The relationship between
Emotional Intelligence and Entrepreneurial Orientation

Observed within owner-managers who lead small, high-tech firms in Sweden

Paper within Business Administration
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Abstract

Problem: Is there a statistically significant relationship between the EI of an owner-manager and the EO within a small firm?

Purpose: The primary purpose of this study was to perform an exploratory study of the research problem by addressing the first hypothesis. The secondary purpose of this study was to characterize the nature of this relationship by exploring micro-connections between EI and EO factors, by addressing the second hypothesis.

Hypotheses: 1) An owner-manager’s EI can be used to predict EO within small firms. 2) An owner-managers’ EI dimensions are positively correlated to the EO dimensions in small firms.

Method: A questionnaire including the EISDI (Emotional Intelligence) instrument and the Covin & Slevin (1989) Entrepreneurial Orientation (entrepreneurial/strategic posture) instrument were sent by email to respondents. Responses were collected from a sample of 35 respondents, who were identified as owner-managers of small, young firms with the Swedish high-tech industry. An empirical analysis examined correlations between global EI and global EO, as well as EI and EO factors.

Main findings: Both hypotheses were rejected. It was concluded that an owner-manager’s EI cannot be used to predict EO within small firms. Moreover, it was found that no part of an owner-manager’s EI is significantly nor strongly correlated to EO dimensions within small firms.
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1 Introduction

This chapter provides an overview of theory to familiarize the reader with the broad theoretical connections supporting the research problem.

The entrepreneur has, since the inception of the word, been viewed as the source of entrepreneurship. Cantillon first coined the term ‘entrepreneur’ in 1734 to describe the activities of farmers who took risks to reap future economic benefits (cited in Schumpeter, 1934). Schumpeter (1934) suggested that entrepreneurs’ risk-taking and innovative actions were responsible for creating opportunities for enterprises. More recently, Kecharananta and Baker (1999) described an entrepreneur to be an individual who constantly, “...brings into being something new,” (cited in Cross & Travaglione, 2003; p. 222). As a result, the entrepreneur is viewed as the catalyst for entrepreneurship – a term that has been recently been equated with ‘the creation of new enterprise,’ (Low & McMillan, 1988; Stevenson and Jarillo, 1990; Venkataraman, 1997; cited in Davidsson & Wiklund, 2001).

Scholars have determined that the importance of the entrepreneur toward entrepreneurship is magnified in certain contexts. For instance, the entrepreneur who acts as an owner-manager of a firm plays a decisive role in enabling entrepreneurship, largely because of the unique will to control his/her own fate (Schumpeter, 1934), and also due to an interest that supports great efforts being put into a firm’s success (Sapienza & Grimm, 1998). Those owner-managers who lead small firms often hold unchallenged authority, and can carry out decisions regardless of consensual acceptance (Miller, 1983). Lastly, owner-managers of small firms that operate within dynamic environments can exert the greatest influence upon the firm. Given the need for change and action, standard firm responses to environmental challenges may be difficult, allowing the owner-manager to put his/her personal stamp on the firm’s direction (Miller & Toulouse, 1986).

By and large, owner-managers of small firms are recognized as their main decision-makers (Miller & Toulouse, 1986), and so their leadership is critical to the entrepreneurship of the firm. Several scholars (e.g. Mintzberg, 1973; Miller, 1983; Drucker, 1985; Covin & Slevin, 1991; Zahra, 1993) have demonstrated evidence that the ‘personality’ of the owner-manager is associated with several of the firm’s entrepreneurial outcomes. In terms of better understanding the role of an entrepreneur with regards to entrepreneurship, the entrepreneur’s personality presents itself as a fertile ground for exploration. While numerous insights about this connection have been suggested by scholars, there remains ample opportunity for further contribution.

Insofar as this study is concerned, the entrepreneur’s personality is comprised of his/her psychological characteristics. Upon examining literature within psychology and entrepreneurship, it was revealed that the personality of an entrepreneur is situated at the heart of decision-making, and therefore, strategy-making. This ‘chain’, called the entrepreneurial process, proceeds as follows; any characteristic that influences the entrepreneur’s perception of his/her surrounding environment can influence his/her choice of action (Shaver & Scott, 1991). This occurs by first influencing decision-making, which informs strategy-making (Das, 2008), which, depending on its nature, can be defined as entrepreneurial or otherwise. When such strategy-making is entrepreneurial, this can lead to actions facilitating ‘the creation of new enterprise’ – or entrepreneurship.

Of all psychological characteristics that can affect an individual’s decision-making, the connection between an individual’s cognitive (broadly: reasoning) and emotional functioning is
impossible to ignore, because decision-making is bound by their interrelation (Gray et al., 2002; cited in Das, 2008). Therefore, any characteristic that can to some degree capture this interrelation, is worth investigating.

Recently, developments within the fields of psychology have arisen that can facilitate this investigation. Within the past 19 years, scholars and business practitioners have demonstrated great interest in the concept of Emotional Intelligence (EI), a characteristic that was first conceived to gauge heightened mental abilities resulting from the cognitive-emotional workings of the mind (Salovey & Sluyter, 1997). In recent years, scholars (e.g. Cross & Travaglione, 2003; Zamptenakis et al., 2009) have begun to apply EI to the field of entrepreneurship, suggesting that EI contributes positively toward an individual’s entrepreneurial behaviour.

Within roughly the same two-decade timeframe, the concept of Entrepreneurial Orientation (EO) has emerged and flourished within the field of entrepreneurship. Today, EO has grown to be accepted by many scholars as a standard gauge measuring the entrepreneurial nature of a firm’s strategy-making processes - thus providing a useful framework for exploring an antecedent to ‘the creation of new enterprise’ - or entrepreneurship itself.

Taken together, these ideas demonstrate how, in theory, an owner-manager’s EI is likely to, via the entrepreneurial process, affect the EO of the company. Furthermore, considering that the owner-manager’s position power enables him/her to guide the direction of a small firm, the owner-manager’s perception of his/her firm’s EO is valuable.

2 Research Problem

These theoretical developments support the following research problem:

Is there a statistically significant relationship between the EI of an owner-manager within a small firm, and the EO of a company?

By addressing this problem, there is the potential to confirm connections within literature, and to bridge together evidence within psychology and entrepreneurship that has been previously unconnected. This is a critical contribution for several reasons:

Firstly, we are addressing the concept of entrepreneurship from a perspective of ‘the creation of new enterprise’. It has been recently noted by Davidsson and Wiklund (2001) that the characteristics of ‘the creation of new enterprise’ process have been significantly under-researched. Therefore, by zeroing in on one aspect of the entrepreneurial process that should ultimately lead to entrepreneurship, this study will focus on an immature area of entrepreneurship research.

Secondly, psychology research concerning Emotional Intelligence is still young, having been first formally introduced in 1990 by Mayer et al. (Goldenburg et al., 2006). However, all the while, it has garnered great interest from scholars and practitioners because of its potential to be used to influence desired working outcomes and performance. The concept has only recently begun to be applied within entrepreneurship research during the past 6 years. This leaves plenty of opportunity to contribute to applied EI research within entrepreneurship, and more specifically, to research concerning the entrepreneur.

Thirdly, there has been prior evidence that EI can be trained. For example, Groves et al. (2008) demonstrated that it is possible to enhance the EI of individuals through deliberate training. Pre-/post-test differences showed that participants who completed an EI test, and
as well, who engaged in EI skill-building activities, enhanced their overall EI and individual ability scores significantly. This means that as a dynamic characteristic that can be purposefully developed, if EI is positively connected to an outcome, the possibility exists that the outcome can be developed as well.

Lastly, EO represents one of the few research areas within entrepreneurship where agreement has been reached among scholars, and where a cumulative body of knowledge has been developing (Rauch et al., 2004). That scholars have continued to contribute to EO suggests that research in the area offers valuable insight about entrepreneurship. As such, this study is positioned to contribute to a body of research that is well regarded by scholars.

3 Purpose of Study

The primary purpose of this study is to perform an exploration of the research problem by addressing the first hypothesis. The secondary purpose of this study is to characterize the nature of this relationship by exploring micro-connections between EI and EO factors within owner-managers, by addressing the second hypothesis.

In order to fulfill both the primary and secondary purpose, the following chapters proceed in the following manner.

a) Within the Delimitations (Chapter 4), the basic context of this EI-EO relationship is defined. Further details about this context are noted within the Theoretical Framework.

b) Within the Theoretical Framework (Chapter 5):

- (Sections 5.1 to 5.7) The larger picture of entrepreneurship and psychology research is characterized to describe how the relationship between an owner-manager’s EI and EO is connected within literature.
- (Sections 5.8 to 5.10) Developments concerning EI are traced and current models of EI are characterized in order to describe why the selected model is most appropriate for the study. The chosen construct is discussed in detail.
- (Sections 5.11 to 5.13) Developments concerning EO are traced in order define its role within the context of entrepreneurship research. The construct itself is discussed in detail.
- (Chapter 6) The nature of the relationship between an owner-manager’s EI and EO will be deduced based on statements from theory, and hypotheses will be drawn from these statements.

c) Within the Method (Chapter 7):

- (Sections 7.1 to 7.8) A systematic chronicling of our approach to this study is detailed.
- (Section 7.9) The credibility of this approach is critically explored.

d) Within the Empirical Analysis (Chapter 8) and Conclusions (Chapter 9):

- Analyses of collected data are performed, leading to the acceptance or rejection of the hypotheses, which are formally stated in the Conclusions.
c) Within the Discussion (Chapter 10):

- An interpretation of the Empirical Analysis is included to make use of the data beyond a confirmation/rejected of hypotheses. The limitations of the study and the contribution to research are noted, and directions for future research are identified.

4 Delimitations

Within this thesis, the examination of the relationship between EI and EO is limited to that which occurs in owner-managers who lead small firms within dynamic environments. This is due to empirical evidence that demonstrates that this environment is one in which a small firm’s entrepreneurial activity is important for survival (Dess et al., 1997), thereby necessitating some level of EO from owner-managers. As the owner-manager of a small firm is an emotional human being who maintains face-to-face contact with nearly all employees (Miller, 1983), owner-managers should need some degree of EI as a result of their experiences.

This context is both implicitly and explicitly noted within Theoretical framework, as well as being explicitly addressed in the subsequent study. As a result, this thesis concentrates on the owner-managers of small firms within dynamic environments, and the empirical findings should not be extended to other contexts.

5 Theoretical Framework

The chapter provides a detailed account of theoretical connections that, by process of deduction, create the groundwork for the research problem.

5.1 Examining Entrepreneurship

The roots of entrepreneurship can be traced back several centuries to 1734, when economist Cantillon coined the term ‘entrepreneur’ to describe the risk-taking activities of farmers within the economy (cited in Schumpeter, 1934). While the farmers paid both their landlords and farm assistants ‘certain’ incomes, they themselves accepted ‘uncertain’ incomes for the future. Thus, the farmers were taking risks to reap future economic benefits, and so, they were acting as ‘entrepreneurs’ (Schumpeter, 1934).

Many scholars have also focused on formalizing the concept of ‘entrepreneurship.’ Say (1803) suggested it involved the combination of production factors into a producing organism (cited in Schumpeter, 1934). Knight (1921) viewed entrepreneurship as an ability to successfully predict the future (cited in Low & McMillan, 1988). Schumpeter (1934, 1942) defined entrepreneurship as carrying out new combinations (cited in Low & McMillan, 1988), by introducing new production methods, opening new markets, acquiring new sources, or creating new organizations (cited in Entrialgo et al., 2000). Stevenson, Roberts and Grousbeck (1985) suggested that it involves a drive by the perception of opportunity (cited in Low & McMillan, 1988). Gardner (1985), like Schumpeter, defined entrepreneurship as the creation of new organizations (cited in Low & McMillan, 1988). Recently, concurrence about the direction of the term ‘entrepreneurship’ has been evidenced among several groups of prominent scholars within the field, including Low & McMillan (1988), Stevenson and Jarillo (1990), Venkataraman (1997), and Davidsson & Wiklund (2001) (cited in Davidsson & Wiklund, 2001); who suggested a perspective on entrepreneurship that focuses on discovery and ‘new combinations’ – also known as ‘the creation of new enterprise’.
From the authors’ point of view, this shall be the understood definition of entrepreneurship when it is subsequently mentioned within this study.

5.2 Factors affecting Entrepreneurship

Entrepreneurship can be examined from different levels. Gardner (1985) introduced four major perspectives in entrepreneurship, including the characteristics of the entrepreneur who initiates an organization, the type of organization created, the environment surrounding the organization, and the process by which the new organization is initiated (cited in Low & McMillan, 1988). Lumpkin and Dess (1996) later indicated that these perspectives are each comprised of factors that can provide insight about firm entrepreneurship. External factors include the industry or business environment; and internal factors include the organizational structure, and characteristics of top managers or founders.

5.2.1 Internal Factors: The Owner-manager within the Small Firm

A key internal factor affecting firm entrepreneurship is the entrepreneur himself/herself, who by the root word ‘entrepreneur’, can be viewed as a catalyst to its existence. Shane & Venkataraman (2000) describe an entrepreneur as one who recognizes and exploits new business opportunities by founding new ventures (cited in Baron, 2008). Similarly, Kecharanantata and Baker’s (1999) view the entrepreneur as an individual who constantly ‘brings into being something new’ (cited in Cross & Travaglione, 2003).

The influence of the entrepreneur on firm entrepreneurship can vary with firm structure. According to Miller (1983) and Mintzberg, (1973), the simple firm structure can be characterized by its lack of operational and support personnel; homogeneity among its units; and coordination that is influenced by direct supervision. Krauss et al. (1994) indicate that this firm size includes up to 50 employees. Here, due to practicality and firm effectiveness, power is often concentrated within one or two individuals. This power is particularly potent when held by a single, unchallenged authority, for he/she is often the owner, maintains face-to-face contact with nearly all employees, and can carry out decisions, regardless of consensual acceptance (Miller, 1983). This allows the entrepreneur to see the immediate effects of his/her goals, perceptions and preferences (Mintzberg 1973; Scott 1971; Kets de Vries and Miller 1984; cited in Miller & Toulouse, 1986). The resulting autonomy enables the leader the freedom to initiate entrepreneurial venture (Wilson, 1966; Sapolsky, 1967; Normann, 1969; cited in Miller, 1983) within the firm rather single-handedly.

The influence of an entrepreneur on firm entrepreneurship can also vary with firm maturity. Reynolds (1994) describes the process of founding a new firm as including four phases; those of conception, gestation, infancy and adolescence. These phases are representative of three transitions in entrepreneurial efforts. The first transition includes an individual with a business idea as he/she progresses into an individual entrepreneur; the second, from an individual entrepreneur to a fledgling firm; and the third, from a fledgling firm to an established new firm (cited in Aldrich & Martinez, 2001). Those small firms that have grown in size beyond the individual nascent or founding entrepreneur can be considered as ‘established new firms’ (Aldrich & Martinez, 2001). At the initial stages after a firm’s conception (gestation through to adolescence), cognitive-level process are dominated by the individual entrepreneur (Deakins and Freel 1998; Kim 1993; cited in Breslin, 2008), and so the business’s management processes and organizational learning are inseparable from the actions and experience of the owner (Beaver & Jennings, 1996; cited in Breslin, 2008). As the firm and management team grows, the development of collective mental models may occur (Kim 1993; cited in Breslin, 2008). Therefore, a small firm’s processes are better
represented by individual-level entrepreneurial skills and cognitive heuristics (Aldrich 1999; cited in Breslin, 2008).

A study by Finkelstein (1992) adds further support that the entrepreneur holds power within a small firm. Finkelstein identified four sources of power of individuals in top-management teams. Two of those forces are relevant to the owner-manager of a small firm. The first, structural power, is related to the distribution of formal positions within a firm (cited in Adams et al., 2005). As noted above, within a simple firm, the owner-manager often occupies a central role, often with few support personnel. The second, ownership power, is connected to a lack of accountability to financial stakeholders outside the firm. Sexton and Bowman-Upton (1987) have argued that growth is not a natural phenomenon that occurs on its own; rather, it is a social phenomenon controlled by the owner of the firm (cited in Covin & Slevin, 1991). This is implied by agency theory, which suggests that owner-managers who have a greater equity stake will put forth greater effort to see that their firms will succeed (Sapienza & Grimm, 1998). Therefore, by virtue of position power and ownership, the owner-managing entrepreneur (owner-manager) can be a key moderator to a small firm’s entrepreneurship.

5.2.2 External Factors: The Firm’s Environment

Overall, it has been suggested that entrepreneurs who lead firms within dynamic and unpredictable environments are likely to have the greatest influence on the organization (Miller & Toulouse, 1986). Stable environments often demonstrate conformity in strategy and structure and do not allow much in the way of initiative. However, dynamic environments, with their need for change and action, make it difficult to implement a ‘standard’ response, and so they offer entrepreneurs an opportunity to influence the firm (Miller & Toulouse, 1986). Moreover, management theorists have suggested that an entrepreneurial approach to strategy-making may be critical to a firm’s success if operating within rapidly changing and fast-paced competitive environments, where intense demands are placed on firms to interpret opportunities and threats when making decisions (Dess et al., 1997).

From this evidence about the moderators of entrepreneurship, it can be deduced that the entrepreneur, and particularly the owner-managing entrepreneur, is the main decision-maker within a small firm (Miller & Toulouse, 1986). In this way, he/she is responsible for the initiation of strategy within the firm. Furthermore, when the small firm operates within a dynamic environment, there is need to adopt an entrepreneurial approach to strategy-making in order to deal with rapid changes within that environment. As such, the owner-manager is responsible for this strategy-making, and is thus the individual responsible for any resulting entrepreneurship of the small firm.

In light of the initiating role of the owner-manager with regards to the entrepreneurship of a small firm, we will further examine entrepreneurship by focusing our attention toward this individual. By and large, research concerning the ‘entrepreneurial personality’ has been salient in literature on owner-managers. The work of several prominent scholars, as follows, suggests its relationship to a firm’s entrepreneurship.

5.3 The Entrepreneur’s Personality and Entrepreneurship

The entrepreneurs’ influence on the entrepreneurship of small firms has represented a subject of interest in recent decades, particularly among prominent entrepreneurship scholars. For example, Mintzberg (1973) suggested that the owner-managing entrepreneur “rules by fiat relying on personal power and sometimes on charisma,” (p. 45) allowing the firm to
commit to bold courses of action. Miller (1983) found that simple firm entrepreneurial activity is highly dependent on the personality, power and knowledge of the owner-manager; finding that the personality of the leader is “the most critical factor in determining entrepreneurship,” (Miller, 1983, p. 782). Drucker (1985) suggested that the entrepreneur’s personality is a key internal factor that drives a firm to commit to the systematic practice of innovation, by deciding how to satisfy opportunity with innovation. Covin & Slevin (1991) reaffirmed the influence of an owner-manager’s ‘personality’ and emphasized its strong and direct impact on the entrepreneurial potential, behavior, and effectiveness of firms. Herron (1990) showed that an entrepreneur’s skill and skill propensity are associated with new venture performance. Zahra (1993) suggested that managers’ backgrounds, values and experiences influence factors within a firm, and thus hold a marked effect on the firm’s entrepreneurial posture – which comprises its entrepreneurial strategy-making processes (Lumpkin & Dess, 1996), leading to entrepreneurship.

Taken together, these prominent scholars seem to suggest that a diverse set of entrepreneur characteristics is likely to influence small firm entrepreneurship. Miller (1983), Drucker (1985) and Covin & Slevin (1991) all suggest that psychological characteristics may play a dominant role. Following along with this direction, Shane and Venkataraman (2000) have suggested that entrepreneurship should not only be characterized by who the entrepreneur is and what he or she does, but also by how he/she discovers opportunities (cited in Rhee & White, 2007). In other words, there should be a focus upon the process by which entrepreneurship is created. Overall, theories and models of the entrepreneurial process have portrayed the individual manager/entrepreneur as a key component (Kirzner, 1983; Ronen, 1983; cited in Rhee & White, 2007). In consideration of this, the role of the entrepreneur’s personality should be examined insofar as its affects the entrepreneurial process, thus leading to entrepreneurship.

5.3.1 The Entrepreneurial Process

The entrepreneurial process revolves around the individual entrepreneur. Woo, Daellenbach, and Nicholls-Nixon (1994) suggest that the success of a firm is dependent upon the capacity of the entrepreneur to perceive and act on opportunities that are presented within the surrounding environment. This is undertaken through a process of experimentation and learning, which is guided by the way the characteristics of the entrepreneur influence his/her perception of the environment. Similarly, Herron and Sapienza (1992), suggest that new venture creation links the individual characteristics of the entrepreneur with his/her experience of the surrounding environment. Naffziger, Hornsby, and Kuratko (1994) claim that entrepreneurial motivation is influenced by psychological characteristics interacting with perception of situational factors. On a related note, Shaver and Scott (1991) present a model that focuses on the person, process and choices of the entrepreneur. The scholars propose that it must be understood how the surrounding environment is perceived in the mind of the entrepreneur and whether the individual decides to act. This requires tracing the link between cognitive representations in the mind of the entrepreneur and their translation into action (Shaver & Scott, 1991).

5.4 Cognition and the Entrepreneurial Process

Scholars (e.g. Mitchell et al. 2002) have suggested that the cognitive viewpoint may be useful in examining previously unexplained phenomena within entrepreneurship. The entrepreneurial cognition perspective can offer an understanding of how entrepreneurs think and “why” they do some of the things they do. Entrepreneurial research with a cognitive foundation is seen to be increasing today because there remains a large gap that can be ad-
addressed using multidisciplinary entrepreneurship research, specifically, with relevant tools from cognition-related disciplines (MacMillan & Katz, 1992; cited in Mitchell et al., 2002).

While scholars (e.g. Mitchell et al., 2002) have indicated that cognitive research may begin to ‘fill a gap’ in entrepreneurship research, at the present time, there have been only a few cognitive theories that have been verifiably linked to the entrepreneurial process. For example, in his 1983 study, Miller set out to connect a gauge of an entrepreneur’s cognitive characteristic to the entrepreneurial process. Here, an owner-manager’s locus of control, which is a cognitive theory measuring an individual’s perception of how much control he/she is exerting over the events in his/her life (Miller et al., 1982), was correlated to dimensions of Entrepreneurial Orientation (EO). It was found that the locus of control was significantly connected to the firm’s dimensions of innovation, proactiveness, and risk-taking. Later, Entrialgo et al. (2000) performed a similar study when they correlated two cognitive theories, the locus of control and a tolerance for ambiguity, to EO. Again, they found that these theories both demonstrated a significant degree of correlation with the strategy-making processes of the firm, (which ultimately lead to entrepreneurship).

Therefore, preliminary investigations concerning the entrepreneur’s cognition have demonstrated significant correlations to entrepreneurial strategy-making processes – verifying that an entrepreneur’s cognition matters to entrepreneurship. In order to explore if the same results might be evidence by other cognitive theories, we must firstly define cognition, determine how it works, and how it can affect an entrepreneur’s perception of his/her environment.

5.4.1 Cognition in Psychology

Psychologists have recognized a three-part division of the mind, comprising cognition, affect, and motivation. The cognitive sphere comprises such functions as memory, reasoning, judgement, and abstract thought. All processes by which sensory input is transformed, reduced, elaborated, stored, recovered, and used are referred to as cognitions (Neisser, 1967; cited in Mitchell et al., 2002). Cognitive psychology emerged to help explain individuals’ mental processes that occur as they interact with other people and the surrounding environment (Mitchell et al., 2002).

Entrepreneurial cognition in specific has been described as, ”the knowledge structures that people use to make assessments, judgments, or decisions involving opportunity evaluation, venture creation, and growth,” (Mitchell et al., 2002; p. 97). Prior research in entrepreneurial cognition has been concerned with understanding how entrepreneurs use simplifying mental models to make connections among previously unconnected information. This assists them to engage in strategic processes that both initiate and grow businesses (Mitchell et al., 2002).

5.5 Cognitive and Emotional Interrelation

On a related note; within psychological research, emotional and cognitive processes have often been studied together, because they are complexly interactive (Gohm, 2004). According to Das (2008) rationality needed for personal and business decision-making is bounded by emotions. Anatomically, cognition and emotion are integrated in the prefrontal cortex (PFC) within the frontal lobe of the brain, which is responsible for the basic component of decision-making, which is working memory. Gray et al. (2002) showed that during even a simple task in working memory, the cognitive task and emotional state of an individual contribute equally together to the functions of the PFC (cited in Das, 2008).
Brain imaging has shown that decision-making often occurs when an individual is prompted by states of physiological arousal (Damasio, 1999; cited in Das, 2008). Here, decisions are aided by emotions in the form of physical states that are drawn out during the careful consideration of future consequences. As a result, our decisions are not entirely a result of rational analysis, and non-conscious processes, such as bodily reactions, could precede decision-making (Das, 2008).

The link between cognition and emotion can also be traced back to religious tenets. Guenther (1974) and Goleman (1988) indicated five common negative emotions identified by Buddhists, that distract one from making ‘good decisions’. These include passion, aggression, ignorance, pride and jealousy (cited in Das, 2008). Similarly, Eastern views of intelligence (Radhakrishnan & Moore, 1957; cited in Das, 2008) suggest that intelligence is beneficial so long as it is not distorted by an egotistic attitude. An entrepreneur should be alert to these disturbing emotions and attitudes that are can be involved during decision-making (Das, 2008).

### 5.6 Cognition and Emotion within the Entrepreneurial Process

As noted in section 5.5, two types of cognitive competencies have been shown to correlate to an entrepreneur’s strategy-making processes. At basic, strategy-making processes comprises a series of decisions, which as shown earlier, are influenced by the interrelation of emotion and cognition.

Das (2008) suggest there to be five components of planning that demonstrate this process from end to end. (1) The first is how the problem is represented in the mind. (2) Depending on how the problem is represented in the mind, what is then anticipated? (3) Next is the selection of a strategy and therefore, a plan. A selection of steps is taken to follow through with the plan. (4) As these steps are taken, continuous feedback, both positive and negative, is received concerning how the plan is working. Feedback is weighed and organized, leading to a regulation of the execution of the plan. (5) Feedback is weighed and organized, leading to a regulation of the execution of the plan. As the plan is regulated and executed, difficulties are anticipated that might arise while executing it, and so the representation of the problem is continually adjusted.

Therefore, as Shaver and Scott (1991) suggested earlier, we can trace the origins of the entrepreneurial process when we examine the cognition of the entrepreneur. At the root, it can be deduced that cognition and also emotion are responsible for an entrepreneur’s perception of his/her environment, and therefore, for his/her decision-making. These decisions inform strategy-making, which can be entrepreneurial in nature of otherwise. And we understand that contextually, this strategy-making matters to a small firm. Therefore, it can be deduced that an owner-manager’s interrelation of cognition and emotion are central to a small firm’s entrepreneurial strategy-making.
A further look into research concerning cognition, emotion and entrepreneurship demonstrates that this interrelation has begun to be captured and applied - but without explicit reference to this entrepreneurial process.

### 5.7 Emotions within the Entrepreneurial Process

Scholars have begun to analyze the role of managers’ emotions in the management process (e.g., Fineman, 2003; Huy, 1999). Further, within entrepreneurship literature, there exists a large body of material that regards entrepreneurialism as a deeply emotional activity (e.g., Bower, 1993; Branson, 2000; Down, 2006; Kets de Vries, 1996; Roddick, 2000; cited in Goss, 2008); and a few scholars have focused on emotion as a component of enterprising behaviour (e.g. Goss, 2005a, 2005b; Kets de Vries, 1977, 1985; cited in Goss, 2008).

Lately, researchers have turned their attention to the role of emotions in regards to entrepreneurs’ behaviours; for example passion (Cardon et al., 2005) and grief (Shepherd, 2003) (cited in Brundin et al., 2008). Further, it was found that employees’ willingness to act entrepreneurially is affected by a manager’s display of emotions concerning an entrepreneurial project (Brundin et al., 2008); pointing to the effect of emotion on decision-making and strategy-making.

Within the psychological field, emotions have recently been examined within the entrepreneurial context. Specifically, a study by Cross & Travaglione (2003) found that a set of entrepreneurs, each deemed successful by nature of their firm’s profit, demonstrated outstanding performance in Emotional Intelligence (EI) ability, especially in the appraisal and expression of emotion, regulation and utilization of emotion. On a related note, Nikolaou and Tsaousis (2002, 2005) found that employees who were high in self-perceived EI exhibited entrepreneurial behaviours. By being able to appraise and regulate their own emotions, employees reduced stress, and increased their levels of entrepreneurship (cited in Zampetenakis et al., 2009). Moreover, Zampetenakis et al. (2009) suggested that individuals with high self-perceived EI often have increased affectivity, contributing to proactive and creative dispositions, and facilitating entrepreneurial behaviour. A positive effect of EI on entrepreneurial behaviour was later confirmed, implying that the elicitation and understanding of certain emotions enables employees with high EI to take appropriate actions, influencing entrepreneurial behaviour (Zampetenakis et al., 2009).
5.8 Emotional Intelligence

5.8.1 Psychological Basis of EI
To understand the concept of EI, its two component terms, ‘intelligence’ and ‘emotion’, should be discussed. As mentioned in section 5.4.1, psychologists have recognized a three-part division of the mind, comprising cognition, affect, and motivation. The cognitive sphere comprises such functions as memory, reasoning, judgement, and abstract thought – functions that when used together comprise what is referred to as ‘intelligence’. Emotions belong to the affective sphere, which also includes moods, evaluations, and ‘feeling’ states such as fatigue or energy. EI refers to the connection of these two spheres - emotion with cognition, that enables heightened emotional or mental abilities. (Salovey & Sluyter, 1997)

Overall, EI captures the very interrelation that is central to the entrepreneurial process, and therefore, it represents a characteristic worth investigation.

5.8.2 An Evolving Conceptualization
As a formalized concept, EI appeared several times in literature, (Greenspan, 1989; Leuner, 1966; Payne, 1986; cited in Perez et al, 2005) before Mayer and his colleagues formalized the term in 1990, when they discovered that people varied in their abilities to identify and use emotions, in the self and in others (Goldenburg et al, 2006; Cross & Travaglione, 2003; Dulewicz & Higgs, 2003). The field of EI was informally ‘launched’ shortly after within Goleman’s best-selling book (1995), and later in 1997 with his paper that defined EI in terms of individual competencies, allowing authors to relate EI to [intra-individual] research developments of that time (Dulewicz & Higgs, 2003).

Presently, research devoted to EI is divided between several perspectives. While they share the idea that cognitive ability and emotional competency must be considered to predict successful adaptation; they differ significantly in their conceptualization and measurement of competencies (Mikolajczak, Luminet, & Menil, 2006, cited in Nelis et al., 2009). Three general perspectives include ability-based, trait-based, and mixed trait-ability based models of EI.
5.8.3 The Ability-based (Cognitive-emotional) Model

Researchers proposed that emotion can make thinking “more intelligent,” (Mayer & Salovey, 1993, 1997; Salovey & Mayer, 1990; cited in Goldenburg et al, 2006) and so EI was thought to be similar to other types of intelligences and related to a type of ability that develops with age and experience (Mayer et al., 2004; Neisser et al., 1996; Sternberg, 2001; cited in Goldenburg et al, 2006). Mayer et al. (1997) and Goleman (1995) developed this original concept of EI, that we now know to be ability EI, or cognitive-emotional ability. Ability models are based on a functionalist perspective where emotions are viewed as responses that guide an individual’s behavior and provide information that enables goal achievement (Brenner & Salovey, 1997; cited in Goldenburg et al, 2006). The models conceptualize EI as a form of intelligence that involves emotion, (Mayer & Salovey, 1997; Salovey Woolery & Mayer, 2001; cited in Mayer, Salovey, & Caruso, 2004) and that comprise skills including emotional perception and expression, emotional facilitation of thinking, emotional understanding, and emotional regulation (Nelis et al., 2009; Goldenburg et al, 2006). From this ability perspective, EI is often assessed via intelligence-like tests, which aim to capture maximal performance (Nelis et al., 2009).

Mayer, Caruso and Salovey (1990) conceived the basic ability-based model. It involved the appraisal and expression of emotions in the self and others; the regulation of emotions in the self and in others; and the utilization of emotions (cited in Cherniss & Goleman, 2001). In a later 1997 revision, the model was extended to include the perception, appraisal and expression of emotion; the emotional facilitation of thinking; the understanding, analysis and employment of emotional knowledge; the reflective regulation of emotions to further emotional and intellectual growth (Cross & Travaglione, 2003; Prati et al, 2003). This remains the most current conceptualization of ability-based EI.

5.8.4 The Trait-based (Emotional Self-efficacy) Model

Trait EI models emerged later in 2001. Petrides and Fulham conceptualized EI as a constellation of self-perceptions and dispositions at the lower levels of personality taxonomies (Davey, 2005, cited in Nelis et al., 2009), and they created a multi-faceted domain for trait-based EI that would distinguish the ways an individual would cope with demands and pressures (Davey, 2005; Petrides & Furnham, 2003 cited in Nelis at al., 2009). Within this trait perspective, EI is evaluated via personality-like questionnaires, which aim to capture typical performance (Petrides & Furnham, 2003, cited in Nelis et al., 2009). Petrides and Fulham’s model remains the most salient model of trait EI today.

5.8.5 The Mixed Trait-ability Model

As the interest in EI models and measurements persisted, mixed trait-ability models emerged, which make reference to abilities in the processing and use of emotional information; but in doing so, they combine such abilities with other traits (Bar-On, 2001, Goleman, 1995, 1998, Petrides & Furnham, 2001, cited in Goldenburg et al, 2006). That they are mixed trait-ability models suggests that they are evaluated via personality-like questionnaires, while capturing elements of EI classified as both ability and trait.

Goleman (1998) produced a salient conceptualization of EI that is based upon a mixed trait-ability framework. It suggests a competence that manifests as self-awareness, self-regulation, motivation, empathy and social skill (cited in Cross & Travaglione, 2003). Self-awareness involves knowledge of one’s internal states, self-ability, self-confidence preferences, resources and intuitions. Self-regulation includes managing these internal states, impulses, and resources so as to avoid task interference, enable recovery from emotional dis-
tress, and allow conscientiousness. Motivation involves such emotional tendencies as passion, guiding one to persevere towards goals and strive toward improvement. Empathy includes an awareness of other's feelings, needs and concerns that enable rapport building. Finally, social skills point to an adeptness at inducing desirable responses within others (Cross & Travaglione, 2003).

Most recently, a development of a ‘tripartite’ model of EI emerged, asserting the existence of three levels of EI, including knowledge, abilities and traits. Here, the knowledge level refers to the complexity of emotional knowledge; the ability level refers to the application of emotion knowledge in an emotional situation, and the trait level refers to emotion-related dispositions (Mikolajczak, Petrides, Coumans, & Luminet, 2009, cited in Nelis et al., 2009).

5.9 Which EI model is Appropriate?

Inconsistent research with field of EI noted above suggests that the field of research is still immature. Perhaps the only conclusion that can be drawn about EI research is that there has been considerable debate about how the construct should be conceptualized and measured (Ciarrochi et al., 2000; cited in Shipper et al., 2003). As such, there is no standardized selection criteria guiding researchers in other fields who are seeking utilize EI within their studies. With this in mind, it is up to the researcher to select an appropriate model of EI.

For this study, the Mayer & Salovey (1997) model of ability-based EI seems most suitable, based on three selection criteria.

Firstly, this model of EI is based on a functionalist perspective, considering an EI to be a guide for behaviour, which is similar to the sequence of the entrepreneurial process. Moreover, emotion is tied explicitly to cognition, therefore addressing emotion-cognition inter-relation within an individual.

Secondly, any chosen model should be recognized among scholars and applied within further research. One such model, the Mayer & Salovey (1997) ability-based model of EI, has led to considerable empirical research and evidence concerning the principles of EI and its criterion-related validity (e.g., Brackett, Rivers, Shiffman, Lerneer, & Salovey, 2006; Cote & Miners, 2006; Law, Wong, & Song, 2004; Lopes, Salovey, & Straus, 2003; Mayer, Salovey, Caruso, & Sitarenios, 2003; Rode, Mooney, Artaud-Day, Near, Baldwin, Rubin, & Bommer, 2005; Van Rooy & Viswesvaran, 2004; cited in Blickle et al., 2009). As a result, the Mayer & Salovey (1997) model is the most widely used ability-based measure of EI (Blickle et al., 2009).

Thirdly, there has been prior evidence that ability-based EI can be trained. As noted in Chapter 2, this is significant for research, as it means that, as a dynamic characteristic that can be purposefully developed, if EI is positively connected to an outcome, the possibility exists that the outcome can be developed as well. A trait-based model of EI could not provide the same opportunity, as trait EI measures personality traits, which are by definition not amenable to change (McEnrue et al., 2006; cited in Groves et al., 2008). Furthermore, various researchers have concurred (e.g. Groves et al., 2008; Ashkanasy and Daus, 2005; Daus and Ashkanasy, 2005; Brackett and Mayer, 2003) that the Mayer and Salovey (1997) model of EI has been most successfully differentiated from personality traits (e.g. Palmer et al., 2005; Daus and Ashkanasy, 2005; Day and Carroll, 2004; O’Conner and Little, 2003; Salovey et al., 2003; cited in Groves et al., 2008).
5.9.1 Mayer & Salovey (1997) Ability-based Model of EI

The Mayer & Salovey (1997) model of EI is conceived to be, “...the ability to perceive accurately, appraise and express emotion; the ability to access and/or generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth,” (Salovey & Sluyter, 1997; p. 10).

The abilities and skills of this model of EI are divided into four branches. The order of the branches represents the developmental progression from basic to sophisticated skill within each branch (Salovey & Sluyter, 1997; Mayer et al., 2004). For example, the first branch, comprising the perception and expression of emotion; as well as the second branch, the capacity of emotion to enhance thought, are said to be discrete areas of information processes that are expected to be bound within the emotion system. In contrast, the fourth branch, called emotional management, should be an integrated part of an individual’s plans and goals (Mayer et al., 2004).

5.9.2 (1st Branch) Perception, Appraisal and Expression of Emotion

This branch involves the accuracy with which individuals are able to identify emotions and emotional content. Its four abilities include a) identifying emotion in one’s own physical states, feelings and thoughts, b) identifying emotions in other people through language, sound, appearance and behaviour, c) expressing emotions and related needs accurately, d) discerning between accurate/inaccurate, or honest/dishonest expressions of feeling (Salovey & Sluyter, 1997).

5.9.3 (2nd Branch) Emotional Facilitation of Thinking

This branch addresses emotion as it acts on intelligence, by describing emotional events that accommodate intellectual processing. Abilities include a) emotions prioritizing thinking by directing attention to significant information, b) sufficiently vivid and available emotions that can acts as aids to judgment and memory concerning feelings, c) mood swings that change the individual’s perspective (ie. from optimistic to pessimistic), encouraging consideration of multiple perspectives, d) emotional states encouraging specific problem approaches (ie. happiness that facilitates inductive reasoning and creativity) (Salovey & Sluyter, 1997).

5.9.4 (3rd Branch) Understanding and Analyzing Emotions; Employing Emotional Knowledge

This branch reflects the understanding of emotion and the ability to use it. Its abilities comprise a) identifying emotions and recognizing relations among word and emotions, such as the difference between like and love, b) interpreting conveyed emotional meaning regarding relationships, such as sadness resulting from loss, c) understanding complex feelings that may occur simultaneously (love and hate) or combinations of feelings (fear and surprise that create awe), d) recognizing transitions among emotions, such as that from anger to satisfaction, or from anger to shame (Salovey & Sluyter, 1997).

5.9.5 (4th Branch) Reflective Regulation of Emotions to Promote Emotional and Intellectual Growth

This factor involves the conscious regulation of emotion in order to develop emotional and intellectual growth. Its four abilities include a) staying open to both pleasant and unpleasant feelings, b) reflectively engaging or detaching from emotion, depending on how the emo-
tion is judged to be informative or useful, c) reflectively monitoring emotions in relation to oneself and others, and recognizing how clear, typical, influential or reasonable these emotions are, and d) managing emotion in oneself and in others by moderating and enhancing emotions, without limiting or exaggerating the information they convey (Salovey & Sluyter, 1997).

5.10 Entrepreneur to Emotional Intelligence

A brief review of empirical evidence thus far shall note the major emerging ideas. First, scholars have indicated that an entrepreneur is pivotal to a firm’s entrepreneurship. This influence is particularly evident within owner-managing entrepreneurs (owner-managers) who lead small, young firms within dynamic environments. Second, prominent scholars suggest that the entrepreneurial personality – in particular, psychological characteristics – matter to a firm’s entrepreneurship. Third, it has been suggested that the entrepreneurial personality should be investigated to understand its involvement in the entrepreneurial process. Fourth, the entrepreneur’s cognition has been identified as important within the process, and verified by two studies (Miller, 1983; Entrialgo et al., 2000). Fifth, when it comes to decision-making, cognition does not act alone – it is interrelated with emotion. Sixth, when applied within entrepreneurship, EI, which addresses this cognitive-emotional interrelation, has begun to be associated with entrepreneurial outcomes. Seventh, of all EI models, the ability-based EI model best represents the cognitive-emotional interrelation. Specifically, the Mayer and Salovey (1997) model is the most appropriate for this study, and shall therefore serve as a psychological characteristic within the ‘entrepreneurial personality’ that is apt to influence strategy-making, and therefore, entrepreneurship.

5.11 Gauging Entrepreneurship

Further support for the link from strategy-making to entrepreneurship has emerged over the past three decades, as prominent scholars have built upon each other’s ideas to characterize entrepreneurship. Overall, common findings suggest that the level of entrepreneurship, regardless of its context, can be characterized by examining the strategy-making associated with it. Furthermore, this entrepreneurial strategy-making can be separated into a set of dimensions.

5.11.1 The Emergence of Dimensions

Mintzberg (1973) was one of a few prominent scholars who started exploring characteristics of entrepreneurship from the perspective of the firm. In doing so, he linked entrepreneurship to firm strategy-making, and identified three modes of strategy-making, including a proactive entrepreneurial mode, a reactive adaptive mode, and a highly-structured planning mode. The entrepreneurial mode of strategy making comprises four features, first of which is a search for new opportunities, underlining an entrepreneur’s zeal in grasping opportunities, rather than in solving problems. The second feature comprises the centralized power of the chief executive, and the third is the entrepreneur’s decisiveness to persevere by way of dramatic leaps towards uncertainties. Mintzberg (1973) suggested that this sort of speculative behaviour is largely influenced by the entrepreneur’s character traits. Lastly, a dominant goal of growth implies that the entrepreneur’s goal of extension should align with the organization’s, resulting in a ‘manifestation of achievement,’ at the firm level. While Mintzberg (1973) first assumed that there would be a small possibility of an organization existing in a purely modular state, he later noted that all types of firms demonstrate an entrepreneurial strategy-making mode at some point or another.
Miller (1983) later used Mintzberg’s (1973) ideas in an empirical study that more clearly identified entrepreneurship characteristics. He connected Mintzberg’s (1973) modes of strategy to company structures, identifying three basic types of the companies. Firms of a ‘simple’ structure primarily implement the entrepreneurial mode of strategy making; firms of an organic structure follow the adaptive mode; and firms with a planning structure pursue the planning mode. Similar to Mintzberg (1973), Miller (1983) acknowledged that it is possible for all three firm structures to demonstrate combinations of strategy-making characteristics. Therefore, firm structure alone would not determine the characteristics of entrepreneurship – these would have to be dimensions shared across a variety of strategies and firm structures. While this study confirmed Mintzberg’s (1973) ideas, Miller (1983) also offered insight about the nature of entrepreneurial strategy-making, suggesting that it involves dimensions of risk-taking, proactiveness and innovation.

Covin & Slevin (1989, 1991) combined the ideas of Mintzberg (1973) and Miller (1983). While examining the behaviours of firms within hostile and benign environments, Covin & Slevin (1989) first touched upon a conceptualization of entrepreneurship that they called ‘strategic posture’. It involves a firm’s entrepreneurial-conservation orientation, which determined the extent to which top managers take risks, favour change, and embrace innovation in order to create a competitive advantage (Covin & Slevin, 1989). In a later study, Covin & Slevin (1991) formalized their ‘strategic posture’ into ‘entrepreneurial posture’, which overall, describes firms that are found to be risk-taking, proactive, and innovative, while striving to create new value for society. Like Mintzberg (1973) and Miller (1983), Covin & Slevin (1989, 1991) indicated that all firms can demonstrate varying instances of an entrepreneurial posture, therefore enabling different levels of risk-taking, proactiveness, and innovativeness.

### 5.12 Entrepreneurial Orientation Dimensions

By building upon Covin & Slevin’s (1991) model of entrepreneurial posture, Lumpkin & Dess (1996) formalized a set of dimensions leading to an Entrepreneurial Orientation (EO). Firms demonstrating EO dimensions engage in an essential entrepreneurial act called new entry. This can involve entering new or established markets, introducing new goods or services, and launching new ventures – either by start-up, or through an existing firm (Lumpkin & Dess, 1996). As such, Lumpkin & Dess’s (1996) concept of new entry is synonymous with our definition of entrepreneurship, as ‘the creation of new enterprise’.

EO dimensions represent a set of strategy-making processes; including planning, analysis, decision-making, culture, value system, and mission (Hart, 1992; cited in Sapienza et al., 2003). These processes represent the mindset of firms engaged in new entry (Sapienza et al., 2003), and serve to enact organizational purpose, sustain vision, create competitive advantage, and determine how new entry is undertaken (Lumpkin & Dess, 1996). While they are observed as firm-level processes, EO dimensions can be undertaken by individual key players within a firm (Lumpkin & Dess, 1996).

Lumpkin and Dess (1996) expanded upon the emergent dimensions of risk-taking, proactiveness, and innovation, to include those of autonomy and competitive aggressiveness. Collectively, the five dimensions comprise the full spectrum of EO. While the factors often work together to enhance a firm’s entrepreneurial performance, it has been found that firms demonstrating only a few dimensions can still be successful (Dess & Lumpkin, 2005). This is due to the differing need of firms in undertaking entrepreneurial strategy-making; which is dependent upon the environment, structure and leader. As such, varying levels of EO may be necessary to perform (Lumpkin & Dess, 1996).
According to Lumpkin & Dess (1996), the dimensions can be characterized as follows:

5.12.1 **Innovativeness**

Innovativeness “reflects a firm's tendency to engage in and support new ideas, novelty, experimentation, and creative processes that may result in new products, services, or technological processes,” (Lumpkin & Dess, 1996; p. 142). Innovativeness can be classified into two streams. Product market innovativeness concerns product and process development, while technological innovativeness involves marketing strategies and product promotion. Innovativeness can also range from a one-time ‘try-out’ to a continuous focus on incorporating ‘the new’ (Lumpkin & Dess, 1996).

5.12.2 **Risk-taking**

Risk-taking firms engage in behaviors where future outcomes are highly uncertain or ‘chancy,’ in the interest of earning returns by capitalizing on opportunities within the marketplace. Theories involving risk and entrepreneurship are still in their infancy, largely because researchers have been dually focused on the individual and the organization; and so there is a need to contextually differentiate evidence of risk-taking. Types of risk themselves can also vary, including financial, psychological and social risk (Gasse, 1982; cited in Lumpkin & Dess, 1996).

5.12.3 **Proactiveness**

Proactiveness involves, at basic, “...taking initiative by anticipating and pursuing new opportunities and by participating in emerging markets...” (Lumpkin & Dess, 1996; p. 146). Firms adopting a forward-looking perspective, complemented by innovativeness, demonstrate market leadership and create the potential to gain a first-mover advantage. An important distinction to note with regards to the proactiveness EO dimension is that here, initiative is taken solely in an attempt to shape the environment and meet demand - rather than in reaction to competitors’ actions – which is so with the dimension of competitive aggressiveness. Furthermore, proactiveness differs from innovativeness in that it involves initiative, which is different from focusing to a varying degree on the innovative ‘new’ (Lumpkin & Dess, 1996).

5.12.4 **Autonomy**

In general, autonomy is “the ability and will to be self-directed in the pursuit of opportunities,” (Lumpkin & Dess, 1996; p. 140). Evidence of autonomy may differ with a firm’s size, management, and ownership. Further, the extent to which it is exercised may be closely related to the organization of the firm. Those managers whose power is centralized, as is often the case for owner-managers, may find themselves in a position to take autonomous decisions. Oppositely, firms with flatter hierarchies may demonstrate more dispersed autonomous decision-making across various operating units. In either case, the freedom to act independently characterizes the autonomy dimension of EO (Lumpkin & Dess, 1996).

5.12.5 **Competitive Aggressiveness**

Competitive aggressiveness describes a firm's tendency to directly and intensely challenge its competitors in order to outperform them within the marketplace. Different from proactiveness, competitive aggressiveness stems from responsiveness in achieving competitive advantage (Lumpkin & Dess, 1996; p. 149). Three approaches to being competitively aggressive include; doing things differently, changing the context of the product or service, and outspending the industry leader (Porter, 1985; cited in Lumpkin & Dess, 1996). While
the type of the competitively aggressive response varies among firms and environments, those firms that actively approach competitors with counteractions are likely to improve their success within the marketplace (Lumpkin & Dess, 1996).

5.13 Utilizing Entrepreneurial Orientation

The term EO has been widely used within hundreds of studies of entrepreneurship, strategic management and marketing. Not only is there a general agreement about the meaning of the term, but Covin and Slevin’s (1989) EO scale items are used consistently throughout, as they have been shown to effectively portray the dimensions (Rauch et al., 2004), however, the tendency has been to study only three of the five dimensions - risk-taking, innovativeness, and proactiveness (Hughes & Morgan, 2007).

As predicted in earlier work by Lumpkin and Dess (1996), recent research has reported that EO dimensions tend to vary independently rather than covary (Kreiser et al., 2002; Stetz et al., 2000; cited in Rauch et al., 2004). Further, a firm’s EO is most often operationalized from the view of the CEO (Covin & Slevin, 1989; cited in Rauch et al., 2004; Zahra et al., 1999; cited in Krauss et al., 2004), especially within small firms, where the CEO is likely to have a stronger effect on business decisions and practices (Rauch et al., 2004).

Due to the wide use of EO amongst studies within entrepreneurship, as well as a general agreement about the meaning of term among scholars (Rauch et al., 2004), the EO model has reached a maturity where it can be reliably used as a gauge of entrepreneurial strategy-making, and therefore, entrepreneurship.

6 Hypotheses

This chapter underlines the key ideas that emerged within the Theoretical Framework. Furthermore, specific information connecting EI to EO dimensions is introduced in a hypotheses section.

Firstly, when the context of entrepreneurship was explored, it was found that the entrepreneur is the catalytic force behind entrepreneurship – and recognized as the individual who drives new initiatives (e.g. Schumpeter, 1934; Cross & Travaglione, 2003; Baron, 2008). When the entrepreneur is the owner-manager within a simple/small firm, he/she is the main decision-maker for the firm (e.g. Mintzberg, 1973; Miller, 1983; Miller & Toulouse, 1986). This influence is particularly pronounced when the entrepreneur leads a firm within dynamic, unpredictable and changing environments (e.g. Miller & Toulouse, 1986; Dess et al., 1997).

Statement A: Owner-managers are the main decision-makers in small firms.

Secondly, prominent entrepreneurship scholars have explored the relationship between an owner-manager’s personality and the entrepreneurship of a small firm, suggesting that personality characteristics play a significant role in determining the entrepreneurship (e.g. Mintzberg, 1973; Miller, 1983; Drucker, 1985; Herron, 1990; Covin & Slevin, 1991; Zahra, 1993; Lumpkin & Dess, 1996).

Statement B: An owner-manager’s characteristics play a significant role in determining the entrepreneurship level in small firms.

Thirdly, scholars have indicated that in order to determine how entrepreneurship arises, the entrepreneurial process should be examined (e.g. Rhee & White, 2007). From here, an entrepreneur’s characteristics can be fit into the picture. The entrepreneurial process shows
that the entrepreneur’s perception of his/her environment leads to particular decision-making, which forms the basis of strategy-making. This strategy-making determines the entrepreneurship of the firm. Therefore, characteristics of the entrepreneur that affect his/her perception of the environment are important in determining the entrepreneurial strategy-making of a firm (e.g. Shaver & Scott, 199; Das, 2008).

Statement C: An owner-manager’s characteristics play a significant role in determining the entrepreneurial strategy-making of a small firm.

Fourthly, it was suggested by scholars that cognition affects an entrepreneur’s perception of the environment. This was proven by Miller (1983) and Entrialgo et al. (2000), who found that the cognitive theories of locus of control and tolerance for ambiguity were both significantly correlated to a type of entrepreneurial strategy-making called Entrepreneurial Orientation.

Statement D: An owner-manager’s cognition plays a significant role in determining the entrepreneurial strategy-making of a small firm.

Fifthly, to trace what further cognitive characteristics could be related to entrepreneurial strategy-making, a deeper look into cognitive psychology ensued. This revealed that cognition and emotion are interrelated when it comes to perception of the environment, and an individual’s subsequent decision-making (e.g. Das, 2008). A further look into entrepreneurship and emotions showed that Emotional Intelligence (EI) has, within the past 6 years, been linked to the psychology of the entrepreneur, where it was suggested to contribute to positively toward entrepreneurial behaviour (e.g. Zampetanakis et al., 2009).

The premise of EI is based upon the cognitive-emotional ability of an individual in perceiving oneself and others in the surrounding environment. If applied to an owner-manager, it can be considered one of his/her characteristics. As a characteristic, it fits well within the entrepreneurial process, because it plays a part in the entrepreneur’s perception of the environment, which goes on to influence his/her entrepreneurial strategy-making.

Statement E: An owner-manager’s EI plays a significant role in determining the entrepreneurial strategy-making of a small firm.

An examination of research on the topic revealed that a set of defining factors has begun to emerge within the work of several scholars, including risk-taking, proactiveness, and innovativeness (e.g. Covin & Slevin, 1991; Lumpkin & Dess, 1996). These factors were later incorporated by Lumpkin & Dess (1996) into a group of five dimensions called Entrepreneurial Orientation, which describe entrepreneurial strategy-making processes that exist within the mindset of the entrepreneur and firm. Since 1996, hundreds of studies have made use of EO, and there has been a general agreement about the meaning of the term (e.g. Rauch et al., 2004). This suggests that EO represents a viable gauge of entrepreneurial strategy-making processes for this study.

While, to our knowledge, there have been no previous studies conducted, concerning the relationship between an owner-manager’s EI and EO within the small firms, there have been some studies conducted within different contexts that suggest certain relationships between global EI (EI as an entity) and EO dimensions. In their research, Goyal & Akilesh (2007) proposed a model of team innovativeness. In doing so, they suggested that team emotional capability can lead to dispositions and behaviours that foster innovativeness. Furthermore, Yuvaraj & Sristava (2007) found that managerial innovation was positively correlated with EI. Similarly, Suliman & Al-Shaikh (2006) determined that employees with
higher levels of EI tended to report higher levels of readiness to innovate; and these factors were positively correlated. In terms of proactiveness, Sunindijo et al. (2007) found the EI of project managers within the construction industry to be positively correlated to proactive behaviour. When it comes to risk-taking, at present, no study can be found directly connecting EI to any sort of risk-taking, however it is known that risk-taking does correlate with the other two dimensions (Covin & Slevin, 1989). Therefore risk-taking, together with innovativeness and proactiveness, should demonstrate a positive correlation with EI.

Based on our above-mentioned statements, we can deduce that an owner-manager’s EI plays a significant role in determining the EO of a small firm. Therefore we hypothesize that:

**Hypothesis 1:** An owner-manager’s EI can be used to predict EO within small firms.

Furthermore, from the additional evidence offered about the nature of the EI and EO relationships, we can further hypothesize that:

**Hypothesis 2:** An owner-manager's EI dimensions are positively correlated to the EO dimensions in small firms.

## 7 Method

This chapter discusses the authors' awareness of how the study was approached, beginning with a macro perspective (philosophy) down to a micro perspective (data collection and analysis). Additionally, the implications of these choices as they affect the credibility of the study will be examined. Please see Figure 3 for a visual guide to this chapter.

![Figure 3: Organization of method chapter, based on 'The Research Onion,' (Saunders et al., 2007; p. 102)](image)

### 7.1 Positivistic Philosophy

The choice of research design (quantitative, qualitative or the mix of the two) depends on the researchers' beliefs and perceptions of the world that guides their actions (Guba, 1990,
Crotty, 1998). Creswell (2009) has identified worldviews, or philosophies, that often lead to embracing qualitative, quantitative or a mixed-method approach to research. These include postpositivism, constructivism, advocacy/participatory and pragmatism. While each worldview has its distinct features, a detailed observation of each is beyond the scope of this chapter. Therefore, we will touch upon postpositivism, which embodies our shared worldview in approaching this study.

According to Creswell (2009), postpositivism challenges the absolute truth and claims that one cannot be ‘positive’ about knowledge when studying the behavior and actions of humans. The postpositivist perspective acknowledges that knowledge can never provide a full explanation of our existing reality, and so there exists no research that might incorporate the flawless truth (Phillips & Burbules, 2000). As a result, the postpositivist will try to represent reality as best as he or she can.

Researchers with a postpositivistic worldview are concerned with studying the behavior of individuals as well as finding the causes of outcomes (Creswell, 2009). They assume that the existence of a phenomenon depends on various factors, and exploring those factors is their main concern (Muijs, 2004). Postpositivists believe that the existing reality should be decoded into tangible numbers to develop objective measures for observation (Creswell, 2009).

As authors, our positivistic worldview has guided our approach towards this study. The topic has arisen out of observation and interest in human behaviour, and factors have been identified with the aim to identify reasons for it. We acknowledge that these factors may not perfectly represent reality, however considering previous empirical evidence, these factors and their identified relationships seem to represent a probable reality as appropriately as possible.

### 7.2 Deductive Approach

According to Neuman (2006), when engaging in a deductive approach, researchers begin with, “abstract concepts or theoretical propositions that outline logical connections between concepts,” (p. 59). Later, they seek to verify these connections with concrete empirical evidence. A researcher who uses a construct as the basis for predicting new, specific observations applies deductive reasoning (Graziano & Raulin, 2004). By reasoning deductively, he/she draws certain inferences from previous empirical findings, and predictions about reality are then based on these inferences.

To formulate the topic of this thesis, we used deductive reasoning within the Theoretical framework to develop a proposition suggesting the presence of a relationship between an owner-manager’s EI and EO within a small firm.

The idea about the relationship emerged from a series of independent deductive explorations. Prior to selecting the topic, we were already well acquainted with theories within the field of entrepreneurship, including the centrality of the entrepreneur and the importance of entrepreneurial strategy-making for small firms. We then consulted literature concerning the entrepreneur to discover that his/her characteristics are significant to entrepreneurship within small firms. From here, we could deduce that some entrepreneur characteristics are more important than others, and so we researched the entrepreneurial process to discover that an entrepreneur’s cognitive-emotional functioning is an important feature. A further look into entrepreneurship and psychology literature allowed us to deduce that EI is an appropriate gauge of this characteristic.
At the same time, we conducted a review of literature about entrepreneurship to discover that it is characterized by a set of entrepreneurial strategy-making processes. We were able to deduce from attention given to EO in particular that it is an appropriate gauge of this strategy-making. At this point, we could deduce that both EI and EO should be related within an owner-manager, and so we further consulted theory to characterize the nature of the connection. When this was determined, two hypotheses emerged, which serve to either confirm or reject the EI and EO relationship.

### 7.3 Exploratory Purpose

This study is intended to be exploratory in nature, in other words, it seeks to find out “what is happening; to seek new insights; to ask questions and to assess phenomena in a new light,” (Robson, 2002: p.59; cited in Saunders et al., 2007; p. 133). In this way, we aim to clarify our understanding of the research problem that has arisen from our interpretation of theory. As there is no previous study directly connecting the owner-manager’s EI to the EO within a small firm, the study seeks to confirm or reject whether this relationship is empirically evident.

The purpose of this study could be confused with being explanatory, where “a problem is studied in order to explain the relationship between its variables,” (Saunders et al., 2007; p. 134). (As explained in section 7.4.1, EI and EO are both characterized as variables within this study.) However, the underpinning of an explanatory study is to determine causal relationships between variables (Saunders et al., 2007), and due to the cross-sectional period of this study, causal relationships can only be assumed from theory rather than proven empirically.

### 7.4 Survey Research

Survey research is one of the most widely used data gathering techniques in the social sciences (e.g. Neuman, 2006; Creswell, 2009). Survey research is closely connected with a positivistic worldview (Neuman, 2006), because surveys intend to portray reality in an unbiased and objective way. Survey research is often used within exploratory or descriptive research (Saunders et al., 2007).

Survey research is used to obtain the information from people in their natural environments. To conduct survey research, researchers must identify the population of interest and the means of obtaining information from either a fraction (sample) or from the entire population of interest (Neuman, 2006). While survey questions can be designed for a specific study, some surveys incorporate previously constructed instruments that are used to test the relationships between variables (Graziano and Raulin, 2004). The main purpose of survey research is to determine the peculiarities of opinions, attitudes, and behaviors (Graziano and Raulin, 2004).

Survey research is often called ‘correlational’ because it is used to identify the relationships between variables. Survey research is conducted on many respondents, who are asked the same questions about their behaviors, experiences or characteristics. Questionnaires used in survey research are either adapted from widely used instruments, or from specially constructed questionnaires. Reliability and validity are the key determinants of quality within survey research, and they can be tested statistically. (Neuman, 2006)

Survey research is flexible and can be conducted across variety of media, such as telephone interviews, hand-in questionnaires, or face-to-face interviews. According to Muijs (2004), survey research can be best utilized when the researchers are concerned with the relation-
ships between variables in a ‘real life context’. If independent variables are identified correctly, survey research provides the quickest way to obtain data and conduct the analysis.

For this study, where a limited timeframe forced us to manage our time efficiently, a survey strategy offered a relatively speedy means of collecting data. Survey strategy enabled flexibility in administering the data collection, and objectivity in terms of the information provided to each respondent, which was identical.

### 7.5 Mono (Quantitative) Method

The word ‘quantitative’ is most often used to describe any data collection technique (ie. a questionnaire) or data analysis procedure (ie. graphs or statistics) that uses numerical data (Saunders et al., 2007). Often, a deductive approach and a quantitative research design are used together (Cresswell, 2009), because quantitative research is best suited for explaining phenomena, and for predicting/testing hypotheses (Muijs, 2004).

Within this study, we will address the research problem and hypotheses by means of a ‘mono method’; that is, we will make sole use of the quantitative method in collecting data and in statistical analysis.

#### 7.5.1 Variables

According to Neuman (2006), concepts are the building blocks of theory. Logical threads of theories are embedded into concepts, which often acquire symbolic forms, and so are therefore universally understood. Within quantitative research, these concepts are converted into variables that can be manipulated, observed or/and measured. Furthermore, the relationships between these variables are a main concern for researchers (Neuman, 2006).

Based on how variables are used, they can be classified as independent and dependent. Researchers often build their hypotheses on causal relationships between these variables (Graziano & Raulin, 2004). Independent variables are assumed to influence dependent variables. A causal relationship exists when the “change in one variable causes a predictable change in the other” (Graziano & Raulin, 2004; p. 64). Overall, causality is a tentative issue that should be treated with caution (e.g. Gujarati, 2004; Muijs, 2004; Cresswell, 2009).

Due to the cross-sectional nature of this study, determining causality is impossible. However, based on collected empirical evidence suggesting that the entrepreneurial personality should be the catalyst to entrepreneurial strategy-making, we assume EI to be the independent variable, and EO, the dependent variable. Sometime dual causality can occur, where variables dually influence each other. While this can be common in the field of social research (Gujarati, 2004), again we cannot confirm any type of causality within the cross-sectional timeframe, and therefore, we are approaching this study from the perspective that the EI variable influences the EO variable.

Within quantitative research, variables take on numeric values, which are defined by the instruments used to measure them (Graziano & Raulin, 2004). In this study, both EI and EO are treated as continuous variables. This means that, for example, a certain level of EI could theoretically take on any numerical value, though sometimes within a restricted range, so long as it can be measured with enough accuracy (Saunders et al., 1997).
7.6 Cross-sectional Period of Study

While short time frame studies are easier to design and execute, they lack a richness of insight that results from conducting a longitudinal study. For entrepreneurship research, longitudinal studies are important, due to the fragility of new firms that may experience many changes within short time periods. Further, it is only over the course of time that studies will allow us to pursue the objective of causal inference. (Low & McMillan, 1988)

While it would have been ‘ideal’ to determine causality by extracting successive data samples from firms over a course of time, the relatively short thesis timeframe provided insufficient opportunity to adopt this approach. Instead, this study is limited to a cross-sectional approach, where data is collected from one or more variables at the same point in time (Gujarati, 2004). In this case, an analysis of the findings limits us to identifying relationships, because causality cannot be verified within this short time period. Instead, causal inference must be assumed based on support from previous empirical evidence, and verified with a follow-up study.

7.7 Data Collection

In order to define both EI and EO numerically, we have chosen two survey instruments that can measure each variable. For EI, we have chosen the EISDI (Emotional intelligence self-description inventory), which was recently developed by Groves, McEnrue and Shen in 2008. For EO, we have chosen an instrument developed by Covin and Slevin in 1986, originally titled a ‘strategic posture’ scale, and later formalized to ‘entrepreneurial posture’ (Covin & Slevin, 1989).

7.7.1 The EI Instrument

As noted within the Theoretical framework, the field of EI research is section among three major models: the ability-based (cognitive-emotional) model, the trait-based (emotional self-efficacy) model, and the mixed trait-ability model. From these models, we have chosen Mayer and Salovey’s (1997) ability-based model as suitable for this study.

For models of EI, there has been considerable variation in how EI has been measured. This variation includes task-completion exercises similar to those from IQ tests (Mayer, Caruso, & Salovey, 2008), behavioural measures including self and peer assessment (Bar-On, 1996; Jordan, Ashkanasy, Hartel & Hooper, 2002) as well as 360-degree feedback (Boyatzis & Goleman, 1999), where the EI of an individual is measured by the self and others (cited in Shipper et al., 2003). Self-report measures are the most common method of measuring EI (Cooper & Sawaf, 1996; Bar-On, 1996; Schutte et al., 1998; Sosik & Megehrian, 1999), however they suffer from self-assessment bias (cited in Shipper et al., 2003). This includes a lack of real self-awareness, and an incentive to respond to questions in a socially desirable way (Shipper et al., 2003). While this bias was taken into consideration, we deemed self-assessment instruments to be most suitable for this study due to their accessibility; most tests are available immediately, and many are offered at no cost to researchers.

Groves et al. (2008) developed the EISDI instrument as a self-assessment instrument to operationalize the Mayer and Salovey (1997) model of ability-based EI. By incorporating best practices found within existing EI training, the researchers designed the instrument as a tool to develop EI. The instrument comprises four factors, containing six items each. Four criteria were used to generate and evaluate the items, which aim to overcome some drawbacks of other self-assessment instruments, as well as to relate it to EI training. These include a) clearly representing of the dimensions of Mayer and Salovey’s model; b) eliminat-
ing double-negatives, double-barreled content, and other complications; c) eliminating overly desirable or undesirable content; and d) being relevant to leadership development applications and happenings within the organization. Responses are measured on a Likert-type scale of 1 (indicating ‘strongly disagree’) to 7 (indicating ‘strongly agree’).

To improve the instrument’s psychometric properties, Groves et al. (2008) conducted a factor analysis and verified that a clear four-factor solution exists representing the four dimensions of Mayer and Salovey’s model. Further, an analysis confirmed the discriminant validity of the instrument from the Big Five personality traits. This indicates that the EISDI does not tap into personality traits, which by definition, are not amenable to change. The convergent validity of the EISDI was confirmed using Wong and Law’s (2002) WLEIS instrument and Brackett et al.’s (2005) SREIS, which are all based on Mayer and Salovey’s (1990, 1997) EI model. Lastly, of these three instruments, the EISDI was found to be the least correlated to social desirability.

Therefore, in addition to being an immediately accessible and parsimonious instrument, the EISDI was chosen because it directly addresses an ability to develop EI; because it adequately represents the Mayer and Salovey (1997) model; and because it is superior to its similar instruments in discriminant and convergent validity (see appendix 1 for the complete instrument).

7.7.2 The EO Instrument

Miller (1983) was the first scholar to develop an instrument that measures what are now recognized as the EO dimensions of risk-taking, proactiveness and innovativeness. Covin and Slevin (1989) later developed a scale based on Miller’s dimensions that was intended to assess the entrepreneurial posture of firms based on a firm’s engagement in the above dimensions (Covin & Slevin, 1989). This modified instrument has become the scale that is most often used and the rational choice among researchers (Rauch et al., 2004; Sapienza et al., 2003). Further to this, and while the EO dimensions of autonomy and competitive aggressiveness have been detailed in theory, only autonomy has, very recently (e.g. Lumpkin et al., 2009) been operationalized into a separate construct.

Covin and Slevin’s (1989) modification, which we shall refer to as ‘the EO instrument’, includes the three EO factors comprising three items each. Several items have been adapted from existing instruments by Miller and Friesen (1982) and Khandawalla (1976/77), while the rest are original. Responses are measured on a Likert-type scale from 1 to 7, where opposing statements are situated at either end of the scale; the higher the score, the more entrepreneurial the strategic posture (and thus EO).

Covin and Slevin (1989) assessed the factorial validity, or construct validity (Allen & Yen, 1979) of the instrument and determined that, “all items were loaded above 0.5 in a single factor indicating it is appropriate to combine these items in a single scale,” and further, that they “... are empirically related and constitute a distinct, unidimensional strategic orientation,” (Covin & Slevin, 1989; p. 79). The internal reliability of the instrument as well as its predictive validity have also been demonstrated in numerous studies (e.g. Becherer & Maurer, 1999; Kemeglor, 2002; cited in Rauch et al., 2004).

The instrument does however have its shortcomings. Some scholars have suggested that it taps a mix of current attitudes and past behaviours (Wiklund, 1999). Assessment of an item content and factor structure indicates the ambiguity of the proactiveness dimension (Lumpkin and Dess, 1996; 1997).
It is considered an acceptable approach to operationalize a firm’s EO from the perspective of its CEO (or owner-manager) (Covin & Slevin, 1989). As such, most studies have used individual responses of the CEO to gauge EO (Krauss, Frese, & Friedrich, 2004; cited in Sapienza et al., 2003). While this may not be the best approach in firms whose CEO is separated from the firm’s operations by layers of middle managers, it is less of a problem for small firms, where the CEO (or owner-manager) has a strong, direct influence on business decisions and practices (Sapienza et al., 2003).

While the instrument’s shortcomings are inevitable and should be taken into account during the data analysis and interpretation of a study, the instrument continues to be of frequent use among researchers. In light of the lack of further development in operationalizing EO dimensions, Covin and Slevin’s (1986) strategic posture test is the most suitable choice for this study (see appendix 1 for the complete instrument).

7.7.3 Survey Compilation

In order to create a survey for this study, both instruments were compiled into a single document to be sent out to potential respondents. At the start of the survey, a set of Swedish instructions outlined the length of time estimated to complete it and informed respondents that answers were to be based entirely on their perceptions. This was intended to mitigate any respondent bias of answering based on social desirability.

A section collecting demographic data followed, eliciting information about age, gender, education, current position, length of tenure, firm age, firm size, and level of technology. We have collected this categorical data (Saunders et al., 2007) as a contingency plan, should categories of respondents demonstrate notable relationships that may not be evident in the general sample population.

The EO instrument, was next. The respondent was given a short instruction of how to estimate the value of his/her response to an item based on the statements shown in the Likert-type scale. The nine-item instrument followed, with items randomized and several statements reversed in order to avoid respondent bias. The statements were already translated from Covin and Slevin’s English original into Swedish, and were utilized within several previous EO studies (e.g. Rauch et al., 2004; Wiklund, 1999, 2001).

The EISDI instrument concluded the survey. The respondent was again given a short instruction of how to estimate the value of his/her response to an item on the Likert-type scale. The 24 items were then randomized to avoid respondent bias. The EISDI was translated from English to Swedish specifically for use within this study. A local Master student and professor team conducted an initial translation from English to Swedish, followed by a reverse verification from Swedish back to English.

All items within the survey were numbered sequentially and tagged clearly to avoid confusion and error upon entering the data into the SPSS programme.

7.7.4 Sample Selection

A properly chosen sample should provide information closely resembling the characteristics of the entire population. While there exists the risk of choosing a sample that reflects characteristics different to that of an entire population, there are certain methods of minimizing the chance of encountering such bias. Therefore, we avoid reporting information that cannot be generalized across an entire population (Graziano & Raulin, 2004).
In most cases, it is not possible to obtain data from an entire population. This is when researchers obtain data from the fraction of population, called sampling. Selecting a relevant sample is one of the major factors determining the success or failure of survey research. After identifying a sample of interest, a relevant sampling method should follow. The sampling method depends on various factors, such as the context of the research, financial restrictions, and geographical restrictions (Graziano & Raulin, 2004).

In general, larger samples better represent a population than smaller ones. The importance of the sample size depends on the degree of homogeneity of the population. The more homogeneous a population, the smaller the tolerated sample size (Graziano & Raulin, 2004). In the case of a heterogeneous population, “diversity must be represented in the sample” (Graziano & Raulin, 2004; p. 315).

### 7.7.5 Simple Random Sampling Method

A common means of obtaining an unbiased sample for survey research is to use probability sampling methods (e.g. Muijs, 2004, Creswell, 2009). According to Graziano and Raulin (2004), probability sampling techniques are most reliable in choosing a sample that represents an entire population. Out of the various probability sampling methods in existence, the simple random sampling method has been used for this thesis. Simple random sampling is used when subgroups of a population are insignificant to the outcomes of survey research (Graziano and Raulin; 2004).

Out of the probability sampling methods available, we have used the simple random sampling method, which ensures that each individual from a population has the exact same probability of being included in a sample. Simple random sampling can be conducted when researchers can obtain the list of an entire population.

Using random sampling properly, that is, having access to a list of an entire population, ensures that an unbiased approximation of the population is obtained (Muijs, 2004). A hindrance for using simple random sampling includes a large population size (Graziano & Raulin, 2004). Within this study, the size of the population was manageable, comprising 274 firms from across Sweden.

### 7.7.6 Population Characteristics

The list of the entire population was obtained the Affärsdata (2009) database provided by the Jönköping University Library. The population sampled included the owner-managers of young, small-sized firms that operate within the Swedish high-tech industry. The logic behind the choice of the sample population is based on internal and external factors that, based on prior empirical evidence, are said to support positive evidence of entrepreneurial strategy-making, and so, EO. It is important to note this, for we cannot go 'searching' for EO within a context where it is less important. There should be at least some evidence of EO in order to identify correlations between variables. On the other hand, with regards to EI, each human being has some degree of experience with his/her cognition and emotions, as well as the emotions of others, incurred through general social contact. Therefore, 'searching' for EI was not a priority.

National environment. The population included all firms that were operating in Sweden during the research process. Swedish firms have been chosen because of the availability of the data from Affärsdata. The authors were working on thesis in Sweden, thus communication with Swedish firms was easier and financially more viable.
Industry. From within Sweden, firms operating within the high-tech industry were isolated due to their need to maintain a significant level of entrepreneurship in order to survive in the highly competitive marketplace (Miller, 1983; Bahrami & Evans 1987). The hostile environment forces high-tech firms not to spare effort in order to survive, gain and maintain their competitive advantage. In contrast with those firms that operate in benign environments, high-tech firms cannot afford to act conservatively, as hostile environments are intolerant of conservative attitudes. (Bahrami & Evans, 1987) Thus, the survival of high-tech firms within hostile environments is dependent upon their level of entrepreneurship.

High-tech firms were chosen within the following categories, as identified by Swedish ISIC codes; wired telecommunications (61100), computer programming (62010), other information technology and computer service activities (62020), computer facilities management activities (62030), technical consultancy in electrical engineering (71123), issuance of other software (58290), and media representation advertising (73120).

Firm size. From within the Swedish high-tech industry, small firms were isolated because of mentioned empirical evidence indicating the owner-managers’ decision-making power within this firm structure. Moreover, small firms are more vulnerable to competition than their larger counterparts due to the limitations of human and financial resources (Cressy, 2006). Furthermore, and according to Covin and Slevin (1989; p. 77), “an entrepreneurial strategic posture is particularly beneficial for the small firms in the hostile environments.” This evidence can be interpreted to mean that the risk for small firms to die out without applying entrepreneurial strategy-making is greater than the risk for larger firms – and therefore, it should be evident within small firms.

The size criterion for the firms was selected in consideration of theory, that suggests a small firm size to include up to 50 employees (Krauss et al., 1994; Davidsson & Wiklund, 2001) and further, based on the European Union’s standardized concept of ‘small businesses’ which constitutes fewer than 50 employees (European Commission, 2009).

Firm maturity. From the group of small firms operating within the Swedish high-tech industry, a firm maturity criterion was applied based on evidence that half of all startups die out during the first two and a half years (e.g. Bates, 1990). This failure is attributed to the effects of a hostile environment, weak human resources, and scarce financial resources (Cressy, 2006). In order to survive, startup firms need to capture unoccupied market segments, or else they must operate within saturated markets and compete with established rivals. Under these hostile conditions, the chances of survival increase when the companies exercise entrepreneurial strategy-making (Dess et al., 1997). On the other hand, when firms become older and more established, they become less entrepreneurial (e.g. Mohan & Sumaria, 1995; Autio, Sapienza & Almeida, 2000). In light of this evidence, we have selected firms within the range of 4-10 years old.

Firm management. Lastly, an owner-manager criterion was applied to all young and small-size firms operating within the Swedish high-tech industry. This was due to empirical evidence demonstrating that the owner-manager is the main decision-maker within a small firm. When the small firm operates within a dynamic environment, there is need to adopt an entrepreneurial approach to strategy-making in order to deal with rapid changes in the environment (see section 5.2.2). As such, the owner-manager will be responsible for this entrepreneurial strategy-making, and so his/her information is most relevant for this study.
7.7.7 Administration of Data Collection

After identifying the sample population, the contact information of the 274 isolated firms was entered into the Microsoft Excel program. The “randbetween” function was used to randomize the list, from which, in order, all potential respondents were contacted.

Data collection efforts were outsourced to an agent at a Jönköping (local) marketing bureau, as the data for this study is of interest to various research parties. This seemed like a practical and time-saving decision given our initial six month timeframe; and the agent’s prior experience in data collection was seen to improve the validity of the data collected. The agent initially contacted respondents by phone to inform owner-managers about the nature of the study and the extent of their participation. If they agreed to partake in the study, owner-managers were sent a Microsoft Word file of the questionnaire, which they were to complete and return to the agent. After a week’s window of time for a reply, a reminder email was sent to them.

The agent continued with this procedure for a period of six weeks (mid-May until the end of June, 2009), after which time a basic statistical sample size of 35 respondents was collected. Responses were entered immediately into a master SPSS file on a rolling basis. A complete file of the 35 respondents was forwarded to the authors at the end of the six-week period.

7.8 Data Analysis

In its raw form, quantitative data can often convey little meaning; therefore the data needs to be processed and analyzed to convert it into 'information' (Saunders et al., 2007). The following section outlines how we intend to interpret collected quantitative information, and further, why certain quantitative decisions were taken to represent qualitative ideas supporting our hypotheses.

7.8.1 Variable/Instrument Characteristics

As noted within the Theoretical framework, each variable used within this study is comprised of a set of factors. EI comprises four factors (or branches), including the perception and appraisal of emotions (PE), facilitating thinking with emotions (FE), understanding emotion (UE) and the regulation and management of emotion (RE). In theory, EO comprises five factors (or dimensions), including innovativeness, risk-taking, proactiveness, competitive aggressiveness and autonomy. However, in using our chosen EO instrument, the two factors of autonomy and competitive aggressiveness have been excluded from measurement. Therefore, within this study, we have access to an EO variable comprising three factors. Within each of the four EI factors, a set of six items (or questions) is included, totaling twenty-four items for the entire variable. Within each of the three EO factors there is a set of three items, totaling nine items for the entire variable.

7.8.2 Interpreting Instrument Scales

When using numerically-defined variables, it is essential to identify the characteristics of the instrument's scale that measures them. As noted earlier, both EI and EO are treated as continuous variables, meaning that levels of EI or EO could theoretically take on any numerical value, though sometimes within a restricted range, so long as they can be measured with enough accuracy (Saunders et al., 1997). As further noted earlier, the EISDI and EO instruments both utilize the same Likert-type scale, ranging in value from 1 (indicating the lowest value in both instruments) to 7 (indicating the highest value in both instruments). In
general, variables’ scales determine the different statistical approaches appropriate for identifying relationships between them; and it is important to understand these scales as, “Serious errors in data analysis and interpretation can occur when the researcher misapplies the number system,” (Graziano & Raulin, 2004; p. 77).

The Likert-type scale used within both instruments is a type of interval scale, meaning that there are equal intervals between consecutive values on the scale. One distinction to note when using an interval scale is that it misses the true value of the zero point. Therefore, researchers should take this into consideration when interpreting results (Graziano & Raulin, 2004). In using the EISDI to illustrate this point: if an individual scores 6 on an item and another individual scores 3 on that same item, because of the absence of a true zero point in measurement, it does not necessarily mean that former individual is twice as emotionally intelligent as the latter.

7.8.3 Analyzing the Relationships

In order to test the two hypotheses, we must define how we intend to apply numerical values to evidence extracted from theory.

The first hypothesis, “an owner-manager’s EI can be used to predict EO within small firms,” is based upon a series of assumptions indicating that an owner-manager’s EI should be significantly correlated to the EO within the small firms. To identify a possible linear relationship, we will examine the relationship between global EI and global EO scores. To obtain these scores, we will calculate the mean of the factors. For example, for a global EO score, if proactiveness were 3, innovativeness were 4, and risk-taking were 5, the score would be \((3+4+5)/3 = 4\). A linear regression analysis will then be conducted to address the first hypothesis and examine the relationship between global EI and global EO scores.

The second hypothesis, “an owner-managers’ EI dimensions are positively correlated to the EO dimensions in small firms,” implies that relationships between separate EO and EI factors should be examined. As we will have already examined a relationship to the global EI score, by also examining relationships to independent EI factors, this will allow us to determine what specific EI factors are related to specific EO factors. As there is a developmental progression from basic to sophisticated skill within each branch (or factor) of EI (Salovey & Sluyter, 1997; Mayer et al., 2004), we may see differing relationships emerging as EI competency progresses. In order to represent the score of each of the EI and EO factors, we intend to average the scores of the items within each factor. A coefficient correlation analysis will then be conducted to address the second hypothesis and determine the relationship between global EI and each EO factor, each EI factor and each EO factor, as well as each EI factor to global EO.

7.9 Credibility of Research Design

To determine if the evidence derived from this study will stand up to scrutiny and be credible, attention must be paid to two emphases within research design; reliability and validity (Saunders et al., 2007). The following sections cast a critical eye on our approach to this study in an aim to be objective in evaluating our choices.

7.9.1 Reliability

The reliability of a study refers to, “…the extent to which data collection techniques or analysis procedures will yield consistent findings,” (Saunders et al., 2007; p. 149). Three criteria assess the reliability of a study; a) If the measures yield the same results on other occa-
sions, b) If other observers will reach similar observations, and c) If there is transparency in how raw data is interpreted (Easterby-Smith et al., 2002; p. 149; cited in Saunders et al., 2007).

**Overall approach to the study.** As authors, we have taken several steps to ensure that this study has been reliably conducted. Starting from our approach to literature, deductions within the theoretical framework have been described carefully and clearly with attention given to maintaining the integrity of scholars’ ideas. Hypotheses have been supported in a rational and logical manner based on assumptions derived from scholars’ ideas. The method used to approach the study has been chronicled from its most macro perspective (philosophy) down to its minute details. Our rationale for our choice of instruments was carefully described, the procedure for compiling the survey chronicled and supported, the sample population outlined in detail and linked to the theoretical framework, and the procedure for administering the data collection was discussed. Furthermore, with regards to the data analysis, our approach to interpreting quantitative data was detailed, and statistical approaches to analysis were supported and described. Lastly, in this section, we are critically analyzing the credibility of our study thus far.

As our presentation of this study has been as transparent as possible, other observers would have access to thorough information and should be able to follow these steps and ‘reproduce’ this study, yielding the same results. By doing so, other observers should then come to the same observations. Therefore, in terms of an overall approach, the study should be reliable.

**Instrumentation.** The reliability, or internal consistency, of the instrumentation used within the study is worth noting. An instrument is reliable if it provides the same results every time it is used, regardless who uses it (Mujs, 2004). It is distinct from validity in that “A measure cannot be valid unless it is reliable, but a measure can be reliable without being a valid measure of the variable of interest,” (Graziano & Raulin, 2004; p.91).

The trustworthiness of the instrument depends on the statistical analysis of the items used in the instrument (Mujs, 2004). Prior to their inclusion within this study, both the EI and EO instruments were tested and showed satisfactory results for reliability. With regards to the EISDI, Groves et al. (2008) determined that the Cronbach’s alpha across the four dimensions varied between, 0.76, and 0.85, indicating a high internal consistency. The EO instrument, having been used frequently within research, has been tested for reliability several times. First Covin and Slevin (1989) determined an inter-item reliability coefficient of 0.87; further tests for internal consistency of the instrument have also been demonstrated in numerous studies (e.g. Becherer & Maurer, 1999; Kemeglor, 2002; cited in Rauch et al., 2004). Therefore, the instrumentation is reliable insofar as its creators and subsequent researchers were ‘right’ about their results of their verification.

### 7.9.2 Threats to Reliability

This said, there are four threats to reliability (Robson, 2002; cited in Saunders et al., 2007) of which require a deeper examination of the study in order to identify them.

**Participant error.** The first is participant error, where for example, participants that complete surveys during different times may generate different results. The reliability of this study may be affected by participant error because data collection was outsourced to an agent (who is beyond our control); who contacted prospective respondents by phone and who then allowed respondents to complete the survey at their own will. Therefore, respondents’ evaluations of their own EI and EO may be influenced by their level of energy, emotional
state, and commitment to other tasks; all of which can vary during different times of the day and days of the week.

Participant bias. The second threat is participant bias, where respondents’ responses may be swayed away from honest responses. There is the distinct possibility that respondents would be tempted to answer favorably on the survey in order to capture competencies that they would ideally like to have. Our initial instructions indicating that there is ‘no right or wrong answer’ attempt to mitigate the temptation to answer idealistically. Within both variables, the order of items has been randomized as to prevent respondents from spotting factorial patterns, and therefore answering in a favorable light. Items were randomized, and some scales were reversed, as further precautions against this bias.

Observer error. The third threat is observer error, where an unstructured approach on the part of the author/researcher may result in a variation of answers. This threat is relatively low when it comes to completing items on a quantitative survey, as all items are identical for each respondent, and delivered to them the same way (by email) using the exact same information. However, observer error may have been incurred by the outsourced agent, who could have offered a shorter or longer introduction to the study by phone, therefore influencing the perception of the study in the mind of the respondent. Furthermore, email reminders could have elicited emotional responses in respondents, impacting their responses on the survey.

Observer bias. The last threat is observer bias, which can influence the interpretation of data. Observer bias may have been incurred in our bounded rationality used in selecting the appropriate instrument to measure our variables. The choice of how to interpret the instruments’ scales, measure the value of factorial and global scores, and which particular analysis techniques to apply all affect the resulting statistics.

7.9.3 Validity

A study can be considered valid if its findings are really about what they appear to be about (Saunders et al., 2007). In order to determine if this is the case, several threats that can affect the validity of a study have been examined (Robson, 2002; cited in Saunders et al., 2007).

Time period prior to data collection. Events occurring prior to the period of data collection may have an impact on responses. Prior to the period of this study, the general economic climate was rather stagnant due to the worldwide financial crisis that began to unfold in the fall of 2008. The Swedish high-tech industry may have felt the impact of this stagnation, and firms could have changed their entrepreneurial strategy-making to cope with the changes. While such changes are difficult to estimate without comprehensive research, it can be deduced that the respondent’s perceptions of their EO may have been influenced by the large economic climate. On a micro-level, individual events occurring just prior to the respondents’ survey efforts could have affected the information they conveyed. As the surveys were sent to the respondents so that they could complete them in their own environment, we had had no control over such micro-events. Regardless, history could have affected the validity of the data.

Testing. If the respondent thinks that the results of the research may be advantageous/ disadvantageous to him/her, this is likely to affect results (Saunders et al., 2007). Within this study, and while an attempt was made within the instructions of the survey to avoid this bias, respondents who may have been interested in displaying themselves in a positive light could have impacted the validity of their answers. Therefore, the instruments could have
been measuring an idealized concept of EI and EO. If this is the case, then the validity of the survey approach is put into question.

**Instrumentation.** An instrument is valid if it measures what it supposed to measure; and the trustworthiness of the instrumentation depends on a statistical analysis of the items included in the instrumentation (Mujs, 2004). The validity of the EISDI and EO instruments was verified by the creators of the instruments, as discussed in section 7.8.1. The instrumentation, and therefore a portion of our study, is valid insofar as the creators were ‘right’ about their results of their verification. This represented a risk to validity that we as authors had to accept when choosing the most appropriate instruments for the study.

**Mortality.** This term refers to participants dropping out of the study (Saunders et al., 2007). It is conceivable that, especially when checking for relationships between variables, dropouts could affect the basic statistical sample needed to ensure that the results are valid. When data was collected for this study, the goal of the outsourced agent was to accumulate a basic statistical sample of 35 respondents. This was accomplished by a continual process of contacting potential respondents and eliciting responses, until 35 respondents were reached. Therefore, if one respondent were to drop out, the next on the list would be contacted in his/her place. As such, it is expected that mortality should not pose a serious threat to the validity of this study.

**Maturation.** This term takes into account events happening throughout the time period of this study that could cause an effect on responses (Saunders et al., 2007). As this is a cross-sectional study, and the respondents need only engage in the survey for a short period of time (an estimated 15 minutes), it is expected that maturation should not cause influence in terms of an ‘evolution’ of information.

**Ambiguity about the causal direction.** As discussed in section 7.6; due to the cross-sectional time period of this study, we cannot be sure about causality; that is, for example, a rise in the level of EI that causes EO to react. While theory suggests that this should be the case, this is impossible to conclude unless a causality test of a longitudinal nature is performed. Thus, this can affect the validity of our findings.

### 7.9.4 Generalizability

Generalizability addresses whether the research results may be applied equally to other research settings (Saunders et al., 2007). Based on our sample population, we expect that the owner-manager’s EI to EO relationship to be generalizable within young, small firm operating within the Swedish high-tech industry. However, and considering the impact of each of these internal and external factors on an owner-manager’s EI and EO of the small firms, it may be the case that a parallel EI to EO relationship could be found within firms of a similar age and size, operating within an industry that is as dynamic, and within another comparable national environment.

### 8 Empirical Analysis

The empirical analysis is organized using a format suggested by several authors (e.g. Mujs, 2004; Saunders et al., 2007; Creswell, 2009). Firstly, a univariate analysis details the descriptive statistics, including demographic data, instrumentation reliability verification, variable scoring, and the distribution of values. Thereafter, a linear regression and bivariate analysis address the hypotheses.
8.1 Univariate Analysis

A univariate analysis serves to examine individual variables, and therefore to provide important information as well as to provide an opportunity to spot mistakes in data input (Muijs, 2004).

As results were compiled, we noticed that several values were missing, and therefore we had to decide how to interpret this lack of data. According to deVaus (2002), there are four main reasons for missing data, including a) data that was not required by the respondent, b) a non-response because the respondent refused to answer a question, c) the respondent did not know the answer or did not have an opinion, and d) the respondent missed the question by mistake (cited in Saunders et al., 2007). As all data was explicitly asked of all respondents, it is possible that the respondents refused to answer, did not have an opinion, or simply missed the question. In each case, it is impossible to go back and prompt respondents for their answers, and this may also influence the nature and thus validity of each answer. Therefore, any missing data from respondents’ questionnaires can be excluded from analyses when necessary (Saunders et al., 2007), as has been done in this empirical analysis. However, all missing data is included in the tables to follow to indicate potential effect on the validity of the results.

8.1.1 Demographic Data of Respondents

After a 6-week period of data collection, questionnaires from 35 owner-managers were accumulated; a sum that has been identified as the basic minimum quantity of respondents necessary to produce significant statistical results.

While the various categories of demographic data are not immediately useful in determining relationships between the variables, they do serve to create a precise profile of those respondents who answered, setting the context within which the results can be considered.

27 respondents indicated their age. The mean age of the respondents is 44,2 years, with a standard deviation of 9,4 years.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Age in years (Mean)</th>
<th>Age in years (Standard Deviation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>44,2</td>
<td>9,4</td>
</tr>
<tr>
<td>Missing</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Total</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>

Table 1: Age

28 respondents indicated their gender. 3 individuals, or 10,7% of respondents who answered the question are females. 25 individuals, or 89,3% of those who answered are males.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Total Percent</th>
<th>Valid percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>80,0</td>
<td>100,0</td>
<td>--</td>
</tr>
<tr>
<td>Male</td>
<td>71,4</td>
<td>89,3</td>
<td>89,3</td>
</tr>
<tr>
<td>Female</td>
<td>8,6</td>
<td>10,7</td>
<td>100,0</td>
</tr>
<tr>
<td>Missing</td>
<td>20,0</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Total</td>
<td>100,0</td>
<td>--</td>
<td>--</td>
</tr>
</tbody>
</table>
28 respondents indicated their highest completed level of education. 3 individuals, or 10.7% of those who answered have earned their gymnasium degree (Swedish equivalent of high school). 2 respondents, or 7.1% of those who answered have a post secondary education. 7 respondents, or 25% of those who answered have taken courses at university. 16 respondents, or 57.1% of those who answered have graduated from university.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Total Percent</th>
<th>Valid percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td>80,0</td>
<td>100,0</td>
</tr>
<tr>
<td>Elementary School</td>
<td>0</td>
<td>0,0</td>
<td>0,0</td>
</tr>
<tr>
<td>Highschool Skills</td>
<td>3</td>
<td>8,6</td>
<td>10,7</td>
</tr>
<tr>
<td>Post Secondary Education</td>
<td>2</td>
<td>5,7</td>
<td>7,1</td>
</tr>
<tr>
<td>Higher Education Institution (courses)</td>
<td>7</td>
<td>20,0</td>
<td>25,0</td>
</tr>
<tr>
<td>Higher Education Institution (graduate/degree)</td>
<td>16</td>
<td>45,7</td>
<td>57,1</td>
</tr>
<tr>
<td>Missing</td>
<td>7</td>
<td>20,0</td>
<td>--</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>100,0</td>
<td>--</td>
</tr>
</tbody>
</table>

Table 2: Gender

28 respondents indicated the focus of their education. 5 respondents, or 17.9% of those who answered have a major in economics. 12 respondents, or 42.9% of those who answered have major in technical disciplines. 3 respondents, or 10.7% of those who answered have major in humanitarian disciplines. 8 respondents, or 28.6% of those who answered chose “other” as their educational focus.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Total Percent</th>
<th>Valid percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td>80,0</td>
<td>100,0</td>
</tr>
<tr>
<td>Economics</td>
<td>5</td>
<td>14,3</td>
<td>17,9</td>
</tr>
<tr>
<td>Technical</td>
<td>12</td>
<td>34,3</td>
<td>42,9</td>
</tr>
<tr>
<td>Humanitarian</td>
<td>3</td>
<td>8,6</td>
<td>10,7</td>
</tr>
<tr>
<td>Other</td>
<td>8</td>
<td>22,9</td>
<td>28,6</td>
</tr>
<tr>
<td>Missing</td>
<td>7</td>
<td>20,0</td>
<td>--</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>100,0</td>
<td>--</td>
</tr>
</tbody>
</table>

Table 3: Level of education

26 respondents indicated the number of employees working in their companies. The mean number of employees working within their firms is 24.7, and the standard deviation is 15.2. Even though all companies within the sample population were reported to have up to 49 employees (as per the Affärsdata database) prior to selecting them, two respondents answered that their firms have 55 and 69 employees working within their firms (for details see appendix 2).

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Total No. of employees (Mean)</th>
<th>Total No. of employees (Standard Deviation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>26</td>
<td>24,7</td>
</tr>
<tr>
<td>Missing</td>
<td>9</td>
<td>--</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>--</td>
</tr>
</tbody>
</table>

Table 4: Educational focus

26 respondents indicated the number of employees working in their companies. The mean number of employees working within their firms is 24.7, and the standard deviation is 15.2. Even though all companies within the sample population were reported to have up to 49 employees (as per the Affärsdata database) prior to selecting them, two respondents answered that their firms have 55 and 69 employees working within their firms (for details see appendix 2).

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Total No. of employees (Mean)</th>
<th>Total No. of employees (Standard Deviation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>26</td>
<td>24,7</td>
</tr>
<tr>
<td>Missing</td>
<td>9</td>
<td>--</td>
</tr>
<tr>
<td>Total</td>
<td>35</td>
<td>--</td>
</tr>
</tbody>
</table>

Table 5: Firm size
8.1.2 EO and EI Factor Scores

EI and EO dimensions have been treated as continuous variables, thus mean values have been used to describe the central tendency. The central tendency characterizes values that can be viewed as common, middling, or average (Saunders et al., 2007). The standard deviation has been noted to describe the dispersion of respondents’ answers.

Within the EO instrument, the mean of each factor’s items has been used to define its score, or value. Therefore, if a respondent were to answer at least 1 out of 3 items defining a factor, the score for the factor would have been defined. We were able to utilize 34, 35 and 33 different responses for innovativeness, proactiveness and risk-taking respectively. The missing values rows, as per the table below, show that one respondent did not answer any of the items defining innovativeness, and two respondents did not answer any of the questions defining risk-taking. The mean values for innovativeness, proactiveness and risk-taking factors are 4.63, 4.85 and 4.53 respectively, and their standard deviations are 1.25; 1.06 and 0.95 respectively.

<table>
<thead>
<tr>
<th></th>
<th>Innovativeness</th>
<th>Proactiveness</th>
<th>Risk-taking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Cases</td>
<td>34</td>
<td>35</td>
<td>33</td>
</tr>
<tr>
<td>Missing Cases</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Mean</td>
<td>4,6373</td>
<td>4,8571</td>
<td>4,5354</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>1,25359</td>
<td>1,06423</td>
<td>0,95721</td>
</tr>
</tbody>
</table>

Table 6: Scores for EO factors

Within the EI instrument, the means of each factor’s 6 items have been used to define their values. The frequency shows that we were able to utilize 29 separate responses for each EI factor. The missing values rows show that 6 respondents failed to respond to any of the EI items. The mean values for PE, FE, UE and RE are 5.14; 5.35; 5.26 and 5.79 respectively, and their standard deviations are 0.76; 0.74; 0.71 and 0.56 respectively.

<table>
<thead>
<tr>
<th></th>
<th>PE</th>
<th>FE</th>
<th>UE</th>
<th>RE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Cases</td>
<td>29</td>
<td>29</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td>Missing Cases</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Mean</td>
<td>5,1437</td>
<td>5,3494</td>
<td>5,2586</td>
<td>5,7885</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>0,76210</td>
<td>0,73870</td>
<td>0,71351</td>
<td>0,55523</td>
</tr>
</tbody>
</table>

Table 7: Scores for EI factors

8.1.3 EO and EI Global Scores

As described section 8.1.3, the global EO and EI scores are to be defined as the mean value of their factor scores. We obtained 29 and 33 global scores for EI and EO respectively. The 6 missing EI responses indicate that 6 respondents did not answer any of the instrument’s 24 items. The 2 missing EO responses for EO indicate that 2 respondents did not answer any of the instrument’s 9 items. The global mean values for EI and EO are 5.38 and 4.7 respectively, and their standard deviations are 0.52 and 0.78 respectively.

<table>
<thead>
<tr>
<th></th>
<th>EI</th>
<th>EO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Cases</td>
<td>29</td>
<td>33</td>
</tr>
<tr>
<td>Missing Cases</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Mean</td>
<td>5,3851</td>
<td>4,7003</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>0,52874</td>
<td>0,78836</td>
</tr>
</tbody>
</table>

Table 8: Global scores for both variables
8.2 Verifying Instrumentation Reliability

The internal validity and reliability of the EI and EO instrumentation has been verified by the instruments’ creators and subsequent researchers. However, it is important to understand the internal reliability of these instruments as used by the respondents within this study. Therefore, we will first determine the extent to which the instruments yield reliable findings by correlating the item within each factor to each other to measure the consistency of the responses (Saunders et al., 2007). This is called a measure of the unidimensional latent construct.

Cronbach’s alpha is a statistical measure used to calculate the internal reliability, where a measure of 0.7 should be evident in order to consider a factor to be internally reliable (Muijs, 2004). SPSS enables the possibility of examining the difference in alpha measures if one of the items within a factor is deleted (see appendix 3-6 for details). In some cases, by deleting an item, the Cronbach’s alpha improves significantly. For instance, in the case of the innovativeness factor within the EO instrument, if one item were to be deleted, the Cronbach’s alpha would rise to 0.78. While potentially beneficial, we held back from this approach, because one should be careful in making unanimous corrections if an instrument is widely used in the field of science (Muijs, 2004), as is the EO instrument.

The Cronbach’s alpha for the innovativeness factor reached 0.63, which is considered an acceptable value in the field of social sciences (Muijs, 2004). For the risk-taking factor, the Cronbach’s alpha is 0.52, which is close to the value presented by Covin and Slevin (1989) when they originally developed the instrument. The value of the Cronbach’s alpha for the proactiveness factor is the smallest among EO factors. Moreover, one of the items within proactiveness displays a negative covariance with other two items (for details, see the appendix 3). The covariance measures how the values of two variables move together. Therefore, a negative covariance for the proactiveness item indicates that its value ‘moves’ in the opposite direction of the values of the other two items.

The Cronbach’s alpha for the overall EO instrument was obtained by including all 9 items in calculation of the value. Despite the fact that the Cronbach’s alpha is rather low for each EO factor, the overall Cronbach’s alpha of 0.696 is very close to the 0.7 basic standard for internal reliability. Therefore, the overall instrument can be considered internally reliable, indicating that is measures the concept of EO as it should.

<table>
<thead>
<tr>
<th>Factor</th>
<th>No. of Items</th>
<th>Cronbach’s alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Innovativeness</td>
<td>3</td>
<td>0.631</td>
</tr>
<tr>
<td>Proactiveness</td>
<td>3</td>
<td>0.383</td>
</tr>
<tr>
<td>Risk-taking</td>
<td>3</td>
<td>0.524</td>
</tr>
<tr>
<td>Global EO</td>
<td>9</td>
<td>0.696</td>
</tr>
</tbody>
</table>

Table 9: Internal reliability, EO instrument

The Cronbach’s alpha values for the EI factors are higher than those of the EO factors, ranging from 0.45 for the Regulation and management of emotion factor (RE) to 0.76 for the Perception and appraisal of emotions factor (PE). The Cronbach’s alpha for the overall EI instrument was obtained by including all 24 items in calculation of its value. Valued at
over 0.84, the Cronbach’s alpha for EI instrument can be considered high and it meets the basic 0.7 standard for internal reliability.

<table>
<thead>
<tr>
<th>Factor</th>
<th>No. of Items</th>
<th>Cronbach’s alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>PE</td>
<td>6</td>
<td>0.761</td>
</tr>
<tr>
<td>FE</td>
<td>6</td>
<td>0.622</td>
</tr>
<tr>
<td>UE</td>
<td>6</td>
<td>0.706</td>
</tr>
<tr>
<td>RE</td>
<td>6</td>
<td>0.455</td>
</tr>
<tr>
<td>Global EI</td>
<td>24</td>
<td>0.841</td>
</tr>
</tbody>
</table>

Table 10: Internal reliability, EI instrument

8.3 Preconditions for Analyses

Prior to conducting many statistical tests, it is necessary to identify the distribution of values for each variable (Saunders et al., 2007). A histogram can demonstrate this distribution (as per below). The distribution can be characterized in terms of its skewness and kurtosis.

Skewness measures the symmetry of the distribution around the mean (Gujarati, 2004). If the histogram demonstrates bunching to the left and a ‘long tail’ to the right, then the data is positively skewed. If there is bunching to the right and a ‘long tail’ to the left, then the data is negatively skewed (Saunders et al. 2007). Kurtosis measures the ‘peakedness’ of the distribution. A distribution with a high kurtosis distribution has a sharper peak and longer, wider tails; while a distribution with a low kurtosis has a more rounded peak with shorter, thinner tails (Gujarati, 2004).

If skewness and kurtosis values are close to 0, then the shape of the histogram can be plotted as a bell-shaped curve. This symmetrical shape roughly defines what is known as normal distribution, when most of the values are concentrated close to the mean value. This exact shape is rare in practice. Skewness and kurtosis values of +/-1 are considered acceptable (Gujarati, 2004). The shape of distribution is important to note for this study, as normal distribution is one of the main preconditions for conducting a regression analysis (Gujarati, 2004; Muijs, 2004).

The skewness and kurtosis of the EI distribution are -0.13 and -0.046 respectively, as noted in Table 11. The following histogram demonstrates the shape of the EI distribution.
The skewness and kurtosis of the EO distribution have been defined as -0.25 and -0.81 respectively, as noted in Table 11. The following histogram demonstrates the shape of the EO distribution. While the skewness and kurtosis show more absolute values than those of the EI distribution, they still fall within an acceptable range of +/-1, characterizing normal distribution (Gujarati, 2004).
Table 11: Skewness and kurtosis for EI and EO variables

<table>
<thead>
<tr>
<th></th>
<th>EI</th>
<th>EO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skewness</td>
<td>-0.133</td>
<td>-0.250</td>
</tr>
<tr>
<td>Std. Error of Skewness</td>
<td>0.434</td>
<td>0.409</td>
</tr>
<tr>
<td>Kurtosis</td>
<td>-0.046</td>
<td>-0.816</td>
</tr>
<tr>
<td>Std. Error of Kurtosis</td>
<td>0.845</td>
<td>0.798</td>
</tr>
</tbody>
</table>

Despite the relatively small sample size and missing values, both distributions fall within acceptable ranges for skewness and kurtosis, defining the normality of the distribution. Therefore, the precondition of a relatively normal distribution has been met, which enables us to perform a regression analysis on the data in order to explore the relationships between the variables.

Another precondition for conducting a regression analysis is that there should be no autocorrelation between the residuals. This means that the data should be randomly scattered, and therefore no outside moderator should influence the relationship between the variables. A Durbin-Watson (d) statistic is used to test for autocorrelation. As a rule of thumb, if, “...d is found to be 2 in an application, one may assume that there is no first-order autocorrelation,” (Gujarati, 2004; p. 469). For the EI and EO variables, the value for the Durbin-Watson statistic (1.86) is close to 2, which suggests that there is no autocorrelation between the residuals (for details see Table 12). Therefore, we may proceed to determine the linear relationship between the variables.

8.4 Regression Analysis

Within the following sections, we have determined how the variables relate to one another, by testing the likelihood of these relationships occurring by chance alone. This is known as significance or hypothesis testing, where we compare collected data with what we theoretically expect to occur in our hypotheses (Saunders et al., 2007). The strength and direction of these relationships have been assessed in a series of analyses, by examining the global variable relationships followed by factor relationships.

A regression analysis allows us to evaluate the strength of a relationship between one quantifiable dependent variable and one or more quantifiable independent variables (Saunders et al., 2007). We can use it to predict “...dependent variable Y on the basis of known or expected future value(s) of the explanatory, or predictor, variable X,” (Gujarati, 2004; p. 8). We have decided to use a regression analysis based on evidence from literature indicating that an owner-manager’s EI should be a predictor of EO within small firms, which suggests causality (hypothesis 1). Therefore, we assumed that dependent variable Y (EO) could be predicted by the independent variable X (EI).

We have used a common linear regression analysis model called Ordinary Least Squares (OLS) to identify the regression line. OLS produces a line that minimizes the sum of the squared vertical distances between the line and the observed data points (Gujarati, 2004; Muijs, 2004).

The regression equation for the hypothesized model is:

\[ EO = \alpha + \beta (EI) + \varepsilon \]
In this equation EO is a dependent variable and EI is an independent variable. $\alpha$ is a constant representing the Y intercept when EI is 0. $\beta$ is a slope, or the value Y that will change by 1 unit if X changes by 1 unit. $\epsilon$ is an error term, or the difference between observed and predicted values.

### 8.4.1 Determining the Significance of the Linear Relationship

Saunders et al. (2007) suggest that significance testing determines the probability of a relationship between variables occurring by chance alone. It is possible for errors to occur when reaching conclusions about probability; these are referred to as type 1 and type 2 errors. A type 1 error might result in a conclusion indicating that two variables are related when in fact they are not; or a statement suggesting that a sample statistic is larger than the value that would be expected by chance. This results in rejecting the null hypothesis, and concluding that a significant relationship exists. On the other hand, a type 2 error involves concludes that the two variables are not related when in fact they are. This leads one to accept a null hypothesis, concluding that a significant relationship does not exist. Researchers generally consider type 1 errors to be more severe, and subsequently they prefer to minimize the risk of such by making conservative estimates of significance (Saunders et. al, 2007).

Using an F-statistic test, a P-value (probability value) is obtained to tell whether the regression is statistically significant. In the social sciences, the threshold for significance is a value of 0.05 or lower (Muijs, 2004), which indicates that there is only a 5% chance that data occurred by chance alone. This also indicates the threshold for making a type 1 error (and inferring statistical significance at 0.05 or below) or a type 2 error (and inferring statistical insignificance at higher than 0.05). Within this study, the P-value between EI and EO variables is over 0.75, which is well above the 0.05 threshold for significance. This value demonstrates that there is a very large chance of committing a type 1 error, it also suggests that there is a 75% chance that data occurred by chance factors alone. Therefore, we can conclude that the relationship between the variables is not only weak, but also statistically insignificant.

### 8.4.2 Determining the Strength of the Linear Relationship

A regression analysis refers to the actual calculation of a coefficient of determination and regression equation using an independent variable (Saunders et al., 2007). The coefficient, represented by an R-squared value, assesses the “...strength of the relationship between a quantifiable dependent variable and one or more quantifiable independent variables,” (Saunders et al., 2007; p. 451) By ‘strength’, we mean “The amount of variance in the dependent variable, explained by all the predictors together,”(Muijs, 2004; p.163). ‘Strength’ also determines how well the regression line fits the data (Saunders et al., 2007). If the regression equation perfectly predicts 100% of the variation in the dependent variable, then R-squared will be a value of 1. If the equation predicts none of the variation, then it will be 0, and if it predicts 50%, it will be 0.5. (Saunders et al., 2007)

As a rule of thumb, an R-squared value of less than 0.1 is identified as a poor fit (Muijs, 2004; p. 166). As noted in table 12, the R-squared value between the EI and EO variables is extremely low at 0.004, indicating that regression line does not strongly approximate the data points and predict variation in the dependent variable. Therefore, 0.4% of the variance of Y (EO) can be accounted for by changes in X (EI) through the linear relationship between X and Y.
8.4.2.1 Summary of the Global Relationship between Variables

<table>
<thead>
<tr>
<th>Regression Model Summary</th>
<th>Parameter Estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equation</td>
<td>R-squared</td>
</tr>
<tr>
<td>Linear</td>
<td>0.004</td>
</tr>
</tbody>
</table>

Table 12: Regression model summary and parameter estimates

To show the relationship visually, a scatter plot of the linear regression has been included (figure 6), where each observation point represents a value for one case (or respondent). Conventionally, the dependent variable is plotted against the vertical axis, and the independent variable against the horizontal axis. The strength of the relationship between the variables is indicated by the proximity of the points to a straight line. By examining this line, if the values for one variable increase as do the values for the other, a positive relationship exists. If the values for one variable decrease and the values for the other increase, then a negative relationship exists (Saunders et al., 2007).

We can see that regression line is almost horizontal and that observation points are randomly dispersed above and below it, demonstrating the nonexistence of a linear relationship between the variables.

Based on these results for the relationship between global EI and EO scores, we cannot reject the null hypothesis (hypothesis 0), which states that an owner-manager’s EI cannot be used to predict EO within small firms.
8.5 Bivariate Analysis

As per the second hypothesis, we assumed that there would be a positive relationship between an owner-manager’s EI and EO factors in small firms. Considering the insignificant and weak relationship found between global EI and global EO within the regression analysis, we decided to take a more microscopic approach to determining the strength of relationships to EO factors by examining not only how global EI and EO variable scores correlate to individual EO and EI factors, but also how each individual EI factor relates to each individual EO factor. In this way, we hoped to exhaust the possibility of finding a significant relationship.

We used the correlation coefficient method to analyze these relationships, by drawing upon the mean EI factor and EO factor scores included in the univariate analysis. A correlation coefficient quantifies both the direction and strength of a linear relationship between two quantifiable variables (Muijs, 2004). As per figure 7, the coefficient can assume any value between -1 and +1. A value of +1 indicates a perfect positive correlation, whereby when one variable increases, the other variable will increase by the same amount. Oppositely, a value of -1 represents a perfect negative correlation, whereby when one variable increases, the other decreases by the same amount. A value of 0 indicates that the variables are perfectly independent. (e.g. Saunders et al., 2007, Muijs, 2004)

![Figure 7: Values of the correlation coefficient (Saunders et al., 2007; p. 451; compiled by authors)](https://example.com/figure7)

As we are measuring continuous variables, the correlation coefficient we used is the common Pearson’s R (or PMCC) (Muijs, 2004). The Pearson’s R is calculated by determining the covariance between two variables, divided by the multiple of their standard deviations. For example, the equation for the correlation coefficient between the EI factor FE and EO factor risk-taking would be:

\[
\text{Pearson’s R} = \frac{\text{COV}}{(N-1)(\sigma_{\text{Risktaking}})(\sigma_{\text{FE}})}
\]

Where COV is the covariance between risk-taking and FE, \(\sigma\) is a standard deviation and \(N\) is the number of observations. As we are calculating the Pearson’s R for a sample population, we have indicated that one degree of freedom is lost (N-1).

We used F-tests to define the statistical significance of the relationships. Details about the probability threshold of the F-test and P-values are described in section 8.2.2.1.
The relationships between factors were found to be the following:

<table>
<thead>
<tr>
<th></th>
<th>PE</th>
<th>FE</th>
<th>UE</th>
<th>RE</th>
<th>Global EI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TNN</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>-0,104</td>
<td>0,022</td>
<td>-0,135</td>
<td>-0,199</td>
<td>-0,128</td>
</tr>
<tr>
<td>Significance (2-tailed)</td>
<td>0,591</td>
<td>0,912</td>
<td>0,486</td>
<td>0,301</td>
<td>0,510</td>
</tr>
<tr>
<td>No. of Respondents</td>
<td>29</td>
<td>29</td>
<td>29</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td><strong>PRO</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>-0,004</td>
<td>0,113</td>
<td>-0,052</td>
<td>-0,248</td>
<td>-0,045</td>
</tr>
<tr>
<td>Significance (2-tailed)</td>
<td>0,986</td>
<td>0,560</td>
<td>0,789</td>
<td>0,194</td>
<td>0,818</td>
</tr>
<tr>
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<td>29</td>
<td>29</td>
<td>29</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td><strong>RISK</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>0,123</td>
<td>0,182</td>
<td>-0,015</td>
<td>-0,172</td>
<td>0,058</td>
</tr>
<tr>
<td>Significance (2-tailed)</td>
<td>0,523</td>
<td>0,344</td>
<td>0,937</td>
<td>0,372</td>
<td>0,766</td>
</tr>
<tr>
<td>No. of Respondents</td>
<td>29</td>
<td>29</td>
<td>29</td>
<td>29</td>
<td>29</td>
</tr>
<tr>
<td><strong>Global EO</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pearson Correlation</td>
<td>-0,007</td>
<td>0,129</td>
<td>-0,096</td>
<td>-0,274</td>
<td>-0,062</td>
</tr>
<tr>
<td>Significance (2-tailed)</td>
<td>0,971</td>
<td>0,504</td>
<td>0,621</td>
<td>0,150</td>
<td>0,751</td>
</tr>
<tr>
<td>No. of Respondents</td>
<td>29</td>
<td>29</td>
<td>29</td>
<td>29</td>
<td>29</td>
</tr>
</tbody>
</table>

Table 13: Direction, strength and significance of relationships between EI and EO factors

As can be seen here, all P-values are well above the 0,05 threshold, indicating that there are great probabilities of this data occurring by chance factors alone, and therefore, none of the relationships are significant. The direction and strength of the relationships are within the range of weak positive and negative. This indicates that, for example, the movement of one EI factor would have had a weak effect on the movement of one EO factor. The same result applies to the global-factor relationship, where the movement of the global EI score would have had a weak effect on the movement of one EO factor.

Based on these results for the relationship between global EI/EO factors, global EO/EI factors, and each EI factor to each EO factor, we reject hypothesis 2, which states that an owner-managers’ EI is positively correlated to the proactiveness, innovativeness, and risk-taking in small firms.

9 Conclusions

This chapter summarizes the results from the hypothesis testing as determined within the Empirical Analysis. An interpretation of these conclusions follows within the Discussion chapter.

The primary purpose of this study was to perform an exploration of the research problem, “Is there a statistically significant relationship between the EI of an owner-manager within a small firm, and the EO of a company?” The secondary purpose was to characterize the nature of this relationship by exploring micro-connections between EI and EO factors within owner-managers. Drawing on literature about entrepreneurship, cognition and emotions, we devised a pair of hypotheses concerning these relationships, which were used to inform a set statistical analyses. Our empirical results enabled us to address the hypotheses and to arrive at the following conclusions:
Hypothesis 1: An owner-manager's EI can be used to predict EO within small firms.

Rejected. Within the sample population, the probability value indicated that there is a 75% chance that the relationship between the global EI and global EO scores occurred by chance factors alone, indicating an insignificant relationship. Even if we had found a significant relationship, the subsequent regression analysis indicated that, in a linear relationship, only 0.4% of the variance of EO can be accounted for by changes in EI, acknowledged to be 'a poor fit' and a weak relationship. Therefore, it can be concluded that there is no linear relationship between an owner-manager’s EI and EO in small firms.

Hypothesis 2: An owner-manager’s EI dimensions are positively correlated to the EO dimensions in small firms.

Rejected. To address this hypothesis, we examined the relationships of global EI with each EO factor, each EI factor with each EO factor, and global EO with each EI factor, to exhaust the various possibilities of identifying significance and strength. Within the sample population, probability values indicated that all of the relationships demonstrated a probability well above 5% chance that their relationships occurred by chance factors alone. Furthermore, a subsequent Pearson’s R test determined that the strength of each relationship was no more than weakly positive or negative. Therefore, it can be concluded that no part of an owner-manager’s EI is significantly nor strongly correlated to proactiveness, innovativeness, or risk-taking in small firms.

10 Discussion

This chapter provides an interpretation of the data derived from the Empirical Analysis. It describes the limitations of the study, the contribution to research made, and outlines implications for further research.

According to the results of the analyses conducted on a sample of owner-managers leading small, young, high-tech firms in Sweden, EI is just not important for these individuals when it comes to generating EO strategy-making processes for their firms. In short, other characteristics within the realm of an owner-manager’s personality matter more in entrepreneurial strategy-making.

So why is it that, when we understand decision-making to be physiologically cognitively and emotionally bound (Das, 2008); that more EI, (representing the union of these two spheres) does not equate to an effect on EO? Perhaps we can search for answers by conducting a deeper investigation of other personality characteristics that have been significantly correlated to EO within entrepreneurs, such as the locus of control and tolerance for ambiguity (e.g. Miller 1983; Entrialgo et al., 2000). While EI shares the same aim with such measures to capture the use of cognition, it could be that each perspective of cognition examined influences entrepreneurial decision-making in different ways. Further answers may emerge upon a deeper investigation into EI work linked to entrepreneurial outcomes (e.g. Brundin et al., 2008; Zampetenakis et al., 2009), which could differ from those outcomes measured by the EO instrument.

Given that initial connections made within the Theoretical Framework represented a broad exploratory approach in examining several research fields, this subsequent investigation serves to identify small, yet critical distinctions that provide clues about the insignificance of EI in predicting EO strategy-making processes of owner-managers.
Of the cognitive theories associated with EO, Entrialgo et al. (2000) chose to examine the locus of control and tolerance for ambiguity largely because research has supported these relationships to the entrepreneur - though previous studies had provided inconclusive results about this relationship.

Entrialgo et al. (2000) define the locus of control as the ability to control one’s environment through their actions. If one has an internal locus of control, they perceive that an event depends upon his/her behaviour or relatively permanent characteristics. It is suggested that individuals with an internal locus of control are more convinced of their skills in influencing the environment, and perceive that they have an ability to deal with stressful situations, thus supporting innovative actions (Mintzberg, 1973; Miles and Snow, 1978; Kets de Vries, 1980; cited in Entrialgo et al., 2000). Miller (1982) suggested that those who possess an internal locus of control also tend to take more risks and behave more proactively than competitors (cited in Entrialgo et al., 2000).

Entrialgo et al., (2000) define a tolerance for ambiguity as “...an individual’s orientation toward taking chances in a decision-making scenario,” (Sexton and Bowman, 1985; cited in Entrialgo et al., 2000; p. 192). Further literature outside of this study suggests that it influences the way in which one organizes information about situations that are ambiguous (Sexton and Bowman, 1985). In an individual perceives ambiguity as threatening, then the resulting anxiety may cause him/her to “make some responses before adequate information is available for the most appropriate response,” thus approaching decision-making with inadequate environmental information (Smock, 1958; cited in Sexton and Bowman, 1985; p. 131). Oppositely, if an individual views ambiguity as desirable and challenging, then when decision-making, they see no need to minimize their exposure to a situation (Sexton and Bowman, 1985). It has been suggested that those people who demonstrate a high tolerance for ambiguity are those who are successful in creating growth within conditions of uncertainty (Entrialgo et al., 2000).

Entrialgo et al. (2000) noted that the greater the locus of control and tolerance for ambiguity, the greater the entrepreneurial orientation of the firm, specifically those operating within turbulent environments. This said, the scholars noted that a stronger relationship between these managerial characteristics and EO was observed within larger firm, as opposed to smaller ones.

In examining the details of these cognitive theories, one notable difference between the locus of control, tolerance for ambiguity and EI seems to be an effect on the perception of control over one’s environment. In theory, all types of EI reflect the “...extent to which a person attends to, processes, and acts upon information of an emotional nature intra-personally and inter-personally,” (Zampetanakis et al., 2000). Specifically, ability-based EI is based on the perspective that emotions are viewed as responses that guide an individual’s behavior and provide information that enables goal achievement (Brenner & Salovey, 1997; cited in Goldenburg et al, 2006), and refers to one’s “…actual ability to recognise, process and utilise emotion-laden information,” (Zampetanakis et al., 2009). Considering these definitions, then having a high ability-based EI and being able to utilize emotion-laden information does not suggest that an individual will have an enhanced perception of control over his/her environment. Therefore, if a perception of control associated with the aforementioned cognitive theories is a key catalyst facilitating an EO within an entrepreneur/owner-manager, then an EI ability that does not capture this perception appears to be peripheral, and thus insignificant to this outcome.
With regards to evidence suggesting a link between EI and entrepreneurial behaviours (e.g. Brundin et al., 2008; Zampetenakis et al., 2009), a deeper investigation of this evidence indicates that it differs from this study in two significant ways. Firstly, both sets of scholars have measured and/or suggested the importance of EI at lower levels of the organization, or in other words, within employees. Those at the lower levels of the organization are not generally faced with the same strategic responsibilities as those who are in key decision-making roles, such as that of an owner-manager. In this way, those responsibilities that are common for lower level employees, such as interfacing in service roles with outside individuals, may necessitate EI to a greater degree due to the constant need to work with people and emotions. In this case, EI may be significant to enabling entrepreneurial behaviours. Oppositely, and as indicated earlier, the overarching strategic responsibilities of an owner-manager may necessitate a perception of control over one’s environment more centrally than they do EI. As such, EI ability is not one that owner-managers tend to utilize when performing in their roles.

The types of entrepreneurial behaviours that have been associated with EI are different from those captured by the EO construct. In the study by Zampetenakis et al., (2009), where EI and entrepreneurial behaviours were derived from within the same individual (each employee), the concept of ‘entrepreneurial’ was assessed using six items from the Pearce et al. (1997) measure of entrepreneurial behaviour. From these six questions, only two pertain to the dimension of innovativeness, whereas the other four pertain to personal growth, agility with regards to change, initiative, and team cooperation (Zampetenakis et al., 2009). If the six items from this study are examined in detail:

1. I display an enthusiasm for acquiring new skills.
2. I encourage my colleagues to take the initiatives for their own ideas in order to improve our services.
3. I cannot change quickly course of action when results aren’t being achieved.
4. I seldomly devote time to help my colleagues in order to find ways to improve our services.
5. I create a co-operative and team working climate in my department in order to meet a challenge.
6. I don’t inspire my colleagues to think about their work in new and stimulating ways. (Zampetenakis et al., 2009)

It is evident that item numbers 2,4,5 and 6 all question ‘entrepreneurial behaviours’ that also involve with contact with other colleagues. In contrast, the items included in the EO construct not only question different entrepreneurial factors (including risk-taking and proactiveness), but the nature of the items is also less interpersonal. For instance, if we examine the three items defining innovativeness:

1. In general, the top managers of my firm favour: A strong emphasis on the marketing of tried and true products or services. (vs.) A strong emphasis on R&D, technological leadership, and innovations.
2. How many new lines of products or services has your firm marketed in the past 5 years? No new lines of products or services. (vs.) Very many new lines of products or services.
3. Changes in product or service lines have been mostly of a minor nature. (vs.) Changes in product or service lines have usually been quite dramatic.  

While these items address processes that are deemed entrepreneurial, they do not call into question an interpersonal element. Therefore, in addition to sampling members of a different organizational tier and addressing different entrepreneurial outcomes, a major difference in the outcomes of this study could lie in the differences in the way these items are phrased. Either they elicit responses that draw more centrally on an ability to perceive of control (as within the EO construct), or on an EI ability (as within the Pearce et al. (1997) construct). As such, the assertion by Zampetenakis et al. (2009) that, “...entrepreneurial actions within organizations may be filtered through employee perceptions of their emotional abilities,” seems logical.

10.1 Limitations

Significance in general is determined in part by the sample size; the smaller the size, the more difficult it is to obtain significance, because small populations can make a statistical test insensitive (Saunders et al., 2007). While the time period allotted for this thesis was insufficient to collect a large sample population using our administrative method, the integrity of the inferences could have been improved if collection efforts would have been doubled or tripled.

Another limitation of the study with respect to data collection involves an assurance of causality. While previous empirical evidence suggests that an owner-manager’s EI should cause her/his EO, we were unable to confirm this within a cross-sectional study. Instead, we were left to presume this causality. This said, there exists the possibility that the causality could be reversed; in that EO strategy-making influences the owner-manager’s EI. To confirm the direction of causality, a longitudinal study comprising several opportunities for data collection would be necessary.

While our theoretical deductions suggested that a significant relationship would emerge between an owner-manager’s EI and EO, the results were opposite. As such, the question could be asked, “Does Entrepreneurial Orientation capture the entire spectrum of entrepreneurial strategy-making?” At the initiation of this study, only three of the five dimensions of EO were operationalized. Within the past 8-month period, the autonomy dimension has been further developed as a construct (e.g. Lumpkin et al., 2009). One has to wonder if EI might have demonstrated a significant relationship with autonomy and competitive aggressiveness factors. While the use of EO is salient in literature, it could be that the instrument captures only a portion of strategy-making processes. It may be that there are complementary processes that have emerged outside of EO dimension development that are more aligned with the ‘entrepreneurship’ and ‘entrepreneurial behaviour’ to which Zampetenakis et al. (2009) refer.

From a methodological point of view, and as has become evident during developments and learnings associated with this study, a quantitative analysis in exploring a previously unconnected relationship might have been seen as a rather bold approach. Rather, from a conservative point of view and in consideration of the results, it may have made sense to confirm such relationships firstly with exploratory interviews. If an EI-EO relationship were to be discovered in such a manner, then a quantitative analysis could act as a follow up study – we would have had a better idea of the intensity and direction of relationship, and could have adjusted the analysis accordingly.
10.2 Contribution to Theory and Implications for Further Research

This study contributes specifically to the field of entrepreneurship. The primary purpose of this study was to identify the relationship between EI and EO dimensions in the context of high-tech, small, owner-managed firms. Even though a variety of research has been conducted concerning the relationship between emotions and entrepreneurship (e.g. Entrialgo et al., 2000; Brundin et al., 2008), to our knowledge no studies have been conducted connecting EI and EO dimensions. The hypotheses in this study were based on previous empirical evidence. Though they were logically constructed, both hypotheses were rejected. Thus, the findings of this study are significant to the field of entrepreneurship as they identify the nonexistence of a statistically significant relationship between EO and EI dimensions.

The idée fixe of research should not be to prove ideas developed by the researchers, but to discover what exists in reality. On the other hand, possible causes which might have caused bias within a study should be underlined in order to guide future research that departs from this approach to the relationship between EI and EO dimensions in small firms.

In this particular study, data from 35 companies have been collected. However, due to missing values, only 29 have been included in the statistical analysis. One of the factors that determines the significance of a relationship between the variables is the sample size (e.g. Muijs, 2004; Gujarati, 2004). Though the sample size used in this study is considered as relatively small from the statistical point of view, the statistical analysis showed that the most of the values are so far from the 5% significance level threshold that a significant relationship would have been unlikely to emerge even if data from a larger sample were obtained. On the other hand, some correlations (e.g. RE and global EO, RE and proactiveness) could cross the significance level threshold if a larger sample were used. Therefore, further research conducted using a larger sample would provide important evidence about the significance of the statistical relationships between EO and EI factors.

Within future research, it would also be valuable to obtain evidence from within other industries that are highly competitive in nature. We have included high-tech firms in this study, but others (e.g. fast food restaurants, retail shops etc.) that operate in highly competitive environments could prove important to examine. Here, it could be assumed that high levels of EI and EO would be required for survival. For example, for those firms within the retail industry, the relationships between customers and employees are tense, requiring a high degree of autonomy (especially of front line employees), proactiveness from managers in meeting the customers’ expectations, and innovativeness from managers in maintaining existing customers and acquiring new ones (Grönroos, 2007). Frequent interpersonal contact among staff and with customers would likely require high levels of EI that might also assist the development of these EO dimensions.

Only three out of five EO factors have been utilized within this study. The reason for excluding two EO factors was the limited availability of instrumentation measuring autonomy and competitive aggressiveness. While one instrument has been recently developed for autonomy (e.g. Lumpkin et al., 2009), the instrument has not yet been verified by other researchers within subsequent studies. According to Lumpkin and Dess (1996), EO factors carry varying significance depending on the environments within which firms operate. Therefore, autonomy and competitive aggressiveness could prove to be significant dimensions for firms (to a greater or lesser degree), and thus it would be valuable to include these factors in future research.
In contrast with the EO instrument, there were a number of valid EI instruments available for this research. Similarities and differences were compared among these EI instruments and the self-report questionnaire emerged as the most appropriate choice for this study. However, not all scholars agree that this is the best method of measuring EI, in particular, ability-based EI. Several scholars (e.g. Mayer et. al., 2006) claim that it cannot be reliably measured by this method. For ability-based EI, future researchers might utilize computer-based testing (e.g. the MSCEIT) to achieve increased objectivity in measuring respondents’ EI.

As noted earlier, EO is important for small firms operating in volatile environments, though this statement does not undermine the importance of EO within larger corporations. Small firms have few or no bureaucratic layers, and therefore strategic decisions are made mostly by owner-managers. On the other hand, within large corporations, decisions are made on different organizational levels and CEOs are those who are often negotiators of goals with various stakeholders, including employees and owners. As CEOs need to communicate with employees at different levels, a higher level of EI would be important for negotiating strategic directions. Therefore, it could be important to examine the relationship between CEOs’ EI and EO within large corporations.
11 References


12 Appendices

12.1 Appendix 1: Survey

En studie om ledarskapets betydelse för företagets entreprenörlika orientering

Studien vändes sig till företag som definieras som dynamiska och som verkar i snabbförändrade miljöer. Syftet är att bättre förstå hur ledningen i dessa företag uppfattar sitt företags entreprenörlika förmåga samt hur känslor i ledarområdet påverkar den entreprenörlika orienteringen i företaget.

Det är vår förhoppning att resultatet av denna studie ska hjälpa chefer och medarbetare att åstadkomma ett högre entreprenörlikt resultat i organisationen.

I denna studie kommer du att bli inbjudd att fylla in en uppsättning av två frågeformulär (instruktioner finns i den anslutande textversionen till varje formulär):

1) Din uppfattning om företagets sätt att fungera
2) Din uppfattning om hur dina kändisar påverkar hur du leder verksamheten

Viktigt:

- Det är viktigt att du svarar på samtliga frågor, eftersom informationsmangler svar inte kan ingå i de statistiska analyserna.
- Vi vill bevisa att det inte finns några "räta" eller "felaktiga" svar. Vi är i denna studie inte intresserade av att förstå hur du uppfattar företagets sätt att agera och hur du uppfattar det sätt att leda.
- Vi är medvetna om att enkelten kan verka omfattande, men av erfarenhet vet vi att det vanligtvis inte tar mer än ca 10 minuter att fylla in enkelten. I de flesta fall tar det dock lite längre tid för de första frågorna och mindre tid därefter.
- Du kan vara helt övertygad om att dina individuella svar förbli anonyma och helt konfidentiella. Inga referenser kommer att göras, vare sig det i någon rapport eller publicering, till individuella svar eller kommentarer, som kan identifieras tillbaka till den som har svarat. All information från undersökningen är helt konfidentiell och kommer endast att rapporteras på ett sådant sätt att individer inte kan identifieras.

Tack för din medverkan!

Projektmedarbetare:
Cocho Pachulla, MSc. in Entrepreneurial Management (mem07@hh.hj.se)
Laura Henderson, MSc. in Entrepreneurial Management (mem101@hh.hj.se)

Projektansvarig:
Ettel Hrudin, docent i företagskonomi, section for Entrepreneurship, Marketing and Management (EMM) vid Internationella Handelshögskolan i Jyväskyla. ettel.hrudin@hh.hj.se
036-191827

EO/EM/EI
**ERFARENHET OCH BAKGRUND (Konfidentiellt)**

Detta är först några bakgrundsfrågor för att vi ska kunna få en ökad bild av de som svarat. De är helt konfidentiella.

<table>
<thead>
<tr>
<th>Villkor är du född:</th>
<th>( )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kör:</td>
<td>( ) Kvinnan</td>
</tr>
<tr>
<td></td>
<td>( ) Män</td>
</tr>
</tbody>
</table>

| Villken är din högsta avlagda examen? | ( ) Grundskola |
|                                      | ( ) Gymnastikkompetens |
|                                      | ( ) Postgymnasial utbildning |
|                                      | ( ) Akademiska poängkursar Högskolekursar |
|                                      | ( ) Universitetsexamen/Högskoleexamen |
|                                      | ( ) Annan |

| Insriptning på utbildningen: | ( ) Ekonomi |
|                            | ( ) Teknik |
|                            | ( ) Samhällsvetenskap/ Humaniora |
|                            | ( ) Annan (inga villkor): |

| Villken är din nuvarande position i företaget? | ( ) |
|                                               | |

| Hur många år av dessa har du innehåft din nuvarande position? | ( ) år |
|                                                               | |

| Hur många år har du arbetat i företaget? | ( ) år |
|                                         | |

| Vilket är startades företaget? | ( ) |
|                               | |

| Företaget startades av: | ( ) Min själv |
|                        | ( ) Någon annan inom företaget |
|                        | ( ) Någon annan utanför företaget |

| Hur många anställda finns i företaget? | ( ) anställda |
|                                       | |

| Hur skulle du karaktärisera företaget? | ( ) Lite tekniskvä |
|                                        | ( ) Medel tekniskvä |
|                                        | ( ) Hög tekniskvä |

| Kommentarer | |
|-------------| |
### Och följa med där det finns fler undertecknar för varje följer på varje rad där de passar din del av detta företag.

Sätt att "X" under nummer 1 om du skall hålla med nålangd som är faktiskt med nummer 1 (vänster sida). Sätt att "X" under nummer 7 om du skall hålla med nålangd faktiskt med nummer 7 (vänster sida).

Sätt att "X" under nummer 4 om du stör att din firma räkna till till både nålangd.

Tillståndet på företag som har svarat till (kravet 2) också att ha en eller två av två komponenter (a) för det mest, men inte alltid.

<table>
<thead>
<tr>
<th>Vårt företag är</th>
<th>Våldigt sällan det första med att introducerar nya produkter eller tjänster, administrativa system, produktionssverkstad etc.</th>
<th>Våldigt ofta det första företaget som introducerar nya produkter/tjänster, administrativa system, produktionssverkstad etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Vårt företag är</td>
<td>Att lämna stör vikt vid följer.</td>
<td>Att lämna stör vikt vid marknadsföring av företagens hela del av produkter.</td>
</tr>
<tr>
<td>2. I frågeställning finns några två företag</td>
<td>Det är bra att utforska den forskning och satsas för att uppnå företagens mål.</td>
<td>Det är bra att utforska den forskning och satsas för att uppnå företagens mål.</td>
</tr>
<tr>
<td>4. När vi står inför ökade beslutssituationer</td>
<td>Vi upplever ständiga underrättelser från konkurrenten, och inte en &quot;beslut&quot; där &quot;låter luta&quot; i följe.</td>
<td>Vi upplever ständiga underrättelser från konkurrenten, och inte en &quot;beslut&quot; där &quot;låter luta&quot; i följe.</td>
</tr>
<tr>
<td>5. Vårt relation till konkurrenter karakteriseras av</td>
<td>Vi upplever ständiga underrättelser från konkurrenten, och inte en &quot;beslut&quot; där &quot;låter luta&quot; i följe.</td>
<td>Vi upplever ständiga underrättelser från konkurrenten, och inte en &quot;beslut&quot; där &quot;låter luta&quot; i följe.</td>
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<tr>
<td>6. Vårt företag förblandas till konkurrenter karakteriseras av</td>
<td>Vi upplever ständiga underrättelser från konkurrenten, och inte en &quot;beslut&quot; där &quot;låter luta&quot; i följe.</td>
<td>Vi upplever ständiga underrättelser från konkurrenten, och inte en &quot;beslut&quot; där &quot;låter luta&quot; i följe.</td>
</tr>
<tr>
<td>7. Under de senaste 5 åren har vårt företag levererat</td>
<td>Förändringar i marknadsföring ägs av konkurrenter, och inte en &quot;beslut&quot; där &quot;låter luta&quot; i följe.</td>
<td>Förändringar i marknadsföring ägs av konkurrenter, och inte en &quot;beslut&quot; där &quot;låter luta&quot; i följe.</td>
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</table>

23. Vi utvecklar ålder någon het på idéer som skulle kunna vara kommersiellt bisekomm.  
25. Vi har betydligt på gängor att och hålls åt att vi kan och ontk att kunna på.  
26. Vi föredrar att arbeta med vilket 20 lilla med en formulerad system för någonting kommersiellt och styrning av skola kommersiell produktion.  
27. Att komma ansvariga möjligheter är idéer påvirkare än att ha en nyhet.  
28. Vi bygger på vilka tillfårligheter vi satte på att våra vilka reserver vi får närvarande är.  
29. Vi berättar sig att hålla fast vid berörade ledningarmedium och demnarade utvecklingsoner.  

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Att hitta utvecklingsområden som varken kan gör något när till det redan är det att följa.  
Vi har en stark tendens att låna situationer knapp och det används potentiellt avgöra vad som är komiskt minns intet.  
Vi har vetat att hitta tillsammans med vadlånga utvecklingsområden ansåg vi rätt att ta på.  
Vi föredrar ledningar, informell grupp och kontroll.  Vi har ett kommersiellt med möjligheter.  
För att kunna utveckla möjligheter är tillgänglig till praktiskt viktigare än att ha en ledning.  
Vi ges att det finns möjligheter vi står av vårdad och normalt att skapa de reserver som ledas för att uttrycka dem.  
Vi berättar starkt att bör ansvara om att nya teori som vi har gjort för att.

---

**Nedan vill vi att de bedömer delar ledarskap i relation till kundomloppiga aspekter.**

Sätt att "X" under namnet 1: behöver det att de inte alls håller med någon av det.  
Sätt att "X" under namnet 4: att de varken håller med eller inte håller med.  
Till exempel, personerna som stämmer hade att han har något att precis detta kan identifieras en del känsla som han kan kunna att det menar, men inte annat.  

Jag kan på ett såväl som identifieras en så kända jag kännas från dag till dag.  

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Håller inte alls med  

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Håller helt med  

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EO/EM/EL Page 5
32. Jag kan oftast upptäcka små känslomässiga eller mina
modurhändelser.

33. Jag har inte svårt att identifiera hur en person verkliga
känner sig i fråga om vort vad han/hon någon.

34. Jag ser när någon verklig bety om andas och är med i samman
mit anda på jobbet.

35. Jag ser fram emot känslan av att återkomma något när jag
börja att prova projekt.

36. Jag kan ägna mer tid som är ang och frustrerad på jobbet.

37. Jag kan på ett perspektiv sätt identifiera en rod känsla jag känner
frå dag till dag.

38. När snakstiderna åtminstone har intresset för frågor jag
känner på jobbet (exempel på familjens, arbetslivspolitiska) har jag
även känt genom att och försett att hjälpa dem att känna sig bättre.

39. Hur jag känner för att problem får ofta avgör vilken grad av
uppsökte漱 tid jag ska ge det.

40. Jag kan oftast avgöras när en kollabera känslomässiga reaktion på
en situation beror på hans/hennes urval känsloms kulturella bakgrund.

41. Jag kan säkra att andra människor integrerar och identifiera
känslorna de har mot varandra.

42. Jag kan världvis sig ha någon känsla även om hans/hennes
ansvetsrytik inte stämmer med naturens rätt.

43. När en kollabera känsla sig besviken över sin arbetsmiljö
börjar jag att säga några uppmärksamheter.

44. Jag förbättrar ansiktsbild en känsla som indikerar till ett
Problem avskämtning när jag träffar andra eller medarbetare.

45. Jag är ständigt medveten om huruvida vänster på jobbet som
uttrycker hur människor känner sig, var de tid, hur de är tysta.

46. Jag kan värderas försöka mig vad en annan person känner.

47. Jag kan värderas försöka nå en känsla av mänskligt även ett
arbetsprojekt till andra.

48. När jag beslutar mig för att gå vidare med ett beslut, 
överväger jag altad hur andra kan känna dit det.
50. Jag kan direkt identifiera när en medarbetare frustrerad blev på ett projekt-

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51. Jag avstår eller min ner är över en arbetsprojekt till flera andra medarbetare att fokusera på projektet.

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52. Jag prioriterar ofta mina arbetsuppgifter utifrån hur viktigt jag ansåg att de är.

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53. På jobbet kan jag direkt hämta om någon är frustrerad på mig.

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54. Jag lyssnar på andra kanske när jag prioriterar.

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**Instruktioner:** Vi ska väsentligt gradera de nedanstående frågeställen. Sätt ett "X" under nummer som bäst motsvarar det som var.
12.2 Appendix 2: Emotional Intelligence Self-Description Inventory (EISDI)

(Source: Groves et al., 2008)

First branch: Perception and appraisal of emotions (PE)

(1) I can accurately identify a range of emotions that I feel from day to day.
(2) At work I can instantly tell when someone is frustrated with me.
(3) I can usually imagine what another person is feeling.
(4) I have no difficulty figuring out how much passion to demonstrate about an issue at work.
(5) I can usually tell how someone is feeling even though his/her facial expression may conflict with his/her body language.
(6) I have no difficulty identifying how a person really feels about an issue despite what he/she may say.

Second branch: Facilitating thinking with emotions (FE)

(1) I often prioritize my work tasks according to how strongly I feel about the importance of each task.
(2) I often use my excitement about a work project to focus the efforts of others involved with the project.
(3) I often use how I feel about a problem to define the attention I give to it.
(4) I listen to the feelings of other people in establishing priorities.
(5) I deliberately attempt to create a feeling conducive to effective problem solving when meeting with clients or coworkers.
(6) In deciding to go forward with a decision, I always consider how other people may feel about it.

Third branch: Understanding emotion (UE)

(1) When a coworker of mine performs poorly on a project, I can usually recognize whether he or she feels angry, embarrassed, guilty, or some other feeling (e.g. “wounded pride”).
(2) I can watch other people interact and recognize the feelings they hold toward each other.
(3) I am acutely aware of subtle cues at work that express how people feel (e.g. where they sit, when they are silent, etc.).
(4) I can usually tell when a coworker’s emotional response to a situation is due to his/her unique personality instead of his/her cultural background.
(5) I can usually detect subtle changes in the emotions of my coworkers.
(6) I can instantly recognize when a coworker’s frustrations with a project are escalating.

Fourth branch: Regulation and management of emotion (RE)

(1) I look forward to a feeling of accomplishment whenever I start a new project.
(2) I am usually able to transmit a sense of enthusiasm about a work project to others.
(3) I notice when someone is very caring and compassionate toward others at work.
(4) I am capable of calming someone down who is angry and frustrated at work.
(5) When a coworker is feeling disappointed about his/her work performance, I make an effort to offer encouraging words of support.
(6) Whenever painful events have occurred to people I know at work (i.e. death in family, serious illness), I have expressed genuine concern and tried to help them feel better.
12.3 Appendix 3: Strategic Posture Scale (EO)

(Source: Covin & Slevin, 1989)

Innovativeness

(1) In general, top managers of my firm favour...
A strong emphasis on the marketing of tried and true products and services. (vs)
A strong emphasis on R&D, technological leadership, and innovations.

(2) How many new lines of products or services has your firm marketed in the past 5 years?
No new lines of products or services. (vs) Very many new lines of products or services.

(3) Changes in product or service lines have been mostly of a minor nature. (vs) Changes in product or service lines have been usually been quite dramatic.

Proactiveness

(1) In dealing with its competitors, my firm...
Typically responds to actions to which competitors initiate. (vs) Typically initiates actions which competitors then respond to.

(2) Is very seldom the first business to introduce new products/services, administrative techniques, operating technologies, etc. (vs) Is very often the first business to introduce new products/services, administrative techniques, operating technologies, etc.

(3) Typically seeks to avoid competitive clashes, preferring a ‘live-and-let-live’ posture. (vs) Typically adopts a very competitive, ‘undo-the-competitors’ posture.

Risk-taking

(1) In general, the top managers of my firm have...
A strong proclivity for low-risk projects (with normal and certain rates of return). (vs) A strong proclivity for high-risk projects (with chances of very high returns).

(2) In general, top managers of my firm believe that...
Owing to the nature of the environment, it is best to explore it gradually via timid, incremental behaviour. (vs) Owing to the nature of the environment, bold, wide-ranging acts are necessary to achieve the firm’s objectives.

(3) When confronted with decision-making situations involving uncertainty, my firm...
Typically adopts a cautious, ‘wait-and-see’ posture in order to minimize the probability of making costly decisions. (vs) Typically adopts a bold, aggressive posture in order to maximize the probability of exploiting potential opportunities.
### 12.4 Appendix 4: Demographic Data

<table>
<thead>
<tr>
<th>Number of Employees</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
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## 12.5 Appendix 5: Internal Reliability, EO factors

### Item-Total Statistics for Risk-taking

<table>
<thead>
<tr>
<th></th>
<th>Scale Mean if Item Deleted</th>
<th>Scale Variance if Item Deleted</th>
<th>Corrected Item-Total Correlation</th>
<th>Squared Multiple Correlation</th>
<th>Cronbach's Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
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<td>0.162</td>
<td>0.319</td>
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<tr>
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<td>4.849</td>
<td>0.284</td>
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</table>

### Item-Total Statistics for Proactiveness

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<th>Scale Variance if Item Deleted</th>
<th>Corrected Item-Total Correlation</th>
<th>Squared Multiple Correlation</th>
<th>Cronbach's Alpha if Item Deleted</th>
</tr>
</thead>
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<td>-0.013*</td>
</tr>
<tr>
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<td>0.004</td>
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*The value is negative due to a negative average covariance among items. This violates reliability model assumptions. You may want to check item codings.

### Item-Total Statistics for Innovativeness

<table>
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<th>Scale Mean if Item Deleted</th>
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<th>Cronbach's Alpha if Item Deleted</th>
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<tr>
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### Appendix 6: Internal Reliability, EO Instrument

**Item-Total Statistics for EO**

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<td>40,596</td>
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<td>.631</td>
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12.7 Appendix 7: Internal Reliability, EI Factors

### Item-Total Statistics for PE

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<th>Cronbach's Alpha if Item Deleted</th>
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<tr>
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### Item-Total Statistics for UE

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### Appendix 8: Internal Reliability, EI Instrument

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<th>Cronbach's Alpha if Item Deleted</th>
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<tr>
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