Environmental Hostility

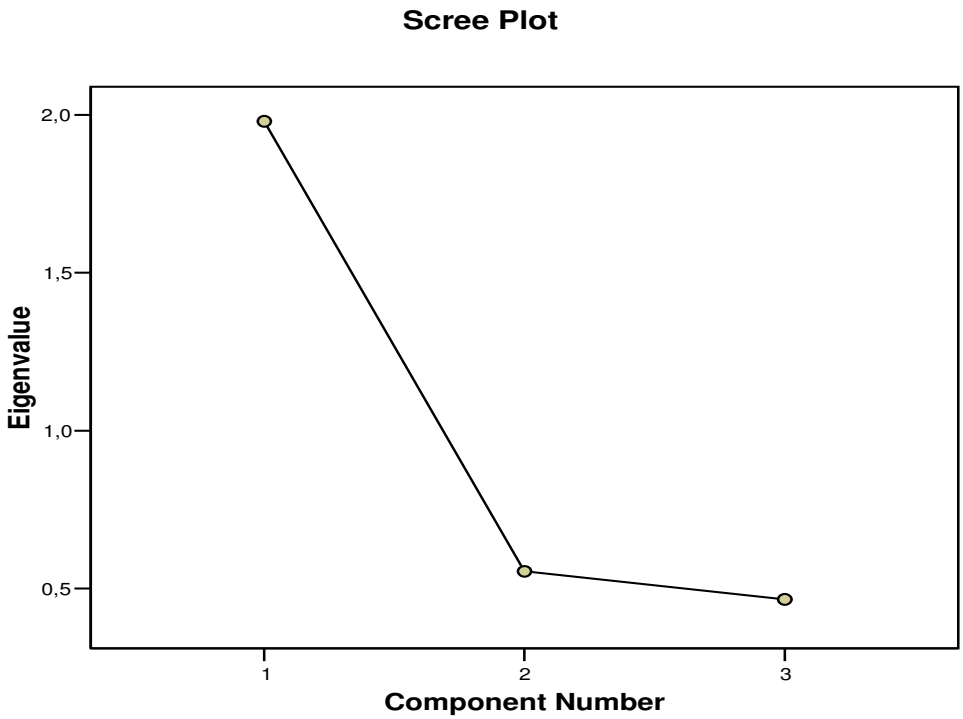


Table 37: Component Matrix(a)
Extraction Method: Principal Component Analysis - Environmental Hostility

Items	Component
	1
Q36	.836
Q35	.802
Q37	.799

a 1 components extracted.

Table 38: Component Matrix(a)
Extraction Method: Principal Axis Factoring - Environmental Hostility

Items	Factor
	1
Q36	.765
Q35	.671
Q37	.665

a 1 factors extracted. 11 iterations required.

Table 39: Component Matrix(a)
Extraction Method: Alpha Factoring - Environmental Hostility

Items	Factor
	1
Q36	.765
Q35	.671
Q37	.665

a 1 factors extracted. 8 iterations required.

Factor Analysis- Individual Learning

Both the KMO test and Bartlett's test of Sphericity presented good indices (see Table 40). By reviewing the Eigen Values (Scree Plot), the researcher concluded that this construct has three components to retain (see Figure 10), which were rotated for each extraction method (see Tables 41, 42, and 43). However, it is relevant to mention that less than three items were loaded on each factor when using Principal Axis Factoring and Alpha Factoring as extraction methods (see Tables 42 and 43), which may produce problems "with identification and convergence" (Hatcher, 1994, p. 260).

Table 40: KMO and Bartlett's Test - Individual Learning

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.690
Bartlett's Test of Sphericity	Approx. Chi-Square	249.776
	Df	36
	Sig.	.000

Figure 10: Scree Plot - Individual Learning

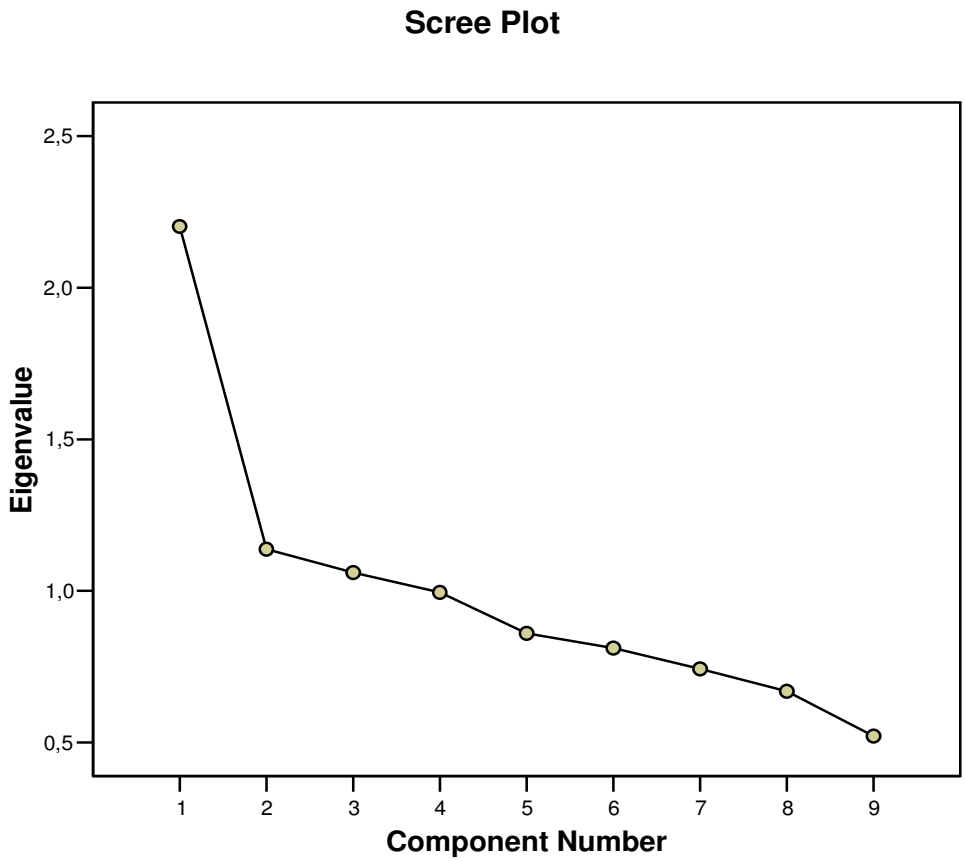


Table 41: Rotated Component Matrix(a)
Extraction Method: Principal Component Analysis – Individual Learning

Items	Component		
	1	2	3
Q2	.772		
Q22	.708		
Q29	.489		
Q15		.662	
Q25		.661	
Q8		.564	
Q6			.711
Q4			.578
Q19			.567

Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 4 iterations.

Table 42: Rotated Component Matrix(a)
Extraction Method: Principal Axis Factoring - Individual Learning

Items	Factor		
	1	2	3
Q22	.783		
Q2	.432		
Q8		.458	
Q25		.403	
Q15			
Q4			
Q19			.529
Q29			
Q6			

Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 7 iterations.

Table 43: Rotated Component Matrix(a)
Extraction Method: Alpha Factoring - Individual Learning

Items	Factor		
	1	2	3
Q22	.690		
Q29	.432		
Q2	.415		
Q25		.450	
Q8			
Q15			
Q19			.456
Q6			
Q4			

Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 5 iterations.

Factor Analysis- Intrapreneurship

Both the KMO test and Bartlett's test of Sphericity presented good indices (see Table 44). By reviewing the Eigen Values (Scree Plot), the researcher concluded that this construct has two components to retain (see Figure 11), which were rotated for each extraction method (see Tables 45, 46, and 47). However, it is relevant to mention that less than three items were loaded on each factor when using each one of the extraction

methods (see Tables 45, 46, and 47), which may produce problems “with identification and convergence” (Hatcher, 1994, p. 260).

Table 44: KMO and Bartlett's Test - Intrapreneurship

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.672
Bartlett's Test of Sphericity	Approx. Chi-Square	301.646
	Df	10
	Sig.	.000

Figure 11: Scree Plot - Intrapreneurship

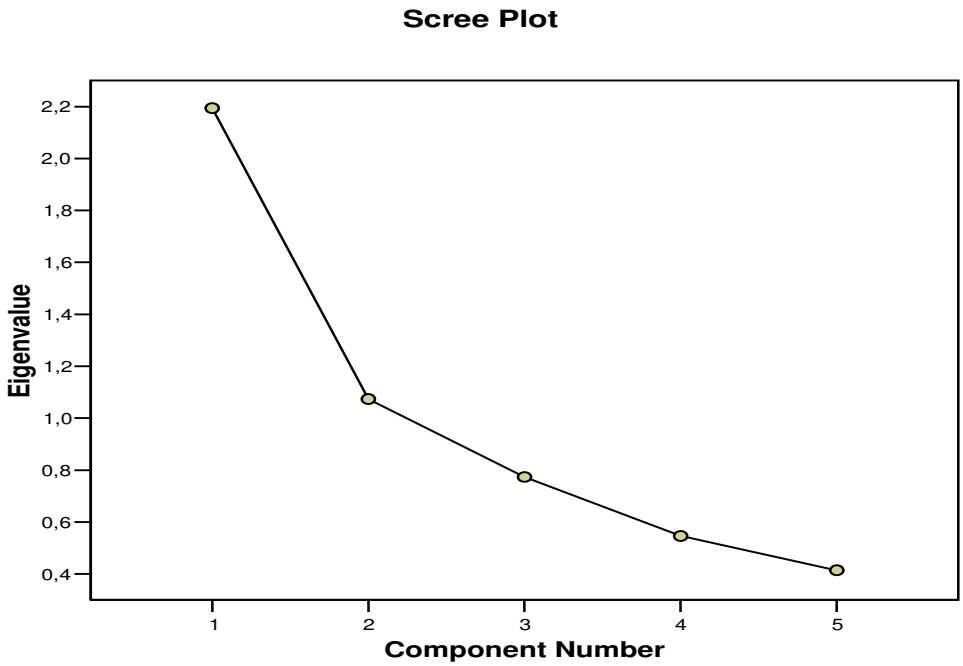


Table 45: Rotated Component Matrix(a)
Extraction Method: Principal Component Analysis - Intrapreneurship

Items	Component	
	1	2
Q33	.855	
Q31	.807	
Q32	.729	
Q30		.813
Q34		.781

Rotation Method: Varimax with Kaiser Normalization.
A Rotation converged in 3 iterations.

Table 46: Rotated Component Matrix(a)
Extraction Method: Principal Axis Factoring - Intrapreneurship

Items	Factor	
	1	2
Q33	.793	
Q31	.693	
Q32	.527	
Q34		.753
Q30		

Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 3 iterations.

Table 47: Rotated Component Matrix(a)
Extraction Method: Alpha Factoring - Intrapreneurship

Items	Factor	
	1	2
Q33	.820	
Q31	.675	
Q32	.526	
Q34		.693
Q30		.412

Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 3 iterations.

Factor Analysis- Organizational Learning

Both the KMO test and Bartlett's test of Sphericity presented good indices (see Table 48). By reviewing the Eigen Values (Scree Plot), the researcher concluded that this construct has three components to retain (see Figure 12), which were rotated for each extraction method (see Tables 49, 50, and 51). However, it is relevant to mention that less than three items were loaded on each factor when using Principal Axis Factoring and Alpha Factoring as extraction methods (see Tables 50 and 51), which may produce problems "with identification and convergence" (Hatcher, 1994, p. 260).

Table 48: KMO and Bartlett's Test - Organizational Learning

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.917
Bartlett's Test of Sphericity	Approx. Chi-Square	2067.415
	Df	190
	Sig.	.000

Figure 12: Scree Plot - Organizational Learning

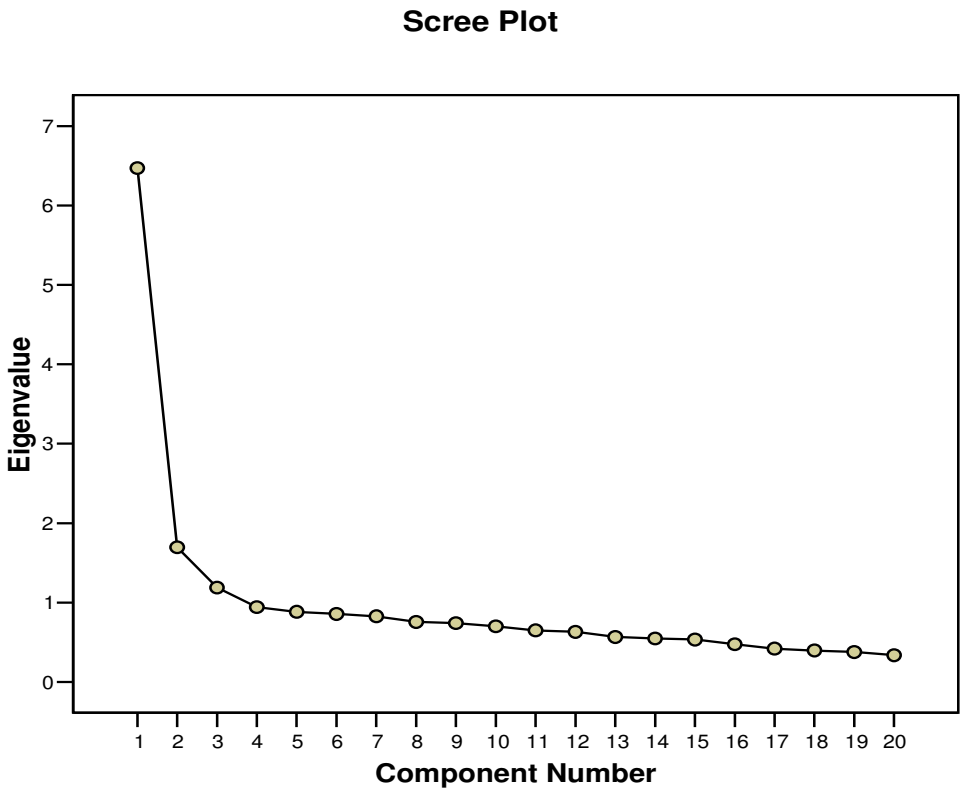


Table 49: Rotated Component Matrix(a)
Extraction Method: Principal Component Analysis - Organizational Learning

Items	Component		
	1	2	3
Q24	.751		
Q26	.737		
Q28	.705		
Q20	.700		
Q18	.692		
Q14	.653		
Q17	.605		
Q3	.582		
Q23	.577		
Q27	.538		
Q1	.489		
Q7		.664	
Q5		.646	
Q10		.592	
Q11		.527	
Q9		.516	
Q21		.450	
Q13			.724
Q16			.639
Q12			.417

Rotation Method: Varimax with Kaiser Normalization.
A Rotation converged in 6 iterations.

Table 50: Rotated Component Matrix(a)
Extraction Method: Principal Axis Factoring - Organizational Learning

Items	Factor		
	1	2	3
Q24	.722		
Q26	.709		
Q28	.662		
Q20	.655		
Q18	.638		
Q14	.604		
Q17	.575		
Q3	.547		
Q23	.543		
Q27	.521		
Q1	.458		
Q12			
Q5		.534	
Q10		.534	
Q7		.513	
Q9			
Q21			
Q11			
Q13			.619
Q16			.578

Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 5 iterations.

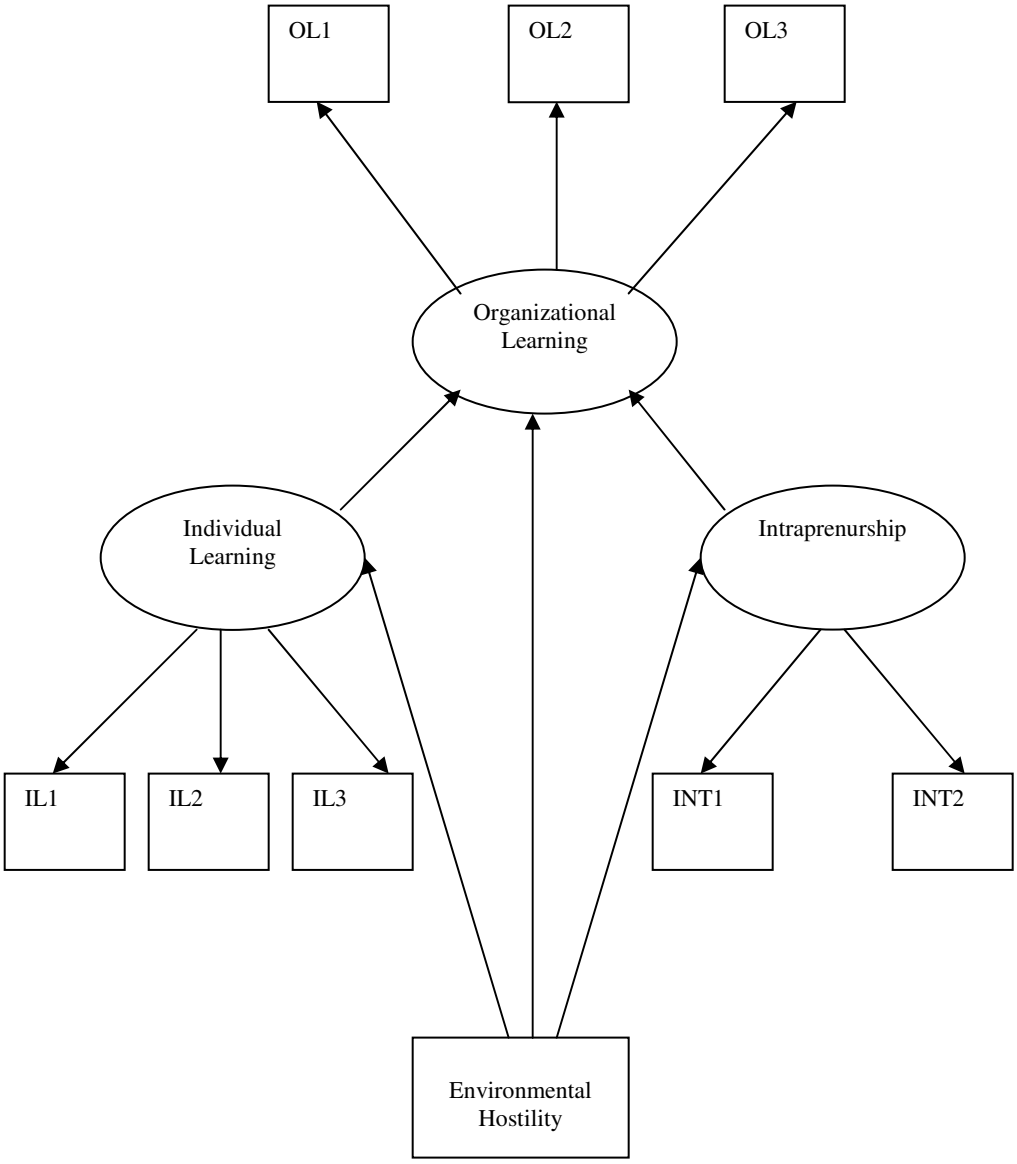
Table 51: Rotated Component Matrix(a)
Extraction Method: Alpha Factoring - Organizational Learning

Items	Factor		
	1	2	3
Q24	.727		
Q26	.703		
Q20	.657		
Q28	.654		
Q18	.645		
Q14	.597		
Q17	.564		
Q3	.550		
Q23	.522		
Q27	.519		
Q1	.478		
Q12			
Q10		.554	
Q5		.546	
Q7		.514	
Q9			
Q11			
Q21			
Q13			.576
Q16			.526

Rotation Method: Varimax with Kaiser Normalization.
a Rotation converged in 5 iterations.

PCA was utilized to generate the proposed model based on EFA (see Figure 13) because it is considered as the preferred extraction method (Tabachnick & Fidell, 2001; Tinsley & Tinsley, 1987). It is important to highlight that the proposed model based on EFA also requires having theoretical support (Yang, 2005). However, the proposed model based on EFA needs to be validated with new data, which goes beyond the extent of this study, in order to test model fit (Thompson, 2004).

Figure 13: Proposed Model Based on EFA



Note: Based on Principal Component Analysis (PCA).

Proposed Model Based on EFA

The Proposed Model based on EFA (see Figure 13), which was based on the PCA extraction method, was examined by using the collected data from the two mining companies located in Chile. This stage was conducted based on a descriptive point of view because new collected data is required to validate this model fit, by using SEM (Thompson, 2004).

EFA-Independence Model

The different indexes of fit showed overall that the data did not fit the Independence Model (see Table 52). For this reason, this is a disconfirmed model.

Table 52: Fit Indexes - Proposed Model Based on EFA

Model	NPAR	x^2	DF	P	x^2/DF	GFI	RMSEA
Default Model	16	254.368	29	.000	8.771	.860	.151
Saturated model	45	.000	0			1.000	
Independence model	9	529.423	36	.000	14.706	.673	.200

According to the EFA Model regression weights (see Table 53), there was a significant **positive** relationship between (1) Organizational Learning and OL3, and (2) Organizational Learning and OL2. The strongest paths at the **p<.001 level** (see Table 54) in describing Organizational Learning were (1) Individual Learning and Organizational Learning, (2) Organizational Learning and OL1, (3) Organizational Learning and OL3, and (4) Individual Learning and IL1, which should be taken into consideration only if the independent model has been substantiated.

Table 53: Independence Model Regression Weights - Proposed Model Based on EFA

			Estimate	S.E.	C.R.	P
OL3	<---	Organizational Learning	.181	.025	7.286	***
IL1	<---	Individual Learning	1.000			
IL2	<---	Individual Learning	1.054	.377	2.795	.005
INT1	<---	Intrapreneurship	1.000			
OL1	<---	Organizational Learning	1.000			
OL2	<---	Organizational Learning	-.311	.046	-6.753	***
IL3	<---	Individual Learning	.670	.217	3.092	.002
INT2	<---	Intrapreneurship	1.000			

*** Indicates that the path is significant at the p<.001 level.

Table 54: Standardized Regression Weights by Path - Proposed Model Based on EFA

			Estimate
Intrapreneurship	<---	Environmental Hostility	-.009
Individual Learning	<---	Environmental Hostility	-.194
Organizational Learning	<---	Intrapreneurship	.302
Organizational Learning	<---	Environmental Hostility	.016
Organizational Learning	<---	Individual Learning	.756
OL1	<---	Organizational Learning	.776
OL2	<---	Organizational Learning	-.492
OL3	<---	Organizational Learning	.703
IL1	<---	Individual Learning	.617
IL2	<---	Individual Learning	.399
IL3	<---	Individual Learning	.348
INT1	<---	Intrapreneurship	.211
INT2	<---	Intrapreneurship	1.304

EFA-Default Model

Although GFI presented a value of .942 which indicates that the data had a good model fit, the other different indexes of fit did not support a good model fit between the

data and the Default Model (see Table 55). For this reason, this model was also considered as a disconfirmed model.

Table 55: Fit Indexes - EFA - Default Model

Model	NPAR	x^2	DF	P	x^2/DF	GFI	RMSEA
Default Model	21	96.929	24	.000	4.039	.942	.094
Saturated model	45	.000	0			1.000	
Independence model	9	529.423	36	.000	14.706	.673	.200

According to the EFA Model regression weights (see Table 56), there was a significant **positive** relationship between (1) Individual Learning and Organizational Learning, (2) Organizational Learning and OL2, (3) Organizational Learning and OL3, (4) Individual Learning and IL2, (5) Individual Learning and IL3, and (6) Intrapreneurship and INT1. The strongest paths at the **p<.001 level** (see Table 57) in describing Organizational Learning were (1) Individual Learning and Organizational Learning, (2) Organizational Learning and OL1, (3) Organizational Learning and OL3, and (4) Individual Learning and IL1, which should be taken into consideration only if the independent model has been substantiated.

Table 56: Default Model Regression Weights - EFA - Default Model

			Estimate	S.E.	C.R.	P
Intrapreneurship	<---	Environmental Hostility	-.007	.029	-.224	.822
Individual Learning	<---	Environmental Hostility	-.089	.035	-2.500	.012
Organizational Learning	<---	Intrapreneurship	1.000			
Organizational Learning	<---	Environmental Hostility	.038	.153	.246	.806
Organizational Learning	<---	Individual Learning	3.883	.730	5.316	***
OL1	<---	Organizational Learning	1.000			
OL2	<---	Organizational Learning	-.334	.043	-7.827	***
OL3	<---	Organizational Learning	.195	.019	10.339	***
IL1	<---	Individual Learning	1.000			
IL2	<---	Individual Learning	.649	.126	5.159	***
IL3	<---	Individual Learning	.512	.110	4.649	***
INT1	<---	Intrapreneurship	.180	.043	4.187	***
INT2	<---	Intrapreneurship	1.000			

*** Indicates that the path is significant at the p<.001 level.

Table 57: Standardized Regression Weights by Path - EFA - Default Model

			Estimate
Intrapreneurship	<---	Environmental Hostility	-.009
Individual Learning	<---	Environmental Hostility	-.194
Organizational Learning	<---	Intrapreneurship	.302
Organizational Learning	<---	Environmental Hostility	.016
Organizational Learning	<---	Individual Learning	.756
OL1	<---	Organizational Learning	.776
OL2	<---	Organizational Learning	-.492
OL3	<---	Organizational Learning	.703
IL1	<---	Individual Learning	.617
IL2	<---	Individual Learning	.399
IL3	<---	Individual Learning	.348
INT1	<---	Intrapreneurship	.211
INT2	<---	Intrapreneurship	1.304

AMOS Proposed Model

The Intrapreneurial Learning Model was modified by using Modification Indices from AMOS (see Tables 58 and 59). However, it is important to take into consideration that any proposed change has to be theoretically supported (Brown, 2006). For this reason, the only modification of the AMOS proposed model, which was supported by the review of literature, was adding a path relationship from Intrapreneurship to Individual Learning (see Figure 14).

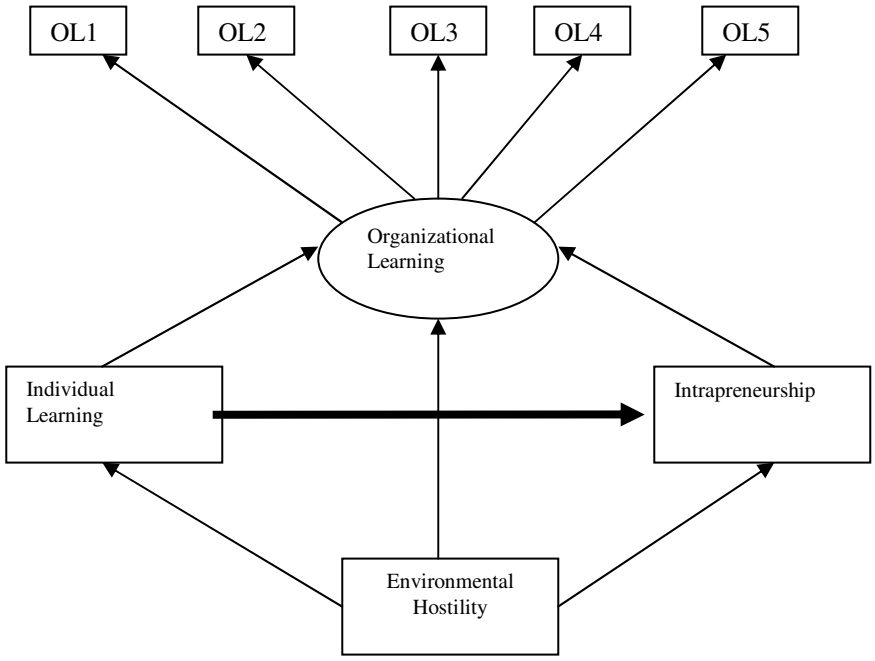
Table 58: Modification Indices-Covariances

	M.I.	Par Change
Int-e <--> il-e	14.424	3.873
3-e <--> 1-e	23.739	2.928
5-e <--> 1-e	23.594	1.968
5-e <--> 3-e	48.956	4.537
4-e <--> Eh-e	14.865	2.290
2-e <--> 1-e	40.921	3.079
2-e <--> 3-e	77.379	6.777
2-e <--> 5-e	47.958	3.597

Table 59: Modification Indices-Regression Weights

			M.I.	Par Change
Individual Learning	<---	Intrapreneurship	14.423	.295
Intrapreneurship	<---	Individual Learning	14.420	.143
OL1	<---	OL3	21.384	.148
OL1	<---	OL5	22.121	.228
OL1	<---	OL2	34.505	.228
OL3	<---	OL1	19.524	.347
OL3	<---	OL5	45.900	.526
OL3	<---	OL2	65.246	.501
OL5	<---	OL1	19.405	.233
OL5	<---	OL3	44.099	.230
OL5	<---	OL2	40.439	.266
OL4	<---	Environmental Hostility	14.865	.149
OL2	<---	OL1	33.655	.365
OL2	<---	OL3	69.701	.343
OL2	<---	OL5	44.964	.417

Figure 14: AMOS Proposed Model



Note: Bold arrow is the path based on AMOS Modification Indices.

AMOS-Independence Model

The different indexes of fit showed overall that the data did not fit the Independence Model (see Table 60). For this reason, this is a disconfirmed model.

Table 60: Fit Indexes - AMOS Proposed Model

Model	NPAR	x^2	DF	P	x^2/DF	GFI	RMSEA
Default Model	13	154.973	23	.000	6.738	.898	.130
Saturated model	36	.000	0			1.000	
Independence model	8	476.807	28	.000	17.029	.667	.216

According to the Independence Model regression weights (see Table 61), there was a significant **positive** relationship between (1) Organizational Learning and OL2, (2)

Organizational Learning and OL3, and (3) Organizational Learning and OL5. The strongest paths at the **p<.001 level** (see Table 62) in describing Organizational Learning were (1) Organizational Learning and OL2, (3) Organizational Learning and OL3, and (4) Organizational Learning and OL4, which should be taken into consideration only if the independent model has been substantiated.

Table 61: Independence Model Regression Weights - AMOS Proposed Model

		Estimate	**S.E.**	**C.R.**	**P**
OL2 <---	Organizational Learning	1.699	.187	9.065	***
OL3 <---	Organizational Learning	1.825	.206	8.841	***
OL4 <---	Organizational Learning	.110	.101	1.097	.273
OL5 <---	Organizational Learning	1.011	.126	8.000	***
OL1 <---	Organizational Learning	1.000			

*** Indicates that the path is significant at the p<.001 level.

Table 62: Standardized Regression Weights by Path - AMOS Proposed Model

		Estimate
OL2 <---	Organizational Learning	.782
OL3 <---	Organizational Learning	.700
OL4 <---	Organizational Learning	.067
OL5 <---	Organizational Learning	.589
OL1 <---	Organizational Learning	.582

AMOS-Default Model

Two of the indexes of fit (x^2/DF and GFI) showed that the data had a good fit with the Default Model, but the other two indexes of fit (x^2 and RMSEA) did not support

the Default Model (see Table 63). However, this analysis was conducted based on a descriptive point of view because this model has to be validated by using new data.

Table 63: Fit Indexes - AMOS Default Model

Model	NPAR	x^2	DF	P	x^2/DF	GFI	RMSEA
Default Model	19	45.142	17	.000	2.655	.969	.070
Saturated model	36	.000	0			1.000	
Independence model	8	476.807	28	.000	17.029	.667	.216

According to the Default Model regression weights (see Table 64), there was a significant **positive** relationship between (1) Intrapreneurship and Individual Learning, (2) Intrapreneurship and Organizational Learning, (3) Individual Learning and Organizational Learning, (4) Organizational Learning and OL2, (5) Organizational Learning and OL3, and (6) Organizational Learning and OL5. The strongest paths at the **p<.001 level** (see Table 65) in describing Organizational Learning were (1) Organizational Learning and OL1, (3) Organizational Learning and OL2, and (3) Organizational Learning and OL3, which should be taken into consideration only if the independent model has been substantiated.

Table 64: Default Model-Regression Weights - AMOS Default Model

			Estimate	S.E.	C.R.	P
Intrapreneurship	<---	Environmental Hostility	.008	.050	.167	.867
Individual Learning	<---	Environmental Hostility	-.023	.070	-.333	.739
Individual Learning	<---	Intrapreneurship	.295	.076	3.881	***
Organizational Learning	<---	Intrapreneurship	.175	.030	5.742	***
Organizational Learning	<---	Individual Learning	.133	.022	6.187	***
Organizational Learning	<---	Environmental Hostility	.013	.025	.524	.600
OL1	<---	Organizational Learning	1.000			
OL2	<---	Organizational Learning	1.581	.157	10.046	***
OL3	<---	Organizational Learning	1.662	.176	9.438	***
OL4	<---	Organizational Learning	.125	.093	1.347	.178
OL5	<---	Organizational Learning	.922	.110	8.365	***

*** Indicates that the path is significant at the p<.001 level.

Table 65: Standardized Regression Weights by Path - AMOS Default Model

			Estimate
Intrapreneurship	<---	Environmental Hostility	.009
Individual Learning	<---	Environmental Hostility	-.018
Individual Learning	<---	Intrapreneurship	.205
Organizational Learning	<---	Intrapreneurship	.344
Organizational Learning	<---	Individual Learning	.378
Organizational Learning	<---	Environmental Hostility	.028
OL1	<---	Organizational Learning	.622
OL2	<---	Organizational Learning	.778
OL3	<---	Organizational Learning	.681
OL4	<---	Organizational Learning	.082
OL5	<---	Organizational Learning	.574

Conclusion

The combined data collected from the mining companies located in Chile did not fit the independence model so a new model was suggested by using EFA. However, definitive conclusions about the proposed model based on EFA should be examined by using new data which goes beyond the extent of this study. Additionally, none of the data collected from the mining companies, separately, fit the Intrapreneurial Learning Model as was expected. Furthermore, the data also did not fit the proposed model based on EFA and the AMOS proposed model which analyses were mainly conducted under a descriptive point of view. Therefore, it is necessary to analyze, in Chapter V, some potential causes that may help to explain why that happened and what could be done to fix these problems in future studies.

CHAPTER V

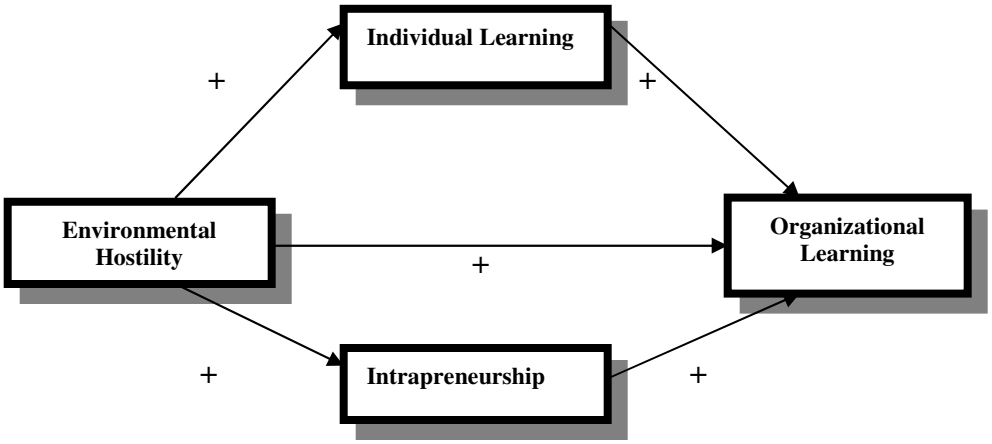
DISCUSSION AND CONCLUSIONS

This chapter is comprised of a summary of the study, a critical review of the Intrapreneurial Learning Model based on the gathered data, a description of some limitations of this current study, presentation of several recommendations for future research, and conclusions drawn from the results. Finally, it is important to highlight that both the discussion and conclusions are based on the findings from the analysis of data and within the limitations of this study.

Summarization of This Study

The purpose of this study was to examine the path of relationships among the Environmental Hostility, Individual Learning, Intrapreneurship, and Organizational Learning (see Figure 15) for the selected mining companies in Chile. An extensive review of literature was conducted in order to achieve the aforementioned dissertation's goal. Structural Equation Modeling (SEM), by conducting Confirmatory Factor Analysis (CFA), was the main statistical tool utilized in this study in order to confirm whether or not the data fit the independence model. Then, Exploratory Factor Analysis (EFA) was used to explore a new proposed model, which represented a modification of the Intrapreneurial Learning Model, based on the collected data.

Figure 15: Intrapreneurial Learning Model - Researcher's Theoretical Model



The data was gathered from employees from all the hierarchical levels of 2 mining companies in Chile after getting each mining company's written approval to participate in this study. A total of 193 survey instruments were collected from *Company A* which had a population of 739 employees at the time of this study while 150 survey instruments were collected from *Company B* which had a population of 505 employees at the time of this study. Finally, the total number of gathered instruments, 343, exceeded the sample size required (297) for this population, according to Krejcie & Morgan (1970).

SPSS and AMOS were used to evaluate the reliability of each construct/variable based on the collected data, together with evaluating how well the data fit the independence model. The two selected mining companies were considered homogeneous based on the descriptive statistics, specifically mean analysis, and a Difference in Proportions Test. Demographic information was also obtained from the participants who considered the following: their function in the organization, educational background,

gender, age, length of service with the current mining company, experience in the industry, and work experience in general.

The following construct/variables were examined by applying the survey instrument: Environmental Hostility, Individual Learning, Intrapreneurship, and Organizational Learning. Participants were selected from the following hierarchical levels: Upper Managers which consider Chief Executive Officer (CEO), General Managers, Managers by functional areas, and Superintendents; Middle Managers which include Supervisors, Leader of Areas, and Departmental Managers; Administration/Clerical Staff; and, employees from Maintenance/Operator.

The researcher contacted by phone the Human Resource Departments' Superintendents of the two mining companies to request their participation in this study. Then, the participants were contacted by the mining companies to voluntarily participate in this study. Together with the survey instrument the respondents received an information sheet which contained a brief explanation of the purpose of this study, the estimated time to complete the survey instrument, and their rights as participants. The data collected was stored on excel sheets which were used to indent SPSS and AMOS.

Descriptive Statistics

The descriptive data allowed the researcher to describe that the participants in the survey instrument worked mainly as maintenance/operators, achieved an education level equivalent to high school, were male, belonged to the scale 40-49 years of age, worked for their current organizations for 0-10 years, worked in the mining industry for 11-20 years, and had a general work experience of 11-20 years. This study contained

Environmental Hostility, Individual Learning, and Intrapreneurship as independent variables and Organizational Learning as the only dependent construct.

Analysis of the Results

The coefficient alpha reliability was calculated for each construct/variable of the instrument (see Table 66) in order to examine internal consistency. Having a coefficient alpha reliability of .6 and higher is considered acceptable, according to Flynn et al. (1995). The only variable that did not present a coefficient alpha reliability equal or higher than .6 was Individual Learning. A possible explanation of this situation could be the issue that the original Individual Learning Instrument, developed by Ames and Archer (1988), was originally applied to a select group of smart high school students while the survey instrument in the current study was conducted mainly on operators and employees from maintenance who had completed high school, so the educational gap between these sample groups was really relevant. In addition, Chan, who applied the Individual Learning instrument to employees from an Australian Hospital, had to eliminate three items from the instrument to obtain a coefficient alpha reliability of .7 (Chan, 2002) which may implicate that this instrument does not have a good internal consistency and should be reframed. Although the researcher, based on the review of literature conducted, decided to maintain Individual Learning to examine the model fit, this variable may have negatively affected the overall fit between the collected data and the independence model.

Table 66: Coefficient Alpha Reliabilities - Intrapreneurial Learning Model

Construct/Variable	Coefficient Alpha Reliability
Environmental Hostility	.742
Individual Learning	**.585**
Intrapreneurship	.641
Organizational Learning	.704

SEM was the statistical technique used to examine how the collected data fit the hypothesized model (Thompson, 2004). The first step was to conduct CFA to examine model fit by using several fitness indexes such as x^2 (Chi-Square), x^2/DF, GFI, and RMSEA.

The first examined model was the Independence Model, which is equal to the researcher's proposed Intrapreneurial Learning Model without expressing any relationship between and among construct/variables such as Environmental Hostility, Individual Learning, Intrapreneurship, and Organizational Learning. By reviewing the different indices of fit, it is possible to conclude that overall the data did not fit the independence model (see Table 67), so it is a disconfirmed model.

Table 67: Fit Indexes - Independence Model - Intrapreneurial Learning Model

Model	NPAR	x^2	DF	P	x^2/DF	GFI	RMSEA
Default model	13	154.973	23	.000	6.738	.898	.130
Saturated model	36	.000	0			1.000	
Independence model	8	476.807	28	.000	17.029	.667	.216

The second examined model was the Default Model which represents the researcher's proposed Intrapreneurial Learning Model. According to the indices of fit, the data overall did not support the Default Model (see Table 68).

Table 68: Fit Indexes - Default Model - Intrapreneurial Learning Model

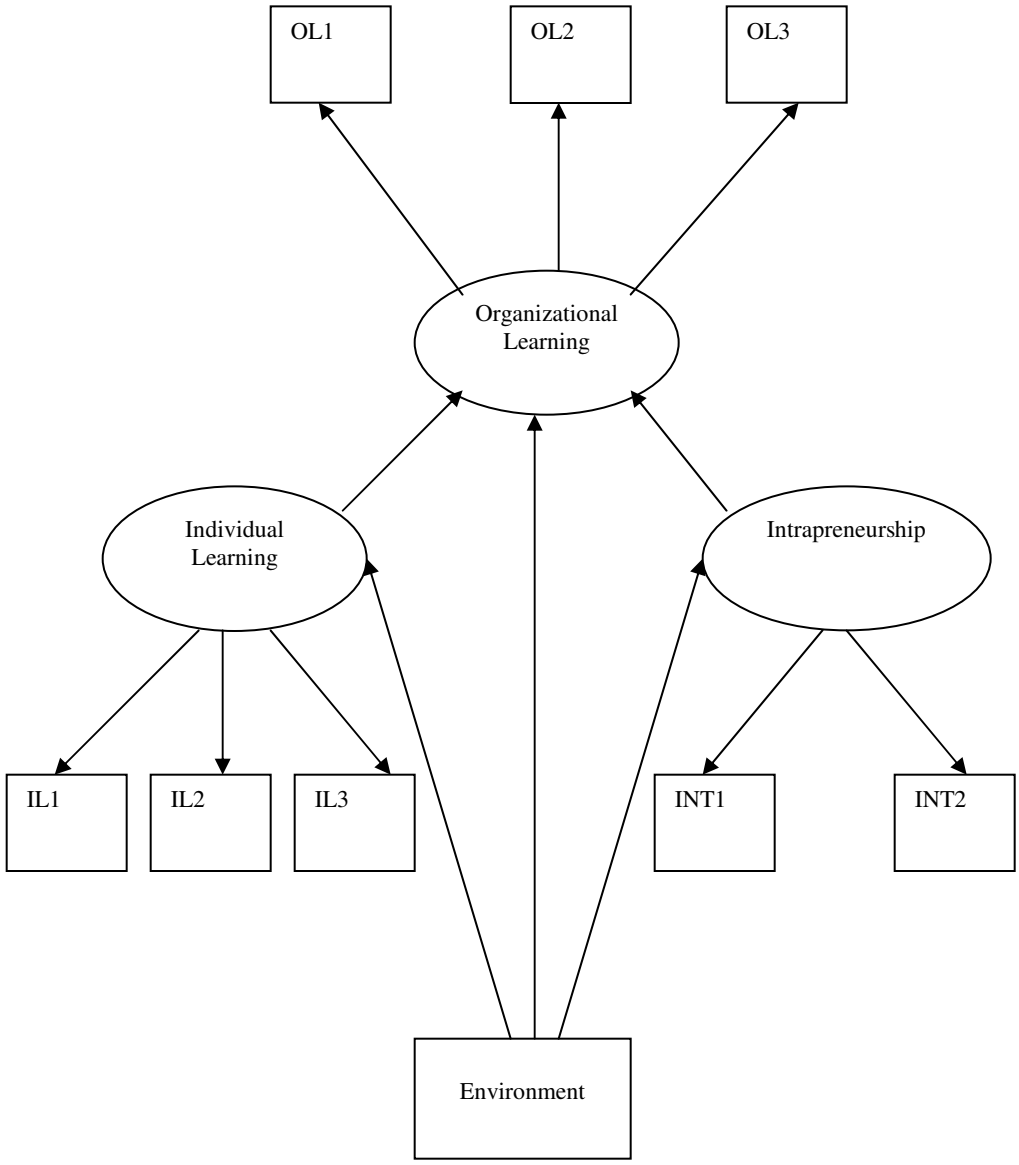
Model	NPAR	x^2	DF	P	x^2/DF	GFI	RMSEA
Default model	18	59.879	18	.000	3.327	.959	.082
Saturated model	36	.000	0			1.000	
Independence model	8	476.807	28	.000	17.029	.667	.216

The following stage of this study, which was developed under a descriptive or exploratory point of view, examined the researcher's proposed model labeled "Intrapreneurial Learning Model" (see Figure 15) of each mining company in order to determine if the data of each company fit the Intrapreneurial Learning Model. The overall results obtained from the fit indices showed that the data of both Mining *Company A* and Mining *Company B* did not fit the Intrapreneurial Learning Model which is consistent with the results obtained when examining the data of the two companies together with the researcher's Intrapreneurial Learning Model.

Because the data did not support the independence model, EFA was utilized in order "to find a latent structure of observed variables by uncovering common factors that influence the measured variables" (Park et al., 2002, p. 563). The new proposed model based on EFA (see Figure 16) was originated on the collected data. Additionally, the researcher does not have any expectations, which usually happens in EFA, in regard to the new framework of the constructs/variables (Thompson, 2004). The classification of the sub-factors (clusters) in the constructs was realized according to the results obtained through the Principal Component Analysis (PCA) which is the best method to conduct a model review (Tabachnick & Fidel, 2001). However, it is important to mention that the new EFA proposed model should be validated with newly collected data, which goes beyond the extent of this study, in order to examine how well the new data fit the model.

It is relevant to highlight that, in the proposed model based on EFA (see Figure 16), Individual Learning and Intrapreneurship were considered constructs instead of variables, as occurred in the "Intrapreneurial Learning Model" (see Figure 15). To view Individual Learning and Intrapreneurship as constructs is more consistent with the review of literature because both Individual Learning and Intrapreneurship were associated with several factors or dimensions. For instance, the dimensions that foster Organizational Learning are as follows: Seeing, Finding, and Recognizing Learning Opportunities; Gaining and Applying new Knowledge; Self-Directedness; and, Continuous Learning (e.g., Caffarella & O'Donnell, 1987; Hayes & Allinson, 1998; Merriam , 2001; Rau, 2006; Rowley, 1998; Rowold & Schilling, 2006; Van Der Sluis, 2002; Williams, 2001). In addition, the dimensions that promote Intrapreneurship are the following: Being like entrepreneurs, but within their organizations; Opportunity, recognition, and risk taking; Fostering innovation and creativity; Learning from their experiences or utilizing their intuitions (e.g., Antoncic & Hisrich, 2003; Harrinson & Leitch, 2005; Lumpkin & Lichtenstein, 2005; Pinchot & Pellman, 1999).

Figure 16: Proposed Model Based on EFA - Descriptive Perspective



The next stage of this study was to examine, as suggested by Von Eye and Fuller (2003) and Thompson (2004) because the data did not support the independence model, based on a exploratory perspective, the data of the two mining companies together by using, first, the new proposed model obtained by using EFA (see Figure 16) and, second, AMOS's modification indices (Von Eye & Fuller, 2003). The only path added to the

AMOS proposed model was a link from Individual Learning to Intrapreneurship because theoretical support is also needed to incorporate a new path (Thompson, 2004). CFA results, specifically indices of fit, of the AMOS proposed model suggested a bad model fit. In addition, CFA results of the EFA proposed model also did not show an overall good model fit because the GFI index was the only one that showed an acceptable value (.942). However, new models, obtained from using EFA, do not have validity by themselves because they need to be examined by using CFA (Thompson, 2004) through collecting new data which was beyond the extent of this study.

A revision of the participants' demographic information was conducted in order to find an explanation of why the data did not support the independence model which showed that there were a substantial number of, mainly, supervisors who did not have a college degree so they have achieved these positions based on their excellent competencies at work. Additionally, having a college degree does not necessarily entail being one the smartest people in the organization. Therefore, the unique settings of this study could be one of the main reasons for having a poor model fit.

There are many potential reasons about why the data did not fit the Intrapreneurial Learning Model, four potential reasons are reviewed next.

First Reason

Although the potential relationships among the construct/variables of the Intrapreneurial Learning Model were mainly supported by theory, there is a lack of empirical studies to support or validate them. A review of the theoretical discussion of the proposed theoretical paths is presented next:

Environmental Hostility to Individual Learning, Intrapreneurship, and Organizational Learning. Only a few authors (Kim, 1993; Fiol & Lyles, 1985) have addressed a theoretical connection between environmental hostility and individual learning by postulating that environmental hostility and turbulences affect the way individuals learn and spread their knowledge to organizations. Antoncic and Hisrich (2001), according to the conducted review of literature, could be considered the only scholars who have theoretically analyzed how the environment may affect intrapreneurship, by arguing that internal and external organizational environments influence intrapreneurship, so more hostile environments may positively foster intrapreneurship by demanding from organizations novel ways to deal with expected and unexpected environmental changes.

Several scholars also have postulated that environment affects organizational learning (Bapuji & Crossan, 2004; Callahan & Schwandt, 1999; Chiva et al., 2007; Fiol & Lyles, 1985; Pisano, 1994). Popper and Lipshitz (2000) argued that more turbulent environments foster organizational learning. Therefore, it is possible to conclude that more hostile environments promote both intrapreneurship and organizational learning.

Individual Learning to Organizational Learning. There is a connection between individual learning and organizational learning (Chonko et al., 2003; Elkjaer, 2001; Fiol & Lyles, 1985; Oswick et al., 2000), but there is still a mystery about the way individual learning impacts organizational learning. Until now, scholars have only agreed about postulating that organizational learning does not mean the sum of all individual learners (e. g., Bogenrieder, 2002; Chan, 2003; King 2001; Schwandt & Marquardt, 2000). However, Hayes and Allinson (1998), among other scholars, have tried to solve this

query by arguing that organizational learning is created through individuals' mental models.

Intrapreneurship to Organizational Learning. Intrapreneurship has been rarely connected to organizational learning (e.g., Antoncic & Hisrich, 2003; Cope, 2005; Nielsen, 2000). Antoncic and Hisrich (2003) postulated that intrapreneurs help organization enhance their learning processes. In addition, Cope (2005) argued that intrapreneurship fosters double loop-learning because intrapreneurs want to produce radical changes within their organizations. Furthermore, Lumpkin and Lichtenstein (2005) postulated that the reason for having just a few studies which have addressed, mainly theoretically, a potential link between intrapreneurship and organizational learning is because each concept is complex enough by itself.

Second Reason

The second important reason may be the uniqueness of this study because this study represents a pioneering effort in examining the path relationships among Environmental Hostility, Individual Learning, Intrapreneurship, and Organizational Learning altogether (see Figure 15).Only a few scholars (Hagge & Lappe, 2006; Hill, 1996; Mulholland et al., 2001) have conducted studies in the mining industry which also incorporated at least one of the construct/variables postulated in the Intrapreneurial Learning Model. Additionally, only one study related to organizational learning has been conducted in Chile which focused on a university library (Figueroa & Gonzalez (2006). The high level of complexity of each construct/variable of the proposed Intrapreneurial Learning Model could be one of the reasons for having a lack of empirical research which is also supported with the issue that there is not yet a universally accepted definition of

intrapreneurship and organizational learning for example (e.g., Callahan 2003; Christensen, 2005; Garvin, 2000; Harrison & Leitch, 2005; Zahra, 1991).

Third Reason

The third reason of having a poor model fit may be based on the generation of the construct/variables aforementioned because they have mainly been studied in the United States and in an Australian Hospital (e.g., Ames & Archer, 1988; Covin & Slevin, 1989; Chan, 2002; Goh & Richards, 1997; Khandwalla, 1976-77; Sujan et al., 1994) which may have *negatively* affected the results of this study because there are several cultural differences between Chile and the United States. For example, Chile has a collectivist culture while in the United States there is an individualistic culture (Arias-Bolzmann, Stough, Somarajan, & Garcia-Polo, 2007; Nasco, Toledo, & Mykytyn, 2008). This situation, may explain the low internal consistency of the Individual Learning variable, which was part of the instrument applied to the two mining companies, because Chileans, in general, value more studying in groups where they can interact among each other.

Learning, both individual and organizational, also has particularities in every country. For example, the Chilean educational system has produced an important gap in relation to quality between students who attend public schools and student who attend private schools (Graham, 1998). However, according to O'Ryan, De Miguel, Miller, and Munasinghe (2005), "the SIMCE tests of the past years have shown a systematic reduction in the gap between subsidized schools and private schools, as well as the gap between municipal schools and the rest. This public effort must be maintained." (p.456). Although the differences in quality between public and private schools have decreased over time, they are still significant and may have impacted the results of this study based

on the issue that most of the participants in the survey may have completed high school in usually public schools. Yet more empirical research is needed to examine any potential effect that participants' level of education may have on the validity of previous studies.

Several scholars (Arias-Bolzmann et al., 2007; Hofstede, 2001) have argued that Chileans do not like uncertainty while Americans feel good when dealing with uncertainty. In addition, according to Basu and Altinay (2002), intrapreneurship/entrepreneurship is affected by cultural differences which may explain why Chileans, who are risk adverse, prefer working as employees and make decisions with low levels of risk, instead of running new business (Toledo & Engler, 2008). The aforementioned arguments may help to explain the low internal consistency of the Intrapreneurship variable in this study.

Further, having a male dominant position over time has impeded women from holding top hierarchical positions has been an important characteristic of the Chilean mining industry. According to Klubock (1996), employees have classified their work as eminently masculine based on the physical strength they need to do this hard labor. For this reason, women are considered weak and incapable of leading strong men, which could be classified as a glass ceiling effect based on gender bias discrimination (Pichler, Simpson, & Stroh, 2008). Thus, a gender balance is probably needed to increase miners' awareness about the importance of sharing learning processes with different kinds of people. In addition, Chilean miners have been accustomed to fighting for their rights over years (Klubock, 1996), so they mainly see their work as a money generator (Miner, 2002) where organizations' innovations such as intrapreneurship and organizational learning are usually considered worthless.

Fourth Reason

The fourth reason is related to the different economic and social scenarios that Chile and the United States had faced during the last century. While Chile and other Latin American countries had to deal with several traditions related to "authoritarianism, abuse of power, suppression on economy creativity, and social injustice" (Harrison, 1998, p.4), the United States which is half-century ahead of most Latin American countries (Harrison, 1998) increased its level of wealth through fostering to their citizens' access to a better education and opportunities for advancement which included entrepreneurial ventures. A clear example of authoritarianism and abuse of power occurred during the Chilean military government (1973-1990) where

> Organised labour was dismantled, strikes forbidden, workers' leaders persecuted and sometimes assassinated and the economic reforms, carried out in a highly authoritarian manner without any legislative or labour control, produced negative results from the point of view of the lower socioeconomic strata in Chile" (Sznajder, 1996, p. 731).

This situation may have increased the fear that Chileans have about making risky decisions because they may associate wrong decisions with punishment instead of seeing them as a learning opportunity.

Study Limitations

This study presents several limitations that should be mentioned in order to weigh the validity of the results. First, the two selected mining companies were non-randomly chosen, so the analysis of the relationships contained in the Intrapreneurial Learning Model could be affected (Campbell & Stanley, 1963). In addition, both mining companies chose the participants according to their particular parameters.

The second limitation is based on the unique settings of this study because this study was the first one, based on the review of literature, which was conducted in Chile. Therefore, the survey instruments, mainly created in the United States (e.g., Ames & Archer, 1988; Covin & Slevin, 1989; Goh & Richards, 1997; Khandwalla, 1976-77; Sujan et al., 1994), were translated to Spanish and applied in a very different culture. According to Onkvisit and Shaw (2004), "people may have similar demographics but diverse attitudes and behavior" (p. 232) so cultural differences may negatively impact external validity. Furthermore, this survey was conducted in the mining industry which is an area that has been barely considered in conducting empirical studies (e.g., Hagge & Lappe, 2006; Hill, 1996) related to organizational learning.

Third, the results of this study may have validity only for the mining industry in Chile because the mining industries in other countries may have their own particularities that make them unique. However, the methodology applied in this current study may be replicated in future studies.

Recommendations for Future Research

Future research may include the review of the new EFA proposed model and then conducting of CFA to examine how well the data fit the model. However, it may be necessary to look for other instruments to comprise the survey instrument because the different instruments utilized in this study, especially Individual Learning, did not show a strong internal consistency when applied to the mining companies located in Chile despite having internal consistency in other studies with American populations.

Additionally, an important future task and challenge could be the creation of a completely new survey instrument based on the Chilean culture which is characterized as

collectivistic while American culture is individualistic; and, Chileans try to avoid uncertainty while Americans feel comfortable when dealing with unsecured scenarios (Arias-Bolzmann et al., 2007). Furthermore, this completely new instrument should not be validated based on a single criterion so several other aspects should be taken into consideration such as conducting a cross cultural assessment, verifying variables' consistency across cultures, and assessing different languages' versions of the same instrument (Hambleton, Merenda, & Spielberger, 2006).

Future research could include analyzing additional constructs/variables which may help to obtain a more complete perspective of the intrapreneurial and learning process. For instance, Organizational Performance could be incorporated to the Intrapreneurial Learning Model because every organization would like to know the potential impacts of Individual and Organizational Learning, and also Intrapreneurship on its performance. Therefore, for instance, by knowing how Organizational Learning impacts Organizational Performance, organizations could design novel strategies that help them enhance their organizational learning processes in ways that have a more positive impact on their performances.

Examining the Intrapreneurial Learning Model in different industries may be relevant for future research because by doing that an important outcome could be the necessity of developing a particular model based on the specific characteristics of each industry. In addition, an Intrapreneurial Learning model that works in a specific industry and in a particular country may not work in the same industry in a different country which has a different culture. Therefore, the Intrapreneurial Learning Model could be adapted not only to each industry but also to different countries.

Conclusions

The purpose of this study was to examine the path relationships among the construct/variables of Environmental Hostility, Individual Learning, Intrapreneurship, and Organizational Learning. The researcher's proposed model called "Intrapeneurial and Learning Model" was supported by theory in an extensive review of literature. This model was examined by using several indices of fit, as part of the SEM technique, which showed that overall the data did not fit the independence model. For this reason, all the hypotheses postulated in this study were rejected because the different paths of the proposed Intrapreneurial Learning Model were not supported by the empirical data.

The Intrapreneurial Learning Model, supported by an extensive review of literature, and an alternative proposed model based on EFA were two important products of this dissertation. However, the proposed model based on EFA did not have statistical support (Thompson, 2004) because it was built based on the gathered data. For this reason, this new model based on EFA should be examined in a future study because it is necessary to collect new data to evaluate how well the data fit the hypothesized model. Additionally, in the proposed model based on EFA, Individual Learning and Intrapreneurship are considered as constructs, while they were considered as variables in the Intrapreneurial Learning Model (see Figure 16), which is more coherent with the review of literature conducted because both constructs are affected by several factors or latent variables.

Although the researcher, based on the analysis of the data, concluded that the path relationships among the construct/variables of the proposed Intrapreneurial Learning Model were not present, an important outcome of this study was the generation of a new

survey instrument by using previous survey instruments from other authors. This instrument may be used to examine potential relationships between Individual and Organizational Learning and Intrapreneurship based on mainly theoretical support. For instance, individuals can transfer critical knowledge and learning to organizations (Tempest & Starkey, 2004). Intrapreneurs have unique conditions to learn because of their positive attitude toward risk and innovation (Ortenblad, 2002). Lumpkin and Lichtenstein (2005) have also studied a potential relationship between organizational learning and intrapreneurship by arguing that opportunity recognition, an aspect highly valued by intrapreneurs, is part of organizational learning.

Cultural differences between Chile and the United States may play an important role in explaining the reasons why all the proposed models were not supported by data. At first, Chilean culture is collectivist while American culture is individualistic (Arias-Bolzmann et al., 2007). This situation may support the low coefficient alpha reliability of the Individual Learning variable because Chileans value more group or collectivist learning.

Another cultural difference is uncertainty because Chileans do not like to deal with uncertain scenarios while Americans do (Arias-Bolzmann et al., 2007). This cultural difference may have negatively influenced the way participants answered the Intrapreneurship variable in the survey instrument because Chileans, in general, do not like taking risks not only at work, but also in their own lives. In addition, Toledo and Engler (2008) postulated that intrapreneurship is affected by cultural differences, so the aforementioned arguments may be the reasons to explain why Chilean intrapreneurs behave differently than American intrapreneurs.

These cultural differences could also be supported by the different situations both countries have faced during the twentieth century. For example, the Chilean citizens during the military government (1973-1990) were subjugated by authoritarianism and abuse of power which negatively impacted on their capacities to develop new business ventures. On the other hand, the United States developed an economic growth which positively impacted its education system and increased the opportunities for advancement, by supporting entrepreneurs, of their citizens.

The new knowledge developed in this study may help scholars and practitioners to find new arguments, frameworks, and, maybe, potential answers for different queries that are still unanswered. For example, scholars do not know yet how individuals may foster organizational learning within their organizations, how different intrapreneurs are from individual learners, and how intrepreneurship may foster organizational learning. In addition, having a contingent perspective is also important to take into account because individual learning, organizational learning, and intrapreneurship are differently affected under certain conditions. For this reason, it is imperative for scholars and practitioners to look for more empirical evidence that may help to bridge this gap.

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APPENDIX A

LEARNING AND INTRAPRENEURSHIP SURVEY

The following statements are designed to determine what business practices are emphasized in your organization. Please indicate the number that best represents your belief about your organization's emphasis in business practices.

1 Strongly disagree	**2** Disagree	**3** Slightly Disagree	**4** Neutral	**5** Slightly Agree	**6** Agree	**7** Strongly Agree

1	I often have an opportunity to talk to other staff about successful programs or work activities in order to understand why they succeed.	
2	There are not a lot of new things to learn in my job.	
3	Current organizational practice encourages employees to solve problems together before discussing them with a manager.	
4	Making mistakes is just part of the learning process.	
5	I do not understand how the mission of the organization is to be achieved.	
6	It is important for me to learn from each of my job experiences.	
7	Failures are seldom constructively discussed in our organization.	
8	I spend a great deal of time learning new work approaches.	
9	We seldom form informal teams to solve organizational problems.	
10	Senior managers in this organization resist change and are afraid of new ideas.	
11	From my experience, people who are new in this organization are encouraged to question the way things are done.	
12	I can often bring new ideas into the organization.	
13	The organization's mission statement identifies values to which all employees must conform.	
14	Managers in this organization can accept criticism without becoming overly defensive.	

15	Sometimes I put a great deal of effort into learning something new.	
16	There is widespread support and acceptance of the organization's mission statement.	
17	New work processes that may be useful to the organization as a whole are usually shared with all.	
18	Most problem solving teams in this organization feature employees from a variety of functional areas.	
19	Learning how to be a better employee/manager is of fundamental importance to me.	
20	Managers in this organization frequently involve employees in important decisions.	
21	In my experience, new ideas from employees are not treated seriously by management.	
22	I am always learning something new in my work.	
23	We have opportunities for self-assessment with respect to goal attainment.	
24	Managers in this organization often provide useful feedback that helps to identify potential problems and opportunities.	
25	Making a tough decision is very satisfying.	
26	Innovative ideas that work are often rewarded by management.	
27	Senior managers and employees in this organization share a common vision of how our work should be accomplished.	
28	We have a system that allows us to learn successful practices from other organizations.	
29	An important part of becoming a good employee/employer is to continually improve work skills.	

Strongly Disagree				**Strongly Agree**
1	**2**	**3**	**4**	**5**

30	Mistakes made by employees are viewed as opportunities for learning.	
31	Employees continuously ask themselves how they're doing, what they can do better, and what is working.	
32	Employees are willing to take risks in the course of their work.	
33	Employees are committed to being innovative and forward looking.	
34	Employees are confident that mistakes or failures will not affect them negatively.	

How would you characterize the external environmental hostility within which your firm operates?

35	Very safe, little threat to the survival and well-being of my firm.	1	2	3	4	5	6	7	Very risky, a false step can mean my firm's undoing.
36	Rich in investment and marketing opportunities.	1	2	3	4	5	6	7	Very hostile to making new investments and to identifying marketing opportunities.
37	An environment that my firm can control and manipulate to its own advantage, such as a dominant firm has in an industry with little competition and few hindrances.	1	2	3	4	5	6	7	A dominating environment in which my firm's initiatives count for very little against the tremendous competitive, political, or technological forces.

Demographics

Please provide some information about yourself and select the one choice that best applies to you.

Job function/category:

Superintendent (___)
Middle Manager (___)
Supervisor (___)
Administration/clerical staff (___)
Maintenance/Operator (___)
Other (please specify) (___) _____

Educational background:

Elementary School (___) High School (___)
Technical School (___) College Graduate (___)
Master's Degree (___) Doctoral Degree (___)
Other (please indicate) (___) _____

Gender:

Female (___) Male (___)

Age in years:

18-29 (___) 30-39 (___)
40-49 (___) Above 50 (___)

Length of service with current company in years:

01-10 (___) 11-20 (___)
21-30 (___) 31-40 (___)
Above 40 (___)

How long have you worked in this industry? _____ years

Number of years of working experience in general: _____ years

Thank you very much for your participation!

CUESTIONARIO:
APRENDIZAJE E INTRAEMPRENDIMIENTO

Las siguientes afirmaciones son diseñadas para determinar cuáles son las prácticas de negocios más utilizadas en su empresa. Por favor indique el número que mejor representa su pensamiento sobre el énfasis de su empresa en las prácticas de negocios señaladas a continuación.

1 Totalmente en desacuerdo	**2** En desacuerdo	**3** Parcialmente en desacuerdo	**4** Neutro	**5** Parcialmente de acuerdo	**6** De acuerdo	**7** Totalmente de Acuerdo

1	Normalmente tengo la oportunidad para conversar con otros personas sobre programas exitosos o actividades del trabajo con el fin de entender el por qué ellos fueron exitosos.	
2	No existen muchas cosas nuevas que aprender en mi trabajo.	
3	Las prácticas organizacionales actuales motivan a los empleados para resolver los problemas de manera conjunta antes de discutir éstos con su jefe.	
4	Cometer errores es sólo parte del proceso de aprendizaje.	
5	No entiendo cómo se puede lograr la misión de la empresa.	
6	Es importante, para mí, aprender de cada una de mis experiencias laborales.	
7	Los fracasos son raramente discutidos en forma constructiva en nuestra empresa.	
8	Ocupo una parte importante de mi tiempo en aprender nuevas formas de realizar mi trabajo.	
9	Raramente creamos equipos informales con el fin de resolver problemas de la empresa.	
10	Los altos directivos en esta empresa se resisten al cambio y le asustan las nuevas ideas.	
11	Según mi experiencia, las personas que son nuevas en esta empresa son incentivadas a cuestionar la manera como se hacen las cosas.	
12	A menudo puedo aportar nuevas ideas a la empresa.	
13	La misión de la empresa identifica valores que deben ser aceptados por todos los empleados.	

14	Los jefes en esta empresa aceptan las críticas sin ponerse muy a la defensiva.	
15	Pongo, a veces, un alto grado de esfuerzo para aprender algo nuevo.	
16	Existe un amplio apoyo y aceptación de la misión de la empresa.	
17	Los nuevos sistemas de trabajo, que potencialmente podrían ser útiles a toda la empresa, son normalmente compartidos con todos los trabajadores.	
18	La mayoría de los equipos de resolución de problemas en esta empresa están compuestos por trabajadores de diversas áreas funcionales.	
19	Aprender como llegar a ser un mejor empleado/jefe es de vital importancia para mí.	
20	En esta empresa, los jefes frecuentemente involucran a sus empleados en la toma de decisiones que son importantes.	
21	En mi experiencia, las nuevas ideas que provienen de los empleados no son tratadas seriamente por las jefaturas.	
22	Siempre estoy aprendiendo algo nuevo en mi trabajo.	
23	Tenemos oportunidades en la empresa para auto-evaluarnos con respecto al logro de los objetivos.	
24	Los jefes en esta empresa a menudo proveen un valioso feedback (retroalimentación), el cual ayuda a identificar posibles problemas y oportunidades.	
25	Tomar una decisión difícil es muy satisfactorio.	
26	Las ideas innovadoras que funcionan son a menudo recompensadas por la jefatura.	
27	Tanto los directivos como los empleados en esta empresa comparten una visión común sobre cómo nuestro trabajo debe ser realizado.	
28	En la empresa existe un sistema que nos ayuda a aprender prácticas exitosas provenientes de otras organizaciones.	
29	Una parte importante de llegar a ser un buen jefe/empleado es mejorar continuamente las habilidades del trabajo.	

Seleccione **el número**, entre **1 y 5**, que mejor representa su pensamiento sobre los siguientes enunciados.

Totalmente en Desacuerdo — **Totalmente de Acuerdo**

	1	2	3	4	5	
30	Los errores cometidos por los empleados son vistos como oportunidades para aprender.					
31	Los empleados se preguntan continuamente cómo lo están haciendo, qué podrían mejorar, y qué está funcionando.					
32	Los empleados están dispuestos a tomar riesgos (identificar oportunidades de mejora) en el desarrollo de sus trabajos.					
33	Los empleados están comprometidos con ser innovadores y mirar hacia el futuro.					
34	Los empleados están confiados en que los errores y fracasos no los afectarán negativamente.					

¿Cómo usted caracterizaría la hostilidad externa dentro del medioambiente en el cual su empresa opera?

Seleccione **el número**, entre **1 y 7**, que mejor representa el grado hostilidad externa en el medioambiente de la organización donde usted trabaja.

35	Muy seguro, escasas amenazas a la supervivencia y bienestar de mi empresa.	1 2 3 4 5 6 7	Muy riesgoso, un paso en falso puede significar la ruina de mi empresa.
36	Rico en inversiones y oportunidades de mercado.	1 2 3 4 5 6 7	Muy hostil como para hacer nuevas inversiones e identificar oportunidades de mercado.
37	Un medioambiente que puede ser controlado y manipulado por mi empresa para su propio beneficio, como cuando en la industria existe una empresa dominante con escaso nivel de competencia y pocas trabas.	1 2 3 4 5 6 7	Un medioambiente dominado en el cual las iniciativas de mi empresa cuentan muy poco contra las tremendas fuerzas competitivas, políticas o tecnológicas.

Antecedentes Demográficos

Por favor, proporcione la siguiente información sobre su persona y seleccione la opción que mejor describe su situación.

Cargo/categoría:

Gerente/Superintendente (___)
Jefe de Área/Depto. (___)
Supervisor (___)
Administrativo/Staff (___)
Operador/Mantenimiento (___)
Otro (por favor especifique) (___) _____

Nivel Educacional:

Enseñanza básica (___) Enseñanza Media (___)
Título Técnico (___) Título Universitario (___)
Master (___) Doctorado (___)
Otro (por favor especifique) (___) _____

Sexo:

Femenino (___) Masculino (___)

Edad (en años):

18-29 (___) 30-39 (___)
40-49 (___) Sobre 50 (___)

Años de servicio en la organización (actual):

00-10 (___) 11-20 (___)
21-30 (___) 31-40 (___)
Sobre 40 (___)

¿Cuántos años ha trabajado en esta industria? _____ Años

Años de experiencia laboral que posee en general: _____ Años

¡Muchas gracias por su participación!

APPENDIX B

07/14/2008

INFORMATION SHEET

Fostering Organizational Learning and Intrapreneurship: A Proposed Model.

You have been asked to participate in a research study about promoting organizational learning and intrapreneurship. You were selected to be a possible participant because you are an employee from this chosen company. A total of 300-400 employees have been asked to participate in this study. The purpose of the study is to explore the path relationships in individual learning, organizational learning, intrapreneurship, and environment for the selected mining companies in Chile.

If you agree to be in this study, you will be asked to answer a questionnaire to determine what business practices are emphasized in your organization. The questionnaire will take about 15 minutes. There will be no monetary compensation for participating in this study.

This study is anonymous. No identifiers linking you to the study will be included in any sort of report that might be published. Your contributions will be analyzed together with other participants' answers. The records of this study will be kept securely and only my chair, Dr. Jaime Callahan, and I will have access to the records. Your decision whether or not to participate will not affect your current or future relation to Texas A&M or your institution. If you decide to participate, you can withdraw at any time without your relations with the University being affected. You can contact me Carlos Molina at cmolinao@tamu.edu (56-55) 355-802, and Dr. Jamie Callahan at jcallahan@tamu.edu (979) 458-3584 with any questions about this study.

This research study has been reviewed by the Institutional Review Board- Human Subjects in Research, Texas A&M University. For research-related problems or questions regarding subjects' rights, you can contact the Institutional Review Board through Ms. Melissa McIlhaney, IRB Program Coordinator, Office of Research Compliance, (979) 458-4067, mcilhaney@tamu.edu.

Please be sure you have read the above information, asked questions and received answers to your satisfaction. You will be given a copy of the information sheet for your records.

07/14/2008

PAGINA DE INFORMACION
(INFORMATION SHEET)

Promoviendo Aprendizaje Organizacional e Intraemprendimiento: Un Modelo Propuesto.

Usted ha sido seleccionado(a) para participar en un estudio sobre la promoción del aprendizaje organizacional y el intraemprendimiento. Usted fue elegido como un posible participante por su condición de trabajador(a) de esta empresa. Un total de 300-400 trabajadores(as) han sido seleccionados para participar en este estudio. El propósito de este estudio es explorar el recorrido o ruta que presentan las relaciones entre las siguientes variables: aprendizaje individual, aprendizaje organizacional, intraemprendimiento, y medioambiente para un selecto grupo de compañías mineras en Chile.

Si usted acepta participar en este estudio, se le solicitará responder un cuestionario con el propósito de determinar cuáles son las prácticas de negocios utilizadas por su organización. El responder todo el cuestionario debería tomarle alrededor de 15 minutos. No habrá compensación monetaria por participar en este proyecto.

Este estudio es anónimo. Ninguna publicación lo asociará a usted con este estudio. Sus contribuciones serán analizadas conjuntamente con las respuestas de otros participantes. Los registros o información recolectada en las encuestas será almacenada de forma segura y solamente mi directora de tesis y yo tendremos acceso a los registros. Su decisión de participar o no en el estudio no afectará de ninguna manera su relación con la Universidad de Texas A&M ni con su organización. Si usted decide no participar, está libre de retirarse en cualquier momento sin que esto afecte de manera alguna su relación con la Universidad. Usted podrá contactarme, mi nombre es Carlos Molina, al correo cmolinao@tamu.edu, teléfono 56-55-355802 o también podrá contactar a la Dra. Jaime Callahan, al correo jcallahan@tamu.edu, teléfono 1-979-458-3584, si desea más información sobre este estudio.

Esta investigación ha sido revisada por el Comité de Revisiones – Investigación con Humanos en la Universidad de Texas A&M (Institutional Review Board – Human Subjects in Research, Texas A&M University). Para preguntas o problemas referentes a los derechos de los participantes, favor contactar al Comité Institucional de Revisiones – Investigación con Humanos, a través de Ms. Melissa McIlhaney, IRB Program Coordinator, Office of Research Compliance, (1-979-458-4067), mcilhaney@tamu.edu.

Por favor asegúrese de leer la información, preguntar dudas y recibir respuestas satisfactorias. Se le entregará una copia de esta página para registros personales.

VITA

Candidate:	Carlos Eduardo Molina Oyarce
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Research Interests:	Organizational Learning Human Resource Development Intrapreneurship-Entrepreneurship Leadership Development