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Entrepreneurial Culture: Developing a Theoretical Construct and its Measurement

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A thesis submitted in partial fulfillment of the requirements for the Doctor of Philosophy degree in Business

ENTREPRENEURIAL CULTURE: DEVELOPING A THEORETICAL CONSTRUCT AND ITS MEASUREMENT

(Thesis format: Monograph)

by

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Abstract

The concept of "entrepreneurial culture" has existed for decades, described as an organizational culture embodying and championing entrepreneurial characteristics and attributes. These have included risk-taking, innovation, and creativity; the elements one would expect to see among entrepreneurs as individuals. The literature suggests that entrepreneurial culture is related to a number of positive organizational outcomes, such as generating new business and improving firm performance.

Despite years of entrepreneurial culture discussion, however, it remains a relatively ambiguous theoretical construct. Numerous perspectives have emerged describing the phenomenon and the concept, yet it remains unfocused and equivocal. Different definitions and sets of characteristics and attributes describe the concept inconsistently; empirical applications use inconsistent measures. Collectively, these theoretical deficiencies mean that despite the inherent value and interest in the subject, knowledge accumulation has been difficult.

This thesis addresses these deficiencies from both a conceptual and empirical perspective to answer the question: what is an entrepreneurial culture? To more clearly articulate the connection with entrepreneurship, I develop a new definition of the construct based around the broader concept of opportunities. Synthesizing the core characteristics and attributes of entrepreneurial culture, I propose a multi-dimensional theoretical model.

To empirically validate this model, I adopted a multi-method approach. I interviewed 12 entrepreneurs of Canadian small and medium-sized enterprises, to explore and expand on these conceptual dimensions. I generated a series of survey items to measure these dimensions and tested them with 45 doctoral student raters for content validity. A final questionnaire was developed and then deployed to 41 organizations, collecting data from 790 individual employees. The model was tested using multi-level structural equation modeling techniques.

The results of this study are a validated instrument to measure this new, clarified entrepreneurial culture construct. This study is an important step in understanding the nature

and form of entrepreneurial culture as a firm-level construct and ways in which it might be measured. This conceptualization of entrepreneurial culture provides a springboard for future theorizing and research. This research helps generate important new insights into how organizational cultures can become more entrepreneurial, an exciting prospect for a diverse array of organizations.

Keywords

Entrepreneurial Culture, Organizational Culture, Entrepreneurship, Opportunities, Multi-level Modeling

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Chapter 1 : Introduction

1 Overview

For at least the last 30 years, *entrepreneurial culture* has been a frequently appearing concept in both the entrepreneurship and broader management literature (e.g.,Wilkins & Ouchi, 1983). During this time entrepreneurial culture has taken on various meanings. It has been described as a form or type of culture which is creative, innovative, takes risks, and challenges the status quo (Ireland, Hitt, & Sirmon, 2003). An entrepreneurial culture has been suggested as the opposite of bureaucratic or administratively-oriented organizations (e.g., Bradley, Wiklund, & Shepherd, 2011; Kotter, 2001; Stevenson & Jarrillo-Mossi, 1986). Entrepreneurial culture has also been applied at the national level to describe country or societal values and attitudes towards entrepreneurship (e.g., Birkinshaw, 1999; Hayton & Cacciotti, 2013; Tan, 2002, 2006). However, at both the societal and organizational levels of analysis, entrepreneurial culture has largely remained a descriptive and normative concept rather than a theoretical one. Entrepreneurial culture has been used as an ambiguous catch-all term with respect to values, attitudes, beliefs, assumptions, norms, and behaviours related to entrepreneurship. *Entrepreneurship* is meant here as "a process centrally concerned with the notion of opportunity, its recognition, discovery and/or creation…[where] opportunity is defined as the creation of new value to society in part or in whole" (Schendel & Hitt, 2007: 1).

With this conceptual ambiguity, comments from Gartner's (1990) influential paper on defining entrepreneurship are thought provoking. As entrepreneurship developed as a nascent research field, scholars puzzled over the nature and scope of the domain. Gartner noted that "behind this concern is the worry that entrepreneurship has become a label of convenience with little inherent meaning" (1990: 16). He further questioned, "is entrepreneurship just a buzzword, or does it have particular characteristics that can be identified and studied?" (Gartner, 1990: 16). Similarly, has entrepreneurial culture become a label of convenience with little inherent meaning, or does it have particular characteristics that can be identified and studied? Is entrepreneurial culture a buzzword used to describe organizational "entrepreneurialness"? My research argues that

entrepreneurial culture does have inherent meaning and particular characteristics that can be identified and studied. The purpose of this dissertation is to develop a well specified and conceptually sound theoretical construct of entrepreneurial culture, including a validated scale to measure it.

1.1 Need for Theoretical Understanding of Entrepreneurial Culture

Entrepreneurial culture is a concept that has been used to characterize a broader organizational culture that supports or champions entrepreneurship. Organizational culture has long been recognized as a central, underlying system of shared values, assumptions, and behaviours that permeates an entire organization (Schein, 1996). Organizational cultures influence new and existing members, motivates and cautions them, shapes and conforms their thinking and behaviours, creates structure within the organization, and builds routines and traditions that are held with emotion (Sackmann, 1992; Schein, 1990). As a result, an entrepreneurial culture has been argued to be a powerful force within organizations to enhance the innovative abilities of employees (Hornsby, Kuratko, & Montagno, 1999), fuel a desire for firm survival (Sundaramurthy & Kreiner, 2008), provide permission to fail and try again (Merrifield, 1987), encourage a broad array of new ideas, experimentation, and creativity (Bradley et al., 2011), and develop organizational learning abilities and a focus on markets (Hult, Snow, & Destan, 2003). Entrepreneurial culture characteristics and attributes have also been positively linked to firm performance (Flamholtz, 2001; Flamholtz & Kannan-Narasimhan, 2005). In broader conceptual models, entrepreneurial culture has also been identified as a necessary component of a firm's architecture in order to successfully pursue an entrepreneurial strategy, that is, engaging in opportunity-seeking and advantage-seeking activities (Ireland et al., 2003; Ketchen Jr, Ireland, & Snow, 2007). Contemporary research continues to call for the study of culture in entrepreneurship, particularly in new venture creation and teams (Klotz, Hmieleski, Bradley, & Busenitz, 2014).

However, from a theoretical perspective these past applications of entrepreneurial culture are problematic. Theory development typically emphasizes the relationship among constructs, the direction, sign, and form of these relationships, and explains why and

under what conditions these relationships occur (Edwards, 2011). Theory development also addresses the relationship between constructs and measures and how these abstract constructs connect to observable phenomena (Edwards, 2011; Edwards & Bagozzi, 2000). There has been some descriptive exploration and linking of entrepreneurial culture to other constructs, however, theoretical development has been otherwise sparse. Entrepreneurial culture's conceptualization has generally been vague and insufficiently specified. There are several different definitions of entrepreneurial culture and not all of them are consistent with each other. There has also been little exploration of the relationship between the entrepreneurial culture concept and the firms that are supposed to demonstrate this phenomenon. In particular, it is unclear which firms possess an entrepreneurial culture and to what degree they possess it. A lack of conceptual clarity around entrepreneurial culture and the existence of competing definitions indicate that the field possesses a disjointed perspective. This makes the study and accumulation of knowledge in this area difficult.

Related to the lack of conceptual clarity around entrepreneurial culture is the absence of a psychometrically sound instrument (i.e., reliable, clear factor structure, low susceptibility to methodological confounds) with which to assess the construct. As a result, there has been a paucity of empirical examinations of entrepreneurial culture. The few papers which have empirically evaluated entrepreneurial culture have used measures that bear little resemblance to one another. For example, entrepreneurial culture has been measured through demographic variables such as the entrepreneur's age and level of education (Minguzzi & Passaro, 2000), and a firm's experiences with promising ideas (Brown, Davidsson, & Wiklund, 2001). These examples demonstrate divergent operationalizations of the entrepreneurial culture construct.

Since a conceptually clear and consistently applied definition and operationalization of entrepreneurial culture has yet to emerge, entrepreneurial culture's usage has been haphazard and lacking in theoretical and methodological rigour. Instead, the field is left with a colloquial understanding of the construct. Analyzing the body of literature on entrepreneurial culture, it is unclear if the various researchers are talking about the same construct. While there may be some consistency in the characterization of the underlying

phenomenon, a unified conceptual understanding of entrepreneurial culture seems absent. In particular, definitions and descriptions of entrepreneurial culture seem to emphasize the entrepreneurial component of the concept, while failing to incorporate the sophistication of extant organizational culture theory. Given the importance of entrepreneurial culture to the research areas of innovation, strategy, and human resources management, further work to explore and develop the entrepreneurial culture construct is of inherent scholarly value. These developmental issues are particularly important to address given past calls for continued improvement of construct validation and measurement in entrepreneurship research (Chandler & Lyon, 2001) that are still relevant today (Crook, Shook, Morris, & Madden, 2010). Indeed, poor construct conceptualization remains a fundamental challenge for management research in general, and a clear, concise conceptual definition of focal constructs is necessary to further develop and advance theory (MacKenzie, 2003).

1.2 Research Design

This dissertation was designed to address the need for a theoretical exploration of the entrepreneurial culture construct. This study was driven by the primary research question: *what is entrepreneurial culture*? Related inquiries include how entrepreneurial culture may be conceptually defined, what is the nature of the construct, and how might it be measured? This study sought to provide well substantiated answers to these questions. The research design for this project was influenced by the steps for construct development and validation procedures outlined by MacKenzie, Podsakoff and Podsakoff (2011). In this paper MacKenzie et al. (2011) highlight numerous concerns they have over construct conceptualization and measurement in the organizational research literature. Their concerns include researchers' failure to adequately define the construct domain, failure to correctly specify the measurement model, and underutilization of certain techniques that are helpful in establishing construct validity. Some of these concerns have been recently shared in the entrepreneurship domain (Covin & Wales, 2012) and in the organizational research methods literature (Edwards, 2011). The approach outlined by MacKenzie et al. (2011) provides a comprehensive procedure for

developing a construct from its theoretical grounding to its measurement and validation. The major steps of this procedure consist of:

- Conceptualization (developing a conceptual definition of the construct).
- Development of measures (generate items to represent the construct and assess the content validity of the items).
- Model Specification (formally specify the measurement model).
- Scale Evaluation and Refinement (collect data to conduct a pretest, purify and refine the scale).
- Validation (re-examine the scale properties, assess scale validity, and cross-validate the scale).

While the MacKenzie et al. (2011) framework provides much of the over-arching process for the proposal and dissertation, this work is also informed by contemporary measurement development practice (e.g., Eby, Durley, Evans, & Ragins, 2008; Ferris, Brown, Berry, & Lian, 2008; Levashina & Campion, 2007).

1.3 Structure of the Dissertation

The dissertation is outlined as follows. In the next chapter the fundamental nature of the entrepreneurial culture construct as described by past literature is examined. This entails a thorough review of the broader organizational culture literature in the context of entrepreneurial culture as a subset of this broader domain. Chapter Two also discusses organizational culture frameworks that can help organize the thinking on the nature and dimensions of entrepreneurial culture. The second chapter also includes a review of how the focal construct has been used in prior research in order to specify the construct's conceptual domain and theme. In the third chapter, building off the previous chapter's foundation, the entrepreneurial culture construct is developed. This includes the general properties of the construct, the entity to which the properties apply, the definition of the construct, its dimensionality, stability characteristics, and a potential nomological

network. Chapter Three also addresses important ontological implications of how the construct is conceptualized.

The fourth, fifth, and sixth chapters describe the methods used in this research, which was carried out in three phases. This included an interview phase with entrepreneurs to explore the domain, a rating exercise with doctoral students for early content validity checks of the proposed measures, and finally, a deployment of the survey instrument with organizations. Each phase is described in detail in each of Chapters Four, Five, and Six, respectively. This includes details of the sample, method, analysis, and results for each part of the data collection process. The dissertation concludes with Chapter Seven which discusses the results and implications of this work, the limitation and future research directions, as well as a summary conclusion.

Chapter 2 : Understanding Organizational and Entrepreneurial Culture

2 Overview

This chapter focuses on examining entrepreneurial culture in the context of the broader organizational culture literature. If entrepreneurial culture is meant to be a construct rooted in organizational culture, then the theoretical frameworks that have emerged over decades of study are central to how entrepreneurial culture should be researched. The first section of this chapter describes contemporary research perspectives on organizational culture (Section 2.1). The next section explores the multi-dimensional nature of the organizational culture construct (Section 2.2). Since organizational culture shares a research relationship with organizational climate, how these two domains fit together in this context is briefly examined (Section 2.3). The broad discussion of organizational culture is narrowed by examining cultural subtypes, which represent distinct sets of cultural elements for specific outcomes and purposes (Section 2.4).

Given this background information, the focus changes to entrepreneurial culture itself and how it has been variously defined and measured (Section 2.5). This section highlights two main deficiencies in how entrepreneurial culture has been conceptualized and applied. These deficiencies include a lack of consensus on what entrepreneurial culture is supposed to be about and how the measurement tools have been inadequate for appropriately matching entrepreneurial culture conceptualizations. The chapter concludes with a summarizing section that reiterates the main points that were discussed and sets up how the dissertation will address these deficiencies (Section 2.6).

2.1 Organizational Culture

Organizational culture is a distinct field of research that originated in anthropology. Early anthropological views of culture were a macro-perspective of the total way of life in a tribe or society (Kroeber, 1948). In these early views, culture encompassed essentially *everything* in a social grouping and was extremely broad and inclusive. Later, sociology sought to refine this broad scope for more narrowly defined research settings

and contexts (Jaeger & Selznick, 1964). As organization studies began to incorporate research themes from sociology, the concept of culture also entered the management domain in the late 70s (Ajiferuke & Boddwyn, 1970; Mintzberg, 1973; Pettigrew, 1979). At this time, culture still remained broadly interpreted and inclusive, generally addressing "meaning-making" in collectives. This perspective on culture, as an inclusive system that integrated the terms, symbols, images, and categories used to facilitate meaning-making in collectives, persisted into the 1980s (Jelinek, Smircich, & Hirsch, 1983; Morgan, Frost, & Pondy, 1983; Pfeffer, 1981).

This period of the 80s also saw a surge of interest in culture from a practitioner orientation. This growth in culture studies was partially due to a search for explanations in the rise of Japanese companies and their particular forms of management and systems control (Hofstede, 1983; Lincoln & Kalleberg, 1990). National culture differences were often perceived as being instrumental to performance outcomes. At the same time, practitioners were also looking for reasons why certain American companies were excelling and the notion of "strong" culture was introduced as an explanation (Deal & Kennedy, 1982; Peters & Waterman, 1982). The strong culture hypothesis was the argument that when managers in an organization shared a set of relatively consistent values and methods of doing business, this would lead to better performance (Kotter & Heskett, 1992). This hypothesis would continue to remain influential for years among practitioners despite its perceived analytical weakness in academic research (Saffold, 1988).

In the last two decades culture studies in management research has remained popular. For example, national and societal culture studies are still prominent (e.g., Hayton & Cacciotti, 2013; Tan, 2006). The study of organizational culture (i.e., culture at the firm-level of analysis), however, has diverged over time. This is partly due to the fact that the organizational culture literature itself is often considered quite fragmented and as Sackmann (2006) noted, even after a century of study in anthropology, consensus definitions of culture are still illusive. Organizational culture perspectives have often been classified into three broad groupings: culture as a variable, culture as a metaphor, and culture as a dynamic construct (Alvesson, 2002; Sackmann, 1991; Smircich, 1983).

Each one of these perspectives offers different ontological and paradigmatic assumptions about the study of organizational culture. These various perspectives result in different focal research interests and interpretations of the appropriate methods for studying culture. Table 1 summarizes these different perspectives.

The culture as a variable perspective has been the most commonly used approach in the last several decades of culture study. Culture assessment instruments such as the Organizational Culture Profile (Chatman, 1991; O'Reilly III, Chatman, & Caldwell, 1991) and Hofstede's culture evaluation approach (Hofstede, Neuijen, Ohayv, & Sanders, 1990) exemplify this type of work. This perspective has also been closely linked with the practitioner literature on organizational culture, which has often focused on a "corporate culture" view (Bernick, 2001; Kotter & Heskett, 1992). Corporate culture has often been characterized as idealistic and management-centric (Alvesson & Berg, 1992). Some researchers have viewed the culture recommendations and advice arising from this perspective as being biased, naïve, and disconnected from cultural practice (Alvesson, 2002; Alvesson & Berg, 1992; Alvesson & Willmott, 1992). Nevertheless, this perspective remains popular, particularly among management consultants groups such as *Human-Synergistics* and *Denison Consulting* whose instruments are based on work originating in academic research (Sackman, 2006).

Culture as a metaphor, which focuses on in-depth cultural understanding and symbolism, developed based on organizational culture's relationship to anthropology. This kind of work is exemplified in the symbolism studies of Barley (1983; 1986), the ethnographic studies on entrepreneurship as a collective activity by Stewart (1989), and engineering culture by Kunda (1992). These kinds of studies generally seek to explore a single cultural setting in great detail. For example, in Kunda's (1992) work, he spent nearly two years at a large, multinational electronics firm, observing and recording meetings, training, and company events. This kind of immersive ethnographic experience gave him important insights into the organizational culture. This included the critical differences between the espoused and celebrated public philosophy compared to the daily lived experiences of employees at every level of the organizational hierarchy. Stewart (1989) spent two and half months at an auto-parts factory, working as both an employee and a

Table 1 Three Different Perspectives on Culture

	Culture as a Variable	**Culture as Metaphor**	**Culture as Dynamic Construct**
Assumptions about culture	Culture is an organizational variable that can be manipulated.	Culture is a metaphor for understanding life in organizations. Organizational reality is socially and symbolically constructed.	Culture is a dynamic construct. Organizational reality is socially constructed and organizations produce culture (including cultural artefacts).
Paradigm	Social factist; rational-mechanistic	Interpretive	Pluralistic
Predominant interest in culture	Managing, controlling and changing the relevant culture variable for best performance and/or improved organizational effectiveness.	Deep and rich understanding of a particular cultural setting with a focus on organizational symbolism.	Understanding of the cultural context of an organization for effective culture-aware management.
Assessment of culture and its purpose	Focus on questionnaires and visible tools to identify (sub-) variables that can be manipulated.	Ethnography, story telling, in-depth interviews, discourse analysis to render rich descriptions of a particular cultural setting.	Multiple methods: qualitative and quantitative, perceptions and observations; triangulation.
Example Citations	Deal & Kennedy, 1982; Denison, 1984; Saffold, 1988; Kotter & Heskett, 1992;	Barley, 1983, 1986; Stewart, 1989; Kunda, 1992;	Swidler, 1986; Sackmann, 1991,1992; Weber, 2005; Weber & Dacin, 2011;

Source: adapted from Sackmann (2006:23)

researcher, trying to understand how groups in the firm seized opportunities and "stretched themselves" to solve problems. Stewart described a metaphor as a "means for understanding that which is hard to understand" (1989:41). From this perspective, culture as a metaphor might refer to a way to understand the complexity and subtleties of the totality of organizational life. As suggested by Sackmann (1991), this kind of work takes a great deal of time and can be quite difficult to carry out. Perhaps as a result, in the intervening years, ethnographic studies of organizational culture have been far less prominent in the management literature.

The culture as a dynamic construct view represents a kind of hybrid approach to organizational culture, adopting aspects of both culture as a variable and culture as a metaphor perspective. It incorporates a view of culture that is socially constructed by many organizational agents, but can be understood for the purposes of management. Recently, the sociological work of Swidler (1986), which focused on culture as a complex social phenomenon in action, has experienced a renaissance and drawn a great deal of attention and renewed interest in culture studies (Weber & Dacin, 2011). Weber and Dacin (2011) have argued that culture construction, culture as a social resource, and the study of all things "cultural" (as an adjective rather than "culture" as a noun) represent a new wave of organizational culture studies.

This new wave of culture studies was championed in a special issue of *Organization Science* which presented several ethnographic and mixed-method exploratory studies introducing new lines of organizational culture research (e.g., Howard-Grenville, Golden-Biddle, Irwin, & Mao, 2011; Kellogg, 2011; Leonardi, 2011). The "new wave" of culture studies seeks to supplement and enhance the existing perspectives on organizational culture studies by highlighting the complexity but also *functionality* of culture. These contemporary approaches suggest that cultural research requires a variety of assessment strategies to tap the differentiated entities and processes of culture. For example, Detert, Schroeder and Cudeck (2003) argued for culture's multi-faceted nature, incorporating ideational (values and beliefs), behavioural (norms), and material (expressive symbols) aspects in their study of a "quality culture" in public schools. The literature indicates that

mixed methods, including surveys, archival content analysis, interviews, story-telling, and ethnographies, among other methods, are equally appropriate for exploring and understanding organizational culture.

As culture as a dynamic construct view represents the most contemporary and balanced view of culture, I have adopted this perspective for this study. The dynamic construct view blends the other perspectives on culture to incorporate the arguably more sophisticated and socially-aware conceptualization of culture inherent to the metaphor view, with the pragmatism and purposefulness of the variable view. This is consistent with the notion of entrepreneurial culture as a kind of organizational culture "for" something (cf. Schneider, Ehrhart, & Macey, 2013), a notion expanded on in Section 2.4.

2.1.1 A Cognitive Approach to Organizational Culture

While the dynamic construct view of culture provides an overall philosophical framing for studying culture, it is still necessary to specify a definition and the elements of interest which constitute an organizational culture. One of the most influential perspectives of organizational culture has been Edgar Schein's (1990, 1996, 2009) cognitive-cultural framework. In their review of culture research over 30 years, Weber and Dacin (2011) noted that Schein's work has remained consistently prominent among researchers over the decades. This includes organizational culture studies in entrepreneurship research (e.g., Ireland, Covin, & Kuratko, 2009; Ireland et al., 2003) as well as in other conceptualizations of culture, such as stakeholder culture (Jones, Felps, & Bigley, 2007) and industry culture (Phillips, 1994). Schein's widely cited 1990 definition of culture states that culture is "(a) a pattern of basic assumptions, (b) invented, discovered, or developed by a given group, (c) as it learns to cope with its problems of external adaptation and internal integration, (d) that has worked well enough to be considered valid and, therefore (e) is to be taught to new members as the (f) correct way to perceive, think, and feel in relation to those problems" (1990:111). With this definition, Schein (1990) specifies *what* culture is, *who* culture applies to, *why* culture is developed, and *how* culture is perpetuated.

From Schein's cognitive-cultural perspective, *values* are considered generalized manifestations of underlying assumptions, and are typically espoused goals, ideals, norms, standards, moral principles, justifications, and other untested premises. However, values form only one level of organizational culture. *Artifacts* are the first level, which are the visible (observable) organizational structures and processes (Schein, 1988). Values form the second level of organizational culture. The third and "deepest" level of organizational culture is underlying *assumptions.* Assumptions start out as values but over time become unconscious, taken for granted beliefs, habits of perception, thought and feeling. Values and assumptions can often be complex and confusing to outsiders and insiders alike. For example, Schein (1990) noted that cultural assumptions are not necessarily consistent with each other and even if a group did have complete consensus on underlying assumptions, it is still possible for a group to have inconsistent values.

Schein (1990) wrote that the strength and degree of internal consistency of a culture are a function of (a) the stability of the group, (b) the length of time the group has existed, (c) the intensity of the group's experiences of learning, (d) the mechanisms by which the learning has taken place (i.e., positive reinforcement or avoidance conditioning), and (e) the strength and clarity of the assumptions held by the founders and the leaders of the group. Schein's cognitive perspective on culture also suggests an important socialization component, where new members are taught existing solutions and approaches to problems, which also condition their own underlying assumptions to be consistent with the group. This combination of deeply rooted thinking and socialization processes of reinforcement partially explain why culture can often be hard to change. Sackmann (1991) added that over time and through repeated applications, commonly held cognitions can become attached with emotions and assigned with degrees of importance. This affective component also helps to explain why culture can be hard to change. Underlying cognitions cannot be simply modified or reassigned; rather, individuals develop particular feelings and sentiments towards ways of thinking. Furthermore, Sackmann (1991) argues that these cognitions can become habitual and dissociated from their original meanings over time.

In summary, Schein's cognitive-cultural framework is one of the best developed and most applied frameworks in the broad organizational culture literature. It proposes that organizational culture is fundamentally a pattern of shared basic assumptions that are invented, developed, and shared by a group for the purposes of problem solving. Solutions that the group deem correct, and beliefs around those solutions, are seen as valuable, which is reinforced over time if they continue to work. These, in turn, can become underlying assumptions themselves. This conceptualization of organizational culture, given its well developed and longstanding conceptual and empirical grounding, forms the basic understanding of organizational culture in this research.

2.2 The Dimensionality of Organizational Culture

Numerous researchers over the years have identified a variety of different dimensions of organizational culture. In Schein's (1988) framework, for example, he identified seven distinct underlying dimensions of an organizational culture. These dimensions reflect different assumptions that an organization may hold about the organization-environment relationship (e.g., the nature of human activity, the nature of reality and truth, etc.). In Hofstede et al.'s (1990) conceptualization, organizational culture has five dimensions, reflecting different organizational practices. Many conceptualizations utilize multi-dimensional frameworks in the broader organizational culture literature (Sackmann, 2006). These various perspectives highlight the conceptual complexity that characterizes organizational culture studies.

Researchers have in the past attempted to synthesize some of these disparate dimensional perspectives into a unified organizing framework. For example, Detert, Schroeder and Mauriel (2000) content analyzed and synthesized the broad literature on organizational culture, analyzing 25 different multi-dimensional frameworks. The authors identified eight distinct dimensions of organizational culture that they believed captured the extant perspectives in the literature. Each dimension was designed to tap different ideas about the distinct aspects of organizational culture that had been described in the broader literature. Collectively, these dimensions were thought to comprehensively describe the shared central values and norms underlying an organizational culture. This framework was used to evaluate the values thought to be critical in the implementation of a quality

management culture (Detert et al., 2003; Detert et al., 2000). However, a recent review conducted by Sackmann (2011) suggests that a unified cultural framework that is widely adopted by management researchers has yet to emerge. The broad organizational culture literature demonstrates that different frameworks continue to be employed by researchers. These include, for example, multi-dimensional frameworks based on values (O'Reilly III et al., 1991), practices (Hofstede et al., 1990), culture types (Cameron & Freeman, 1991), or kinds of knowledge (Sackmann, 1992). Generally speaking, these numerous frameworks represent various tools employed by researchers to study different aspects of culture that are of focal interest. These interests typically include organizational culture assessment or profiling (e.g., Gray, Densten, & Sarros, 2003; Sarros, Gray, Densten, & Cooper, 2005; Xenikou & Simosi, 2006) as well as studying culture for the purposes of intervention (e.g., Flamholtz & Randle, 2011; Salama, 2011).

Researchers have derived the dimensions of organizational culture through two primary approaches (Sackmann, 2006). The first approach is *a priori*, as researchers utilize the past theoretical and empirical literature on culture to specify the dimensions. For example, Detert et al's (2000) synthesized framework or studies based on Hofstede's four dimensions of national culture (Hofstede, 1983; Hofstede et al., 1990). The second method is inductive, based on the expression of culture that emerges from an individual organization. Inductive methods often rely on ethnographic and case study work to develop organizational narratives and common patterns (Sackmann, 2006), however they can also employ quantitative methods (Chatman, 1991). Both *a priori* and inductive methods are common in culture research, such as in cultural subtype work (see Section 2.4) as well as case-based theory development (e.g., Harrison & Corley, 2011; Howard-Grenville et al., 2011). Inductive methods also appear in intervention-oriented culture consultation for practitioners (Katzenbach & Harshak, 2011; Schwartz, Gaito, & Lennick, 2011; Segal, Goldstein, Goldman, & Harfoush, 2014).

2.3 Organizational Culture and Organizational Climate

Since this chapter explores the foundational elements of organizational culture research, it is important to acknowledge and describe the highly related field of *organizational climate* (Ashkanasy, Wilderom, & Peterson, 2011; Denison, 1996). Organizational

climate has roots in psychology and the measurement and evaluation of the workplace environment as perceived by employees, particularly with respect to policies and procedures (James & Jones, 1974; Schneider, Ehrhart, & Macey, 2011b). Organizational *culture* concepts are those generally related to workplace functioning, the day-to-day life of the organization, and how employees perceive experiences of work (Wilderom, 2011). Climate research has focused on observable behaviours based on a Lewinian psychological tradition that views behaviour as a function of the environment and the person (Denison, 1996). For example, climate studies have often focused on workplace issues such as safety (Zohar, 2000) and procedural justice (Colquitt, Noe, & Jackson, 2002; Schneider, Salvaggio, & Subirats, 2002). Organizational climate studies have been characterized by the view that climate is generally *short-term oriented* and can be modified (Härtel & Ashkanasy, 2011).

On the other hand, organizational culture, with roots in sociology and anthropology, is more *long-term oriented* and *historically connected*. Whereas climate is thought to be modifiable in that, for example, policies can be changed to immediately curtail particular behaviours, culture change is thought to be more evolutionary in nature (Wilderom, 2011). That is, culture relates more to the underlying values and assumptions that frame actions and thus, those aspects of the culture evolve over time. Culture and climate are therefore not the same phenomenon, but neither are they oppositional. Leading scholars in both fields have suggested that climate and culture research mutually reinforce each other in order to conceptualize the way people experience and describe their work settings (Schneider et al., 2013).

Recent work has advocated the integration of culture and climate research and suggested that at least with respect to survey methods, it is possible to integrate a "climcult" perspective which can help to better explore how people observe and experience work (Schneider, Ehrhart, & Macey, 2011a). Schneider et al. (2011a) advocate that climcult questionnaire items should tap policies and behaviours but also employee socialization and value/norm transmission practices. For example, Zohar (2000) presented a 10-item questionnaire examining group safety climate, based on a respondent's perception of his

or her supervisor's behaviours with respect to workplace safety. Schneider et al. suggest that additional items could be added to capture the culture construct as well, such as:

- Safe behaviour is preached to newcomers by my supervisor from the moment they are hired.
- My supervisor's safety emphasis produces a strong belief that safety is highly valued by this company.
- People here tell stories about how unsafe behaviour has resulted in terrible consequences for other employees and the company (2011a:42).

Schneider et al.'s (2011a) additions highlight organizational culture's connection to the socialization of newcomers, generating beliefs, and influencing behaviour through organizational narratives. In sum, organizational climate research can be seen as a distinct but complementary field to organizational culture research. While climate focuses on the perception of behaviours, culture focuses on the underlying thinking and values that guide behaviour. Both fields, however, have as a general domain the functioning of the workplace environment and the social interaction of individuals within that space.

2.4 Organizational Culture Subtypes

While organizational culture has been extensively studied as a broad and inclusive concept, scholars have also sought to identify and explore distinctive kinds of organizational culture. Similar to how individuals are thought to fit into psychological archetypes, organizational cultures have been thought to fit into archetypes as well (Cameron & Freeman, 1991). For example, Cameron and Freeman (1991) describe four broad organizational culture types based on a process axis (organic vs. mechanistic) and a positioning axis (internal maintenance vs. external positioning). This two-by-two matrix identified the culture types of *clan* (internal, organic), *hierarchy* (internal, mechanistic), *adhocracy* (external, organic), and *market* (external, mechanistic). This broad classifying of organizational cultures is similar to the classification used in national culture studies, such as those based on individualism vs. collectivism and large or small power distance (Hofstede, 1983). These kinds of broad typologies have been used to explore the

relationship between organizational culture and various organizational outcomes, such as the meaningfulness of work (Cardador & Rupp, 2011) and the effectiveness of globally distributed teams.

There are also specific organizational culture types that focus on the distinct cultures of various organizations or industries. For example, Phillips (1994) described the distinct cultures of art museums and California wineries, while Chatman (1991) described the culture of accounting firms. Gordon also (1991) highlights how organizational culture can be influenced by the cultures of their industry. For example, a power plant's organizational culture may be influenced by industry expectations and assumptions around safety, reliability, and the continuous supply of power. These kinds of organizational culture types describe the characteristics and attributes thought to represent particular organizations or industries.

A variation on this theme of specific kinds of organizational culture types are those oriented around particular outcomes or goals. In other words, these are organizational culture types which describe cultures that are *for* something. Whereas a broader culture type like a clan or hierarchy may describe general features, these specific cultural subtypes describe features that are oriented towards some particular purpose or outcome. Schneider et al. noted that "this notion of a culture *for* something might help make the culture concept less complex both in research and practice" (2013:377; italics in original). Following this line of thinking, an *entrepreneurial culture* might itself be considered a cultural subtype oriented towards entrepreneurship.

In order to explore the concept of entrepreneurial culture as a culture subtype, it was instructive to look at how other subtypes had been developed. A review of the literature identified a number of organizational culture subtypes that were relevant to understanding entrepreneurial culture. These particular subtypes were selected because of their similarity in definition and description to how entrepreneurial culture had been used in the past. The subtypes were thought to offer some insights into how scholars had approached specifying a particular kind of organizational culture domain. The following subsections will describe these cultural subtypes. Each of these cultural subtypes focus

on a particular outcome or goal but share some overlapping characteristics and attributes with entrepreneurial culture. The subtypes will be briefly described here and their connection to entrepreneurial culture will be subsequently elaborated on (Section 3.3).

2.4.1 Total Quality Management

Total Quality Management (TQM) is a system originally based on statistical quality control for engineers that spread to broader non-manufacturing management processes within the organization, such as product development, purchasing, and billing (Powell, 1995). Interest in TQM grew rapidly in the 1980s and 1990s and disseminated widely among American manufacturing firms. As noted by Zbaracki (1998), an important aspect of TQM is not only the technical processes but also the adoption of the overall philosophy and rhetoric of TQM. As TQM grew into a sort of broad management philosophy and organizational outlook with regards to quality control and customer orientation, TQM became much more salient as an organizational culture phenomenon. In particular, TQM was articulated as an organizational philosophy that required the acceptance and adoption by individuals at all levels of the organization. As a result, Detert et al. (2000) examined the relationship between TQM and organizational culture. In order to do this, they assembled a panel of TQM experts in order to identify the "cultural backbone" of values and artifacts underlying successful TQM adoption. Detert et al. (2000) fit these values to an eight dimension culture framework they developed from the literature, identifying this organizational culture structure as the "ideal culture" for TQM. Table 2 summarizes the dimensional framework with the "ideal" TQM values. TQM may be characterized as a culture focused on the outcome of high product quality, namely reducing defects and improving the product through customer consultation.

2.4.2 Innovation-Supportive Culture

An *innovation-supportive culture* (ISC) is a cultural subtype that has been developed to examine the kind of managerial and human resource practices that authors have

Table 2 Organizational Culture and "Ideal" TQM Values Mapping

Organizational Culture Dimension	**TQM Value**
The basis of truth and rationality in the organization	Decision making should rely on factual information and the scientific method.
The nature of time and time horizon	Improvement requires a long-term orientation and a strategic approach to management.
Motivation	Quality problems are caused by poor systems – not the employees. Employees are intrinsically motivated to do quality work if the system supports their efforts.
Stability versus change/innovation/personal growth	Quality improvement is continuous and never-ending. Quality can be improved with existing resources.
Orientation to work, task, and coworkers	The main purpose of the organization is to achieve results that its stakeholders consider important. Results are achieved through internal process improvement, prevention of defects, and customer focus.
Isolation versus collaboration/cooperation	Cooperation and collaboration (internal and external) are necessary for a successful organization.
Control, coordination, and responsibility	A shared vision and shared goals are necessary for organizational success. All employees should be involved in decision making and in supporting the shared vision.
Orientation and focus – internal and/or external	An organization should be customer driven. Financial results will follow.

Source: Detert et al., (2000)

associated with an organizational culture supportive of innovation (Chandler, Keller, & Lyon, 2000). This work emerged out of an abundant body of literature that described the importance of creativity and innovation in keeping organizations healthy, viable, and competitive. Jassawalla and Sashittal defined innovation-supportive cultures as "cultures supportive of new-product development processes in high-technology firms [that] can foster creative, innovative, and initiative-taking behaviours among participants – i.e., behaviours that are linked to advantageous new-product results" (2002: 42). Jassawalla and Sashittal (2002) identified several values and behaviours they thought were underlying an ISC. Table 3 lists these distinctive elements. Building on Jassawalla and Sashittal's (2002) work, Khazanchi, Lewis and Boyer (2007) also examined innovation-supportive culture and its link to values. However, they focused on the values of flexibility and control, where flexibility referred to employee empowerment, decentralized work structures, and experimentation, while control referred to stable routines and problem solving.

The ISC subtype therefore represents a particular grouping of values, beliefs, and norms that are thought to foster innovation and encourage creativity within the organization in the context of product innovation (e.g., new ideas and improved product quality). The listed values, similar to the TQM culture, describe the "ideal" innovation-supportive culture. For example, change and innovation are embraced, rather than a tendency towards stability; individuals are also encouraged to work together collaboratively and in decentralized structures.

2.4.3 Adaptive Culture

An *adaptive culture* is a cultural subtype which emerged in response to some of the prevailing management notions of corporate culture in the 1980s. In the 1980s, the "strong culture" hypothesis was dominant. The hypothesis stated that when most managers in an organization shared a set of relatively consistent values and methods of doing business, which new employees adopted very quickly, then excellent performance

Table 3 Distinctive Elements of Highly Innovation-Supportive Cultures in Product-Innovation Settings

Values	Taking initiative and exhibiting creativity and risk-taking are important and expected.
	All participants are capable of being trusted in a co-creative endeavour and are important, equal stakeholders.
	All participants (including leading customers, key suppliers, and members of other functional groups) are *insiders* and should be involved early in the product-development process.
	Organizational change is energizing and refreshing. Change should be embraced rather than resisted.
Behaviours	Participants voice the clear sense of control that they feel about their involvement in the new-product development process.
	Participants exhibit high levels of co-creative, collaborative behaviours.
	Participants show willingness to make themselves vulnerable to feedback from others.
Related new-product outcomes	New products from technologies are developed within time and cost budgets and achieve market success.

Source: Jassawalla & Sashittal, 2002:4

would follow (Peters & Waterman, 1982). A second influential view of culture was one based on contingency and fit, where the "best" culture was the one which most fit its environmental context (i.e., industry). Both the strong and contingency perspectives were based around the notion of a unitary organizational culture that drew strength from its homogenous nature (i.e. alignment with management) or its best fit with the external environment, respectively. An alternate view later emerged where an organizational culture that helped organizations to *anticipate* and *adapt* to environmental change would be associated with superior performance over long periods of time (Kotter & Heskett, 1992). Kilmann, Saxton and Serpa described an adaptive culture as one that:

> entails a risk-taking, trusting, and proactive approach to organizational as well as individual life. Members actively support one another's efforts to identify all problems and implement workable solutions. There is a shared feeling of confidence: the members believe, without a doubt, that they can effectively manage whatever new problems and opportunities will come their way. There is widespread enthusiasm, a spirit of doing whatever it takes to achieve organizational success. The members are receptive to change and innovation
>
> (1985: 5).

Kotter and Heskett (1992) argued that the strength of such an adaptive culture was being able to initiate change in strategies and tactics whenever necessary in order to satisfy the legitimate interests of stockholders, customers, and employees. In comparison, in less adaptive cultures, managers behaved cautiously and politically to protect or advance themselves, their products, or their immediate work groups. Table 4 presents several core values and common behaviours Kotter and Heskett (1992) believe contrast adaptive and unadaptive cultures. In this conceptualization of adaptive culture, promoting change is considered one of the primary functions of leadership (Kotter, 2001; Kotter & Heskett, 1992). Indeed, a critical aspect of adaptive culture is the role of "excellent leadership" and "encouraging people to lead"; points raised by Kotter and Heskett's (1992) survey of managers.

Table 4 Adaptive vs. Unadaptive Corporate Cultures

	Adaptive Corporate Cultures	Unadaptive Corporate Cultures
Core Values	Most managers care deeply about customers, stockholders, and employees. They also strongly value people and processes that can create useful change (e.g., leadership up and down the management hierarchy)	Most managers care mainly about themselves, their immediate work group, or some product (or technology) associated with that work group. They value the orderly and risk-reducing management processes much more highly than leadership initiatives.
Common Behaviours	Managers pay close attention to all their constituents, especially customers, and initiate change when needed to serve their legitimate interests, even if that entails taking some risks.	Managers tend to behave somewhat insularly, politically, and bureaucratically. As a result, they do not change their strategies quickly to adjust to or take advantage of changes in their business environments.

Source: Kotter & Heskett, 1992:51

2.4.4 Stakeholder Culture

In the management literature the concept of stakeholder theory arose in order to counteract the widely held belief that business has no obligation other than to maximize shareowner wealth, constrained only by the customs and mores of society and the letter of the law (Phillips, 1997). Stakeholder theory is based on the idea that there are other people and groups in addition to a firm's shareowners to whom the firm has obligations. Stakeholders may include all persons or groups with legitimate interests participating in an enterprise, for example, employees, customers, suppliers, and creditors (Donaldson & Preston, 1995). Phillips (1997) has argued that the normative grounding for stakeholder theory is one of obligation based on "fairness" which arises when individuals and groups of individuals interact for mutual benefit. Decision making within an organization with respect to stakeholder relationships thus becomes an ongoing tension as there are trade-offs between firm interests and stakeholder interests (Jones et al., 2007). Furthermore, there are tensions between power and legitimacy. For example, a firm may wield power over a stakeholder and exercise it without regard to moral concerns or consequences. Conversely, stakeholders may have morally legitimate claims on the firm which need to be addressed. These ethical and moral considerations, and the tensions between self-interest and other-interest, can create difficult challenges for managers.

Jones et al. (2007) suggest that the way a firm collectively reconciles these potentially contradictory motives and situations is through a *stakeholder culture*. This organizational culture subtype refers to "the beliefs, values, and practices that have evolved for solving stakeholder-related problems and otherwise managing relationships with stakeholders" (Jones et al., 2007: 142). Jones et al. (2007) argue that managers are aware of and subscribe to common language understandings of different moral philosophies that guide sense-making and sense-giving activities. Stakeholder cultures are also influenced by employee sentiment and what they perceive to be "social facts" about the world. Stakeholder culture provides a common interpretive frame for how information about stakeholder situations are collected, screened and evaluated. Stakeholder culture also motivates behaviours and practices that preserve, enhance, or otherwise support the organization's culture (Jones et al., 2007: 143).

Jones et al. (2007) categorized stakeholder culture into three broad groupings based on morality: amoral, limited morality (moral stewardship), and broadly moral. Each stakeholder culture type is then described by its moral orientation (self- versus other-regarding), the relevant stakeholders, and the possible moral foundations. Five stakeholder culture types fit into this framework. The five stakeholder culture types are agency, corporate egoist, instrumentalist, moralist, and altruist. Table 5 shows an adapted version of Jones et al.'s (2007) organizing framework. This framework highlights an alternate conceptualization of organizational culture in that it focuses on the moral and ethical underpinning of stakeholder culture. Stakeholder culture was developed to reflect a particular subtype of organizational culture that specifically addresses problems and solutions related to stakeholder relationships.

2.4.5 Summary of Cultural Subtypes

TQM, innovation-supportive, adaptive, and stakeholder cultures represent examples of cultural subtypes that have been developed over the years to capture distinct sets of values, beliefs, and norms grouped around their cultural "purpose." These examples demonstrate how distinct sets of cultural elements have been substantively interpreted and labeled by researchers to represent specific kinds of organizational cultures. These cultural subtypes shift the research focus from a general organizational culture to more specific kinds of culture. In the TQM example, these were the cultural elements thought to be most associated with the successful implementation of quality management processes and the adoption of a quality management philosophy throughout the organization. Similarly, innovation-supportive and adaptive cultures represent cultural subtypes thought to be associated with the outcomes of product innovation and environmental adaptation, respectively.

Stakeholder culture differs from the other subtypes in that it appears more descriptive, rather than prescriptive. Stakeholder culture was described as the broad set of cultural values, beliefs, and norms that dealt with morality and ethics with respect to stakeholder relationships. That is, it described a set of cultural elements that might have different decision making outcomes, depending on the organization's moral and ethical orientations. Stakeholder culture was constructed to represent culturally how an

Table 5 Stakeholder Culture Mapping

	Amoral	**Limited Morality: Moral Stewardship**		**Broadly Moral**	
Stakeholder Culture Type	Agency	Corporate Egoist	Instrumentalist	Moralist	Altruist
Alternative description	Amoral management. Managerial egoism.	Short-term profit maximization. Short-term self-interest at the corporate level. Short-term stewardship.	Enlightened self-interest. Corporate self-interest with guile. Instrumental or strategic morality. "Moral" impression management. Enlightened stewardship.	Intrinsic morality tempered with pragmatism: genuine concern for welfare of normative stakeholders. Moral pragmatism.	Pure intrinsic morality; concern for welfare of normative stakeholders is primary. Moral purism.
Moral orientation; self- versus other-regarding	Pure egoism. Purely self-regarding.	Regard for others extends to shareholders; belief in efficiency of the market; honour contract with shareholders; Egoistic at the corporate level.	Same as corporate egoist.	Morally based regard for normative stakeholders; pragmatic regard for derivative stakeholders.	Morally based regard for normative stakeholders only.
Relevant Stakeholders	None	Shareholders only	Shareholders only, but other stakeholders as means to shareholder ends. Instrumentally useful stakeholders.	All normative and derivative stakeholders.	Normative stakeholders only.
Possibly relevant moral foundation (example, virtue ethics)	Instrumental virtues only (persistence, alertness, carefulness, prudence, and cool-headedness).	Some moral virtues (loyalty, reliability, diligence, and dependability).	Virtues of corporate egoists plus additional instrumental virtues (cooperativeness and practical wisdom).	Moral virtues of corporate egoists plus honesty, sincerity, truthfulness, and trustworthiness.	Moral virtues of moralists plus benevolence, altruism, selflessness, and forgiveness.

Source: adapted from Jones et al. (2007: 145)

organization would resolve the tensions (i.e. make sense of a situation and decide what to do) inherent to dealing with competing interests.

Collectively, these cultural subtypes identify an important aspect of organizational culture research: in addition to studying culture broadly, specific types of culture can be fruitfully examined to understand a more contextualized role of culture in the organization. Organizational culture theory broadly states that organizations have values, beliefs, norms, artifacts, and the processes by which these cultural elements are developed and perpetuated (cf., Schein, 1988). However, cultural subtypes illuminate what particular sets of values, beliefs, norms, and artifacts might be *directed* towards (e.g., TQM adoption, supporting innovation, etc.) and *why* (e.g., to deal with ethical and moral choices). The construction of cultural subtypes provides a more focused lens for understanding a particular function of organizational culture. It is also important to note that these subtype examples assume that an organization possesses various cultural elements such as values and norms already, but it is the researchers who are *organizing* these cultural elements into named constructs (e.g., TQM culture, stakeholder culture) for theoretical and research purposes.

2.5 Entrepreneurial Culture

This chapter began with a broad discussion of organizational culture, gradually narrowing to discuss its cognitive interpretation and its synthesized dimensions. The previous section focused on particular cultural subtypes, their purpose and relationship to organizational culture studies. This brings the chapter to the focal construct of this dissertation: entrepreneurial culture.

2.5.1 Definitions of Entrepreneurial Culture

Entrepreneurial culture has been a popular concept in both the academic and practitioner literature for decades. In order to better understand entrepreneurial culture, I investigated how the term had been previously used in the literature. Using Google Scholar, I searched academic publications for the exact terms “entrepreneurial culture” anywhere in the article, from any date, in the *Academy of Management Review*, *Academy of*

Management Journal, *Strategic Management Journal*, *Administrative Science Quarterly*, *Organization Science*, *Journal of Management*, and the entrepreneurship journals *Entrepreneurship Theory & Practice*, *Journal of Business Venturing*, and *Journal of Small Business Management*. This list represents a similar selection of top management journals explored by Busenitz, West, Shepherd, Nelson, Chandler and Zacharakis (2003) in their review of research in the entrepreneurship field. The search produced 44 articles published between 1983 and 2011, where 34 of the articles came from the three entrepreneurship journals. Of these 44 articles only 4 provided an explicit definition of "entrepreneurial culture." Table 6 lists these definitions. Many of the articles did, however, provide some form of description or characterization of entrepreneurial culture. For reference, Table 7 shows a selection of some of these descriptions. A similar search of the practitioner literature, namely the *Harvard Business Review*, *California Management Review*, and *Sloan Management Review*, produced three articles, none of which provided a direct definition. However, several articles provided descriptions of how an entrepreneurial culture was important at firms like Hewlett-Packard, American Express, or Cisco (e.g., Chatman, O'Reilly III, & Chang, 2005; Cross, Thomas, & Light, 2009; Kotter, 2001).

The definitions and descriptions of entrepreneurial culture share some commonalities in that they emphasize pursuing change, innovation, risk-taking, and opportunities. The descriptions of entrepreneurial culture also indicate that it is desirable because of its positive relationship to growth, performance, and success. These are the sorts of characteristics and attributes that would be expected to describe the entrepreneurship domain; that is the "usual suspects" in entrepreneurship (Miller, 2011:874). In these descriptions we can see some of the similarities to characteristics identified in the various cultural subtypes noted in Section 2.4. For example, ISC viewed organizational change as "energizing and refreshing…change should be embraced rather than resisted" (Jassawalla & Sashittal, 2002:43); in adaptive cultures, managers "strongly value people and processes that can create useful change" (Kotter & Heskett, 1992: 51).

Table 6 Definitions of Entrepreneurial Culture

Publication	Text	Source
ETP	"An entrepreneurial organizational culture is 'one in which new ideas and creativity are expected, risk-taking is encouraged, failure is tolerated, learning is promoted, product, process, and administrative innovations are championed, and continuous change is viewed as a conveyor of opportunities' (Ireland et al., 2003, p.970). We thus define an entrepreneurial organizational culture as the coalescence of these behavioural norms and cognitions shared by organizational members."	(Shepherd, Patzelt, & Haynie, 2010: 62)
ETP	"By entrepreneurial culture, we refer to a national system of shared values in a particular society that embraces and supports entrepreneurship."	(Ireland, Tihanyi, & Webb, 2008: 108)
JBV	"The entrepreneurial culture is the composite of personal values, managerial skills, experiences and behaviours that characterize the entrepreneur in terms of spirit of initiative, risk-taking, innovative capacity and management of firms' relations with the economic environment."	(Minguzzi & Passaro, 2000: 183)
JOM	"An effective entrepreneurial culture is characterized by multiple expectations and facilitates firms' efforts to manage resources strategically. Committed to the simultaneous importance of opportunity-seeking and advantage-seeking behaviors, an effective entrepreneurial culture is one in which new ideas and creativity are expected, risk taking is encouraged, failure is tolerated, learning is promoted, product, process and administrative innovations are championed, and continuous change is viewed as a conveyor of opportunities. Thus, an entrepreneurial culture fosters and supports the continuous search for entrepreneurial opportunities that can be exploited with sustainable competitive advantages"	(Ireland et al., 2003: 970)

Table 7 Descriptions of Entrepreneurial Culture

Publication	Text	Source
ETP	"The goal of creating these [entrepreneurial] cultures is to enhance the innovative abilities of employees and, at the same time, increase organizational success through the creation of new corporate ventures."	(Hornsby et al., 1999: 9)
ETP	"The development of an entrepreneurial culture will be strongly influenced by individual efforts toward innovation and growth in emerging organizations"	(Politis, 2005: 417)
ETP	"The early stage [of an organization] is marked by an entrepreneurial culture fueling a desire for the firm to survive. In this stage, resource needs are high and the founder engages in less planning and more spontaneous decision making with a vision and passion for the business."	(Sundaramurthy & Kreiner, 2008: 424)
ETP	"individuals in areas without entrepreneurial role models or an entrepreneurial culture are less likely to take on the uncertainty and risks of venture creation."	(Ring, Peredo, & Chrisman, 2010: 174)
JBV	"The US has a remarkable entrepreneurial culture which provides permission to fail and try again until success is achieved without permanent personal or public penalty."	(Merrifield, 1987: 284)
JBV	"Studies of firms in high-tech industries, for instance, suggest that successful firms display a fierce activism in promoting an entrepreneurial culture through extensive communication and social interaction, overlapping responsibilities, and high tolerance for failure."	(Fombrun & Wally, 1989: 110)
JBV	"A firm is more entrepreneurial when its organizational culture encourages a broad array of new ideas, experimentation, and creativity. A firm is less entrepreneurial to the extent that its culture encourages new ideas, experimentation, and creativity focused on, or bound by, the resources that the firm controls."	(Bradley et al., 2011: 543)
AMJ	"early entrepreneurial behaviour might stimulate a self-reinforcing pattern that generates what amounts to an 'entrepreneurial culture.'"	(Autio, Sapienza, & Almeida, 2000: 919)
SMJ	"In high tech, an entrepreneurial culture nurtures the notion that rewards should be closely tied to performance and that incentive attainments are a measure of personal achievement."	(Balkin & Gomez-Mejia, 1987: 173)
SMJ	"The Adhocracy (entrepreneurial) culture can be characterized as a developing, dynamic, and creative workplace. Employees in this organizational culture are committed to experimentation and innovation. The goal of an adhocracy culture is to be able to produce innovative products and services and adapt quickly to new strategic opportunities. Individual initiative, freedom, and continuous improvement are seen as the key ingredients for being on the cutting edge of product or service leadership."	(Ralston, Terpstra-Tong, Terpstra, Wang, & Egri, 2006: 832)
JOM	"Those organizations that desire to be highly entrepreneurial must develop an entrepreneurial culture that includes such factors as the ability to learn and to focus on markets."	(Hult et al., 2003: 402)

The definitions and descriptions of entrepreneurial culture, generally speaking, articulate a culture directed towards entrepreneurship. However, the "direction" in these definitions and descriptions refer to several different things. For example, enhancing the innovative abilities of employees (Hornsby et al., 1999), taking on the uncertainty and risk of venture creation (Ring et al., 2010), focusing on markets (Hult et al., 2003), or adapting quickly to new strategic opportunities (Ralston et al., 2006), are all referenced as the goal or purpose of an entrepreneurial culture. These various definitions and descriptions indicate that throughout the literature, authors have been using entrepreneurial culture to mean different things. It is likely there is the same shared intent among researchers, namely referencing an organizational culture that is broadly "entrepreneurial." However, this lack of conceptual consensus (e.g., dimensions, characteristics and attributes, etc.), let alone definitional consensus, means that it is not clear that scholars have been truly building knowledge on the same concept of entrepreneurial culture.

MacKenzie (2003) suggests that a good conceptual definition should (a) specify the construct's conceptual theme, (b) in unambiguous terms, (c) in a manner that is consistent with prior research, and that (d) clearly distinguishes it from related constructs. Unfortunately, the existing definitions and descriptions of entrepreneurial culture suffer from several of these problems. For example, Ireland et al.'s (2003) definition of entrepreneurial culture is problematic because it builds in what they believe constitutes an "effective" entrepreneurial culture. This assumes that these characteristics and attributes constitute an effective form of the entrepreneurial culture subtype without specifying what might make an ineffective or less effective entrepreneurial culture. Shepherd et al.'s (2010) adoption of this definition omits the effectiveness component and instead states that this *is* an entrepreneurial organizational culture. The Ireland et al. (2008) definition, although at the national level of analysis, is problematic because it incorporates the phenomenon into its cultural definition: an entrepreneurial culture is a system of shared values that embrace and support entrepreneurship. This leads to ambiguity as to what constitutes "entrepreneurship." Similarly, Minguzzi and Passaro's (2000) definition is somewhat circular because it defines entrepreneurial culture as the

values, skills, experiences, and behaviours that characterize an entrepreneur. This is problematic because the "spirit" that they refer to is ambiguous and unclear as to what exactly initiative, risk-taking, innovative capacity, and the management of a firm's relation with the economic environment are supposed to mean. Varying levels of initiative, risk-taking, etc., are implied, but not specified. The description from Hult et al. is similarly circular in that "organizations that desire to be highly entrepreneurial must develop an entrepreneurial culture" (2003:402).

In summary, the existing definitions of entrepreneurial culture are helpful for developing a general understanding of some of the fundamental aspects of entrepreneurial culture. However, these existing definitions do not provide a sufficient basis for a theoretical examination of entrepreneurial culture in the sense that the definitions do not meet MacKenzie's (2003) suggested criteria. As a result, further conceptual development of the entrepreneurial culture construct is required to establish a clear and unambiguous definition that might be consistently applied across future research dealing with this area.

2.5.2 Measuring Entrepreneurial Culture

Of the articles found discussing entrepreneurial culture, the vast majority were either conceptual articles or empirical articles where entrepreneurial culture was not the primary construct of interest. Two articles were found to have operationalized and measured entrepreneurial culture. Minguzzi and Passaro (2000) conducted a study on entrepreneurial culture and the interaction of firms with their economic environments in a sample of Italian firms. Minguzzi and Passaro defined entrepreneurial culture as "the composite of personal values, managerial skills, experiences and behaviours that characterize the entrepreneur in terms of spirit of initiative, risk-taking, innovative capacity and management of firms' relations with the economic environment" (2000:183). Using primary data collected by questionnaire (interviewed in person or mailed), they assessed entrepreneurial culture with the following measures:

- Age of entrepreneur: measures the age of the entrepreneur interviewed.
- Education level of the entrepreneur: measures the level of education of the entrepreneur.

- Father's profession: identifies the father's profession. It measures the intensity of the entrepreneurial experience acquired through the family environment.
- Level of entrepreneur's participation in Industry Association activity: measures the propensity of the entrepreneur towards collaboration among firms.
- Attitude to delegating of the entrepreneur: measures the propensity of the entrepreneur to work in groups and to personal collaboration. It is inversely proportioned to individualism (Minguzzi & Passaro, 2000:194).

Considering their definition of entrepreneurial culture and how they chose to measure it, there appears to be some conceptual disconnects between the construct and its measurement. For example, risk-taking, initiative, and innovation are featured in the definition but do not appear in the measures. Furthermore, Minguzzi and Passaro's (2000) conceptualization and measurement of entrepreneurial culture do not appear to directly tap typical cultural elements such as values and beliefs. The final question about attitude may come close but it was not clear from the article how this was phrased or measured.

Brown, Davidsson and Wiklund (2001) and Bradley et al.(2011) also utilized a scale of entrepreneurial culture operationalizing Stevenson's (1983) conceptualization of "entrepreneurial management." Here, entrepreneurial culture is not explicitly defined but characterized in the context of firms which promote entrepreneurial behaviours, where entrepreneurial culture is considered one of the conceptual dimensions. A "promoter" firm is characterized as one that "encourages ideas, experimentation and creativity, thus developing an entrepreneurial culture in which new ideas are valued and sought out" (Brown et al., 2001:956). Brown et al. (2001) developed their own scales to measure these dimensions, based off of Stevenson's (1983) insights. They used a force choice type of question with pairs of statements representing opposite ends of the promoter (entrepreneurial)/trustee (administrative) continuum. They measured entrepreneurial culture with the following questions:

- We have many more promising ideas than we have time and the resources to pursue vs. We find it difficult to find a sufficient number of promising ideas to utilize all of our resources.
- Changes in the society-at-large often gives us ideas for new products and services vs. Changes in the society-at-large seldom lead to commercially promising ideas for our firm.
- We never experience a lack of ideas that we can convert into profitable products/services vs. It is difficult for our firm to find ideas that can be converted into profitable products/services (Brown, Davidsson & Wiklund, 2001:968).

In this conceptualization, ideas are a prominent feature of entrepreneurial culture and the measures reflect that. Experimentation and creativity, however, would appear to be implied with these particular measures. As with Minguzzi and Passaro's (2000) measures, the Brown et al. (2001) measures do not appear to explicitly tap cultural elements such as values and beliefs. Rather, the questions seem to be oriented around firm practices/behaviours.

While not examining entrepreneurial culture as a theoretical construct *per se*, an important measurement instrument in the entrepreneurship literature is the Corporate Entrepreneurship Assessment Instrument (CEAI). This instrument was originally developed by Hornsby, Kuratko and Montagno (Hornsby et al., 1999; Kuratko, Montagno, & Hornsby, 1990) to better understand the factors essential in developing a perceived entrepreneurial environment for employees. This work was originally described as developing an entrepreneurial "atmosphere" or "culture" (Kuratko et al., 1990: 51) where the goal of creating these cultures was "to enhance the innovative abilities of employees and, at the same time, increase organizational success through the creation of new corporate ventures" (Hornsby et al., 1999: 9). However, in their later work the connection to culture essentially disappears (cf.,Hornsby, Kuratko, Shepherd, & Bott, 2009; Hornsby, Kuratko, & Zahra, 2002; Kuratko, Ireland, Covin, & Hornsby, 2005). Hornsby, Kuratko and colleagues identified a five-factor structure model. The five organizational factors they assess are (a) managerial support, (b) work

discretion/autonomy, (c) reward/reinforcement, (d) time availability, and (e) organizational boundaries. With the CEAI, a 48 item questionnaire administered to managers in an organization, they sought to assess an organization's entrepreneurial culture (and later "environment"). While the CEAI was developed to measure an entrepreneurial culture, the instrument does not focus on cultural elements such as values and beliefs. Rather, the CEAI focuses primarily on managerial practices and behaviours related to their five identified factors. As a result, while developed to assess culture, the focus on practices and behaviours means the CEAI may be more related to climate than culture.

One of the most noteworthy features of past empirical entrepreneurial culture research lies in the use of single respondents to reflect an organization's culture. For example, Minguzzi and Passaro (2000) surveyed individual entrepreneurs, Bradley et al. (2011) surveyed CEOs, and the CEAI is typically administered to individual managers. This single respondent based reporting is a significant limitation of past culture research. Organizational culture and by extension, entrepreneurial culture as a cultural construct, is supposed to represent the *shared* nature of the values, beliefs, and assumptions that underlie that culture. Failing to address the shared nature of culture in its measurement is highly problematic when evaluating culture's consistency in the focal entity (e.g., organization, group, etc.) (Arogyaswamy & Byles, 1987). This is a point recently made in the strategic management literature by Weinzimmer, Robin, and Wheeler (2012). While entrepreneurs and CEOs are perfectly suitable respondents for culture surveys, a single respondent simply cannot adequately represent an entire organization's culture (Alvesson, 2002). In particular, when entrepreneurial culture is supposed to describe firm values, without knowing if employees within the organization truly share these values, it is not clear that the culture is being evaluated at all. Furthermore, cultural values expressed in mission statements and other artifacts may be quite different from cultural values and assumptions actually experienced in the workplace. Single respondent-based empirical entrepreneurial culture work is simply not reliable enough to draw broad conclusions about the overall organizational culture.

In summary, the past examples of entrepreneurial culture's operationalization and measurement demonstrate a general inconsistency with past approaches to measuring organizational culture. This should not be considered a criticism of these articles specifically but rather, a sign that the field lacks a detailed construct that accurately and thoroughly covers the conceptual domain of entrepreneurial culture, and connects that theory with appropriate measures.

2.6 Conclusions about Organizational and Entrepreneurial Culture

Organizational culture is a complex and long studied field of interest in management research. With origins in anthropology and sociology, organizational culture studies in management research have adopted different research perspectives, including interpreting it as an organizational variable or a metaphor for the organization itself. The most contemporary perspective of culture views it as a dynamic construct, incorporating various research paradigms and mixed-methods of study. Organizational culture can be seen as a socially constructed context with aspects that can be purposefully shaped to guide its evolution. Within that general framing of organizational culture, this study adopts a Scheinian cognitive perspective on the nature and content of organizational culture. That is, organizational culture consists of shared values, beliefs, and underlying assumptions that were formed by a group through problem solving. Values, beliefs, and underlying assumptions in this context are shared cognitions that guide behaviours.

Since organizational culture is such a broad conceptual area, researchers have developed cultural subtypes to focus on specific and distinct forms of culture. These cultural subtypes can be used to describe general cultural configurations (e.g., clan, hierarchy), applied to describe specific organizations and industries (e.g., wineries, art museums), or organizational types oriented around particular outcomes (e.g., TQM, innovation-supportive culture). Outcome oriented culture types consist of taking particular organizational culture elements and forming them into distinct constructs. Entrepreneurial culture represents one of these formed cultural subtypes and is a topic that has generated much interest in the entrepreneurship field for many years. However, after reviewing the literature on entrepreneurial culture, it became apparent that there are

two primary deficiencies in how the construct has been defined and measured. First, the definitions provide a colloquial and descriptive understanding of entrepreneurial culture but not a clear basis for use as a theoretical construct. As a result, it is difficult to determine if past scholars have been talking about the same entrepreneurial culture concept in both conceptual and empirical research. Second, with respect to measurement, examples of measures of entrepreneurial culture are inconsistent with each other and with extant perspectives on organizational culture. That is, the measures do not appear to be tapping the same underlying phenomena, nor are they accounting for the very important shared nature of culture. The following three chapters seeks to remedy these issues by developing the conceptual domain of entrepreneurial culture, and describing and applying methods for measuring it that are more closely aligned with organizational culture research.

Chapter 3 : Conceptualizing the Entrepreneurial Culture Construct

3 Overview

Given the background discussed in the previous chapter, the dissertation now turns to developing the entrepreneurial culture construct. This chapter will begin with a discussion of the construct's conceptual domain, including its general properties and the entity to which they apply (Section 3.1). This will be followed by the conceptual theme of the construct, which refers to the construct's fundamental attributes and characteristics and how they fit with the construct's definition (Section 3.2). This section will incorporate some of the related ideas identified in the section on cultural subtypes. The dimensionality of the construct is then explored, proposing a five dimension model of entrepreneurial culture (Section 3.3). Next, the stability of the entrepreneurial culture construct over time, situations, and cases is discussed (Section 3.4), followed by potential related constructs in the preliminary nomological network of this construct (Section 3.5). Important ontological issues underpinning the construct and its relationship to the measurement model will also be discussed (Section 3.6). The chapter will conclude with a summary section that highlights the main points and features of this chapter (Section 3.7).

3.1 The Conceptual Domain of Entrepreneurial Culture

According to MacKenzie et al. (2011), specifying the nature of the construct includes identifying the conceptual domain to which the focal construct belongs and the entity to which the construct applies. The conceptual domain is the general type of *properties* to which the focal construct refers. The previous examples of entrepreneurial culture have provided a number of different general properties, such as behavioural norms and cognitions (Shepherd et al., 2010), personal values, managerial skills, experiences and behaviours (Minguzzi & Passaro, 2000), and shared values (Ireland et al., 2008). However, if entrepreneurial culture is viewed as an organizational culture subtype, then the entities most commonly used in established culture research are an important point of reference. These entities include values, assumptions, and practices (Detert et al., 2000;

Jones et al., 2007; Schneider et al., 2011b). Values are defined here as "an enduring belief that a specific mode of conduct or end state of existence is personally or socially preferable to an opposite or converse mode of conduct or end state of existence" (Rokeach, 1973: 5). Assumptions are defined as "unconscious, taken for granted beliefs, habits of perception, thought and feeling (i.e., ultimate source of values and action)" (Schein, 1988: 9). Practices are meant here as actions and behaviours, but related in a cultural context to knowledge about chains of events and processes, and their cause-and-effect relationships within an organization (Sackmann, 1992: 142). In a culture, these values, assumptions, and practices do not exist disconnectedly, but rather, as a pattern or set. The pattern would have emerged over time, perhaps due to problem solving, such that these cultural elements can coexist based on an internal logic and reasoning (Schein, 1988).

In various interpretations of entrepreneurial culture, the *entity* to which the construct refers has been the national or societal level in some cases and the organizational level in others. This is likely related to the fact that organizational culture, as an overarching construct, has been applied at multiple levels for many years (Fayolle, Basso, & Bouchard, 2010; Hofstede et al., 1990). However, the level of analysis of interest in this research is the *organization* since this study is interested in organizational level comparisons and outcomes. Examining entrepreneurial culture from a national level may be considered a future research endeavour. An organizational-level study of entrepreneurial culture is consistent with studies of the other cultural subtypes provided as examples (e.g., TQM culture, stakeholder culture). Entrepreneurial culture is similarly conceptualized as an organization-level cultural subtype. It is important to also note that while the level of analysis is the organization and the unit of analysis is an individual firm, the unit of measurement will be individuals within the firm.

3.2 The Conceptual Theme and Definition of Entrepreneurial Culture

According to MacKenzie et al. (2011), the conceptual theme of a construct needs to specify a set of fundamental attributes and characteristics that are both *necessary and sufficient* for something to be an exemplar of a construct. MacKenzie et al. (2011) argue

that defining a construct in terms of necessary and sufficient attributes and characteristics helps to reduce confusion and ambiguity in theoretical constructs. For example, if the construct *organizational commitment* is characterized as "positive feeling about one's organization" then it does not distinguish between the constructs *organizational loyalty* and *organizational involvement* which are also positive feelings about one's organization (MacKenzie et al., 2011: 300).

This part of the conceptualization entails specifying the defining features of the new construct and asks the fundamental question "what is entrepreneurial culture supposed to be about?" The intention of the entrepreneurial culture construct is to represent a kind of organizational culture whose values, assumptions, and practices are "entrepreneurial." Unfortunately, this represents the kind of problematic tautological definition discussed in Section 2.5.1; an entrepreneurial culture cannot be defined as "a culture which acts entrepreneurial." Reflecting back on the review of past uses of the entrepreneurial culture concept and to the related organizational culture subtypes for guidance, a number of particular attributes and characteristics feature prominently. Table 8 lists these attributes and characteristics. These attributes/characteristics are helpful in describing what an organization having a "culture of entrepreneurship" might look like. However, many of the attributes and characteristics listed here are necessary but not sufficient for defining entrepreneurial culture. For example, continuous change/improvement being viewed positively could equally apply to an innovation-supportive culture, while extensive communication and social interaction may fall under a management support construct. As a result, a necessary and sufficient attribute or characteristic of entrepreneurial culture must link it with a fundamental understanding of entrepreneurship, in other words, *a definition of entrepreneurship*.

As Gartner (1990) noted, defining entrepreneurship has often been a challenge, something Low (2001) has described as an unproductive exercise. In his 2001 article, Low reflected back on his work with MacMillan (1988) a decade prior and noted that no definition had captured, and probably could not capture, the whole picture of entrepreneurship. The reason for this, Low and MacMillan argued, was that "the phenomena of entrepreneurship is intertwined with a complex set of contiguous and

Table 8 Attributes and Characteristics of Entrepreneurial Culture from Past Literature

Attribute/Characteristic	Citations
Risk-taking is encouraged	Ring et al., 2010; Shepherd et al., 2010; Ireland et al., 2003; Kotter, 2001; Minguzzi & Passaro, 2000;
Failure is tolerated	Shepherd et al., 2010; Ireland et al., 2003; Fombrun & Wally, 1989; Merrifield, 1987;
Product and process innovation are championed	Shepherd et al., 2010; Ralston et al., 2006; Politis, 2005; Ireland et al., 2003; Hornsby et al., 1999;
Continuous change/improvement is viewed positively	Shepherd et al. 2010; Monsen & Boss, 2009; Ralston et al., 2006; Tan, 2006; Ireland et al., 2003;
New ideas, experimentation, and creativity are advocated	Bradley et al., 2011; Shepherd et al., 2010; Monsen & Boss, 2009; Ralston et al., 2006; Tan, 2006; Ireland et al., 2003; Brown et al., 2001;
Possess a vision and passion for the business	Shepherd et al., 2010; Sundaramurthy & Kreiner, 2008; Ireland et al., 2003; Chittipeddi & Wallett, 1990;
Extensive communication and social interaction	Salama, 2011; Ketchen, Ireland & Snow, 2007; Romanelli & Khessina, 2005; Fombrun & Wally, 1989;

overlapping constructs such as management of change, innovation, technological and environmental turbulence, new product development, small business management, individualism and industry evolution" (1988:41). As a result, some entrepreneurship definitions might be characterized as too narrow, for example only dealing with the process of new venture creation (Thornton, 1999). Other definitions may be considered too broad, such as including *anything* having to do with innovation (cf. Ireland, Reutzel, & Webb, 2005). Although this might be a symptom of low paradigmatic development, numerous entrepreneurship scholars have argued that a more inclusive definition of entrepreneurship that tries to capture more of the broad phenomena serves the field better (Brush, Manolova, & Edelman, 2008; Ireland et al., 2005). This suggests that there are sufficient grounds in the entrepreneurship field to justify some flexibility in working with established definitions from the literature that best suits the research context. Table 9 provides a selection of some of the definitions/descriptions of entrepreneurship (both the general process and the scholarly field) from the literature that has been used in the last several decades.

In Chapter One, Schendel and Hitt's definition of entrepreneurship as "a process centrally concerned with the notion of opportunity, its recognition, discovery and/or creation…[where] opportunity is defined as the creation of new value to society in part or in whole" (2007:1) was provided as a guiding perspective on entrepreneurship throughout this study. The discovery and/or creation of opportunities, and their subsequent pursuit by individuals have consistently been a focus of entrepreneurship (Alvarez & Barney, 2007; Stevenson & Jarillo, 1990; Venkataraman, 1997). Indeed, opportunity-seeking might be considered one of the defining aspects of entrepreneurship (Ireland & Webb, 2007). For example, Baron and Henry describe entrepreneurship as a field which "seeks to understand how opportunities to create something new arise…and are discovered (or created) by specific persons, who then use various means (especially launching new business ventures) to exploit or develop them thus producing a wide range of effects" (2011:243). They inclusively describe "something new" as potentially being new products or services, new markets, new production processes or uses of raw materials, or

Table 9 Selection of Definitions/Descriptions of Entrepreneurship

Definition/Description	Source
"we suggest that entrepreneurship be defined as the 'creation of new enterprise' and propose the following: that entrepreneurship research seek to *explain and facilitate the role of new enterprise in further economic progress."*	(Low & MacMillan, 1988: 141)
"Entrepreneurship is a process by which individuals – either on their own or inside organizations – pursue opportunities without regard to the resources they currently control" also, "An entrepreneurial organization is that which pursues opportunity, regardless of resources currently controlled."	(Stevenson & Jarillo, 1990: 23)
"Our field is fundamentally concerned with understanding how, in the absence of current markets for future goods and services, these goods and services manage to come into existence…thus, entrepreneurship as a scholarly field *seeks to understand how opportunities to bring into existence 'future' goods and services are discovered, created and exploited by whom and with what consequences*."	(Venkataraman, 1997: 120)
"Entrepreneurship encompasses acts of organizational creation, renewal, or innovation that occur within or outside an existing organization. Entrepreneurs are individuals or groups of individuals, acting independently or as part of a corporate system, who create new organizations, or instigate renewal or innovation within an existing organization."	(Sharma & Chrisman, 1999: 17)
"I define entrepreneurship as the creation of new organizations, which occurs as a context-dependent, social and economic process."	(Thornton, 1999: 20)
"We define the field of entrepreneurship as the scholarly examination of how, by whom, and with what effects opportunities to create future goods and services are discovered, evaluated and exploited."	(Shane & Venkataraman, 2000: 218)
"Entrepreneurship is a process centrally concerned with the notion of opportunity, its recognition, discovery and/or creation. Opportunity is defined as the creation of new value to society in part or in whole."	(Schendel & Hitt, 2007: 1)
"An entrepreneur is one who creates a new business in the face of risk and uncertainty for the purpose of achieving profit and growth by identifying opportunities and assembling the necessary resources to capitalize on those opportunities."	(Scarborough, Wilson, & Zimmerer, 2009: 5)
"entrepreneurship, as a field, seeks to understand how opportunities to create something new (e.g., new products or services, new markets, new production processes or uses of raw materials, new ways of organizing existing technologies) arise and are discovered (or created) by specific persons, who then use various means (especially launching new business ventures) to exploit or develop them thus producing a wide range of effects."	(Baron & Henry, 2011: 243)

new ways of organizing existing technologies. Even as the field wrestles with the ontological nature of opportunities (cf. Alvarez & Barney, 2013; Shane, 2012), it is clear that there is general consensus that opportunities are a defining feature of entrepreneurship.

From a definitional standpoint then, the notions of opportunity and the creation of new value are fundamental to the concept of entrepreneurial culture. Entrepreneurial culture is not meant to simply describe an organization that is broadly "entrepreneurial" but rather, comprehensively describe an organization that has developed a pattern of values, assumptions, and practices around a central concern with opportunities. That is, a culture with a deliberate and sustained commitment to the recognition, discovery and/or creation of opportunities, as well as subsequently acting on those opportunities. This is an interest expressed not only in shared values about innovation or risk-taking, for example, but around a variety of cultural dimensions that *support and facilitate* this focal interest in opportunities. Indeed, these multiple cultural dimensions which support and facilitate (i.e., execute on) opportunities in addition to discovering and/or creating them are what separate an entrepreneurial culture from an entrepreneurial strategy or orientation.

In the entrepreneurship research field when a firm is described as being "entrepreneurial" this often refers to entrepreneurial orientation (EO) or "what it means for a firm to be entrepreneurial at the most fundamental level" (Covin & Lumpkin, 2011: 861). EO is considered a strategic construct and is related to a firm's (or business unit within a firm's) strategic posture (Anderson, Covin, & Slevin, 2009). EO is described as consisting "solely of sustained behavioural patterns (reflecting risk taking, innovativeness, proactiveness, autonomy, and/or competitive aggressiveness) whose presence enables entrepreneurship to be recognized as a defining attribute of the firm" (Covin & Lumpkin, 2011: 858). The relationship between EO, strategy, organizational configuration, and firm outcomes are very important features of the EO construct (Miller, 2011; Slevin & Terjersen, 2011). EO is considered a distinct theoretical construct, it is "not simply another label for a firm's entrepreneurial culture or climate" (Covin & Lumpkin, 2011:862). EO has a clear *strategic orientation* and its past application reflects the

importance and interest in relationships between EO and outcomes such as performance and growth.

In comparison, entrepreneurial culture is meant to be about the patterns of underlying thinking (e.g., assumptions) and values that form the organization's cultural core, rather than a strategic orientation. Just as how an individual has a personality (described by trait theory as being composed of enduring traits that are stable over time) so too does an organization have a culture (Salama, 2011). Since entrepreneurial culture is a cultural construct, the conceptual theme of entrepreneurial culture is not just what an organization is trying to achieve strategically (e.g., to "behave entrepreneurially") but the entire social milieu of the organization (Schein, 1996), in the context of opportunities. More specifically, how the organization treats its employees and external stakeholders, why it treats them this way (i.e., what are the underlying assumptions and values), and how these employees and stakeholders are socialized into this way of thinking about and doing things. Much as how a TQM culture may be focused on quality, an entrepreneurial culture would be focused on opportunities and the creation of new value.

Ultimately then, what is critical to understanding entrepreneurial culture is a focal concern with opportunities, and the culture that develops around that interest. Therefore, by adopting a definition of entrepreneurship as a process centrally concerned with opportunities (i.e., Schendel & Hitt, 2007), combined with the entity and general property information, a conceptual definition of entrepreneurial culture can be produced. Entrepreneurial culture is defined as *a pattern of values, assumptions, and practices shared within an organization, that is centrally concerned with opportunities, where opportunity is the creation of new value to society in part or in whole.*

3.3 The Dimensions of Entrepreneurial Culture

Reflecting on the past definitions and descriptions of entrepreneurial culture, there is some consistency in the attributes and characteristics that have been argued to constitute such an entrepreneurial culture (i.e.,Table 8). However, since it appears that the entrepreneurial culture construct is based on a largely *descriptive* understanding and not a precisely defined theoretical one (i.e., strictly and explicitly defining standardardized

elements of the construct), it seems unclear what the dimensions of this construct actually are. From what can be determined in the literature, no past examination of entrepreneurial culture has gone so far as to specify the dimensions of entrepreneurial culture (either uni- or multi-dimensional). Conceptually some of the attributes and characteristics of entrepreneurial culture previously identified, such as encouraging risk-taking, tolerating failure, and so on, may be grouped together by virtue of their similarity or conceptual theme (e.g., "innovation" or "creativity") into particular dimensions.

However, in terms of developing the entrepreneurial culture construct, while it is useful to conceptually group the attributes and characteristics identified from the literature into related themes, an important deficiency remains. Namely, that the existing attributes and characteristics identified from the literature do not seem to capture the full conceptual breadth that might reasonably constitute the entrepreneurial culture construct. For example, while risk-taking, tolerance for failure, and being innovative are important general concepts, they are too vague with respect to their relationship to opportunities. Furthermore, the existing attributes and characteristics identified in the literature do not include important entrepreneurial concepts that are present in the broader entrepreneurship literature. For example, entrepreneurial culture does not appear to incorporate ideas about stakeholder relationships (e.g., customers, investors) (Zott & Huy, 2007), organizational learning (Dutta & Crossan, 2005), team work (Stewart, 1989), and passion (Cardon, Wincent, Singh, & Drnovsek, 2009). These are all entrepreneurial concepts that relate to the social thinking and functioning of entrepreneurial organizations. Without these concepts it seems that the entrepreneurial culture construct would be incomplete focusing on the risk-taking or innovation/creativity components to exclusion. While clearly there are a great number of concepts in the broad entrepreneurship literature, not all of them make sense to include in a cultural context by virtue of their level of analysis (e.g., individual cognition or decision-making) or content (e.g., venture financing). What does seem relevant though is the inclusion of those entrepreneurial concepts that have logical connections to supporting and facilitating an organization's cultural focus on opportunities. These ideas will be elaborated on in the following subsections as the dimensions of entrepreneurial culture are explored.

Thus, based on the past literature on organizational culture in general, as well as cultural subtypes, which describe the complex conceptual nature of the culture phenomenon, entrepreneurial culture is conceived of as a *multi-dimensional construct*. Entrepreneurial culture is conceptualized as having multiple, distinct sub-dimensions that each describe a different part of the second-order entrepreneurial culture construct. If a construct is multi-dimensional, MacKenzie et al. (2011) highlight three key questions when considering the relationship between the sub-dimensions, which are also called "facets" by convention (Law & Wong, 1999). These are:

1. Are the facets viewed as manifestations of the focal construct or as defining characteristics of it?
2. Does the focal construct exist separately at a deeper and more embedded level than its facets or is the focal construct a function of its facets?
3. Would a change in the focal construct be associated with changes in all of the facets or is it possible for a change in the focal construct to be associated with a change in only one of the facets (but not the others)? (MacKenzie et al., 2011: 301).

MacKenzie et al. (2011) draw several conclusions about the nature of the relationship between facets and focal construct based on the answers to these three questions. If the facets are viewed as defining characteristics of the focal construct, and a change in only one of the facets could be associated with a change in the focal construct, then the facets are best thought of as *formative* indicators of the (second-order) focal construct. If the facets are viewed as manifestations of the focal construct, then the focal construct exists separately and at a deeper and more embedded level than its facets. A change in the focal construct would then be expected to produce a change in all of its facets. This suggests that the facets are best thought of as *reflective* indicators of the focal construct. The third question asks about the manner in which the facets combine to give the construct its meaning. If the focal construct is a function of the facets that jointly define it, is this an additive or multiplicative relationship? In an additive relationship, each facet is sufficient but not necessary to produce change in the construct. Each facet is independent of the effects of the other facets. In a multiplicative relationship, the facets are necessary and

jointly sufficient for the meaning of the construct. This implies that each facet must have some minimum score to form the construct.

Generally speaking, an organizational culture is a phenomenon where an organization possesses some particular values, assumptions, and practices that have been developed over time, as suggested by Schein (1988). Considering the various multi-dimensional frameworks that exist to describe organizational culture, the culture might be conceived of formatively (i.e., the dimensions form the organizational culture construct) or reflectively (i.e., the dimensions imperfectly reflect the organization's culture). However, when researchers specify particular cultural elements for the purposes of identifying a cultural subtype, they are conceptualizing a formative construct (e.g., TQM culture). In other words, a particular set of values, assumptions, and practices, categorized into particular facets, are constructing or forming "entrepreneurial culture." Entrepreneurial culture is thus a function of its facets. With regard to the additive or multiplicative nature of entrepreneurial culture this depends on how the facets are conceptualized as being related to the focal construct. This point will be revisited after thoroughly discussing each facet's proposed cultural elements in the following subsections.

Entrepreneurial culture is conceived of as a multi-dimensional construct comprising five facets. These facets were developed *a priori* based on (a) an interpretation of the various definitions of entrepreneurship, (b) the definitions and descriptions of entrepreneurial culture from the academic literature, (c) integrating insights from the cultural subtypes identified previously, and (d) building out an understanding of the phenomenon of organizations with "entrepreneurial cultures" from examples in the practitioner literature. These multiple sources were assembled, interpreted, and integrated to develop a comprehensive multi-dimensional perspective thought to fully encompass the construct of entrepreneurial culture. The following subsections identify, define, and explain each facet of entrepreneurial culture.

3.3.1 Organizational Enthusiasm

This facet of organizational culture refers to the key characteristics of an excitement for accomplishing organizational goals and the organization's mission, an understanding of the organizational vision, a passion for the work, and a unity of purpose. Organizational enthusiasm is highly related to past entrepreneurial culture conceptualizations that referred to the characteristics of possessing a vision and passion for the business (e.g., Shepherd et al., 2010; Sundaramurthy & Kreiner, 2008). This concept is partially based on entrepreneurs' perspectives towards work, the purpose of entrepreneurial organizations, and their overarching vision for the organization. For example, Dyer, Gregersen and Christensen (2008) noted several entrepreneurs who remarked about wanting to "change the world" and "make the world a better place." The vision of Apple's Steve Jobs is often referenced in this same sense (Aley, 2011; Dyer, Gregersen, & Christensen, 2008). However, while entrepreneurs may aspire to make an important societal or world impact, there is clearly a great gulf between most entrepreneurs and Steve Jobs. For instance, an organization like Apple is of such a size and scope that grandiose visions of change may carry a very different meaning than in smaller organizations. Vision in entrepreneurship has also been described as identifying customer needs and spotting opportunities, developing systems to review the external environment, formulating appropriate objectives and strategies to guide the organization, creating a shared vision, and developing a mission to give purpose to the organization (Sadler-Smith, Hampson, Chaston, & Badger, 2003). These kinds of mundane, but more specific and practice-oriented examples of vision may be much more in line with an entrepreneurial culture's orientation to work. Indeed, what this might describe is a work orientation towards *accomplishment* and goal achievement. That is, entrepreneurial cultures are oriented towards seizing opportunities, accomplishing goals, and having an accurate sense of the overall mission of the organization.

As with vision, passion has also been studied as an important individual aspect of entrepreneurs. Where vision represents the existing place and future direction that entrepreneurs may see for their organization, passion refers to the zeal and enthusiasm they have for their organizations. Entrepreneurial passion has been defined as "an

entrepreneur's intense affective state accompanied by cognitive and behavioral manifestations of high personal value" (Chen, Yao, & Kotha, 2009: 201). Passion plays an important role in organizations, and is a strong indicator of how motivated an entrepreneur is in building a venture, whether he or she is likely to continue pursuing goals when confronted with difficulties, how well he or she articulates the vision to current and future employees, and whether he or she will be able to influence, persuade, and lead people in growing the venture (Chen et al., 2009). Cardon et al. (2009) suggested that entrepreneurial passion may arise as a result of particular entrepreneurial role identities. These include an inventor identity (i.e., a passion for activities involved in identifying, inventing, and exploring new opportunities), a founder identity (i.e., a passion for activities involved in establishing ventures for commercializing and exploiting opportunities), and a developer identity (i.e., a passion for activities related to nurturing, growing, and expanding the venture once it has been created).

These perspectives on vision and passion suggest that an entrepreneurial culture's orientation towards work and task might be informed by values, assumptions, and practices focused on an enthusiasm for accomplishing organizational goals. Individual organizations likely operationalize their vision into goals in many different ways, for example, through innovative products, safer or more efficient products, products that better address customer needs, more environmentally sustainable processes, etc. However, entrepreneurial cultures would seem to have an underlying unity of purpose and commitment to enterprise goals (Chittipeddi & Wallett, 1991). Put differently, in an entrepreneurial culture, individuals within the organization would likely be able to answer the question "what is your organization trying to do?" At the same time, an entrepreneurial culture likely enables this vision through a sense of passion (i.e., enthusiasm and zeal) for work and accomplishing these goals. Much as how an individual entrepreneur may have a passion for building their new venture, an entrepreneurial culture would have a passion for what the organization as a whole is trying to achieve (Sundaramurthy & Kreiner, 2008).

Elements of an adaptive culture are related here by how Kilmann et al. described "widespread enthusiasm, a spirit of doing whatever it takes to achieve organizational

success" (1985:5). Stewart (1989) described this sort of collective passion and willingness to act above one's head as "running hot." This collective enthusiasm, including "heat" and "passion" in addition to a customer focus, was what differentiated a particular manufacturing facility from just "a little factory banging out auto parts, consuming a good deal of human time and effort in the process" (Stewart, 1989:127) into something more.

The opposite kinds of characteristics might include individuals not knowing or understanding what organizational success is or how it can/will be achieved, and failing to believe or support the organization's direction or purpose. Without organizational enthusiasm, there would be no underlying motivation or reason for employees to recognize or pursue opportunities because of a lack of connection or passion for the work. In the practitioner literature this has been described as a "vision-culture gap" where there is a breach between rhetoric and reality; a misalignment occurs when employees fail to understand or support the organization's direction (Hatch & Schultz, 2001). As in Stewart's (1989) "little factory", without a sense of enthusiasm in the organizational culture, it would just be an organization aimlessly "going through the motions."

These various points lead to a definition of organizational enthusiasm as *a pattern of values, assumptions, and practices demonstrating an excitement and passion for the organization, its goals and purposes.*

3.3.2 Stakeholder Alignment

A stakeholder alignment refers to the nature of the organization's relationship with its stakeholders, such as customers, suppliers, partners, and investors. A stakeholder alignment is a focus on building and developing supportive relationships with these stakeholders, and recognizing and appreciating how these relationships benefit the organization. Past definitions and descriptions of entrepreneurial culture have not emphasized a stakeholder orientation and this seems like an important oversight. The critical role played by stakeholder relationships has been noted numerous times in the entrepreneurship literature. Zott and Huy (2007) described how customer and supplier

relationships and responsive customer service were critical to new start-ups. Chen et al. (2009) found that entrepreneurs needed to be very attentive to the perceptions of potential investors who would analyze new ventures with great scrutiny. Chatterji (2009) noted that entrepreneurial ventures would need to carefully manage their credibility with potential new partners when getting started. Ozcan and Eisenhardt (2009) described how start-up firms utilized ties with investors to help develop their initial business. These sources highlight the importance that managing stakeholder relationships hold for entrepreneurs and entrepreneurial ventures, which suggests a similar implication for entrepreneurial cultures. Furthermore, the importance of managing stakeholder relationships is echoed in the cultural subtype examples, namely TQM and adaptive cultures. In these examples, achieving results stakeholders consider important and satisfying the legitimate interests of stakeholders are seen as important organizational values.

However, the difference between stakeholder alignment as described here as a cultural dimension versus a stakeholder alignment as a form of strategy lies in the notion of a "moralist" stakeholder culture (cf. Jones et al., 2007). A "moralist" stakeholder culture refers to possessing a genuine concern for the welfare of normative stakeholders, that is, stakeholders for whose benefit the firm should be managed. In this case, stakeholder relationships would not be viewed as necessarily strategic means towards organization ends, but rather as legitimate claim holders to good organizational management. Jones et al. (2007) highlight a number of possibly relevant moral virtues describing these relationships, namely loyalty, reliability, diligence, dependability, honesty, sincerity, truthfulness, and trustworthiness. In an entrepreneurial context, this would characterize relationships with customers, partners, suppliers, and investors built on mutual benefit. For the entrepreneurial organization, these stakeholder relationships would form the basis for not only short-term organizational survival (e.g., through sales, investment, adequate supply of resources, flexibility of contractual terms, etc.) but also for long-term growth; in other words, for future opportunities. For example, in Ozcan and Eisenhardt's (2009) study, start-up firms which struggled often had myopic understandings of local ties within an industry, while higher performing start-up firms had greater opportunities (i.e., better able to attract partners and form ties) through multiple social ties. In contrast, the

opposite characteristics of stakeholder orientation would be viewing stakeholders as a means to an end, stakeholder relationships as necessarily zero-sum where the firm must win over all others, or viewing relationships as only valuable if benefits outweigh costs in a short-term evaluation. These kinds of characteristics are likely detrimental to establishing, maintaining, and building relationships. Essentially stakeholder alignment is about developing strong relationships because of their inherent value and their implication on current and future opportunities (which are particularly relevant to an entrepreneurial culture).

A stakeholder alignment is thus defined as a *pattern of values, assumptions, and practices demonstrating the importance of building and maintaining mutually beneficial relationships with key stakeholders, such as customers, suppliers, partners, and investors*.

3.3.3 Learning & Development Support

This facet is characterized by cultural values of optimism toward improvement, valuing efforts to learn, and improve one's self and others, and an interest in employee development. This facet is influenced by past literature which indicates that entrepreneurial cultures broadly value continuous improvement, new ideas, and experimentation (e.g., Monsen & Boss, 2009; Shepherd et al., 2010). In entrepreneurial cultures people are thought to generally (or at least sometimes) have good ideas and are motivated to improve things and pursue new opportunities. In Dyer et al.'s (2008) study, an entrepreneur remarked that he noticed that young people in his organization are impressionable because they do not yet know what to do and ask questions to try to understand. This inquisitiveness and interest in learning was seen as valuable and worth fostering in the organization. Kotter (2001) noted a CEO of an organization with a self-described entrepreneurial culture where the organization would offer "high-potential" young people special training, an enriched set of experiences, and an unusual degree of exposure to people in top management. This suggests that people in the organization were perceived as malleable in that they could learn and benefit from this special training and instruction. In an innovation-supportive culture, the behaviours of individuals

making themselves vulnerable to feedback from others demonstrated a willingness to listen and learn.

This outlook on individual performance by entrepreneurs may be related to notions of entrepreneurial self-efficacy, or the degree to which people perceive themselves as having the ability to successfully perform the various roles and tasks of entrepreneurship (Hmieleski & Baron, 2008). That is, if entrepreneurs have entrepreneurial self-efficacy, optimism that they can succeed (e.g., Cooper, Woo, & Dunkelberg, 1988), and the perception that positive outcomes are attributable to internal causes (e.g., their own talent or effort) (Baron, 1998), then they might pass those perspectives onto employees and engrain these values and assumptions into the culture. These perspectives on encouraging people to introduce new ideas and tolerate failure, suggests that entrepreneurial cultures are at least willing to give people a chance to try, learn, and experiment (cf. Dutta & Crossan, 2005). In contrast, a learning and development resistant organizational culture may have individuals and teams who lack ambition or initiative, or an interest in improving. An attitude of "I know everything I need to know" or "what can you possibly teach me?" within the organization may also be discouraging to learning and development.

Learning and development support is thus connected to an entrepreneurial culture because it represents the cultural dimension that encourages people in the organization to acquire new knowledge and understanding from their experiences. Through these activities the organization may benefit from more knowledgeable organizational members (i.e., individuals and groups/teams) and from the potential to generate or exploit future opportunities based on this knowledge. That is, new opportunities that arise from the insights gained from trying new things, developing new skills, and learning. For example, employees are sent for leadership development or technical skills training, and then return to help improve the organization by sharing what they learned. Learning and development support reflects cultural elements that encourage these kinds of activity and the integration of newly gained knowledge and skills or abilities. The facet of learning and development support is thus defined as *a pattern of values, assumptions, and*

practices demonstrating individual and group self-improvement, learning, and professional growth.

3.3.4 Opportunity Driven Change

This facet is related to learning and development support yet distinct from it. Whereas learning and development support emphasizes personal improvement, opportunity driven change speaks to the core entrepreneurial features of innovation, creativity, and risk-taking with respect to products/services and processes. As indicated by Ireland et al.'s (2003) definition of entrepreneurial culture, continuous change, the improvement of products/services and processes, and valuing innovation and risk-taking are seen as conveying new opportunities. Innovation in particular is strongly associated with entrepreneurship. This association is usually traced back to the work of Joseph Schumpeter (1883-1950) who defined the entrepreneur as an innovator and a person who carries out new combinations, in whatever position within a business (Van Praag, 1999). The process of innovation has been defined as "the development and implementation of new ideas by people who over time engage in transactions with others within an institutional context" (Van de Ven, 1986: 591). These notions of developing new ideas and taking a chance on them to seize new opportunities seem central to an entrepreneurial culture.

In contrast, in stability oriented cultures, the status quo is valued and finding an audience for new ideas and the requisite commitment for them would likely be difficult. As Schein (1988) suggested, in such cultures, people with new ideas are more likely to be seen as "boat rockers" or "trouble makers" then taken seriously. These stability oriented cultures might be expected in more bureaucratic environments (Stevenson & Jarrillo-Mossi, 1986) and as rules and procedures become a central concern (Greiner, 1972). In these cases, the desire is to preserve and reinforce the established power and process structures of the organization. Other contrary characteristics might include a reluctance to try modifications to traditional ways, hesitancy in the face of uncertainty, or disinterest in hearing unfamiliar approaches to existing problems.

Although in entrepreneurship research, innovation, risk-taking, and creativity are often considered independent dimensions (e.g., Lumpkin & Dess, 1996; Miller, 1983) they are grouped together here to capture an overall sense of an openness to change in the context of opportunities. In a TQM culture, quality improvement is viewed as continuous and never ending, where innovating, creating, and taking some risks are seen as part of broader values, assumptions, and practices about change. In adaptive culture, management values people and processes focused on "useful" change and initiating change when it served legitimate organizational interests. In an innovation-supportive culture, organizational change is embraced and viewed as "energizing and refreshing" (Jassawalla & Sashittal, 2002:43). For entrepreneurial cultures then, change carries a similar meaning in that change is viewed favourably when serving organizational interests and is viewed as energizing. However, for entrepreneurial cultures, opportunities bear an important relationship to change. In entrepreneurial cultures, opportunity might drive change in different ways. One way may be if the organization has an existing opportunity that they are not acting on sufficiently, so they need to change (e.g., products or processes) in order to better execute on that opportunity. Another way may be if there is a potential opportunity in the market, with partners, or somewhere else, and so the organization needs to change (e.g., reorganize) in order to capture it. This emphasis on change driven by opportunities is a distinctly entrepreneurial aspect to the cultural notion of openness to change. As Stewart notes, "recognition of opportunity is necessary, but not sufficient, for the creation of a way of working…an opportunity once seen must also be seized and put into play" (1989:129). In an entrepreneurial culture, opportunities are the *reasons* for change as opposed to changing to make workplace life easier or to improve process efficiency, for example.

While these are all generalized statements about change, they are consistent with a cultural perspective where it is not necessarily individual specific acts which are important, but rather the underlying thinking which is shared and forms a pattern over time. That is, this kind of cultural perspective is not necessarily evidenced by one management decision in one specific context, but rather, a generalized openness to change that is driven by opportunities in a variety of contexts that is shared amongst organizational members regardless of role. Opportunity driven change is thus defined as

a pattern of values, assumptions, and practices demonstrating a willingness to change in order to identify/develop opportunities and execute on them.

3.3.5 Cohesiveness

In the entrepreneurial culture literature and in the related subtype examples, the general notions of collaboration, communication, and social interaction were identified as important cultural characteristics (e.g., Ketchen et al., 2007; Salama, 2011). However, what appears to be related yet overlooked was the kind of collaboration that reflected dealing with the shared struggle and adversity often experienced in entrepreneurial ventures. For example, the shared struggle of start-up where entrepreneurs and early founding teams go to great lengths to get the venture operational (Carter, Gartner, & Reynolds, 1996). Or perhaps the shared struggle and sacrifice experienced as part of the venture's later survival (Haugh & McKee, 2004). For entrepreneurs, there is also the struggle and adversity that comes from challenging the status quo of a market or industry (Dyer et al., 2008). An entrepreneurial culture would seem to require collaboration and sharing, but also something more than that. As a result, the facet of cohesiveness is envisioned to include the notions of collaboration, communication, and sharing, in addition to the notions of coordination and responsibility in the organization.

The key characteristics of this facet are that organizational members work together, take responsibility for their actions, feel like the organization can do things on its own, trust that everyone is contributing in their own way and to the best of their ability, and believe that they can rely on others in the organization. This is partially captured by what Mintzberg (1979) and Stewart (1989) describe as "mutual adjustment" among employees, which entails a well-developed team, with flexible and task-oriented networks, informal external and lateral communication, and weak departmentalism.

A stronger analogous concept from the military is "unit cohesion" which has been defined as a "bonding together of an organization or unit's members in such a way as to sustain their will and commitment to each other, the group, and the mission" (Van Epps, 2008). Cohesiveness is meant to characterize the ability for members to rely on one another, irrespective of conditions. Cohesion is more abstract than simply teamwork, but

is a form of social support and interpersonal bonding that engenders camaraderie, confidence, loyalty, and fellowship (Manning & Fullerton, 1988; Richerson & Boyd, 1998). Cohesiveness reflects a sense that the organization can prevail and that whatever the task, members can rely on one another, even under stress. While the notion of unit cohesion as a military concept may seem foreign to entrepreneurship, entrepreneurs have in the past used war or fighting metaphors to describe the sense of shared struggle over adversity (Dodd, 2002; Pitt, 1998).

A cohesiveness that permeates the organization at all levels seems to be a critical dimension of an entrepreneurial culture. Organizational members must not only believe that they can rely on each other and persevere, but that the organization itself is capable of doing things on its own and solving its own problems. For example, Morley and Shockley-Zalabak (1991) describe a pair of entrepreneurs who had come from large, bureaucratic environments and founded a new venture with an expectation of hard-working employees who could perform under pressure. These founders also valued good interpersonal relationships while "expecting employees to 'pull their own weight,' 'know what they are talking about,' and 'do whatever it takes to get the task done'" (Morley & Shockley-Zalabak, 1991:436). The founders intended to create a culture based on hard work and personal responsibility, and where one could expect that a fellow employee shared the same values.

The opposite of cohesiveness may be where organizational members shirk responsibility or try to "hide" within the group, lack confidence that other organizational members care or work as hard they do, or that other organizational members are reliable. This can have highly problematic consequences, such as creating a secretive and uncooperative culture characterized by organizational fiefdoms (cf. Kotter & Heskett, 1992) or perhaps even sabotage (Kanter, 1985). Organizational politics or "unsanctioned maneuverings and sly manipulations for advancement" (Stewart, 1989:86) would also characterize such cultures. In these kinds of cultures, organizational members not only lack motivation to share with one another, but it may even be perceived to be to their own detriment. For example, Feldman and March (1981) noted that information could be withheld by individuals and subject to strategic misrepresentation, and Salama (2011) indicated that

lack of trust and poor communication was a symptom of dysfunctional organizational cultures.

Cohesiveness, in the sense that it reflects organizational members' sense of loyalty, fellowship, and commitment to one another and the organization, is instrumental to acting on opportunities. It seems unlikely that an organization would be able to execute on opportunities without a sense that organizational members can reliably count on one another to not only accomplish tasks, but also for the organization to function together. Given that there is often a great deal of uncertainty in entrepreneurial ventures, cohesiveness means that in good times and also in difficult times, members have confidence in one another. Cohesiveness is thus defined as *a pattern of values, assumptions, and practices demonstrating organizational members' bond and commitment to each other and the organization, irrespective of circumstance.*

3.4 Summarizing the Model of Entrepreneurial Culture

The preceding section identified five distinct dimensions that were generated *a priori* based on an interpretation of the academic literature on entrepreneurial culture (i.e., existing definitions and descriptions), cultural subtypes related to entrepreneurial culture, and insights from the practitioner literature on entrepreneurial culture. These five dimensions are thought to capture the necessary and sufficient characteristics and attributes that constitute an entrepreneurial culture. An entrepreneurial culture was defined as a pattern of values, assumptions, and practices shared within an organization that is centrally concerned with opportunities, where opportunity is the creation of new value to society in part or in whole. Table 10 lists each dimension and its definition. This proposed framework represents a comprehensive view of entrepreneurial culture that theoretically describes the various facets which describe an organizational culture.

Upon reviewing previous definitions and descriptions of entrepreneurial culture, characteristics and attributes such as innovation, risk-taking, learning, creativity, and collaboration (e.g., Ireland et al., 2003; Shepherd et al., 2010) were prominent. However, when reconciled with other literature in the entrepreneurship field, it appeared as though other concepts important to entrepreneurial firms and their organizational cultures were

Table 10 Summary of Entrepreneurial Culture in the Five Sub-dimension Model

Dimension	Definition	Key Characteristics/Attributes	Opposite Characteristics/Attributes
Organizational Enthusiasm	A pattern of values, assumptions, and practices demonstrating an excitement and passion for the organization, its goals, and purposes.	* enthusiasm for accomplishing organizational goals and the organization's mission * understanding the organizational vision * passion for the work * sense of unity of purpose	* failing to know or understand what success for the organization is or how it can/will be achieved * failing to believe or support the organization's direction or purpose
Stakeholder Alignment	A pattern of values, assumptions, and practices demonstrating the importance of building and maintaining mutually beneficial relationships with key stakeholders, such as customers, suppliers, partners, and investors.	* a focus on building and maintaining relationships with key stakeholders * appreciating how stakeholders impact the business * emphasizing strong relationships based on loyalty and fairness	* viewing stakeholders as a means to an end * viewing stakeholder relationships as necessarily zero-sum * viewing relationships as only valuable if benefits outweigh costs in the short term
Learning & Development Support	A pattern of values, assumptions, and practices demonstrating individual and group self-improvement, learning, and professional development.	* optimism toward improvement * valuing efforts to change, learn, and improve one's self and others * encouraging employee professional development	* organizational members lack ambition, initiative, or an interest in improvement * resistance to acquiring new knowledge or skills
Opportunity Driven Change	A pattern of values, assumptions, and practices demonstrating a willingness to change in order to identify/develop opportunities and execute on them.	* pursuing innovation and change to better execute on existing opportunities * pursuing innovation and change as a means for creating new opportunities	* reluctance to try new things or experiment * hesitancy in the face of uncertainty * disinterest in hearing new ideas or approaches to existing problems
Cohesiveness	A pattern of values, assumptions, and practices demonstrating organizational members' bond and commitment to each other and the organization, irrespective of circumstance.	* organizational members take responsibility for their actions * members feel like the organization can do things on its own (internally) * trust that everyone gives best effort * members feel like they can rely on others to participate	* organizational members shirk responsibility or hide in the group * members lack confidence in the abilities of one another * members are secretive and uncooperative

left out. In particular, conceptual dimensions that would help explain not just how opportunities might be recognized and discovered and/or created, but also acted on, did not seem to be accounted for. This proposed five dimension framework aims to comprehensively describe entrepreneurial culture as a cultural subtype. It aims to accurately describe entrepreneurial culture as an organizational culture centrally concerned with opportunities.

Revisiting the question raised by MacKenzie et al. (2011) and noted in Section 3.3, I now address the manner in which the facets of entrepreneurial culture combine to give the construct meaning. To reiterate, an additive relationship is appropriate when the effect of each facet on the focal construct is independent of the effects of the other facets. For example, MacKenzie et al. (2011) use the example of the construct "job performance" where facets such as task performance, organizational citizenship behaviour, and workplace deviance behaviours are hypothesized to each contribute independently to job performance. That is, an employee can increase job performance by increasing task performance or decreasing workplace deviance. Alternatively, a multiplicative relationship may be appropriate where the effect of each facet on the focal construct is thought to interact to produce the focal construct. MacKenzie et al. (2011) provide the example of "source credibility", which is the intersection of expertise and trustworthiness. If a source is trustworthy but has no expertise s/he is not credible, and if a source has expertise but is not trustworthy then s/he is not credible either. As a result, credibility is conceptually defined as the product of trustworthiness and expertise.

The extant literature on entrepreneurial culture appears ambiguous on this specific issue. For example, the Ireland et al. (2003) description of an effective entrepreneurial culture lists a number of characteristics that are linked with the conjunction *and* which implies the *union* or addition of these characteristics. Minguzzi and Passaro's (2000) definition speaks of a composite of values, skills, experiences, and behaviours, where a composite implies the additive combination of two or more things. Examining the various descriptions of entrepreneurial culture (i.e. Tables 6 and 7), suggests similar lists of

characteristics combined with *and*, for example "a firm is more entrepreneurial when its organizational culture encourages a broad array of new ideas, experimentation, and creativity" (Bradley et al., 2011: 543). As another example, "organizations that desire to be highly entrepreneurial must develop an entrepreneurial culture that includes such factors as the ability to learn *and* to focus on markets" (Hult et al., 2003: 402, italics added). In contrast, there are no examples of the characteristics and attributes of entrepreneurial culture being described as an intersection or product of these various aspects.

On the other hand, insights gained from decades of developing EO research are instructive here. In the composite view of EO, the construct is viewed as the intersection of the innovativeness, risk-taking, and proactiveness dimensions; they are expected to positively covary in order for an EO to be manifested (Covin & Wales, 2012). This is based on the foundational thinking of Miller (1983) who argued that in the absence of covaration among the three dimensions, that is, if any of the elements were missing entirely, then the result would be considered "less than entrepreneurial" (Miller, 2011: 874). Put differently, if an organization was truly not innovative or risk-averse, could it really be considered to have an entrepreneurial orientation?

With this in mind, entrepreneurial culture is envisioned as a multiplicative interaction among the facets. That is, the focal construct of entrepreneurial culture represents the intersection of organizational enthusiasm, stakeholder alignment, etc. I argue that these facets are necessary and jointly sufficient for the meaning of the construct. This implies that each facet must have some non-zero level of all attributes to possess an entrepreneurial culture. For example, an organization which refused to change to go after opportunities would not be centrally focused on opportunities so it would be difficult to argue that this organization had an entrepreneurial culture. Similarly, an organization that disregarded the interests of its stakeholders would likely struggle to generate new opportunities, which would not be indicative of an entrepreneurial culture, and so on. This interpretation of the focal construct implies that an entrepreneurial culture is identifiable from the intersection of these five facets. I thus argue that collectively, these

facets and the values, assumptions, and practices they describe are what constitute an entrepreneurial culture.

3.5 Construct Stability

According to MacKenzie et al. (2011), an important aspect of construct conceptualization is examining the proposed stability of the construct, that is, whether or not the construct is expected to vary over time, and across situations or cases. Organizational culture is widely considered to be very stable over time because of its deep-rooted nature as shared values, assumptions, and practices (Kunda, 1992; Schein, 1990, 1996). Indeed, part of the reason for organizational culture's prominence in the practitioner literature is the interest that managers have in changing an existing organizational culture. Culture has been seen as so difficult to change that some authors have suggested that removing members of the "old culture" may be one of the only ways to initiate cultural change (Collins, 2001; Neilson, Pasternack, & Van Nuys, 2005). For the same reasons, organizational culture is slow to change across situations or cases too. Schein (1996) described organizational culture as a milieu; an all encompassing feature of organizational life. As a result, particularly from a cognitive perspective, organizational culture influences how people think, interpret, and feel about their organizational environment. Regardless of situation or cases, an entrepreneurial culture should then be relatively stable.

However, it is important to note that this does not suggest that culture is *immutable*. In fact, Schein (1988) wrote that when confronted with situations that are so foreign as to start challenging underlying assumptions, it is possible for individuals to begin to question those underlying assumptions, which may initiate cultural change. Recent research also suggests that it is not necessarily a "jarring" experience which may initiate cultural change, but rather relatively slow, incremental change from the inside (Howard-Grenville et al., 2011). Collectively, this suggests that organizational cultures can and do change. Particularly in an entrepreneurial culture context, past literature has suggested that organizations seem to inexorably move towards increasing rules, procedures, and bureaucratization (Martin, Sitkin, & Boehm, 1985; Stevenson & Jarrillo-Mossi, 1986). However, this is potentially a lengthy and drawn out incremental process such that the

entrepreneurial culture construct should still generally be considered stable over time, situations, and cases.

3.6 Nomological Network

When developing a new construct, MacKenzie et al. (2011) suggest that while a fully mapped nomological network may be forthcoming, some key antecedent and dependent constructs should be able to be identified. Reflecting on the nature of the entrepreneurial culture construct, a number of antecedent constructs seem likely. These include the characteristics/personality of the founder (Schein, 1983), top management team composition (Hambrick, 2007; Hambrick & Mason, 1984), environmental dynamism (Grant, 1996), resources availability (Chandler & Hanks, 1994), life cycle stage (Greiner, 1972), and national culture (Hofstede et al., 1990). Generally speaking, these antecedents relate to entrepreneurial culture through their influential effects on the organization's values, assumptions, and practices. This may include the early establishment of the culture, such as that created by the founder(s), or later in an organization's life cycle through the top management team. The nature of the environment may also be influential, for example, the culture may be affected differentially in lean or plentiful times. The culture may also be affected based on its life cycle stage, for example, in the early start-up phase compared to the exiting of the founder and the hiring of professional management. These various concepts would seem to influence the conditions under which culture emerges and subsequently develops. Although, given that it has been argued that culture evolves over time rather than changing dramatically, there may be significant time lag in these effects.

With respect to dependent constructs, the culture literature identifies a number of important potential constructs affected by the nature of the organizational culture. These include job satisfaction (Schneider et al., 2011a), organizational learning outcomes (DiBella, Nevis, & Gould, 1996), perceived organizational support (Eisenberger, Jones, Aselage, & Sucharski, 2004), organizational commitment (Meyer & Allen, 1991; O'Reilly III & Chatman, 1996), management and staff turnover (Monsen & Boss, 2009), employee retention and fit (Cable & Judge, 1997; Chatman, 1991), tolerance for role ambiguity (Bechky, 2006), workplace communication (Shockley-Zalabak & Morley,

1994), employee affect (emotional) outcomes (Vacharkulksemsuk, Sekerka, & Frederickson, 2011), work-family conflict (Duxbury & Gover, 2011) and perceptions of meaningfulness of work (Cardador & Rupp, 2011). Given that entrepreneurial culture as a construct does not exist yet, these links have yet to be empirically established. However, the extensive organizational culture literature does suggest how an entrepreneurial culture might have relationships to these other constructs. This is primarily because entrepreneurial culture, as an organizational culture subtype, has impacts on the day-to-day, socially experienced organizational workplace for employees.

While entrepreneurial culture is a cultural construct and its core outcomes will be culture related (i.e., related to values, assumptions, and practices in the day-to-day life of a functioning workplace), organizational culture more broadly has also been explored by its relationship to firm performance. Sackmann (2011) recently examined a number of models in which culture has been connected to performance, including direct linear, nonlinear, and mediating and moderating models. She concluded her review by noting that the literature suggests that a "contingency-type relationship between culture, performance, and internal and external firm context" (2011:217) exists. Furthermore, "certain kinds of culture orientations have a positive effect on financial and nonfinancial performance measures" (Sackman, 2011:217). This suggests that an entrepreneurial culture may also have relationship with firm performance.

3.7 Ontology

A final but very important aspect of the conceptual specification of the entrepreneurial culture construct deals with ontological issues, namely, the underlying assumptions about the "reality" of the construct. Ontology refers to the philosophical study of the nature of being, existence, or reality. In the domain of construct development, ontology is the critical link between the theoretical model and the measurement model. There are essentially two primary positions with respect to the ontological nature of constructs (cf. Borsboom, Mellenbergh, & van Heerden, 2003). The first is a *realist* ontology which posits that a latent (unobservable) variable or construct is a real entity which exists independent of measurement. As a result, a realist perspective is associated with a reflective measurement model, which relates to classical test theory. That is, a real entity

exists in the world which an observer imperfectly measures, capturing an obtained score reflecting a "true" score and an error score (Guion, 2002). A realist perspective and reflective measurement are associated because a measured score (e.g., a response on a questionnaire) is thought to vary as a function of the latent variable; that is, variation in the latent variable precedes variation in the indicators (Borsboom et al., 2003:208). A realist perspective using reflective measurement has a long tradition in psychology research, for example the constructs of personality and intelligence; and has since been applied to other fields.

In contrast, a *constructionist* perspective represents a different set of assumptions about the reality of a latent variable or construct. A constructionist perspective adopts the view that latent variables are a construction of the human mind and latent variables do not necessarily have existence independent of measurement. Similarly, from a constructionist perspective, variations in the indicators now precede variation in the latent variable. Latent variables are conceptualized as a summary of their measurements. In other words, the measures form the construct, hence, their association with formative measurement models. Where a realist/reflective perspective has a tradition in psychology, a constructionist/formative perspective has a tradition in sociology and economics. For example, the construct of Socio-Economic Status (SES) is often provided as a formative example, where it is formed from the measures of income, educational level, and neighbourhood. From a constructionist perspective, SES does not "exist" in the real world *per se*, but rather, arises as a result of its measures.

As SES has been derided as the archetypal example of a formative construct (Iacobucci, 2010), it is instructive to consider an alternate example to demonstrate how constructs can be viewed both reflectively and formatively. Bollen (2007) described the example of a "home value" construct. From a formative perspective, indicators of home value might be square footage of the house, age, lot size, number of rooms, etc. In this case, "home value" does not exist apart from its measures; home value *is* the measures of square footage, age, etc. Furthermore, MacKenzie, Podsakoff, and Jarvis (2005) suggest that a formative construct is not just a composite of its measures, but rather the composite that best predicts the dependent variable in the analysis. To speak of home value, in this case,

means the specific measures. An important feature of formative measurement is that measures cannot be substituted or removed at will; they are an integral part of the construct. From a reflective perspective, indicators of home value might include appraised value, owner estimate, and assessed value of the home. In this case, home value exists independent of measurement, and these various measures "tap" (i.e., gain access to) that phenomenon. This is why a characteristic of reflective measurement is that measures are expected to correlate and can interchange; they are reflecting the same underlying phenomenon.

There is an important philosophical point to make here. Some scholars have argued that this realist vs. constructionist dichotomy creates a seemingly absurd situation where a construct independently exists with reflective measures but "disappears" under formative measurement if the measures change. Bollen argued against this perspective and wrote that "my position is that home value exists in any of these situations in that it represents a construct that derives *from substantive or theoretical considerations*…its existence *does not depend on the type of indicator* that happens to be available" (2007:221, italics added). To further this point nowhere is it "required" that researchers adopt a mutually exclusive world view where constructs are entirely realist or constructionist. In particular, while modern science is still working towards understanding the connections between things like thoughts and physiology (e.g., firing neurons), it is not unreasonable to suggest that *some* scientific constructs, such as electrons and photons, exist in reality, while others, such as SES and home value, are human constructions.

Thus, when developing a construct, deciding on the most appropriate ontological perspective in fact involves a simultaneous decision about the nature of the measurement model. That is, a realist perspective is consistent with reflective measurement, while a constructionist perspective is consistent with formative measurement. Several authors have argued that constructs are not *inherently* reflective or formative (Bollen, 2007; Covin & Wales, 2012; Howell, Breivik, & Wilcox, 2007b) and may be fruitfully evaluated from different perspectives. In particular, hybrid models that utilize reflective and formative measurement together have been suggested (Edwards, 2011; Edwards & Bagozzi, 2000) indicating that these perspectives may co-exist. However, it is important

to correctly identify and justify the ontological perspective that accompanies whichever choice and to correctly specify the attendant measurement model.

In the literature over the last several years, there has been some concern about the use of formative measurement models in social science research. These concerns relate to issues of interpretational confounding, model identification, and construct validity, among others (Bagozzi, 2007; Covin & Wales, 2012; Edwards, 2011; Howell, Breivik, & Wilcox, 2007a). However, work from other scholars maintains that these issues can be appropriately addressed and the viability of formative measurement with some "supporting" reflective measures can overcome these suggested limitations (Bollen, 2007; MacKenzie et al., 2011). As a result, both formative and reflective measurement approaches, particularly implementing these newer hybrid-approaches appear to be justifiable at the present time.

Conceptually, this dissertation views entrepreneurial culture from a constructionist perspective, amenable to formative measurement. The ontological justification for this was suggested in the previous discussion on cultural subtypes. An organization may have a variety of shared values, assumptions, and practices that constitute its *overall* organizational culture. The ontological nature of these organizational aspects is open to interpretation. Values, assumptions, and practices may or may not be "real" entities; convincing arguments can likely be made either way. Consider the definitions originally proposed earlier in this chapter. Values are enduring beliefs that a specific mode of conduct or end state of existence is personally or socially preferable to an opposite or converse mode of conduct or end state of existence. Assumptions are unconscious, taken for granted beliefs, habits of perception, thought and feeling (i.e., ultimate source of values and action). Practices are actions and behaviours in a cultural context. Values and assumptions are unobservable variables, and while practices are visible, the cultural context in which they operate may also be unobservable. These may correspond to real entities that exist independent of measurement, or they may be things that researchers have constructed in the mind for scientific purposes. This is a question deliberately left unanswered; organizational culture, as defined by these things, may be equally understood through reflective or formative measurement.

However, cultural subtypes, including entrepreneurial culture, are different. Here, entrepreneurial culture is viewed as a particular type or kind of organizational culture which is defined by specific organizational culture dimensions. In which case, entrepreneurial culture is perhaps not viewed as some *thing* that exists in reality but rather, as a theoretical construction. If an organization's culture was evaluated using measures designed to assess the entrepreneurial culture facets and the organization scored "highly" then this would form a "high-level" of entrepreneurial culture. In this regard, one could say that a "high" entrepreneurial culture would be similar to a high "home value" or SES. Put differently if an organization had a particular set of values, assumptions, and practices that were not evaluated by researchers, then the organization might be said to have an organizational culture, in general. However, if researchers measure those same cultural elements and determine that they score highly on an entrepreneurial culture scale, then the researchers may conclude that the organization in fact has an entrepreneurial culture. In either case, the organization's underlying culture is the same, but in the latter case, it is recognized by researchers as matching a particular cultural subtype. Therefore, we adopt a constructionist ontological perspective for use with a formative model which will be elaborated in-depth in the next chapter.

3.8 Conclusion

This chapter presented the conceptual details of the entrepreneurial culture construct. Entrepreneurial culture was defined as a pattern of values, assumptions, and practices shared within an organization that is centrally concerned with opportunities, where opportunity is the creation of new value to society in part or in whole. The construct of entrepreneurial culture is meant to represent a particular set of cultural elements that an organization possesses that identifies that organizational culture as being entrepreneurial in nature. The entrepreneurial culture construct as proposed here arose out of interpreting past descriptive and empirical attempts at developing the construct, integrating organizational culture research, and making sense of how these insights align with the phenomenon itself. This resulted in a framework consisting of values, assumptions, and practices proposed to constitute an entrepreneurial culture grouped into five, necessary and jointly sufficient sub-dimensions.

Entrepreneurial culture was also proposed to be a construct that was relatively stable over time, situations, and cases because of organizational culture's nature as being deeply entrenched and difficult to change. Finally, entrepreneurial culture was conceptualized as being of constructionist ontology, amenable to formative modeling. The logic behind this decision is due to entrepreneurial culture's interpretation as a cultural subtype, where researchers create a theoretical construct to explain a particular phenomenon not expected to exist independent of this theorizing.

Chapter 4 : Methods and Analysis – Phase One (Interviews)

4 Overview

The objective of the previous chapters was to review and outline the conceptual development of a multi-dimensional entrepreneurial culture construct based on prior theory. The following three chapters outline the methods used to empirically develop and substantiate this construct. The approach used in this process consists of three distinct data collection phases carried out sequentially. Although there is some past research precedent in this area, entrepreneurial culture as it has been described here is largely a new development. Compared to past conceptualizations, not only does it focus on different characteristics of a firm "being entrepreneurial" but it also encompasses different elements of organizational culture. These numerous differences necessitate a rigorous approach to firmly ground the new construct in the existing phenomenon. An important focus in developing the operationalization and measurement of this construct is high *real world fidelity*. A close correspondence to the thoughts and opinions of entrepreneurs and the organizational cultures of their companies is essential to specifying this new construct. Since organizational culture might be considered conceptually abstract or vague, it is critical to ensure that the eventual construct be easily recognizable and interpretable by practitioners and researchers alike.

This concern over mapping the theoretical construct with the real-world phenomenon derives from the core research question of this dissertation: *what is entrepreneurial culture?* The approach and eventual answer to this question, namely determining what entrepreneurial culture is supposed to be, presents two important challenges. It is unhelpful to practitioners to have a highly complicated and largely inaccessible theoretical construct. Similarly, it is insufficient for researchers to have a merely descriptive amalgamation incapable of linking to related concepts for theory building. To address these challenges, this research builds out the theoretical development first and then works to substantiate and refine those ideas with both deep and broad data. The depth comes from the interview work with entrepreneurs and the breadth from surveys with employees, representing the broader organizational perspective. The conceptual

framework from interviews to surveys is bridged by pre-testing the various concepts with doctoral students. This creates a three-phase data collection process that spans the different ideas, different methods, and different samples of respondents to create a unified picture of entrepreneurial culture.

The first phase consisted of 12 interviews conducted with entrepreneurs. These entrepreneurs are firm founders or owner-managers leading companies from 6 employees to over 4800. All of the entrepreneurs are experienced leaders and managers; individuals who have helped companies develop and grow. These individuals are considered experts on entrepreneurship and the culture of their organizations through their leadership and long tenure at their firms. The entrepreneurs in this phase were selected for their expertise and knowledge in order to explore the entrepreneurial culture domain in-depth. The data collected in this phase consisted of in-person verbal interviews that lasted an average of 1.5 hours. All but one of the interviews were conducted at the entrepreneur's place of business for their convenience and familiarity of setting. One interview was conducted via Internet-enabled video chat (the entrepreneur was in his office) due to scheduling reasons. These interviews generated numerous nuanced and insightful opinions into entrepreneurial culture.

While there are numerous techniques recommended for analyzing qualitative data (e.g., Creswell, 2003; Hesse-Biber & Leavy, 2004; Miles & Huberman, 1994), I adopted an analysis technique described by Gersick and associates (Gersick, 2010; Gersick, Bartunek, & Dutton, 2000; Gersick & Kram, 2002) facilitated by Provalis Research's *QDA Miner* qualitative analysis software package. Gersick and associates' approach incorporates a "sorting and sifting" process aimed at reducing large volumes of qualitative data, while retaining salient core concepts. In addition to the interview, the entrepreneurs were also asked to participate in a rating exercise of a set of preliminary entrepreneurial culture questions. These questions were selected as the initial basis for the entrepreneurial culture questionnaire to be developed in this research and were predominantly adapted from Taras' (2011) *Catalogue of Instruments Measuring Culture*. The rating exercise consisted of scoring a series of statements on entrepreneurial culture from low to high relevance to the different sub-dimensions.

The second phase of data collection was a content validity assessment exercise undertaken by doctoral students. This exercise was described by Hinkin and Tracey (1999) and was used to help determine the appropriate structure and wording of the entrepreneurial culture concepts. The rating exercise utilizes an analysis of variance approach with doctoral students rating prospective questionnaire items (from Phase One) against dimension definitions. The initial results of this phase were a subset of questionnaire items which tapped the core concepts of the entrepreneurial culture construct. After examining where potential item confusion might exist and discussing this subset of items with faculty advisors, the subset of items was re-evaluated. This involved revamping some of the wording and structuring of the questions (cf. Converse & Presser, 1986; Spector, 1992). This refining step produced the finalized questionnaire next employed in the third phase.

The third and final phase consisted of the deployment of this questionnaire to a number of organizations in order to survey entrepreneurial culture more broadly. Surveying entrepreneurs and their employees allows for a more in-depth look at both the shared nature of culture and the potentially conflicting interpretations of that culture. The results of this phase were the evaluation, refinement, and initial validation of an entrepreneurial culture instrument. Due to the scale and scope of the data collected in this phase (i.e., approximately 800 survey responses across 41 organizations), this phase featured an intensive analytic component. Analysis of the third phase data consisted of multi-level confirmatory factor analysis and structural equation modeling techniques (cf. Dedrick & Greenbaum, 2011; Kostopoulos, Spanos, & Prastacos, 2013; Mehta & Neale, 2005), as well as evaluating several inter-rater agreement indices (e.g., LeBreton & Senter, 2008). The analysis undertaken in this phase also resulted in a conceptual re-evaluation of the original formative model specification proposed in Chapter Three to a reflective specification. This conceptual pivot was critical to assessing the hypothesized measurement model in light of the empirical results. The transition from formative to reflective model is discussed in detail in Chapter 6.5.

Since each phase of data collection proceeds sequentially from the phase which came before it, the methods and analyses sections of this dissertation consist of three distinct

chapters detailing each phase. The remainder of this chapter details the first phase: interviews with entrepreneurs. This includes a discussion of the objective (Section 4.1), sample (Section 4.2), method (Section 4.3), and analysis of each phase (Section 4.4). The entrepreneur rating exercise development and analysis (Section 4.5) and a summary (Section 4.6) concludes the chapter.

4.1 Phase One Overview

An extensive background literature review provides a great deal of information on past conceptualizations of entrepreneurial culture. This forms a crucial conceptual foundation of the construct but not an empirical evaluation of these ideas. Practicing entrepreneurs as both business creators and managers can provide the core insights necessary for such an empirical evaluation. Entrepreneurs with expertise in the day-to-day operation of their businesses and their organizational cultures in particular, furnish data with two important contributions. First, they can test the conceptualization for its real world fidelity, that is, the model's correspondence to the entrepreneur's actual experiences of an organizational culture being "entrepreneurial." Second, they can test the comprehensiveness of the model's ideas, that is, does the conceptualization adequately capture the desired scope of the construct?

The objective of this phase of data collection was to ask the entrepreneurs about the proposed model and get their overall feedback and insights into the concept of entrepreneurial culture. Entrepreneurs were asked a series of questions to establish the type and origin of their business, their personal background and experience with entrepreneurship, and then questions dealing more specifically with organizational culture. I asked a broad range of culture questions and used these data to both compare and contrast the fundamental concepts of the proposed entrepreneurial culture model. While the interviews sought confirmation of the proposed ideas, so too were modifications and emergent concepts that might influence the development of the construct. Essentially, this phase of the research was designed to compare the largely theory and literature-based conceptualization of entrepreneurial culture with the practical experience and knowledge of entrepreneurs managing organizations.

As part of this overall process of having practitioners comment on theory and literature-derived concepts, the entrepreneurs were also asked to evaluate a series of statements loosely based on the five proposed dimensions of entrepreneurial culture. This evaluation step initiated the development of the questionnaire instrument. These statements were derived from previously validated survey instruments employed to measure culture. The motivation for this step was the fact that to date, there are no entrepreneurial culture-specific, validated survey measures. As a result, there is little existing guidance for which items are conceptually appropriate, and what the wording of the items should be, among other challenges of new scale development. This process needed to begin somewhere and so the entrepreneurs were tapped to help establish which items would make sense to use to assess the entrepreneurial culture construct.

4.2 Sample Selection

Phase One consisted of interviewing 12 entrepreneurs who were picked from a convenience sample of entrepreneurs who had been past participants in the *Quantum Shift* (QS) entrepreneurship executive development program offered at the Ivey Business School. The week long QS program, which has run annually since 2004, recruits business leaders of Canadian firms across a variety of industries. These leaders are all founders or owner-managers of firms generally characterized as "growing" (measured by sales growth percentage) and have net revenues over CDN$5 million. Approximately 400 individuals have participated in QS since 2004. As a past observer of the QS program in 2010-2012 and the annual QS Fellows program (open to all alumni of the program) in 2011-2013, I had been able to develop relationships with many of the QS participants. I selected a potential pool of 20 entrepreneurs to contact for interviews based on my strongest personal relationships (given the time and effort commitment necessary for the interview phase). All of the entrepreneurs were contacted throughout December 2012 and January 2013, of which 12 agreed to be interviewed. These entrepreneurs included a diverse collection of men and women from a variety of different industries. Table 11 summarizes the characteristics of these entrepreneurs and their organizations.

Table 11 List of Interview Participants

Firm*	Year Founded	Number of Employees	Revenue ($CDN millions)	Respondent Title	Sex	Origin in Firm**	Industry	Interview Date	Interview Duration
Asset	2010	6	0 (start-up)	Pres. & CEO	Male	F, OM	Finance	December 2012	1:29:04
Digi	1994	205	17	President	Male	OM	Software	December 2012	1:34:28
Food	1994	55	20	President	Female	OM	Prepared Food	December 2012	1:23:39
Marketing	1983	20	10	Pres. & CEO	Female	OM	Advertising	December 2012	1:34:48
Printer	1961	450	70	President	Female	OM	Industrial Printing	December 2012	1:22:22
Grocery	1956	4800	500+	Pres. & CEO	Male	OM	Supermarket	January 2013	58:08
InfoSec	2001	60	19	Pres. & CEO	Male	F, OM	IT-Security	January 2013	56:04
Transport	1979	980	25+	Pres. & CEO	Male	OM	Transportation	January 2013	1:43:24
Safety	1992	500	100	President	Male	OM	Industrial Safety	January 2013	54:00
Services	1995	800	50	CEO	Male	F, OM	Managed Services	January 2013	2:13:37
Concrete	1982	175	75	President	Male	OM	Industrial Supply	January 2013	1:01:28
Net Media	2008	140	100	Pres. & CEO	Male	F, OM	Social Media	January 2013	50:16

* = Pseudonyms
** F = Founder (or co-founder), OM = Owner-Manager

4.3 Interview Approach

Each of the entrepreneurs was interviewed using semi-structured interview techniques where a series of questions were developed in advance (see Appendix A, Interview Guide). Follow-up prompts or questions were asked where there appeared to be more insights to gain. The interview questions began with "grand tour" type questions about the origin of the business, the respondent's involvement, and the original opportunity. Questions about the hiring of early stage employees and the development of culture at the organization were also asked. The interview then focused on general questions about the proposed conceptual dimensions (e.g., Organizational Enthusiasm, Stakeholder Alignment, etc.). The interview concluded with a discussion of any final thoughts the respondent might have on the culture in general, such as how it had changed over time and what future culture concerns he or she might have.

Eleven of the interviews were conducted at the entrepreneur's place of business while one was conducted via Internet video chat. These places of business were all located in southern Ontario. All of the interviews were digitally recorded for later transcription. The interviews lasted on average for 80 minutes and yielded a tremendous amount of data. Nearly 100,000 words in 210 pages of transcripts were created from approximately 16 hours of interviews. To help facilitate the analysis, I used the qualitative data analysis software *QDA Miner* (version 4.0.4 for Windows) by Provalis Research. QDA Miner is a software tool which helps import and organizes transcript data for coding and pattern/frequency analysis.

4.4 Analysis and Results

The analysis process consisted of importing the transcript documents into QDA Miner and logging key variables such as interview date, firm revenue, number of employees, year of founding, etc. Each transcript was then read through multiple times, each time logging evidence (quotes) of particular central themes using codes, such as "background" (e.g., education, family, work experience), "entrepreneurship" (e.g., entrepreneurial culture, thoughts on entrepreneurship), "culture issues" (e.g., culture change, core

values), as well as evidence which appeared related to the five proposed dimensions (e.g., organizational enthusiasm, stakeholder alignment, etc.). I developed the codes based on my own interpretation of the data. The QDA Miner software assisted this coding and organizing through a process of highlighting quotes and assigning codes. The result was that each transcript (representing one case) would have a series of colour coordinated blocks of highlighted text indicating its respective code. This could be used to visually scan and refine single cases. The software also allowed for sorting all cases into an aggregated code and quote table. While QDA Miner helped with the technical aspects of organizing the data, the process for sorting, sifting, and synthesizing the data into codes was largely motivated by the data analysis process described by Gersick and associates (Gersick, 2010; Gersick et al., 2000; Gersick & Kram, 2002).

In addition to its importance in evaluating the entrepreneurial culture model, the interview data helped to provide much needed context, nuance, and clarity to the broader entrepreneurial culture picture. In addition to specific thoughts and insights around the conceptual issues (i.e. the five dimensions and the concept of entrepreneurial culture), the participants discussed their perceptions of how and why their cultures developed as they did, the salient features of their particular cultures, and the importance of core values in the organization. Organizational culture was clearly an issue that the participants thought about, were concerned about, and had put a great of effort into shaping or managing, as best they could. The following subsections explore the entrepreneurs' thoughts about organizational culture with respect to the proposed model and their overall insights into culture.

4.4.1 The Nature of Entrepreneurial Culture

To begin the interviews, the entrepreneurs were asked a series of broad questions about their definition of organizational culture and what they thought the culture of their organization was like. Entrepreneurs were also asked if an "entrepreneurial culture" meant anything to them and what that might be. The purpose of these general questions was to get a sense for what the respondents thought about culture (if at all) and how culture was perceived by them and by extension, their organization. When asked these questions the respondents reported a variety of ideas and opinions. For example, culture

was the “personality” of the company, “how we do things”, an “extension of the founder", how people “behave inside and outside the organization”, and “how people think and act.” Although not expressed in the same words, collectively these ideas describe a central sense of culture that closely matches the Scheinian view of culture. Namely that values and beliefs underlie the behaviours and actions of people within the culture. When asked about what an “entrepreneurial culture” was specifically there were also several consistent themes. Specifically the notions of taking risks, being flexible, dealing with challenges, and showing initiative were prominent. These thoughts on entrepreneurial culture were also framed by the concept of opportunities. In other words, risk, flexibility, overcoming obstacles, creating new ideas, and taking action were all in service of opportunities for the organization. For example, the President of Digi said “I see what the opportunities are…I see what we have to do to maximize our competitive advantage.” In this case, that meant developing human resources, flexibility, employee empowerment and creating “a talented company that can respond…to changes in business models and new pressures.” The President & CEO of Marketing noted that “entrepreneurial spirit is about risk taking and having the courage…it’s about having ideas and understanding how to execute on the ideas.”

The sentiments expressed by the entrepreneurs corresponded to expectations held about entrepreneurship described in past literature. Consider that notions of risk taking, flexibility, and adaptability have typically been highlighted as some of the core properties of being entrepreneurial. However, the entrepreneurs added some important cultural context to these broad properties. This context primarily concerned the notion of the team and the broader organization. The entrepreneurs saw values and objectives as something "we have to do", "we are building something" and "to look outside what we are today." Leadership and setting examples were certainly important, but entrepreneurial culture was clearly a collective endeavour, something that they had to work on and towards as a group. To this point, the entrepreneurs were asked if they felt their organization currently possessed an entrepreneurial culture. The responses were mixed with about half reporting a *yes*, at least in parts of their organization, and the rest were either unsure or reporting a *no*. This was somewhat surprising in that these companies had been identified for study based on the assumption that they were

"entrepreneurial" firms and by extension, possessed entrepreneurial cultures. However, by the entrepreneurs' own definitions and understanding of the concept, at least half felt that their firms needed some work developing or strengthening such a culture. This suggested that an entrepreneurial culture was something that needed some form of deliberate effort and attention within the organization.

Overall, the data presents several key insights into the nature of entrepreneurial culture. Organizational culture was thought to represent the values and beliefs which underlie actions and behaviours in the firm, or colloquially, "the way we do things" and the reasons behind them. An entrepreneurial culture, echoing the core attributes of entrepreneurship, incorporate notions of risk taking and flexibility, among others, in the service of opportunities. Finally, entrepreneurial culture is a group endeavour which may be hard to come by, even in firms where such a culture would be expected to be found. These sentiments, taken as a whole, align with the proposed conceptualization of entrepreneurial culture. These ideas appear to support the view of entrepreneurial culture as an organizational culture focused on opportunities and the things that are necessary to identify/develop them and ultimately act on them. Table 12 presents a selection of the evidence from the data that supports this position.

4.4.2 Organizational Enthusiasm

The first of the dimension-based series of questions concerns Organizational Enthusiasm. This topic was approached by asking the entrepreneurs about the vision of the company, whether the employees knew about that vision, and whether they were passionate about it. These questions were designed to tap into the organization's vision and direction and to what degree the entrepreneur and the employees were committed and engaged with them. The underlying motivation was to investigate the relationship between enthusiasm and passion for these goals and the ability to generate and/or act on opportunities.

The respondents were eager to discuss their vision and passion for their business and what they were trying to accomplish. Most of them had visions and goals for their organizations, ranging from improved growth targets to larger scale visions such as being the biggest or best firm in their field in the country. Responses were far more mixed

Table 12 The Nature of Entrepreneurial Culture

Firm	Examples
Transport	"[it is] a culture of empowerment and we want people to make decisions and if they make a mistake then let's just talk about how we are going to solve it or fix it or make it so it doesn't happen again."
Printer	"our culture then absolutely first and foremost is to impress. It is the lifeblood of our organization. They have to have the can-do attitude to solve the problem for a customer in the fastest and most convenient, most value added way…"
Marketing	"the entrepreneurial spirit is about risk taking and having the courage…it's about having ideas and understanding how to execute the ideas…"
Services	"what farming taught us or set in our culture is when you are a farmer, you have no choice but to deal with what is. … It's the ability as an entrepreneur to see opportunities combined with the resourcefulness of a farmer who has just lived his life dealing with what is. Taking advantage of whatever opportunities come his way…"
Grocery	"entrepreneurial to me is a whole range of things, because you can be entrepreneurial in how you deliver services, how you take care of customers, how you handle your own team members, that sort of thing. Pretty broad and in just thinking differently than the norm…"
Food	"the first word that comes to mind is 'fun'…it's dynamic, changing, it's risky – not quite – but thrilling for the entrepreneur. For the entrepreneurial culture for the people it's hard, it's uncertain let's say, there is uncertainty involved and flexibility is required to not get too attached to a routine way of doing things."
Concrete	"[entrepreneurial culture] would be outside-the-box, freedom, willing to take risk."
Safety	"entrepreneurial [culture] gives you a bit of the license to not miss out or look at what's been done before or slot yourself into best practice precedent – I think every decision we make, we look at it with the lens of do we want to follow or do we want to lead. Sometimes you want to follow, there is nothing inherently bad about that, but it's just that the rules aren't as tight when you have an entrepreneurial culture."
NetMedia	"it is a certain passion, excitement, and nimbleness that you bring to a situation. … that's the nature of playing a game, that is the nature of a season, there is the odd setback, there is the odd challenge, but here is what we have to do and here is the tweak up of how we are going to make it if we just keep going forward."
Asset	"we are building something from scratch, we are up against big players…insurmountable odds and we are prevailing. That to me is the essence of the entrepreneurial culture."

when it came to whether employees knew about that vision or were passionate about it. For example, the entrepreneur at NetMedia said that only about 50 percent of employees knew what the vision was and that the "key thing that's hard to do is connect to that plan or vision when I'm Joe and I'm down in the wheat." Similarly, the respondent at Grocery said "I wouldn't say [employees] could rhyme off [the vision] word for word, but I think they get the gist of it in terms of what our values are." The general pattern was that the entrepreneurs recognized that communication could be improved to help employees get a better sense of what the company was trying to do or where it was trying to go.

Several of the entrepreneurs were making efforts towards addressing this deficiency, however. This included trying to make the workplace environment more fun or exciting to encourage excitement and enthusiasm. This also included showing employees their appreciation and trying to keep them more informed. Team challenges, town hall meetings, newsletters, and posted goals are all examples of the various efforts made. This was thought to help connect with employees and get them as excited about the organization's goals and purposes as the entrepreneur was. The entrepreneurs believed that this would motivate employees and encourage their efforts at their work. For example, as the CEO of Services noted "it really comes down to getting people on side and making them believe we can do something special." The President & CEO of Asset observed that "you have to connect everyone to the vision…you've got to have the gut feeling when you get up in the morning as the receptionist, that I'm going in, because I'm contributing to our vision." Encouraging employees to be committed and enthused about the organization was important for more than just morale though. Several respondents acknowledged that being entrepreneurial (e.g., moving quickly, taking on riskier projects, etc.) often put a strain on individuals. For example, the entrepreneurs at Food and Transport recalled bringing in employees who had previously come from "corporate" environments who struggled in their new jobs. At Concrete, the President noted that they employed many engineers who focused on specifications, meaning that "sometimes I am not surrounded enough by people who want to think outside the box." For several of the entrepreneurs who identified this kind of problem, getting employees to buy into the "big

picture" was an important way to help them get through various aspects of work (e.g., changing projects, different work groups, bidding on contracts, etc).

It was clear from the respondents that an important aspect of what they enjoyed and were motivated by in entrepreneurship was the ability to create. They all had a vision of what they saw their organization eventually looking like. This was not just in terms of the strategic direction or goals but also the culture. The entrepreneurs tried to ensure employees were just as excited about what the organization was trying to accomplish as the entrepreneur was. The respondents understood that not everyone in the organization was necessarily going to be excited about their particular job but that at least they could connect to what the organization was trying to do, even if only in an abstract or high-level way. For example, as the CEO of Digi said, “we like to give people a vision – a vision for the company, a vision for the project, and a vision for their career…we try and meet that vision, how they slay those dragons is completely up to them.” The entrepreneurs at both Food and at Safety felt that the nature of their products motivated and excited people. At Food, it was a high quality food product for human consumption that could be tasted and experienced. At Safety, it was a fire warning system that saved lives. The President of Concrete commented that they were “proud of our accomplishments and proud of who we are…we are proud we are independent…we are one of the bigger players in our sector that is private.”

That the organizational vision was important is not a particularly unusual result, nor struggling to get employees on board with that vision. Indeed, it might be expected that the average employee, especially in the larger organizations, may not be quite tuned into the organization's mission statement or overarching vision. What was somewhat surprising was that several of the entrepreneurs had trouble recalling their "official" mission statements as well. While the entrepreneurs were generally enthusiastic about talking about their vision for the organization and upcoming exciting developments, specific mission statements were somewhat elusive. However, this did lead to more nuanced sentiments about the importance and purpose of a vision for the company. For example, the respondent at InfoSec said "I can't remember what it is...it is so hard to do vision, mission, doctrines, and there are so many different things that we have gone

through...I've finally said 'okay, let's just think of something we really believe in and agree on.'" Similarly, when asked what the vision was at Safety, the President said "that's a tough question...I'm supposed to have the vision, the mission, and the structure at the tip of my fingers but I think we value life safety and property protection...people remember *that* first and foremost, even people who are putting diodes in boards." These kinds of ideas highlight that even for the entrepreneur (who was typically the President of the company), the vision for the company was not necessarily about a printed or posted statement. Rather, the vision was a series of ideas or values that people could latch on to and believe in.

Organizational enthusiasm was introduced as a dimension reflecting the importance of an organization's visions and/or goals and the passion and enthusiasm people in that organization feel for that organizational direction. If people in the organization are enthused and excited about what the organization is trying to accomplish, then it would seem to foster a culture where individuals could take on risks, changes, and other activities associated with opportunities. The results from the data appear to support such a perspective. The examples presented spoke to how the entrepreneur's passion and excitement permeated the organization and created a sense that all the work being done was connected to an overarching vision. Even when the exact mission or vision was not or could not be explicitly articulated, the key was having core values or ideas which people could rally around and believe in. Table 13 presents a selection of the evidence supporting the dimension of organizational enthusiasm.

4.4.3 Stakeholder Alignment

To explore the proposed Stakeholder Alignment dimension respondents were asked about their relationships with stakeholders (e.g., customers, suppliers, partners, investors) and how they thought they were perceived by these groups. While virtually all of the firms had long since gotten past the highly resource dependent start-up phase, I was still greatly interested in probing the nature of the relationships between these firms and their stakeholders. What role might these stakeholders play in firms' short- and long-term plans? How had these relationships evolved? Ultimately, the core question was to

Table 13 Organizational Enthusiasm

Firm	Examples
Transport	"It's important to me that people enjoy what they are doing. It's important to me it's a place where people want to come to work. I am hoping we have very few people who go walking into Transport "OMG, I hate this job!"
Digi	"We like to give people a vision – a vision for the company, a vision for the project and a vision for their career. We try and meet that vision. How they slay those dragons is completely up to them."
Marketing	"Your employees and your staff are the ones that are doing the work. They are either making the cars or they are doing the work here, and if they are not inspired or not motivated and if they don't care, then that shows in the work that they do."
Services	"it really comes down to getting people on side and making them believe we can do something special. I don't care what business it is, if you are going to have people together somehow you have to drive a sense of belonging, and the way to do that is culture."
Asset	"So to me the thing is you have to connect everyone to the vision, and you have to do that with an emotional hook. You've got to have the gut feeling when you get up in the morning as the receptionist, that I'm going in, because I'm contributing to our vision."
Safety	"I don't know if I'd be here if it wasn't this type of business and I don't know if a lot of people would be here, I mean, everybody needs jobs but I think everyone genuinely likes that this is what we produce. I mean, they can work at other places, they have choice."
NetMedia	"At my last holiday party I delivered a message around what this company meant to me and what people that have stuck with me over the many years bring to this business, and I can't tell you how many employees came up to me afterwards and said that was the first time they have been to a holiday party where the executive said something that was truly passionate and meaningful…"
InfoSec	"I wanted to have the chance to grow a place where people can work and make some money and enjoy their working life. I'd been through different organizations where you know, it's not a lot of fun in working in some places. I really wanted to build something that people really enjoyed and had a place they can call home."
Grocery	"For us it is more about the execution and being proud of the fact our stores are well run and well maintained, customers have a good experience in them, and they are involved in the community…it's not about size, it's not about being the biggest, it's about being the best."

understand the relationship between the treatment of organizational stakeholders and opportunities and how the former might influence the latter.

Our respondents generally all had a great deal to say about customers, suppliers, and partners. This was particularly the case for companies such as Concrete, Food, and Printer who relied on raw input material suppliers. Discussions about investors were limited to only three respondents who needed strong financial relationships, primarily banks. These relationships were important for capital infusion, often to fund organic growth or acquisitions. Overall, stakeholder relationships seemed critical to the organization. Moreover, the entrepreneurs made a point of infusing the importance of these relationships into the culture, particularly with customer relationships. Almost all of the entrepreneurs commented on the importance of building long-lasting and "win-win" relationships with stakeholders whenever possible. The entrepreneurs frequently went into depth to fully articulate the nature of these relationships. For example, the President & CEO of Marketing, who had recently experienced a crisis in her business, commented that "if I wouldn't have had the partners, the suppliers around me, I don't think we would have survived." The President of Printer noted that "when you strip it all away and you work with us we negotiate or position ourselves to say it's got to be good for them and it's got to be good for us…and you don't keep long standing suppliers unless you can walk that talk."

Several entrepreneurs also articulated that good stakeholder relationships facilitated their growth and allowed them to capture opportunities for themselves and provide opportunities for others. The President & CEO at Grocery, for example, would deliberately give small new vendors a chance to show their product with the view that Grocery could have a potential new hit while the vendor could start to build their own brand. He noted that "we root for the little guy because we are the little guy." Similarly, the President & CEO at Transport would tell vendors "we are a growing company and we want them to grow with us." Our respondent at Asset said "we can't do our job if we don't have a great relationship with our landlord, with the people that clean the office, the people who provide us accounting services...when you deal with these people you deal

with them as if you are wanting to build a long term relationship." In all these examples, the respondents noted how they tried to share and model these behaviours with employees, at least with senior management team members. These team members would often be involved in negotiations or decision making situations where these beliefs and values would come in to play.

The entrepreneurs supported the literature in that stakeholder alignment was an important aspect of entrepreneurial culture. The kinds of strong relationship bonds described by the respondents were consistent with my expectations about the importance of these relationships to the organizations. None of the organizations were of a size or scope such that they could rely primarily on market dominance or power. Instead, close, long-term relationships with stakeholders were crucial to negotiating favourable terms or even flexibility in leaner times. The respondents at both Marketing and Printer noted occasions when close relationships helped them in times of severe economic pressure, for example. However, comments like those from Grocery and Transport suggest that even if they were in a position of greater leverage, the entrepreneurs would still highly value mutually beneficial, reciprocal relationships. This speaks to the normative component of these relationships. What was slightly surprising is that rather than generally equal footing, customer relationships probably constituted the most important relationships among stakeholders for most respondents. This was particularly the case for firms like Marketing, Asset, Services, Concrete, Digi, InfoSec, and Transport, which often (or exclusively) worked on bid contracts/projects. In these cases, costs were relatively fixed and the core differentiators were product quality and customer service. As a result, strong and attentive relationships with customers were critical. This critical nature was often drummed into the culture with notions of "customers are our number one priority" and "do whatever we can for the customer" repeatedly shared with employees.

Stakeholder alignment was introduced as a dimension describing the importance of an organization building mutually beneficial relationships with key stakeholders. The core concept of this dimension is that entrepreneurial cultures value these relationships because they help enable the ongoing prosperity of the organization. Strong, long-term relationships with stakeholders facilitate the ability to capitalize on opportunities, through

new and existing customers, access to material inputs and financial resources, or cooperative partnerships, for example. The results from the data appear to support this perspective. The examples highlighted here describe instances of how the entrepreneurs had built these relationships and leveraged them over time. These were always to the benefit of their firm but in many cases, to the benefit of the stakeholder as well (e.g., mutual growth opportunities, better customer experience, etc.). Furthermore, these feelings were shared throughout the organization through communication and example setting, particularly with respect to dealing with customers. Table 14 presents a selection of the evidence supporting the dimension of stakeholder alignment.

4.4.4 Learning & Development Support

The dimension of Learning and Development Support was approached by broadly asking respondents about professional development and the opportunity for people to learn new things in the organization. These broad questions were anticipated to lead towards more focused questions about prevailing attitudes towards individual and team learning and professional growth, as well as mechanisms of support in the organization. The purpose of these questions was to get a sense of how organizations approach learning and development from a cultural perspective. Furthermore, I was also interested in exploring the relationship between a culture of learning and development and opportunities. The expectation was that fostering a culture supportive of learning new things (e.g., new skills and knowledge about employees' jobs or professions, latest industry or product developments, etc.) would have positive implications for opportunities in/for the organization.

The responses from the entrepreneurs on professional development were generally supportive of encouraging learning and development opportunities for employees. Most of the respondents acknowledged and highlighted the value and benefits of extra training and development. However, few organizations had clearly structured paths for employees to participate in such opportunities. The rest that did relied largely on ad-hoc programs. The reported benefits of promoting learning and development with employees were as a way to keep their employees engaged and productive. As might be expected, additional learning and development opportunities also helped to fill gaps in experience

Table 14 Stakeholder Alignment

Firm	Examples
Transport	"One of the things I've always looked at and talked about with vendors is that we are partners. … we have communicated that in a lot of cases that we are a growing company and we want them to grow with us."
Printer	"when you strip it all away and you work with us we negotiate or position ourselves to say it's got to be good for them and it's got to be good for us. And you don't keep long standing suppliers unless you can walk that talk."
Marketing	"Our print suppliers, they work as partners to help each other out through the difficult times and through some of the difficult times we've been through. If I wouldn't have had the partners, the suppliers, around me, I don't think we would have survived."
Services	"I think our union relationships reflect the fact that they understand that we care about our people, that we want direct relationships with them, and we respect the fact that the union has a role to play, so we are not playing *that* game."
Grocery	"with suppliers, if you treat them like family, being tough but being fair – they know what to expect, they know that when you shake hands on a deal the deal is done. … Also, giving smaller vendors more opportunity is another thing we tend to do. We root for the little guy because we are the little guy."
Food	"you know with the suppliers it's the same thing, look we are partners here you know you've got some bones in your chicken and my customers are complaining about bones in the chicken, I don't put the bones there, you take them out. What can we do to fix this? We've even had our customers visit our suppliers with us…we all work together to get that done."
Asset	"We want to be a good partner and do the right thing for our client. We have service providers, we want to build long lasting relationships with them, we know that we can't do our job if we don't have a great relationship with our landlord, with the people who clean the office, the people who provide us accounting services, …"
Concrete	"we certainly have strong relationships with our insurance, bonding and financial, our key suppliers for input costs, liquid asphalt cement, other aggregate producers, we certainly have a long term view and have a really strong relationship; you can't nickel and dime them to save fifty cents today and lose a dollar tomorrow."
InfoSec	"when I talk about profitability if my customer and your customer are not happy that profitability is not going to happen. …it's all tied back to the customer; if the customer relationship is good, if they feel we are doing a good job, we are going to be successful."

or training that employees might have, particularly managers. These opportunities manifested as various professional development options including internal training, industry seminars and conferences, and courses or even degree programs offered at external institutions. The consensus appeared to be that learning and development support were worthwhile activities and that they were crucial to maintaining or developing a culture oriented towards improvement. For example, the President & CEO of Grocery sent one of the company's directors to a four-week leadership program because he thought that "this person could really use some support in addition to internal coaching, [to] have them see a different point of view." At InfoSec the President noted that they would encourage individuals who had a passion for a work-related area (e.g., wireless hacking) to give a presentation to the organization because "not only are they learning, they are teaching others." Providing opportunities to learn and develop encouraged individuals to improve and demonstrated an organizational commitment to people acquiring new skills, abilities, or job opportunities.

However, while many of the firms noted the value of these learning opportunities, few firms had much structure around these opportunities. While some firms, such as Marketing, Digi, Asset, Printer, and Transport had clear programs and designated funding for additional learning opportunities (e.g., external courses and certifications), a similar number of the other firms relied on ad-hoc procedures. These often took the form of an individual employee identifying an interest and making a request to management for training and development resources. The nature of this kind of request could often be problematic. For example, at InfoSec, while they did value the learning and teaching aspects of internal training, external courses were essentially vetoed because of cost. At Safety the respondent noted that people wanted to pursue things that were unrelated or "off on a tangent", which they did not support. Clearly this kind of determination is within management's discretion, but at the same time may be considered discouraging. The President & CEO of NetMedia also spoke to this point. He noted that "people are not as comfortable asking for [help]...they only do so when they have reached a point of potentially complete failure or I'm going to get fired or we've got a big problem." He acknowledged that they needed to work hard to change the mentality so that getting

additional training or instruction was not considered a sign of weakness or deficiency, but rather "I want to excel in my career, help me to do these things."

Despite some of this reluctance, the entrepreneurs also expressed that failing to develop employees had potentially negative consequences. For example, individuals who were not challenged or did not feel there were opportunities to develop would either leave the organization if they were strong performers, or they would become disengaged and less productive if they were not. Some respondents were also concerned that a failure to provide learning and development options would result in members no longer learning and cultivating rigid attitudes. For example, the President & CEO of Marketing noted that "people get to a point where they think they know it all, and that's a problem…they think they are successful so they don't need it." The President of Digi echoed this sentiment when he said "if you think you are always right and have to do it your way, there is no room for you in this company."

The somewhat mixed results were not entirely surprising. Due to the varied nature of the firms (i.e., age, industry, number of employees), there was a limited expectation for them all to have fully fledged professional development programs. The consistency in the acknowledgment of the value of learning and development programs was encouraging though. However, the examples presented here highlight important cultural implications of learning and development support. While most of the respondents felt that it was important and something they wanted to encourage, it seems that few thought they were doing a good job of that. Ad-hoc processes in particular seemed like they could present a particular cultural quandary. It takes outspoken individuals to request learning and development opportunities but if no one asks, no one will do it and others will perhaps not realize it is an option. On the other hand, if people take initiative and ask but are denied, then it may have a chilling effect on future requests. In either case, there is the potential to compound an undesirable situation. As the respondent at NetMedia noted, particularly given his workplace full of creative software developers, it is an ongoing and important challenge to try and change the mentality around additional training and development.

Learning and development support was proposed as the cultural dimension that encourages people in the organization to acquire new knowledge and understanding from their experiences. Through these activities the organization may benefit from more knowledgeable organizational members (i.e., individuals and groups/teams) and from the potential to generate or exploit future opportunities based on new ideas and new knowledge. The data suggests that the entrepreneurs share some of these sentiments. They perceive learning and professional development as ways to encourage employees to find new perspectives and acquire new knowledge. While in some organizations this was clearly a work in progress, the underlying idea of encouraging new ideas and professional growth appeared substantiated. Table 15 presents a selection of the evidence supporting the dimension of learning and development support.

4.4.5 Opportunity Driven Change

Traditionally, views on entrepreneurial culture have emphasized the importance of the values of innovation and change in organizations. However, these notions toward innovation and change have often been abstract. For example, is valuing “continuous change” merely valuing change for its own sake? To what end are new ideas, experimentation, and creativity encouraged? The entrepreneurs were asked to talk about their organizational culture with respect to innovation and change, and whether people were comfortable with change. The purpose of these questions was to explore the notions of innovation and change together and ultimately, how the organizational culture incorporated values and beliefs about them with organizational opportunities.

Responses from the entrepreneurs indicated that their cultures were generally amenable to innovation and changing in order to adapt to new market conditions or other circumstances. While valued in the abstract as well (e.g., "innovating" was perceived as important activity), the entrepreneurs had a clearly functional view of innovation and change with respect to pursuing opportunities. Innovation and change were valued in their capacity to help the organization alter or reorganize itself to pursue a potential opportunity or to better execute on an existing opportunity. For example, at Printer, Grocery, and Marketing the entrepreneurs recognized that their existing markets were changing (e.g., less demand, lower margins, no potential for growth, etc.).

Table 15 Learning and Development Support

Firm	Examples
Transport	"We have lots of people that transfer…we used to see it with trucking, we'd have people go 'I don't want to be a truck driver, I want other opportunities,' we provide and pay for upgrading [their skills/qualifications]."
Digi	"If people want extra learning, even if its only indirectly related to their job, it's going to make them better employees and we are responsible for maintaining highly educated and competent people. …it's part of maintaining morale, of high spirits…we want them to be smarter and more competent, it's going to create engagement."
Printer	"[employees] want to know they have an opportunity to go somewhere when and if they choose, they want to be constantly challenged from a learning perspective, they don't want to get bored, and they really want to know we care."
Marketing	"if people want to go on courses and seminars we are open to do that sort of stuff…will there be enough opportunity for them to grow? Because if they can grow they are inspired, enthused, and if they are challenging themselves then they will stay longer…"
Grocery	"some of them have opportunities to go to conferences…those are groups that are going to conferences to learn within the industry or look for products and then over and above that if there is a specific need in someone's career…"
Food	"we have a professional development plan for the staff…it's not there yet, it's an evolution that will come and we do believe it pays off to invest in people and it also makes a happier employee, I think."
Asset	"every employee has to know what their job is, part of that job description and expectations is that here also needs to be a professional development plan…that can range from something as simple as you should attend an industry conference…to the company paying for their professional designation…"
InfoSec	"We love it when people want to grow, we give a lot of opportunities and a lot of flexibility."
NetMedia	"how do I get you in that environment to make you an overall more effective communicator, a more effective member of the team? We make sure we budget for it…here is a path and I want to work with them to build them as individuals."
Safety	"We have talked about creating an actual Safety university – creating a training plan for people…we support [training] but I think what we actually want to do is become more visible as a learning organization going forward, so we are going to challenge people to continue to do that proactively."

Printer was witnessing a gradual decline in the need for simple but high-volume business printing where low-cost competitors were entering. As a result, they were shifting towards more value-added creative design and project management work. Grocery was experiencing a similar market place with virtually no margins in the lower-cost supermarket sector, instead choosing to focus on higher-end specialty and exclusive foods. Marketing had seen a general reduction in advertising budgets in their clients, meaning they had to do similar amounts of work with fewer financial resources. They were also experiencing pressures from consolidation in the industry (e.g., fewer players in the market their size, replaced with much larger conglomerate firms). In these cases, the need to change and innovate their products, processes, or even their approach to the market (e.g., their value proposition) was necessary to capture potential opportunities.

In other cases, the firms would innovate or change in order to better execute on existing opportunities they had. For example, at Concrete the President remarked that "if something cutting-edge comes out that can save us labour – we are very conscious on how much labour we spent money on – we are very quick to adapt new technologies." Similarly, in one of Transport's lines of business, they were experiencing too much idle time on their vehicles. They decided to change to a broker system of independent operators, which had a number of significant impacts, including improving productive time, reducing the fleet, and improving pay for the brokers. At InfoSec, the Payment Card Industry (i.e., secured credit-card transactions) was a small part of their security assessment business which they recognized as having tremendous potential, so they changed by putting more resources into this area. As a result, the President of InfoSec commented that "we are probably one of the best there is right now in Canada, we are probably able to jump into the US and be the best there…" These examples describe innovating and changing less out of necessity (e.g., market conditions) but more out of better optimization of existing opportunities.

On the other hand, change was acknowledged as often very difficult to achieve where poor or insufficient communication could hamper efforts to effect change. At Food, for example, a recent sale of one line of business lead to a plant closure and a change in the

production line at another facility. While the President and senior management knew this was an improvement for the company's future, it led to an undercurrent of gossip and misinformation among the employees. The President admitted the failure of communication and that employees had liked that line of business and production, and management had failed to acknowledge that they were "grieving" the loss of that work. She poignantly noted a key organizational lesson: "in the absence of information things would be made up." NetMedia experienced a similar situation as their business often makes acquisitions of smaller organizations. These acquisitions result in regular change as new business and employees are frequently incorporated. The entrepreneur acknowledged that "I do think people get overwhelmed and they get concerned." In particular, plans were going to get outdated and were going to change from what was initially outlined. His lesson was that their organization needed to "be comfortable in communicating where you want to go and when you want to go in a new direction, how you want to be held accountable in terms of success or failure."

The respondent's sentiments towards innovation and change were not very surprising as a generally pro-innovation culture was expected in these organizations (by virtue of their perception as entrepreneurial firms). However, the insights they provided with respect to why innovation was important for them and what kinds of measures they were undertaking adds crucial nuance and context to merely being abstractly supportive of innovation. Furthermore, the insights they offered about the difficulty in actually effecting change and how it impacts employees demonstrates that a pro-innovation culture does not happen in isolation. Rather, innovation and change is very much a cultural function that involves negotiating new demands, expectations, and ways of doing things with people who may not have sufficient information or may be struggling with the kind or volume of change. Communication was crucial to linking the opportunities (i.e., necessity or optimizing) as the core motivation for innovation and change among employees.

Opportunity driven change was proposed as a dimension which tapped the idea of the cultural perception of innovation and change being related to either capturing new opportunities or better executing on existing ones. Rather than valued simply as abstract

goods, innovation and change were activities driven for specific reasons. This connection between innovation and change and opportunities (i.e., capturing new or better executing on existing) is what was expected to be reflected in this dimension. The data suggests that this proposed dimension is largely supported. The examples described here highlight cases among the respondents where innovation and change took place in the context of opportunities. While in some cases hampered by employee's resistance to changing, these were typically remedied through increased communication, which is an important aspect of shaping the culture. Table 16 presents a selection of the evidence supporting the dimension of opportunity driven change.

4.4.6 Cohesiveness

The last of the originally proposed dimensions to be explored was Cohesiveness, which was addressed by asking a number of questions broadly related to employee morale. This included questions about describing morale at the firm, whether people generally got along or "gelled" together, were honest with each other, and communicated well, for example. The purpose of these questions was to explore perspectives in not only how employees worked together (i.e., effectiveness) but also whether they supported one another (i.e., camaraderie). The underlying thinking of this dimension was that a key element of an entrepreneurial culture was that the employees of the firm had a shared bond and commitment to one another. It was this cohesiveness that allowed the organization - through its employees - to survive and thrive under adversity, crisis, or strain. Whether negative, morale draining impacts such as staff reductions or dwindling resources, or more positive but still stressful challenges such as dealing with extreme growth or times of rapid change, it is this sense of cohesiveness that is thought to win the day. Cohesiveness was thus expected to help organizations to engage opportunities.

The cohesiveness concept was broadly described in the data by an amalgamation of recurring themes. These themes included the importance of rigorous selection and hiring criteria, the importance for job applicants to fit or integrate with the existing culture, and strenuous demands on employees of time, loyalty, and mutual respect. Collectively, these themes described a kind of team work concept that emphasized individual accountability through shared struggle. The entrepreneurs provided insights

Table 16 Opportunity Driven Change

Firm	Examples
Transport	"there is risk involved with the business, and sometimes opportunities come up and you have to take advantage of them…things would come our way so fast and we didn't have time to think 'can we do that?'"
Printer	"we recognized the need to elevate our skill sets…because our product is changing, we can see revenue systems changing from what I would call 'commodity products.' Nobody wants to do black and white, which was a staple, or even multiple page colour. Customers aren't printing that sort of product anymore…"
Marketing	"we now have the big global agencies going after the small pieces of business that used to be left for the independents. So the competitive set has become much bigger, we are up against huge companies that have resources and pockets that are way deeper than mine."
Services	"[they said] 'you will likely lose all our business in six months' and we immediately said, 'can we bid?' and the guy said 'well you don't have any experience in that' and we said, 'how about you give us a shot?'"
Grocery	"[I] saw us as being more of a premiere food retailer and expanding on the fresh departments…we put a big focus on that as no one else was doing it at the time. Most of the chains were focused on centre store but the consumer was already moving off to more fresh and healthy products so we moved in that direction really quickly. We saw an opportunity and we grew."
Food	"It was around Hurricane Katrina and lots of disasters going on and all of a sudden [emergency food] was an area that we'd not thought much of, but said 'hey, we could do that too.' So…because we are protein specialists, we ended up formulating full meals with them."
NetMedia	"I am competing in a market place where Facebook didn't have a mobile strategy and two quarters later had a billion revenues. I am trying to figure out how we fit in that and be as nimble as those organizations."
InfoSec	"innovation for us is looking at where things are going in the market place, and we listen, we go to conferences, and we have lots of really smart people here, so we ask questions, we contemplate different things."
Safety	"we know if we are going to grow, unlike our US counterparts, we need to rely on foreign export. And that actually translates a bit into our cultural sensitivities here; people are engaged with our international communities…working with different jurisdictions on their codes and languages and their requirements."
Services	"I also had a whole bunch of data points where I knew where I was going to go, you know it isn't as reckless as it seems, it was more measured…how do I turn this into an opportunity, how do I make something out of this as opposed to what the negatives could be."

into the nature of this shared struggle. Although most of the firms were well past the initial growing pains of start-up, many had also experienced difficult times and crises. A strong sense of team work and supporting one another was often what helped to culturally keep the organization together. In an extreme case, the CEO of Services was suing a major customer over their illegal actions that would affect the jobs of 300 of his employees. He recalled that "I got to deliver the news that we had been successful in fixing the problem…I was overwhelmed by the emotion of the people, how thankful they were and how important this was." In this case, while it focuses on the actions at the top of the organization, it reflects the sense that these organizations are more than simply teams, but rather places where there is a shared connection.

In another extreme example, the President & CEO of Marketing experienced a crisis with her recently hired senior management team due to drastic budget cuts. After discussing the situation with this team she recalled that they "were planning on firing the staff that does the existing work in order to save their [own] salaries." At that point, she came to a difficult conclusion: "when I started understanding how they thought and what they were planning, I thought, 'I've got to get rid of them…they were going to destroy this company'." After firing her management team, many of her employees thanked her for her efforts and to express their awareness of what had been going on with the management team's demands. While painful, it solidified in her mind that firing the senior management team had been the right decision, at least from a cultural perspective.

In the more general case, the President at Food commented that "really it's about being able to laugh and trust the people you are working with, being able to share their sorrows and their happiness, and having each other to lean on." Similarly, the respondent at NetMedia noted that "it's amazed me over the years how long it takes some people to realize being able to work in a team environment, being a likable human being, and being open to other ideas, will get you so much further in your career." Here, both entrepreneurs note that an important part of being a team is just being able to get along well and interact with people in a genuine, affable way. The President & CEO of Asset described his employees as a "band of brothers and sisters." Indeed, this sentiment

perhaps most succinctly captures the intended cohesiveness concept, that of a group which has bonded together for common cause. Although Asset likely represents the strongest form of cohesiveness among the respondents, given that they have a very small organization of just six employees.

The results from the interviews largely met expectations that cohesiveness would be an important aspect of organizational life, although it would vary by organizations. The sort of start-up "in the trenches" mentality prevalent at a newer organization like Asset should be considered a comparatively extreme case. In contrast, much larger organizations like Services or Grocery would not be expected to feel quite the same way about cohesiveness. Indeed, the respondents helped to provide some important context to those ideas. In the larger organizations, cohesiveness might be much more strongly felt at the department or group level. For example, the respondent at Safety felt that his engineering and productions team exhibited very high intra-group cohesiveness, although admittedly less across different groups. This was likely due to far less employee exposure to different teams/functions, an issue he wanted to improve. Similarly, at Grocery cohesiveness was much more likely to be strongly felt at the individual store level and by personnel at the corporate head office and weaker across the organization broadly. Again, this was something he was working to rectify by having employees at the stores and corporate headquarters interact more. As for the connection between cohesiveness and opportunities, this relationship seemed to be more indirect. Essentially, what the data suggests is that cohesiveness' critical role is in facilitation. A sense of team work, shared struggle, and mutual support is what enables work to get done. In critical situations, as at Marketing, commitment to one another and the organization was essentially keeping the company functioning from a morale perspective. When demands are put on employees for any number of reasons (e.g., rapid growth, economic pressure, etc.), being able to count on and trust one another is critical to accomplishing anything.

Cohesiveness, in the sense that it reflects organizational members' sense of loyalty, fellowship, and commitment to one another and the organization, was proposed as instrumental to acting on opportunities. It seems unlikely that an organization would be able to execute on opportunities without a sense that organizational members can reliably

count on one another to not only accomplish tasks, but also for the organization to function as a whole. Cohesiveness speaks to a sense that people in the organization are in it together, support one another, and collectively, reinforce the organization as a whole. It seems unlikely that many of these organizations would have been able to survive in crisis or move quickly on opportunities without a shared sense of commitment and mutual support. The data appeared to largely support this conceptualization of cohesiveness. Although evidently in the larger firms, cohesiveness seemed more strongly felt at the departmental or group level rather than for the overall firm, barring unusual organization-wide crisis (e.g., the massive lawsuit at Services). Collectively, however, this sense of cohesion was essential to day-to-day organizational functioning as well as the particular pressures of developing and engaging opportunities (e.g., demands on employees' time or work processes, ambiguity in tasks or plans, etc.). Table 17 presents a selection of the evidence supporting the dimension of cohesiveness.

4.4.7 Additional Insights

While the interviews predominantly focused on entrepreneurial culture with respect to the proposed multi-dimensional model, the respondents also provided valuable data with their insights into some of the process and implication aspects of culture. This included culture's development and change over time, as well as the importance of having core organizational values. These insights provided useful context for the discussion on entrepreneurial culture by describing more generally where organizational culture came from and how it impacted the organization as whole. For example, the President of Food commented that "organizational culture is an extension of me…there are certain things that really bother me; I don't like when people say they are going to do something and they don't do it, and I don't like my company being represented that way." Here she was expressing that the organizational culture was not just some abstract aspect of the company, but rather was seen as an extension of her identity. The core values of the organization, in this case teamwork, customer service, integrity, and respect, were *her* values and played an important part in how she wanted the company to act and represent itself.

Table 17 Cohesiveness

Firm	Examples
Digi	"At the end of the day, everyone sits down and gives a thumbs up or thumb down [about the prospective job applicant]. Is it someone you would want to have a beer with? It's great that he's awesome [technically] but if you hate his guts then we don't hire. Simple step; so important."
Food	"Once we developed the company values, it was really clear if we had what we needed and if people fit. Because we had some really bad fits for the company and we couldn't quite figure out why, they looked good on paper but they wouldn't have the ethical standards or the teamwork was lacking. So our company values are our guiding principles in seeing if people fit."
Grocery	"That has been a conscious decision over the last few years, to bring people together to share ideas to understand what other parts of the business are doing."
Asset	"we are at a point now that with six people who do have some pretty deep relationships and building new ones, we have built that 'band of brothers and sisters,' so if we were to bring in someone totally unknown to all six of us, I think we are strong enough at the base to make sure the new person melds in, as opposed to changing the direction of the culture."
Concrete	"I would say that we've had times when our teamwork has been excellent and we've gone through things and things have been great, and we've gone through times where we haven't been all that great. I think teamwork is something we are constantly trying to develop."
InfoSec	"People typically want to be part of a team; most people I find. I'm not going to say everybody because some don't, but most people like being part of a team, they like it and those are the kind of people we hire."
NetMedia	"there is a thing about being part of a team and being likeable, not to a point of just being nice, that doesn't necessarily get you anywhere and you have to be tough now and again when speaking your mind is important, but being able to say 'OK, I get it, we are all very different and this is a team environment we have to learn how to work together to pursue a common goal.'"
Safety	"we are small enough still that people genuinely know each other and genuinely take interest in what's going on. I think that is definitely part of our organization today."
Services	"in all our relationships with our employees, and I will say this to even the union rep guys, who I feel are our partners…they are my employees, they are not [the union's] employees….I will invite the union reps to be there but they are not sharing the stage with me; this is me talking to my employees about how important they are to us and what we are trying to do as an organization."

These feelings were felt equally by the President & CEO of Grocery, who had been responsible for growing a very modest family grocery chain into the organization it was today. He recalled a growth plan proposed about eight years ago which was aggressive. In the family meeting to discuss it "one of the key things that came out was that they were afraid we were going to lose our culture, lose our family feel, lose how we look after each other, customers, etc." This became a hugely troubling issue for him, as "that was a red flag for me, when the *family* tells me that...I had to consciously figure out a plan that we can maintain that culture going forward." To that end, one of the roles at the company he had created was a Director of Culture and Community. This individual was a very experienced and long-term company employee, whose job it was to reinforce the company's vision, values, and purpose at the store level and in the corporate office.

Similarly, the CEO of Services said "I've come to terms with the fact that I can't control culture but what I can do is have a big impact on it…what I can do is demonstrate what I believe is important as values." The core values of Services were integrity, passion, courage, and entrepreneurship, and the CEO felt that despite his role and feelings on values, that culture is "not something I impose, it's created…I'm only one part." These comments, and others like them from the respondents, demonstrated that organizational culture was centrally important to them as leaders but also to what they saw was at the core of their organizations. Virtually all of the respondents acknowledged that their cultures were not perfect and that there were sometimes issues (e.g., office politics, laying off people), but that they cared a great deal about culture.

In a related way, one of the additional insights expressed by the respondents was the implications of the evolving nature of culture in their organization. This was reflected in comments about how the entrepreneurs had perceived the culture as having changed over time or in how they wanted to actively effect change in their cultures. For example, at Digi in the early-2000s they had a satellite office in a different city from their headquarters. In the middle of a major project it became clear that the satellite office was no longer functioning properly. The President recalled that "it was a nightmare…we had to pull the entire [headquarters team] to finish it off…they are looking at the code and

going ‘how did you guys let it get so bad?’” Reflecting on it, Digi’s President noted that despite the second office having nearly the same number of employees as the headquarters, the second office team felt like the "B team" and had a combination of low management oversight and inappropriate hiring practices. The President described that “[we] had people that should never have been hired in the first place…they either lied or they misrepresented their skills and the problems with those people were just being marginalized, which was bad for the company culture.” The President sat down with members of the team afterwards for debriefing where several employees asked "how had [the people at the second office] been hired in the first place?" It had been one of the few times that question had ever been asked. As a result of this experience, Digi switched to a different and more rigorous four-phase selection process.

The President & CEO of NetMedia described a similar scenario where he bought a number of smaller companies and amalgamated them under the broader NetMedia umbrella. He described this as a “melting pot of culture” where “the culture became an unknown and then gravitated towards confusion.” The danger, he noted, was because “what can happen in culture…if you have some element of less exciting culture amongst a more exciting culture, even though it is two out of one hundred people, then those two can win out.” However, through a great deal of communication and team building effort, he felt that “a little bit of NetMedia [is] starting to come through instead of those eight companies that existed eight months ago.”

At Printer, when asked about how the culture had changed and what things she was worried about, the President expressed concern that "it's attention management and I believe it's health and energy management...people are coming to work tired, so they are almost beat before they get started." She was worried that her people were under a lot of stress and "working harder to produce the same." An increasing overload of information was also worrying her, where people felt that more information was needed to make a decision, slowing down the whole process. Given the changes in her organization as it moved towards more value-added creative work, these concerns and their impact on culture were growing.

These examples and others like them in the data indicate that even amongst an existing or perhaps growing entrepreneurial culture, issues of culture change and management remained prevalent. Culture was something that needed constantly tending to. While an "entrepreneurial culture" defined in various personal ways by the entrepreneurs was something to work towards and perhaps aspire to, it was challenging and complex work. From small, closely managed firms like Asset and Marketing to much larger and distributed organizations like Grocery, Service, and Printer, keeping a close eye on culture was something that occupied a lot of the entrepreneur's time. Issues of culture change were very important issues to the entrepreneurs and while not the direct focus of this research, remain an important area for future exploration and development.

4.4.8 Overview of Results from the Interviews

Reflecting on the overall data collected from the interviews reveals a fuller picture of the nature and perception of entrepreneurial culture (as reflected in its facets) then when the data collection began. On the whole, conceptually speaking, the dimensions were generally supported in the data, but several important and sometimes surprising distinctions arose. For one, with the exception of Organizational Enthusiasm, few of the dimensions were as clearly evidenced as expected. While the ideas and certainly the intentions of many of the dimensions (e.g., supporting innovation, encouraging cohesiveness, etc.) were there, the respondents often indicated the need to work on or improve these aspects of their culture in practice. Learning & Development Support was one area in particular, as most entrepreneurs were supportive of learning new things and having employees grow, but carried these out in an ad-hoc manner and in ways that were not necessarily transparent to employees. The need to continually work on and improve these different facets reinforced the notion of entrepreneurial culture being a fairly challenging type of culture to develop. The dimensions are thus probably more descriptive of the entrepreneurial culture *ideal* type.

The importance of customers relative to other stakeholders was also somewhat surprising. Although a hierarchy of organizational stakeholders was not explicitly proposed, it was expected that organizational stakeholders would all have about equal footing. However, as perhaps should have been anticipated, for many of these organizations (past very

resource-dependent early stages), customer relationships were absolutely vital to their organizations. Of all the different stakeholder groups, the importance of customers was probably the most clearly emphasized stakeholder group throughout the organization such that customer care and relationship management permeated the culture.

Overall, the interview phase of the dissertation was critical as a first step in evaluating information gathered from past literature sources with "real world" practitioners, experiencing organizational culture on a day-to-day basis. The interview data provided the necessary empirical information to help begin to evaluate the proposed model of entrepreneurial culture. The goals of this phase were to explore both the veracity of the model's proposed relationships (i.e., the dimensions and the argumentation for them) and the scope of the entrepreneurial culture concept (i.e., whether "enough" of entrepreneurial culture was covered). By illuminating the nature of organizational and entrepreneurial culture, the various dimensions of concern, and the features of cultural change, this phase has been instrumental in achieving these two goals.

4.5 Entrepreneur's Rating Exercise

At the conclusion of each interview, the entrepreneurs were tasked with completing a rating exercise. This rating exercise consisted of five pages with each page having the name of each conceptual dimension (e.g., organizational enthusiasm, stakeholder alignment, etc.) with the conceptual definitions. The definitions were largely the same as the ones discussed in Chapter Three however at this particular time in the study, the definitions differed slightly. The original definitions were developed based on past cultural studies and their wording of cultural constructs. The primary difference between the original definitions and the current ones is that the verb "describing" was not used consistently among all the definitions to link "patterns of values, assumptions and practices" with their attendant characteristics and attributes. Instead, different descriptive verbs were used (e.g., "indicating", "showing", "supporting"). These definitions were changed primarily to make the definitions more internally consistent. Using different descriptive verbs subtly changes the meaning of the dimensions. The focus of the dimensions shifts from a characterization of the particular values, assumptions, and practices that make up the dimension to a *combination* of the particular descriptive verb

and the characterization instead. These different descriptive verbs had the possibility of distorting the meaning away from the characterization of the cultural elements to the action or activity itself, which was not the intent. After the interviews it became apparent that the core message of the definition was in simply *describing* the different characterizations of interest, rather than cause confusion through incorporating several different descriptive verbs. As a result, the definitions switched to a standardized format where a pattern of values, assumptions, and practices were describing particular characteristics.

Following the definitions, a series of statements (i.e. questionnaire items) about that dimension were listed in rows with a numbered scale from 1-5 for each row, representing a rating of "not relevant" (1) to "relevant" (5). Taras' (2011) Culture Survey Catalogue was used to review a large collection of various organizational culture scales used in past literature. The catalogue contains several dozen surveys describing several hundred Likert-scale based culture questions. The surveys span a number of different culture themes, including Hofstede-based culture items, coping measures, Machiavellianism, organizational culture, work values, and so on. Reading over these items and evaluating their fit with the desired dimension definitions, I selected a number of the questionnaire items to tap these dimensional concepts. I judged fit based on how well the questionnaire item seemed to reflect the core theme of each dimension (based on the definitions). A total of 15 questions for each dimension were desired for presentation to the entrepreneurs for review. This seemed to strike a sufficient balance between having enough items for the pilot survey (under the assumption of reducing items after analysis) and not being too onerous/time consuming for the entrepreneurs.

Despite the breadth of the culture catalogue, no surveys dealt specifically with entrepreneurial culture. Since previous entrepreneurial culture surveys (see Chapter Two) dealt with completely different dimensions, they did not provide strong guidance for the selection of items. As a result, searching through the catalogue failed to produce a sufficient number of items. I developed a number of items myself when the review did not produce a sufficient number of potentially related items. The items were developed

using my best judgment, incorporating the wording of past culture questions (for form and structure) with elements of the key dimensional concepts of interest.

The purpose of this rating exercise was to have the entrepreneurs evaluate the statements against the definitions and rate which items they thought were more related to the definition provided. This exercise was based in part on the content validity exercise described by Hinkin and Tracey (1999). The entrepreneurs were provided with verbal instructions on the exercise in the interview and a paper copy of the instructions and exercise with a self-addressed, stamped envelope. This rating exercise with instructions is included as Appendix B.

4.5.1 Analysis and Results

Of the 12 rating exercises distributed, 11 were completed and returned via post or scanned and emailed copy. The analysis of the rated items consisted of a simple summation to gauge the items rated most relevant (higher scores) versus less relevant (lower scores). Summing the scores for each of the 15 items in each dimension created a range of possible values from 0 to 55. The observed range was 27 to 50 with an average of 40.25 and standard deviation of 6.23. The 10 highest rated items for each dimension were selected as the questionnaire items for further rating in Phase Two of the data collection.

What became apparent when reviewing the questionnaire items in light of the interview results was that some of the questionnaire items did not appear to sufficiently capture the concepts intended in the development of the dimensions. The questionnaire items had been based on past culture questions and then modified to reflect the dimensions of interest. After the interviews were conducted and I had an opportunity to think through and review the transcripts, there was a sense of disconnection between some of the items and the sentiments expressed by the respondents. While some of the ideas seemed to be relatively well captured, others did not. This perhaps should have been expected since the items had been pulled from different instruments. While it was expected that not all of the items would be considered highly relevant by the respondents, this might have been exacerbated by items which may ultimately have been conceptually unrelated.

The two most obviously problematic dimensions were Cohesiveness and Opportunity Driven Change. With the Cohesiveness dimension, upon reflection the selected items seemed to describe a work expectation and job responsibility focus. Items such as "our leaders take responsibility for their decisions" and "everyone in the organization shares responsibilities for the organization's failures and successes" might be related to cohesiveness but perhaps only tangentially. Originally these items were supposed to reflect the idea that employees demonstrate cohesion through personal responsibility for their own actions. Employees who shirk responsibility or blame others would not reflect a very cohesive culture. However, the results from the interviews including notions of trust, shared struggle, and the "band of brothers and sisters" seemed to describe different concepts than work expectations and job responsibilities. Instead, the desired focus was more about team work and mutual support. Accessing cohesion through work expectations and job responsibility may be too indirect compared to more direct questions such as "I feel like I can count on others in the organization for support." Five questions in this dimension were changed as a result of this re-evaluation.

The Opportunity Driven Change dimension items also seemed to be reflecting unintended ideas. Several items were oriented more towards generalized risk-taking and innovation rather than changing to pursue or develop new opportunities. These risk-taking and innovation items seemed too abstract and removed from the intended notion of innovation and change for or because of opportunities. For example, the original items included statements like "the term 'risk-taker' is considered a positive attribute for people in our business" and "in my organization I am afraid to share new ideas for fear of criticism." While these might be related to innovation and change, conceptually these might be reflecting different ideas, for example, fear of sharing ideas might be more related to workplace bullying. Different items such as "our organization moves quickly to go after new opportunities" and "more experienced employees encourage new people to experiment with new ideas or ways of doing things" were generated as replacements instead. These items seemed to much better reflect the intended concepts in this dimension.

As a result of this re-evaluation of the items post-interviews, several of the lower-ranked items were substituted for new items I developed to greater reflect the intended concepts. These items were carefully worded to tap into some of the core notions of the different dimensions discussed from the interviews. The final items used from this process are listed in Appendix C.

4.6 Conclusion

This chapter outlined the objective, procedure, sample, selection, and analysis and results of Phase One of the dissertation data collection, which was based on interviews with practicing entrepreneurs. The purpose of this phase was to explore the domain of entrepreneurial culture and compare the proposed conceptual model against the experiences, expertise, and insights of entrepreneurs. The intention was to evaluate the real world fidelity of the model and to compare my conceptual thinking and interpretation against practitioner-described reality. The 12 interviews produced a wealth of data which largely supported the conceptual thinking of the model while also providing important context, nuance, and explanation to the respondent's perspectives on entrepreneurial culture. This rich qualitative data helped to ground the model and provide evidence for the veracity of the proposed dimensions. This data also provided important foundational evidence for future culture work which might explore the formation of culture and its change in organizations. Lastly, this phase also described the rating exercise the entrepreneurs participated in which provided the basis for the second phase of data collection.

Chapter 5 : Methods and Analysis – Phase Two (Student Rating Exercise)

5 Overview

The second phase of data collection consisted of a content assessment exercise proposed by Hinkin and Tracy (1999), undertaken by doctoral students in order to conduct a content validity check of the questionnaire items. The purpose of this check was to identify which items were distinctly related to their respective hypothesized dimensions compared to those which were equivocally related to other dimensions. The intended outcome was a set of questionnaire items whose inclusion as items relating to a particular dimension had statistical justification by way of repeated measures ANOVAs. The results of this phase were a set of questionnaire items which tapped the core concepts of the entrepreneurial culture construct. After these items were thoroughly evaluated and refined, a finalized questionnaire was developed for deployment in the third phase. This chapter describes the sample (Section 5.1), method (Section 5.2), and analysis (Section 5.3) of this phase. A discussion of revisions made to the questionnaire items post-analysis (Section 5.4) and a summary conclude the chapter (Section 5.5).

5.1 Sample Selection

For this exercise, doctoral students at the Ivey business school were selected to participate. Students were considered acceptable because the exercise did not involve the students making judgments as entrepreneurs or entrepreneurship experts, but rather had them simply compare statements and concepts. Previous researchers have indicated that students are acceptable for this kind of exercise because of their expected intellectual capability to distinguish between items and various theoretical construct definitions (Hinkin & Tracey, 1999; Schriesheim, Powers, Scandura, Gardiner, & Lankau, 1993). An email requesting participation in the exercise was sent out to the doctoral student email list which consisted of approximately 65 PhD students at various stages in the doctoral program.

5.2 Exercise Procedure

The rating exercise procedure was developed by Hinkin and Tracey (1999) and recommended in MacKenzie et al. (2011). The rating exercise consisted of displaying a single questionnaire item along the top of the page with all of the dimensional definitions arrayed in rows. The raters were asked to rate on a scale from 1-5 how much each item was captured by or associated with each dimensional definition. The idea behind this exercise was that items which were thought to be more closely associated with a given dimension or dimensions would be rated higher than those thought more unrelated. This would provide a series of scores suitable for analysis. The preliminary survey given to the doctoral students for the exercise contained 50 questions. The exercise was administered entirely online and was developed using the *Qualtrics* online survey software. Raters were presented with a randomized ordering of the items to avoid order effects.

MacKenzie et al. (2011) suggest that in addition to the dimensions of interest, the rating exercise could include the definitions of related constructs/dimensions in order to help evaluate the discriminant validity of the items. In other words, the rating exercise provides an opportunity to evaluate whether the questionnaire items unintentionally overlap with existing constructs. As a result, there were a total of eight dimensional definitions provided in the exercise. The first five were the dimensional definitions of the entrepreneurial culture construct. The three additional dimension definitions came from Kuratko, Ireland, Covin and Hornsby's (2005) Corporate Entrepreneurship Assessment Instrument (CEAI).

Given that the CEAI is similar in theme to the entrepreneurial culture construct (i.e., an organizational context for entrepreneurial attitudes and behaviour), it seemed appropriate for inclusion in this exercise. The CEAI dimensions of *Management Support, Work Discretion/Autonomy,* and *Organizational Boundaries* dimensions were listed using the definitions from Kuratko et al. (2005). The *Rewards/Reinforcements* and *Time Availability* dimensions were not included. They were not included because as indicated in MacKenzie et al. (2011), the task is mentally challenging and forcing raters to understand and distinguish between eight or more distinct concepts is too arduous.

Including these two additional dimensions would have created 10 distinct definitional concepts for raters to distinguish between over 50 items. Since there did not appear to be analogous concepts in our five proposed dimensions to Rewards/Reinforcements and Time Availability these two were dropped. Appendix C shows an example of the rating exercise, including the dimension definitions used, as it would have appeared to a rater.

45 responses (75% response rate) were acquired over a 13 day period. However some of the exercises were only partially complete (i.e., some items were missing ratings). An average of 33.16 responses were received per question meaning that the exercises were approximately 74% complete. Given that the analysis was conducted on an item-by-item basis, these partially completed exercises were still used for the items where ratings were provided.

5.3 Analysis and Results

The analysis consisted of a series of one-way, repeated measures ANOVAs, as prescribed by MacKenzie et al. (2011) and demonstrated by Yao, Wu and Yang (2008). While Hinkin and Tracey's (1999) original procedure suggests a one-way (between subjects) ANOVA with Duncan's multiple comparison tests for comparison, MacKenzie et al. (2011) advocate a one-way repeated measures (within subjects) ANOVA with planned contrasts. MacKenzie et al. (2011) advocate this approach because each rater makes multiple ratings for each item, whereas a one-way, between subjects ANOVA would be appropriate only if the ratings for each item were made by *different* raters. Because multiple ratings are made by the same rater (i.e., the same people participate in the different questionnaire item ratings), an adjustment to the error term needs to be made. As a result, 50 one-way, repeated measures ANOVAs (one for each item) were conducted using IBM's *SPSS 21* for Windows.

For each item, the columns represented the eight dimensions, while the rows represented the responses from each rater. A one-way repeated measures ANOVA was run on the different dimensions as the independent variables and the captured by/associated with score as the dependent variable. For each ANOVA, a test of the assumption of sphericity (i.e., roughly equal variation between pairs of scores in all combinations of treatment

levels) was conducted (Field, 2013). This is necessary because in this kind of analysis, the data for different conditions (i.e., questionnaire item ratings) come from the same sources. In SPSS this is tested with Mauchly's test of sphericity where if the test statistic is significant ($p < .05$) then we can conclude that there are significant differences between the variances of differences (the assumption of sphericity has not been met). If Mauchly's test is significant, then a correction needs to be applied to adjust the F-ratio to be more conservative. Which correction to be applied depends on the reported epsilon statistic or approximate indication of sphericity. Epsilon values of less than .75 suggest the Huynh-Feldt (1976) correction while epsilon values of greater than .75 suggest the Greenhouse-Geisser (1959) correction.

MacKenzie et al. (2011) recommend using a planned contrast to evaluate the items against their particular construct domains. This is a specified comparison between variables on a theoretical basis, rather than a post-hoc test. In this case, planned contrasts were used in order to evaluate the hypothesis that the mean rating for a given item is higher on its proposed dimension of the construct domain than on all other aspects of the construct domain. A simple planned contrast was conducted for each item where the item's proposed dimension was contrasted against the other seven (cf. Field, 2013). Table 18 presents the number of complete responses (N) for each item and the mean scores for each of the eight dimensions. The results of the ANOVA indicated that there were significant differences among the mean scores for each of the 50 items. The planned contrast was then used to reveal where the differences lay. Means in bold indicate items that were significantly different against all other dimensions ($p<0.05$).

The planned contrasts analysis produced a number of results for the items tested in the exercise by dimension. For Organizational Enthusiasm, only three items (OE1,8,9) were significant against all other dimensions. While the remainder of the items were significantly different in some combinations, these items were not significant compared to Cohesiveness, suggesting that raters could not reliably distinguish these items between the two concepts. In three cases, raters could also not reliably distinguish Organizational Enthusiasm items from the Organizational Boundaries dimension either.

Table 18 Mean Scores for Questionnaire Items

Item	N	OE	SA	C	LDS	ODC	MS	WDA	OB
OE1	32	**4.625**	1.843	2.531	1.625	1.781	1.593	1.562	1.781
OE2	33	3.878	2.151	3.757	1.818	1.727	2.060	1.697	2.030
OE3	33	3.303	2.333	3.878	1.757	1.636	1.909	1.484	2.363
OE4	31	2.580	1.871	2.161	1.709	2.161	2.032	1.645	2.387
OE5	34	3.176	1.853	2.970	3.176	1.735	2.176	1.588	2.205
OE6	34	2.970	1.970	2.882	2.029	1.558	1.911	2.000	2.794
OE7	33	3.121	2.030	2.697	1.787	1.818	2.060	1.757	2.666
OE8	33	**4.393**	1.878	3.212	1.969	1.757	2.000	1.757	1.848
OE9	34	**4.617**	1.970	2.882	2.088	1.941	2.000	1.794	2.117
OE10	34	2.882	1.912	3.470	3.470	1.558	2.676	1.794	2.000
SA1	32	2.406	**4.531**	2.218	1.781	2.218	1.937	1.562	1.906
SA2	35	2.028	**4.285**	1.914	1.571	1.571	1.542	1.485	1.942
SA3	34	2.323	**4.676**	2.117	1.705	1.764	1.882	1.617	1.941
SA4	33	2.303	**4.454**	2.606	2.727	1.818	2.121	1.606	1.969
SA5	32	2.125	**4.656**	2.437	1.656	1.687	1.781	1.593	1.750
SA6	34	2.088	**4.500**	2.382	1.617	1.941	1.794	1.529	2.235
SA7	33	2.878	**4.424**	2.575	1.666	1.575	1.909	1.606	1.848
SA8	33	2.212	**4.636**	2.454	1.787	1.666	1.878	1.666	2.454
SA9	34	2.088	**4.617**	2.117	1.676	2.058	2.000	1.617	2.058
SA10	35	2.628	**3.685**	3.057	2.800	1.742	2.314	1.714	1.771
C1	33	2.121	1.454	2.333	1.848	1.727	2.000	3.606	2.030
C2	32	2.718	1.843	**4.312**	2.531	1.468	3.125	1.718	1.500
C3	34	3.147	2.117	**4.411**	1.970	1.500	2.794	2.235	1.470
C4	33	2.090	1.515	**3.000**	2.212	1.727	1.606	1.727	1.636
C5	32	3.875	1.906	4.281	2.375	2.093	2.218	1.937	1.906

Table 18 Mean Scores for Questionnaire Items con't.

Item	N	OE	SA	C	LDS	ODC	MS	WDA	OB
C6	33	3.090	1.909	**4.666**	1.939	2.030	2.363	1.636	1.636
C7	33	2.606	1.818	**3.787**	2.878	1.484	2.333	1.666	1.939
C8	34	3.264	2.029	**4.352**	2.370	1.676	2.205	1.852	1.500
C9	36	2.916	2.055	**4.611**	2.111	1.555	2.166	1.833	1.861
C10	32	2.750	1.906	**4.187**	3.125	1.500	2.312	1.750	1.656
LDS1	31	2.419	1.645	2.032	**4.709**	2.129	2.935	1.903	1.645
LDS2	32	2.343	1.625	2.218	**4.468**	1.937	2.687	1.906	1.906
LDS3	34	2.441	2.029	2.323	4.323	1.911	3.911	2.705	1.764
LDS4	34	3.117	1.823	2.411	**3.823**	2.588	2.823	2.029	1.823
LDS5	35	3.028	1.485	1.942	**4.028**	2.085	2.257	2.314	1.742
LDS6	32	2.125	1.593	1.687	**3.937**	2.125	2.636	2.375	1.646
LDS7	33	2.757	1.878	3.030	**4.151**	2.060	2.636	2.121	1.727
LDS8	33	2.484	1.909	3.151	**4.424**	1.727	2.575	1.787	1.757
LDS9	32	2.562	1.562	2.156	4.343	2.187	3.875	2.687	1.718
LDS10	33	2.606	1.393	1.697	3.000	1.848	1.909	1.818	1.454
ODC1	32	2.437	1.531	2.215	3.000	3.375	3.906	3.125	2.093
ODC2	31	2.161	1.483	1.709	2.677	**3.645**	2.935	2.225	2.709
ODC3	34	1.941	1.529	1.794	2.588	3.323	3.794	3.500	2.323
ODC4	33	2.121	1.636	1.939	2.697	**4.151**	3.272	2.969	2.393
ODC5	34	2.000	1.618	1.911	2.147	**3.352**	2.352	2.323	2.058
ODC6	33	2.090	1.575	2.360	3.090	3.060	3.030	3.090	2.393
ODC7	31	2.354	1.709	2.032	1.967	**4.580**	2.419	2.161	2.064
ODC8	33	2.181	1.575	1.909	2.909	**4.060**	2.969	2.242	1.848
ODC9	32	2.281	1.656	1.937	2.500	**4.562**	2.781	2.188	2.437
ODC10	33	2.606	1.636	2.697	3.787	2.878	3.636	2.909	2.212

Key: OE = Organizational Enthusiasm, SA = Stakeholder Alignment, C = Cohesiveness, LDS = Learning & Development Support, ODC = Opportunity Driven Change, MS = Managerial Support, WDA = Work Discretion/Autonomy, OB = Organizational Boundaries

Stakeholder Alignment was unambiguous in that every item was significantly different from all other dimensions. This suggests that the no other dimension seemed to conceptually overlap with respect to the selected questionnaire items. The Cohesiveness items were similarly distinct except for C1 which was not distinguishable from the Organizational Enthusiasm, Management Support, and Organizational Boundaries concepts.

Learning and Development Support items were mostly significantly different from other concepts except for three items (LDS3, 9, 10) where there was overlap with the Management Support and Organizational Enthusiasm concepts. Opportunity Driven Change had six items (ODC 2, 4, 5, 7-9) which were significantly different from all other concepts but had four items which were consistently indistinguishable from Workplace Discretion/Autonomy.

The results from this exercise indicated that with the exception of the Organizational Enthusiasm items, the raters were largely able to identify which items were intended to match with which dimension. For example, for the Stakeholder Alignment, Cohesiveness, Learning and Development Support, and Opportunity Driven Change dimensions, 31 out of 40 items were significantly different on their intended dimension compared to the others.

5.4 Revisions to the Scale and Final Selection of Items

An important aspect of this phase of the data collection was spending time reviewing and making sense of the results of the analysis. In particular, while the results of the ANOVAs appeared relatively clear, subsequent reviewing and reflecting on the content of the questionnaire items themselves was an important step. For example, I examined some of the items where the mean rating scores across dimensions were not significantly different but were similar to try and understand what might be confusing the raters in the wording. Additionally, I also examined where mean rating scores were not significant but clearly higher on an unintended dimension. This examination led to some general concerns about the overall wording and phrasing of the questionnaire items. While the

items had been adapted from past published culture studies (e.g., Taras, 2011), it became apparent that there may have been issues throughout with ambiguous or confusing wording. While the items did not suffer from exceedingly problematic and obvious issues such as "double-barreled" phrasing or confusing double negative word structures, it became clear that the items needed further refinement. For example, some of the items referred to both individual and organizational targets (e.g., "I feel..." and "people feel..."). This is problematic because while culture indeed reflects individual (as part of a collective) and group aspects, they are not the same. Using both types of targets in the same series of questions runs the risk of actually tapping subtle but distinct ideas. Self-reflective individual targets might capture a different sense of the organization compared to reporting on the perceived group sentiment or behaviour.

The phrasing of statements was also inconsistent from question to question which may have made the items needlessly more difficult to parse. As noted in Chapter 4.5, the dimension definitions were revised to be more consistent with one another. Upon reflection, this consistency check should have occurred with the questionnaire items as well. This is partly due to mixing and matching past culture survey items without more careful consideration as to how the items would operate together. Questions that are worded inconsistently are not only problematic for respondents to interpret but may also confuse the conceptual meaning of the items. For example, while all the questions may have been ultimately about the organization, the phrasing with respect to referencing the organization varied between questions. Questions were phrased about "the organization", "my organization", "our organization", or referenced "people here" with the organization being implied. While these different phrasing structures may reflect the same underlying setting (i.e., the organization in which the respondent works), it adds unnecessary complication.

After consulting with faculty advisors and several students who provided feedback on the exercise, I decided to seek additional resources on survey design as well as culture questionnaires. This consultation was motivated by the results of Phase Two, namely the observed confusion between items and their resultant ratings, compared to their expected ratings. I was directed towards classic questionnaire item development resources (e.g.,

Converse & Presser, 1986; Spector, 1992) for tried-and-true guidance on structuring clear, unambiguous, items that conceptually accessible for a varied respondent audience. The purpose of revisiting and revising the items was to retain the same meaning and intent as the original iterations but with enhanced clarity and conciseness. This process was also guided by patterning the structure of the items after a different and far more coherent set of published culture items. The first iteration had used a more scattered approach, generating items based off of a catalogue of previously published culture questions. Instead, in this iteration, in order to ensure that the items focused on a direct, unambiguous, and consistent organizational culture framing, the questions were guided by ethical organizational culture items as developed by Trevino and colleagues (Schaubroeck et al., 2012; Trevino, Butterfield, & McCabe, 1998; Trevino & Youngblood, 1990). This included clarifying the statement target as the organization and clearly and consistently orienting the questions around organizational behaviours and values. For example, the majority of the items took the form "In my organization..." which resolved both the target and consistent phrasing issues. Other items varied the wording slightly for variety but consistently referenced the respondent's own organization as the focal point. This kind of phrasing removed the ambiguity in the target of the question instead emphasizing the descriptive culture elements (e.g., values, assumptions, practices). The items developed and validated by Trevino and colleagues had a much clearer and well-established history and demonstration in psychology and organizational behaviour practice, which made them much more suitable templates. Ideally both the survey development and culture questionnaire resources noted here would have been identified earlier in Phase One. However, survey item development is a process that often requires multiple iterations before being completely validated (cf. MacKenzie et al., 2011). In this case, the results generated in Phase One and Two and certainly hindsight were instrumental in this refining process. The result of this subsequent development and refining work is the final 25 item questionnaire as shown in Table 19.

Table 19 25 Item Entrepreneurial Culture Scale

Organizational Enthusiasm	
OE1	In my organization, people are passionate about the organization's mission.
OE2	In my organization, people are enthusiastic about what our organization does.
OE3	In my organization, people care about the organization's vision for the future.
OE4	In my organization, people care about company values or guiding principles.
OE5	In my organization, people are enthusiastic about achieving organizational goals.
Stakeholder Alignment	
SA1	In my organization, people are actively concerned with building relationships with the organization's stakeholders (e.g., customers, suppliers, partners, investors).
SA2	In my organization, it is expected that you will do what is right for the organization's stakeholders (e.g., customers, supplier, partners, investors).
SA3	My organization disapproves of people who treat the organization's stakeholders (e.g., customers, suppliers, partners, investors) poorly.
SA4	In my organization, people have a strong sense of responsibility to the organization's stakeholders (e.g., customers, suppliers, partners, investors).
SA5	How our decisions effect organizational stakeholders (e.g., customers, suppliers, partners, investors) are a primary concern in this organization.
Cohesiveness	
C1	In my organization, people support one another.
C2	Trust and mutual respect for one another are a major consideration for everyone in this organization.
C3	In my organization, people care about group interests above other considerations.
C4	In my organization, people pull together during times of crisis.
C5	It is expected that people in this organization work together as a team.

Table 19. 25 Item Entrepreneurial Culture Scale con't.

Learning and Development Support	
LDS1	This organization actively encourages employees to learn and improve themselves.
LDS2	In my organization, each person is expected to continuously learn and develop.
LDS3	In my organization, people are actively concerned with improving their skills and abilities at work.
LDS4	My organization rewards people who learn and develop themselves.
LDS5	People in this organization are very concerned about learning new things.
Opportunity Driven Change	
ODC1	My organization rewards employees who introduce improvements and innovations.
ODC2	Our organization is actively concerned with exploring new opportunities.
ODC3	In my organization, people are open to changes in their work routine.
ODC4	People in the organization are actively concerned about changing work processes when they can be improved.
ODC5	It is expected that individuals will change work routines in order to pursue an organizational opportunity.

5.5 Conclusion

This chapter outlined the objective, procedure, sample and selection, analysis and results of Phase Two of the dissertation data collection. This phase was based on a content validity rating exercise with doctoral students. The purpose of this phase was to evaluate the prospective entrepreneurial culture questionnaire items against their intended definitions and others. The exercise was important for establishing that participant's ratings of items were significantly different across the various definitions. The results of the exercise and the subsequent analysis indicated not only the items which were correctly associated with their intended definitions, but also areas of item deficiency. These deficiencies, such as incorrect association or low associations in general, may have been attributed to poor or confusing wording of the items. As a result of these issues, the questionnaire items were revisited in light of recommendations for structure and wording (i.e., suggested survey design best practice) as well as to more closely match a template for organizational culture surveying (i.e., consistent targets and focal cultural elements such as behaviours and values). These revised questionnaire items formed the basis for the entrepreneurial culture survey which was subsequently deployed in Phase Three.

Chapter 6 : Methods and Analysis – Phase Three (Organization Survey)

6 Overview

The third and final phase of data collection consisted of assembling and deploying the entrepreneurial culture survey developed in the past two phases. This phase constitutes one of the central elements of the dissertation as the new conceptual ideas were put to the test across a selection of organizations. This chapter begins with a description of the sample selection and data collection procedure (Section 6.1), followed by the measures used (Section 6.2). Because of the multilevel nature of the collected data, the general process and tools used to conduct the multilevel analysis are described separately (Section 6.3). Next, the factor analytic procedures, including exploratory and confirmatory factor analysis, are described in detail (Section 6.4). After the extensive analysis and review described in these sections, I concluded that the formative model conceptualization described in Chapter Three was not strongly supported by the empirical evidence. This necessitated some fundamental re-thinking of the underlying conceptual model. As a result, I present a different theoretical argument for considering entrepreneurial culture that instead describes a higher-order reflective model (Section 6.5). This model exhibits much stronger empirical support and psychometric properties, including discriminant and criterion-related validity (Section 6.6). The analysis in this phase is rounded out by an examination of within-firm agreement among respondents (Section 6.7). This subsection addresses issues of single versus multiple respondents when assessing culture. A final summary section concludes the chapter (Section 6.8).

6.1 Sample Selection and Data Collection

In this phase, I utilize the same pool of entrepreneurial firms selected for Phase One. However, I omitted the firms which participated in the interviews so those firms were not doubly represented. An introductory email was drafted outlining the purpose of the study and our interests (i.e., to survey the entrepreneur and at least 20 random respondents in their firm), along with a letter of information detailing the study's ethical guidelines. This letter was emailed to 345 entrepreneurs and several weeks later an additional 39

entrepreneurs were contacted, representing the most recent (2013) group of *Quantum Shift* participants. Of these 384 emails, 19 were undeliverable, representing a total pool of 365 possible participating firms. 45 firms responded affirmatively to our requests to participate (12% response rate). Since a complete set of firm data included a response to our survey from the entrepreneur and a minimum of 10 employees in the firm for aggregation purposes (LeBreton & Senter, 2008), 4 firms that did not meet these criteria were removed from the dataset yielding a firm *N* of 41.

The firms range in age from 4-101 years since time of founding, with an average of 34 (median=33). The firms range in number of employees from 30-1456, with an average of approximately 282 (median=220) employees. All but one of the firms was a private, independently held business; one firm was a public, non-diversified division of a larger firm. 15 different industries were represented (by NAICS code), the largest industry group was manufacturing (N = 12). The average total sales revenue in the last fiscal year was approximately CDN$69M. This firm information was provided by the entrepreneurs.

Of the 41 firms 902 employee responses were received. Within these responses 114 were incomplete on the majority of items resulting in a final usable employee *N* of 788. The number of employee responses per firm range from 11-96 with an average of approximately 19 (median=17). Employees' ages range from 19-71 years of age with an average of approximately 41 years. The average number of years with the organization was approximately seven years and the average number of years in the current job was approximately five years. The employee sample was approximately 57% male. This information was self-reported by the employees. The descriptive statistics provided above are listed in Table 20.

6.2 Measures

The entrepreneurs' and employees' survey included the same entrepreneurial culture questions described in the previous chapter. For model identification purposes with formative constructs, three additional items were added to the entrepreneurial culture questions (Edwards, 2011; MacKenzie et al., 2011). These questions were designed to

Table 20 Descriptive Data of Firms Sampled

Firm ID	Found. Year	No. of Emp.	No. of E. Resp	Resp % Firm	NAICs	NAICs Description	Approx. Total Asset Value ($CDN Millions)	Approx. Total Sales Revenue ($CDN Millions
5038	1967	30	14	46.67	1	Agric./Frstry.	12	n/a
11005	2003	275	18	6.55	2	Mining/Oil&Gas	300	110
12043	2008	300	11	3.67	2	Mining/Oil&Gas	70	33
6016	1967	50	20	40	4	Construction	6	25
13004	1954	150	13	8.67	4	Construction	11	34
13030	1912	1086	17	1.57	4	Construction	n/a	n/a
5033	1973	260	17	6.54	5	Manufacturing	75	165
7004	1999	40	24	60	5	Manufacturing	8.2	20
7008	1981	300	12	4	5	Manufacturing	40	45
8028	1980	165	22	13.33	5	Manufacturing	n/a	35
10035	1979	140	14	10	5	Manufacturing	10	17
11006	1968	500	23	4.6	5	Manufacturing	38	118
12002	1976	85	13	15.29	5	Manufacturing	30	60
12031	1950	380	14	3.68	5	Manufacturing	96	175
13002	1992	130	13	10	5	Manufacturing	10	25
12039	1979	50	36	72	5	Manufacturing	n/a	n/a
12045	1974	155	42	27.1	5	Manufacturing	14	25
13011	1997	1456	97	6.66	5	Manufacturing	140	230
8034	1985	220	20	9.09	6	Wholesale Trade	12	95
9041	1955	265	12	4.53	6	Wholesale Trade	24	90
11035	1956	95	14	14.74	6	Wholesale Trade	14.5	33.5
12020	1967	300	16	5.33	6	Wholesale Trade	120	250

Table 20 Descriptive Data of Firms Sampled con't.

Firm ID	Found. Year	No. of Emp.	No. of E. Resp	Resp % Firm	NAICs	NAICs Description	Approx. Total Asset Value ($CDN Millions)	Approx. Total Sales Revenue ($CDN Millions
12028	1986	82	22	26.83	6	Wholesale Trade	11	45
5023	1920	240	18	7.5	7	Retail Trade	15	34
10028	2007	40	21	52.5	7	Retail Trade	3.9	14.7
10041	2004	345	19	5.51	7	Retail Trade	n/a	n/a
13009	2009	74	17	22.97	7	Retail Trade	5	30
13018	1968	190	41	21.58	7	Retail Trade	8	16
12025	1997	400	19	4.75	8	Transp./Wareh.	10	25
8011	1957	425	15	3.53	9	Info/Culture	40	37
4023	1984	280	19	6.79	10	Fin./Insurance	900	380
10033	1964	150	15	10	10	Fin./Insurance	n/a	105
12019	1998	130	12	9.23	10	Fin./Insurance	30	20
8003	1999	420	13	3.1	11	Real estate	1100	150
6010	1980	140	12	8.57	12	Sci./Tech Servs.	7.5	18
8006	1992	800	12	1.5	12	Sci./Tech Servs.	n/a	36
11030	1992	35	17	48.57	12	Sci./Tech Servs.	3.4	5.5
13032	1974	65	12	18.46	13	Mgmt of Cos.	12	20
11039	1994	375	17	4.53	17	Arts/Ent./Rec.	21	12
9009	1991	600	15	2.5	18	Acc./Food Servs.	5	18
5037	1992	370	15	4.05	19	Other servs.	81	80

generally reflect the entrepreneurial culture construct, for example “in general, I would describe the culture around here as ‘entrepreneurial.’” The entrepreneur’s survey also included a number of other variables, included for various validity checks. These included a 17 item entrepreneurial orientation scale, 7 items measuring industry environment dynamism and hostility, and 22 items measuring subjective firm performance. These sets of items were adapted from scales previously used by Anderson and Eshima (2013). Company information such as NAICS code, revenue, and number of employees were collected from the entrepreneur as a representative of the company. Both surveys also included demographic information including age, gender, level of education, and number of years with the company. The entrepreneurs' survey had a total of 87 questions while the employee survey had 34. Both sets of respondents answered via online survey tool.

6.3 Multilevel Analysis of the Data

While scale development and analysis protocols are generally standardized and well established (Hinkin, 1998; MacKenzie et al., 2011), the data collected in this research was multilevel in nature. Specifically, I collected data from individuals (N=790) *nested* within firms (N=41). Multilevel analysis requires a slightly different methodological approach. Because individual scores are influenced by the firm in which they reside, they violate the assumption of independence of observations necessary in regression (Kline, 2005; Preacher, Zhang, & Zyphur, 2011). In other words, survey responses from individuals within firms differ from one another but would differ from responses between other firms in a *systematic* way. This systematic difference is likely particularly prevalent in a construct such as organizational culture since cultures are largely organization-specific. Responses within a firm are expected to be clustered together because all of the individuals are theoretically observing the same culture. If the data are treated as responses at the individual level only, then the differences present between firms would simply be modeled as error. Instead, a multilevel approach accounts for these within and between distinctions by modeling different variance components at each level (Rabe-Hesketh & Skrondal, 2012).

Consider a simple two-axis plot of all the 790 observations for item OE1 where the y-axis is the score from 1-5 and the x-axis is the individual. A simple intercept-only linear regression would plot a line using all this data; essentially the sample mean: $y_{ij} = \beta + \xi_{ij}$. If we wanted to predict a given score for the *i*th person in the *j*th firm (ignoring the firm-level aspect for the moment), the score would be equal to the sample mean (grand mean, β) plus an individual deviation from that mean (ξ_{ij}). The sample mean is considered the *fixed* portion of the model (regression equation) while the deviation is considered the *random* portion. In this simple model, all of the differences which might exist between firms (but consistent within a firm), are captured by this single residual deviation.

In contrast, a variance-components model decomposes this residual deviation into different parts which can improve the accuracy of the predicted score compared to the observed score, versus the simple intercept-only regression. For example, the residual deviation could be decomposed into the mean for the specific firm (*j*) an individual (*i*) belonged to, plus the individual's deviation from the firm's mean: $y_{ij} = \beta + (\zeta_j + \varepsilon_{ij})$. Now the predicted score for a given individual (y_{ij}) would be equal to the grand mean (β), plus the deviation of firm *j*'s mean (ζ_j) from the grand mean, plus the deviation of the individual observation from firm's *j*'s mean (ε_{ij}). Essentially, the variance components model estimates the variability accounted for by each level of the hierarchy (Rabe-Hesketh & Skrondal, 2012). Allowing the firm's intercept to vary ("random intercept") in the equation is analogous to a "fixed effects" specification in econometrics, where the freed intercept accounts for systematic differences in the responses that may be due to unobserved heterogeneity across firms (i.e., the regression line is raised or lowered by a fixed amount for each firm). These regression-based approaches to multilevel modeling have been known for some time and are used in software packages such as HLM (Bryk, Raudenbush, Seltzer, & Congdon, 1988). However, work in this area is ongoing and best-practices are still emerging in the literature (cf. Aguinis, Gottfredson, & Culpepper, 2013).

As this research dealt with the development of a new scale and the application of confirmatory factor analysis (CFA) techniques, this requires multilevel structural equation modeling (SEM) approaches. Whereas multilevel regression-based modeling

emphasizes the analysis of clustered data and partitioning variance, SEM focuses more on modeling means and covariances among multivariate data (Mehta & Neale, 2005). Mehta and Neale (2005) note that because of the similarities of concepts in regression and the ability to create models at each level of nesting for clustered data, SEM techniques can also be adapted for multilevel data. As a result, SEM techniques can similarly incorporate random intercepts for nested data and random slopes for modeling covariates at different levels. There are a variety of multilevel SEM application examples from the psychology literature (e.g., Carretero-Dios, Eid, & Ruch, 2011; Dedrick & Greenbaum, 2011; Greenbaum, Wang, Boothroyd, Kutash, & Friedman, 2011), and multilevel SEM approaches have also gained traction in the broader management literature (e.g., Kostopoulos et al., 2013; Wallace, Butts, Johnson, Stevens, & Smith, in press). It is important to note that as this is still a developing field, norms and guidelines of practice are continuously evolving. For example, the robustness of model fit, typically using $\chi 2$, with multilevel SEM still needs to be explored (Ryu & West, 2009), as does the impact of non-normality of data with maximum likelihood estimators in a multilevel SEM context (Ryu, 2011). However, in the absence of methodological norms and guideline consensus, current multilevel SEM practice represents the leading edge of the applied field.

6.3.1 Statistical Software Packages and Analysis Features

Due to the complexity and comparative newness of multilevel SEM, I utilized multiple statistical software packages. Each package provides different but complementary procedures and options. I used Stata Corp LP's *Stata* (version 13) for basic and mixed level regressions, some SEM, and for calculating statistics such as variance inflation factors (VIFs). I used Muthén & Muthén's *Mplus* (version 6.12) software for the majority of the multilevel factor analysis, both exploratory and confirmatory. I used the Microsoft Windows version of both packages. While Stata 13 has recently incorporated the ability to model multilevel data in SEM through their generalized SEM (GSEM) module, documented approaches and examples were scarcely available due to its newness (released June 2013). On the other hand, approaches to multilevel and complex survey data modeling has been available and in development for Mplus since at least 2004. As a

result, a number of helpful examples and applications existed in the literature to help guide me through these techniques (Mehta & Neale, 2005; Muthén & Muthén, 2010; Preacher, 2013).

Some of the core features of Mplus relevant to this analysis include the different kinds of model estimators available, specifically a maximum likelihood estimator robust to non-normality and non-independence of observations, as were experienced in multilevel data. This estimator, when combined with the COMPLEX analysis type in Mplus, results in appropriately adjusted standard errors and χ^2 tests of model fit (Asparouhov, 2005). Mplus also offers an additional type of multilevel analysis called TWOLEVEL which explicitly models within and between variance. In this type of analysis, observables and latent variables can be modeled specifically at the within (e.g., individual) and between (e.g., firm) levels. The TWOLEVEL analysis would be particularly useful for modeling things like multilevel mediation or moderation models with clustered within level data and between level outcome variables (Preacher et al., 2011). As my intent was primarily to correct standard errors and χ^2 values rather than explicitly model variance at different levels, I typically used Mplus with the COMPLEX analysis type and maximum-likelihood robust (MLR) estimator.

6.3.2 Intra-Class Correlation and Design Effect

While conceptually the notion of individual respondents nested within firms is intuitive, calculation of the intra-class correlation (ICC) and design effect (DE) are straight forward ways of empirically evaluating the multilevel nature of the data. There are a number of different kinds of ICC but in general, ICCs can be interpreted as the proportion of observed variance in scores that are due to systematic between-target differences, compared to the total variance in ratings (LeBreton & Senter, 2008). From a variance components perspective, any individual person's response to a questionnaire item will vary about their firm's mean score (i.e., within-firm variance, θ) and vary about the grand mean for all firms (i.e., between firm-variance, ψ) (Rabe-Hesketh & Skrondal, 2012). ICC is equal to $\psi/ (\psi+ \theta)$ or the proportion of between-firm variance to the total variance. In the extreme cases, ICC = 0 would only occur if $\psi = 0$, or if there were no variation *between* firms (i.e., all the firms rated in exactly the same way). In this case, a lack of

variation between firms indicates that multilevel analysis is not warranted because there was no effect on individual scores by firm. Conversely, ICC = 1 would only occur if $\theta = 0$, or if there was no variation *within* firms (i.e., all the individuals scored the same way within a firm). In this case, multilevel analysis would be warranted because differences between firms seem likely to be responsible for all the variation in scores. In multilevel analysis, while there are no strict cut-offs for ICC, values greater than 0 indicate a clustering effect of varying size, where an ICC > .25 might be considered "large" (LeBreton & Senter, 2008).

DE is another proportional calculation that represents the ratio of the operating sampling variance (i.e., the sample variance which is affected by clustering) to the sampling variance that would apply to simple random sampling (Hox, 1998; Muthén, 1994). In other words, the DE provides a factor with which the simple random sampling variance must be multiplied to provide the actual operating sample variance. The formula is $DE = 1 + \rho(n-1)$, where ρ is the ICC and n is the common cluster size. DE = 1 will only occur if the ICC = 0 or if n = 1, in all other cases, DE > 1. In other words, if there is no variance difference between firms (ICC = 0) or the clusters are simply individuals (cluster size n = 1) then the DE = 1. A DE >1 indicates that simple random sampling is *underestimating* the sampling variance, which will lead to significance tests with an inflated type I error rate (incorrect rejection of a true null hypothesis) (Hox, 1998). It has been found that when DE < 2 the use of single level analysis does not lead to overly misleading results (Maas & Hox, 2005; Muthén & Satorra, 1995), so DE > 2 is treated as an indicator for the use of multilevel analysis.

The ICCs for each item was calculated using Mplus and the DE was calculated by hand using the generated ICCs and the average cluster size of 19.268. ICCs range from .051-.155, which result in DEs ranging from 1.93-3.83 with an average of 2.85. Collectively these values indicated that multilevel analysis is warranted for the data.

6.4 Factor Analysis of the Entrepreneurial Culture Items

Exploratory factor analysis (EFA) is typically used on survey instruments to identify separable dimensions or factors, presumably representing theoretical constructs within

the focal domain (Floyd & Widaman, 1995). The *exploratory* aspect of EFA derives from the data-driven nature of the analysis, which uses the matrix of correlations and covariances among the measured variables to identify a set of more general latent variables (factors). In some cases, EFA is used on large scales to reduce a fairly large set of variables into a smaller and more manageable number while retaining as much of the original variance as possible (Conway & Huffcutt, 2003). Since factor analysis is an entirely empirically driven exercise not guided by theory, in some scale development articles employing CFA an EFA step is skipped (e.g., Eby et al., 2008; Ferris et al., 2008). Generally the rationale for this decision is that theory specifies the number of dimensions and which items belong to each dimension, something which can be empirically tested through CFA. Furthermore, Brown cautions that "EFA can produce factors that researchers try to interpret as substantively meaningful but may be an artifact of responses styles associated with the wording of the items" (2006: 47). Nevertheless, EFA is still recommended for checking the dimensionality of the items to be used in CFA as well as providing additional helpful information about the how the items may be related to one another (Muthén & Muthén, 2009a). Thus, I employed EFA in order to evaluate the hypothesized factor structure in advance of a CFA.

6.4.1 Exploratory Factor Analysis

I entered the data into an exploratory factor analysis with Mplus 6.12 using the maximum likelihood robust (MLR) estimator for complex survey data (i.e., adjusted for multilevel data). While principal components analysis (PCA) is a very common form of EFA, I instead employ common factor analysis. With PCA components are estimated to represent the variances of the observed variables in as economical a fashion as possible (i.e., fewer dimensions), with no assumption of latent variables underlying the observed variables (Floyd & Widaman, 1995). In contrast, with common factor analysis the factors are estimated to explain the covariances among the observed variables and the factors are seen as the causes of the observed variables. Since my research involves the use of latent variables (i.e., underlying dimensions), common factor analysis is a more sensible approach than PCA (Conway & Huffcutt, 2003). While this was a moot point

given that Mplus only utilizes common factor analysis, PCA was an available option in both Stata 13 and SPSS 21.

The default output includes the geomin oblique rotation for the factor loadings. Conway and Huffcutt (2003) noted that while the varimax orthogonal rotation is by far the most common kind of rotation for generating "simple structure" of the factor loadings (i.e., a more visually interpretable output of the factor loading matrix), they argue that this approach is often inappropriate. The varimax rotation attempts to produce some high loadings and some low loadings for each factor to achieve simple structure. However, Conway and Huffcutt (2003) argue that orthogonal rotations force unrealistic solutions that likely distort loadings away from simple structure and instead recommend oblique rotations. Mplus implements the geomin oblique rotation type (Browne, 2001) for much the same reasons (Muthén & Muthén, 2010).

The program was asked to fit between one and seven factors, inclusive. While five factors were hypothesized, the program was asked to fit up to seven factors for model comparison. Since Mplus implements the MLR estimator, fit indices are produced that can assist in the interpretation of the most appropriate number of factors. Although the Eigen values > 1 criteria has long been used in EFA as factor selection criteria (Floyd & Widaman, 1995), methodological research reviewing EFA has strongly discouraged this practice (Conway & Huffcutt, 2003; Fabrigar, Wegener, MacCallum, & Strahan, 1999; Lance, Butts, & Michels, 2006).

The first iteration of the factor analysis indicated that the six factor model exhibited the best model fit of the seven tested: $\chi^2(185) = 248.505$, p=.000, root mean square error of approximation (RMSEA) = .026, comparative fit index (CFI) = .989, Tucker-Lewis index (TLI) = .980. χ^2, RMSEA, CFI, and TLI are indices used to indicate the quality of the model fit with the observed data. The χ^2 statistic tests the null hypothesis that the model is correct in that it perfectly fits the population/observed data. Rejecting the null hypothesis with a non-significant χ^2 is desirable (Kline, 2005). While the χ^2 test was significant, following conventional SEM recommendations for evaluating additional indicators of model fit, RMSEA values of below .08, and CFI, TLI values above .95

indicate acceptable model fit (Hu & Bentler, 1999). These supplemental indicators of model fit are often used given that the χ^2 test is considered quite conservative and sensitive to sample size (Kline, 2005). In any case, χ^2 results should be interpreted cognizant of the current limitations of model fit index guidelines in a multilevel context (Kostopoulos et al., 2013; Ryu & West, 2009). Table 21 shows the full geomin rotated loadings with loadings higher than .3 highlighted in bold.

The six factor solution showed that the OE, SA, and C items were mostly loading on separate factors as hypothesized. However, the LDS and ODC items were clearly cross loading (i.e., factor loadings were relatively high on more than one factor). Between the two sets of LDS and ODC items three factors were identified. To investigate this loading pattern I ran a separate EFA on the ten LDS and ODC items combined, requesting Mplus to generate up to four factors for these items. A three factor solution emerged which replicated the cross loading results from the six factor model. What was most glaring about this result was that the item ODC1 was loading very highly (.888) with LDS1 and LDS4 on one factor. I examined the wording of these items and drew the conclusion that these items seemed to collectively reflect an "innovation and improvement" aspect of learning and development support and opportunity driven change. ODC items 3,4, and 5 loaded well together on a single factor. The remaining items (LDS2,3,5, and ODC2) were cross loading among the factors greater than .3. As a result, I removed these cross loaded items and re-ran the EFA. This produced a two factor solution which fit the data well with the items clearly loading on two distinct factors.

Returning to the OE, SA, and C items from the six factor solution, I removed the items which were cross loading or had the lowest loadings in the group. This reduced the scale to three items per dimension for parsimony. The remaining items were OE1,2,5, SA2,3,5, C1,2,4, and ODC3,4,5. Due to the high loading of item ODC1 with LDS1 and 4, it was renamed "LDS6" to form the LDS factor. An EFA was run on these items fitting up to a seven factor solution. A five factor solution best fit the data: $\chi^2(40) = 53.715$, p=.072, RMSEA = .021, CFI = .997, TLI = .992. Table 22 shows the full geomin rotated loadings with loadings higher than .3 highlighted in bold, as well as Cronbach's alphas for each item grouping for internal consistency reliability. The factor loadings

Table 21 Geomin Rotated Loadings of the Six Factor Solution

Item	1	2	3	4	5	6
OE1	**0.673**	0.075	0.079	0.018	0.031	0.015
OE2	**0.741**	0.031	-0.019	0.029	0.045	0.007
OE3	**0.543**	0.184	0.024	0.035	-0.023	0.151
OE4	**0.450**	0.152	0.256	0.046	0.034	-0.033
OE5	**0.605**	-0.044	0.064	0.044	0.180	0.057
SA1	0.238	**0.387**	0.007	0.025	0.056	0.032
SA2	0.012	**0.658**	0.133	-0.063	0.046	-0.033
SA3	0.073	**0.499**	0.134	-0.029	-0.003	-0.065
SA4	**0.408**	**0.460**	0.000	-0.021	0.040	0.006
SA5	0.173	**0.496**	0.027	0.139	-0.110	0.035
C1	0.069	-0.056	**0.805**	-0.005	0.028	-0.014
C2	0.147	0.019	**0.663**	-0.001	0.019	-0.037
C3	0.249	0.061	**0.306**	0.091	0.068	0.027
C4	0.008	0.166	**0.558**	0.004	-0.061	0.124
C5	-0.178	0.213	**0.597**	0.085	0.056	0.046
LDS1	0.054	0.039	-0.022	**0.408**	**0.543**	-0.122
LDS2	-0.121	0.060	0.076	0.161	**0.601**	0.027
LDS3	0.201	-0.021	0.004	0.001	**0.601**	0.147
LDS4	-0.006	-0.012	0.055	**0.823**	-0.002	0.040
LDS5	0.084	-0.009	0.049	-0.050	**0.496**	0.241
ODC1	0.091	-0.035	0.068	0.723	0.013	0.001
ODC2	0.010	0.250	-0.106	**0.328**	0.063	0.213
ODC3	0.145	-0.023	0.324	-0.029	0.002	**0.437**
ODC4	0.055	0.027	0.167	0.065	0.163	**0.421**
ODC5	-0.033	0.291	-0.028	0.077	0.029	**0.416**

Table 22 Geomin Rotated Loadings of the Five Factor Solution

Item	1	2	3	4	5
OE1	**0.740**	0.055	0.038	0.001	0.008
OE2	**0.808**	0.018	-0.038	0.011	-0.014
OE5	**0.723**	-0.019	0.042	0.045	0.079
SA2	-0.018	**0.675**	0.130	-0.025	0.003
SA3	0.079	**0.608**	0.034	-0.009	-0.089
SA5	0.084	**0.509**	-0.029	0.125	0.071
C1	-0.001	-0.015	**0.905**	0.038	-0.040
C2	0.125	0.114	**0.546**	0.015	0.064
C4	-0.012	0.209	**0.451**	0.016	0.160
LDS1	0.282	0.061	0.028	**0.457**	0.018
LDS4	-0.041	0.011	-0.015	**0.867**	0.047
LDS6	0.080	-0.027	0.042	**0.772**	-0.039
ODC3	0.128	-0.020	0.250	-0.042	**0.503**
ODC4	0.183	0.006	0.104	0.050	**0.475**
ODC5	-0.035	0.244	-0.060	0.062	**0.473**

were all above the .4 criterion level which is commonly used in judging factor loadings as meaningful (Hinkin, 1998). Alpha was calculated using Stata 13. All but SA and ODC were above the recommended .70 cut-off in Hinkin (1998), however they were close at .678 and .68, respectively. Item reliability is subsequently addressed in the CFA section.

6.4.2 Confirmatory Factor Analysis

The purpose of a CFA is to analyze the hypothesized measurement model (i.e., five sub-dimensions formatively creating a higher-order construct) by specifying these relationships and then mathematically estimating their paths (Kline, 2005). The CFA tests the model by trying to find a unique solution for each path (i.e., model identification) and then comparing the fit of the estimated model with the observed data. While the ultimate goal of the CFA was to test the "full" formative model specification, for development purposes I built the model in smaller steps as suggested by Mehta and Neale (2005). I began by modeling each of the five individual factors with all five of their reflective indicators. These smaller models evaluate the within and between variance components as well as compare the multilevel results across software programs and functions. For example, in Stata 13 a given dimension can be estimated by its five indicators and grouped with the firm ID variable using the mixed linear regression command or with the GSEM function. This produces identical intercepts, means, and within and between variance results, which can be used to calculate ICCs by hand. These simple single factor models are replicated in Mplus using the COMPLEX or TWOLEVEL analysis types to produce similar results.

While the EFA process produced three items per dimension, there was no theoretical rationale for using those particular items in the CFA. The EFA provides evidence of the five dimensions and indications of the empirically "strongest" (i.e., highest factor loading) items. However, this is a purely empirical exercise without a clear theoretical grounding for the retention/selection of these items. As I was still interested in reducing five items per dimension to three for instrument simplicity purposes, I employed typical scale refinement techniques in the CFA context to evaluate which items to use (e.g., Eby et al., 2008). This involved conducting CFAs on just the lower order reflective constructs

(i.e., the five individual dimensions) and then examining standardized factor loadings to look for the three largest loadings. As an additional step, I tested every possible three-item combination of items for each dimension in a CFA. The rationale was that each indicator of the different constructs should be content valid, reflective measures of the same underlying construct and removing one would not introduce a deficiency in measuring the construct. For the OE, SA, C, and ODC dimensions, the results from the EFA were replicated in the CFA. In the EFA process, the item ODC1 was identified as loading highly with the LDS1 and 4 items. This was not originally anticipated and would not have been incorporated in the CFA as ODC1 was not hypothesized to load on the LDS dimension. However, in this case, re-examining the face validity of the item by scrutinizing the wording of the question suggested that as the EFA result indicated, ODC1 made sense grouped with those particular LDS items. The combination of LDS1,4 and ODC1 in a CFA did produce higher standardized loadings than any other combination of the LDS items. Thus, in a CFA context I came to the same conclusions about which indicators to reject as with the EFA.

After determining which three-item groupings to use, I began to build the second-order aspect of the model (i.e., the formative EC construct). However, as the model became more complicated with multiple correlated dimensions and the formative second-order construct, I was unable to achieve model convergence using Stata 13's GSEM function. Even with 12-hour program iterations, the model would not identify. It was unclear if this was due to programming/syntax misspecification, data limitations, or software limitations. Given the availability of documentation and examples for multilevel SEM with Mplus, at this point I switched to Mplus exclusively for multilevel SEM evaluation.

I specified the multilevel CFA in Mplus using the MLR estimator and COMPLEX analysis type to adjust for the nested data using the model depicted in Figure 1. While the model would estimate, initially an error message was produced indicating unreliability of the standard errors of the parameter estimates.

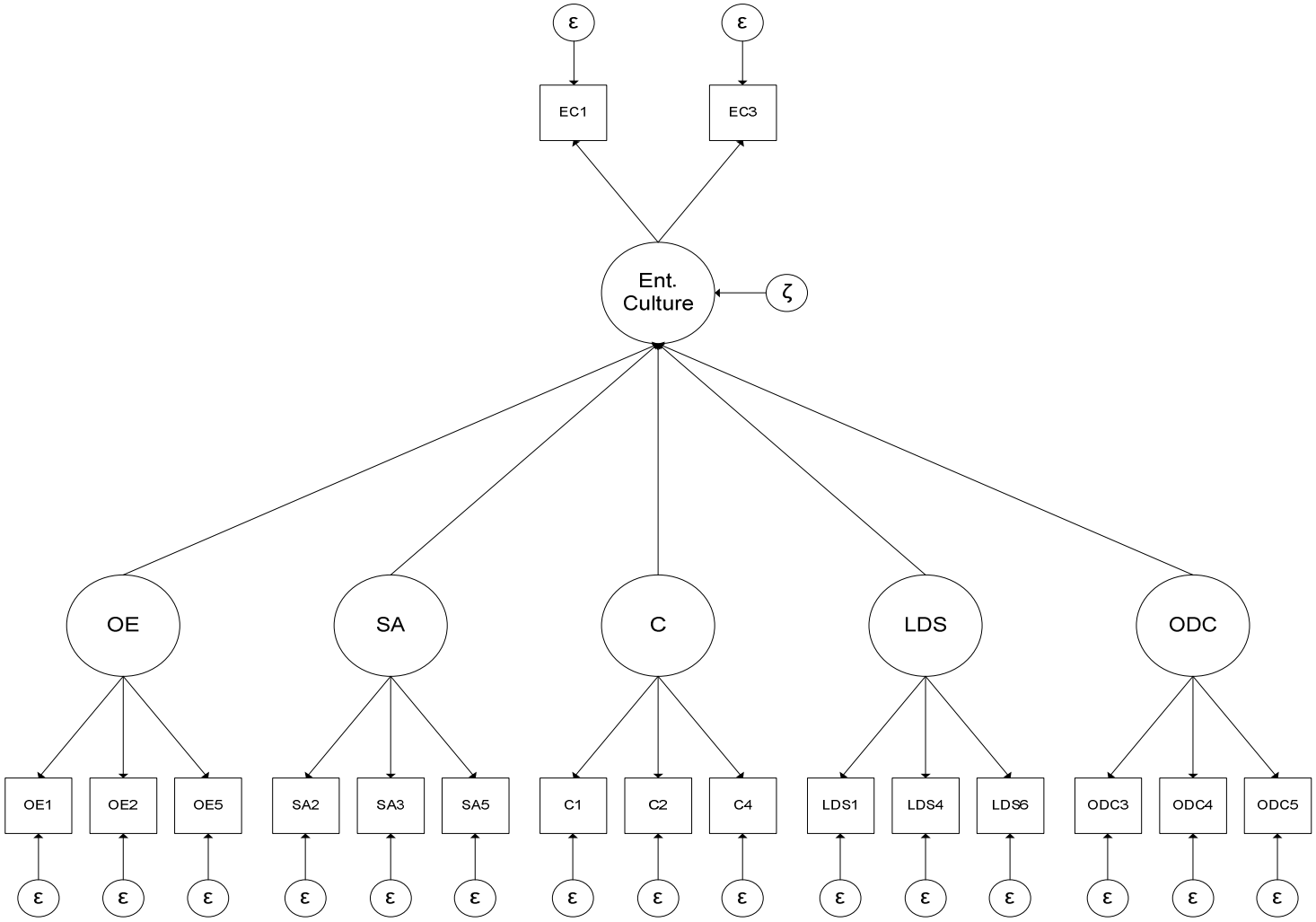


Figure 1 Second-Order Formative, First-Order Reflective, Five Dimensions with Three Reflective Indicator Model

This is a highly complicated mathematical problem related to the algorithms and matrix calculations used to estimate the values. As a result, the software indicated either model nonidentification or the number of clusters versus parameters as potential avenues for troubleshooting. Since the model seemed unlikely to have an identification problem based on closely following SEM guidelines for model identification with formative constructs (Kline, 2005; MacKenzie et al., 2011), the number of clusters versus parameters seemed to be the issue. This might occur because the number of clusters in the data (i.e., firms, N=41) which are treated as independent observations in this kind of analysis, were *fewer* than the number of free parameters (i.e., paths between observables, latent variables, error terms, etc.) being estimated (i.e., in this case, free parameters = 66) (Muthén & Muthén, 2009b).

In order to address this problem I collapsed the three items per dimension into a single composite indicator. This reduces the number of parameters to be estimated by removing paths from the multitudinous items. However, collapsing three items into one would have the effect of attenuating the path values (i.e., regression coefficients) between the composite item and its respective dimension (i.e., latent variable) (Hall, Snell, & Foust, 1999). However, this can be corrected by specifying an adjusted error term which is calculated from the covariance scores and composite reliability of the items. To begin, I collapsed the three items into a composite indicator by averaging them. I then had Mplus estimate the covariance between these composite indicators. I ran a CFA in Mplus with the five factors measured by three items each in order to generate standardized loadings and residual variances. These values were supplied into the composite reliability formula of:

$$Composite\ Reliability = \frac{(\sum \lambda_i)^2}{(\sum \lambda_i)^2 + \sum Var(\epsilon_i)},$$

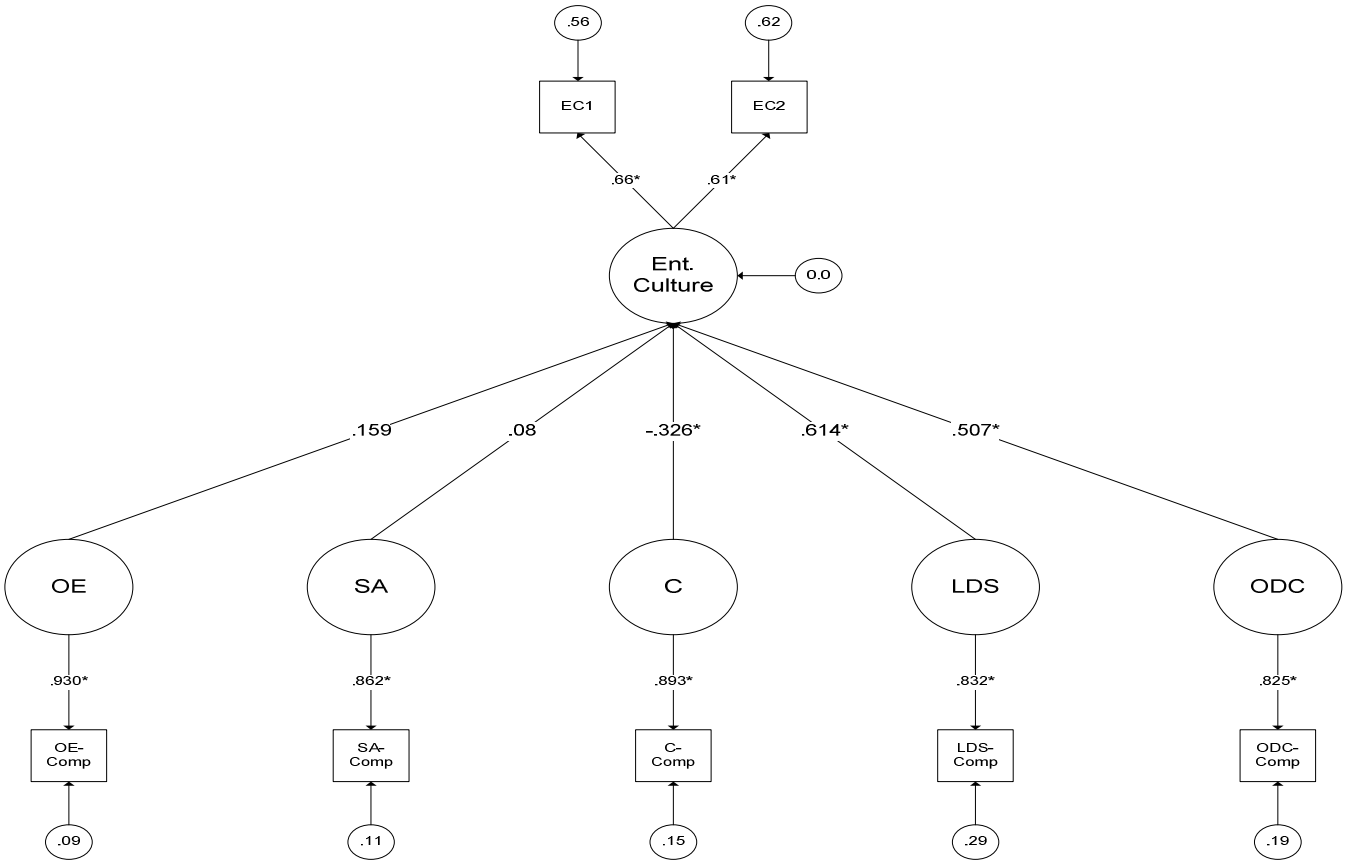
where λ_i is the standardized factor loading and ε_i is the residual/error variance (Hair, Black, Babin, & Anderson, 2009; Raykov, 1997). The covariance estimate and composite reliability scores were then used in the formula:

*(1- composite reliability) * (composite covariance)* to generate the corrected error term (DeShon, 1998). Once the corrected error terms were calculated, they were incorporated into the model as the specified error term for each respective composite indicator. The composite indicator for each dimension (with corrected error term) then functions the same way as a latent variable with three indicators with three separate error terms. Using composite indicators this way reduces the number of free parameters to 36, below the number of clusters, which addressed the previous error message.

The estimated model fit the data well: $\chi^2(8) = 8.218$, p=.083, RMSEA = .037, CFI = .998, TLI = .992. Figure 2 shows a graphical representation of the estimated model with standardized path estimates from the output. Table 23 shows the estimated correlation matrix for the latent variables. In this model I used two of the three global reflective indicators for the second-order latent construct, as is standard for identification (Edwards, 2011; MacKenzie et al., 2011). I used EC1 and 2 as they had the highest standardized loadings to the EC construct when analyzed in the CFA. For robustness, I also estimated the model using EC2 and 3 and EC1 and 3. With each estimated model I inspected the χ^2 results, factor loadings of the first-order constructs to second-order construct, factor loadings of the EC items, and the correlations between indicators. I did not observe a material difference in the results. The values and significance of the results were largely the same regardless of EC reflective indicators used. While the model fit the data well, several notable issues were immediately apparent with this model:

- OE was highly correlated with C, LDS, ODC (average correlation .8)
- C was highly correlated with LDS, ODC (average correlation .74)
- LDS was highly correlated with ODC (.77)
- the standardized OE and SA paths to the second-order formative construct (EC) were small and non-significant (.159, p=.240; .08, p=.363; respectively)
- the standardized C path to EC was significant but negative (-.326, p=0.002)

Although the literature indicates that formative measures need not be highly correlated as in reflective measures (MacKenzie et al., 2005), when formative measures are highly



* = significant at the p=0.05 level

Figure 2 Second-Order Formative, First-Order Reflective, Five Dimensions with Composite Reflective Indicator Model (Standardized Paths)

Table 23 Correlation Table of Factors

	OE	SA	C	LDS	ODC	EC
OE	1					
SA	0.665	1				
C	0.798	0.675	1			
LDS	0.814	0.586	0.726	1		
ODC	0.788	0.607	0.761	0.769	1	
EC	0.868	0.652	0.699	0.945	0.902	1

correlated it leads to unstable estimates for the indicator and it becomes difficult to separate the distinct influence of individual indicators on the focal construct (Diamantopoulos, Riefler, & Roth, 2008). Several of the first-order constructs, as formative indicators of EC, were highly correlated with each other, suggesting a potential problem with unstable estimates and determining the unique contribution of each dimension to the construct.

These patterns of correlations between factors as formative indicators of EC indicate a potential for multicollinearity. Multicollinearity occurs when the variables are correlated highly enough that while they appear to be separate variables, they are actually measuring the same thing (Kline, 2005). Multicollinearity can cause problems in SEM because certain mathematical operations become either impossible or unstable because the denominators are close to zero. To check for multicollinearity I calculated the VIFs, which assess the degree of multicollinearity, using Stata 13. The VIFs ranged from 1.52-2.47 which were below the VIF > 10 cut-off commonly applied (Diamantopoulos et al., 2008), but were closer to the recommended lower VIF cut-off of 3 (MacKenzie et al., 2011; Petter, Straub, & Rai, 2007). This might indicate that multicollinearity could be more of a problem for the OE dimension (VIF = 2.47) and C dimensions (VIF = 2.06).

The estimated OE, SA, and C paths to the EC construct were not as hypothesized. The non-significant paths of OE and SA and the significant but negative path of C indicate that these dimensions *do not contribute* to the second-order construct as expected. The OE and SA paths were expected to be higher and significant, and the C path was expected to be positive and significant. In particular, the negative and significant path of C suggests the dimension is negatively related with EC. In other words, increased cohesiveness *decreases* entrepreneurial culture. From a hypothesized formative conceptual perspective, this does not make sense as the relationship should be significant and positive. More cohesiveness should contribute to an *increased* entrepreneurial culture. Similarly, the results of the OE and SA paths suggest that they do not significantly contribute to the EC construct. This also does not make sense from a

hypothesized formative conceptual perspective since it indicates that OE and SA play no role in EC.

In other multilevel CFA examples, alternate models are often tested by removing dimensions and testing for improved model fit based on a rationale of parsimony (e.g., Dedrick & Greenbaum, 2011; Kostopoulos et al., 2013). However, these examples are based on reflective first and second order conceptualizations. In these cases, each first-order dimension is viewed as reflecting different, correlated aspects of the second-order construct. The first-order dimensions are essentially *effects* of the construct. In other words, the second-order construct exists independently and causes effects in the first-order constructs, reflected in the observed indicators. Since the second-order construct may cause different effects, a model with fewer dimensions may more parsimoniously fit the data, and in which case, experimenting with removing dimensions makes sense.

However, with a formative second-order model, the first-order dimensions are seen as "causing" the second-order construct by virtue of their collective unique contribution to the construct. As noted in MacKenzie et al. (2005), with formative indicators, in this case, the first-order dimensions, the composite of these dimensions is supposed to be the best predictor of the dependent variable. Furthermore, they note "dropping a causal indicator may omit a unique part of the composite latent construct and change the meaning of the variable…the indicators only capture the entire conceptual domain as a group" (MacKenzie et al., 2005: 711). As a result, it may not make theoretical sense to remove the non-significant dimensions or negative dimension in the model to test for improved fit or parsimony. MacKenzie et al. note that "instances where an entire sub-dimension can be dropped without eliminating an essential aspect of the construct domain will probably be rare" (2011:317).

6.4.3 Alternate Identification Approaches

Given the concerns over the results of the model, it was important to verify the identification of the model. Although I used two global reflective indicators of the EC construct to identify the model, the literature on formative construct identification indicate at least two additional approaches are valid (Diamantopoulos et al., 2008). The

first approach utilizes the entrepreneurial orientation dimensions of Innovation and Risk Taking in place of the global reflective EC items for model identification. Innovation and Risk Taking were measured at the firm level from the entrepreneur's survey and were each measured by three reflective indicators (EO2,3,4 and 8,9,10 respectively). While not a direct substitute for the global reflective indicators, Innovation and Risk Taking could be used in this way because of their expected relationship to entrepreneurial culture. This is because the Innovation dimension refers to a firm's orientation towards new opportunities, and new and changing products and services. The Risk Taking dimension refers to high-risk projects, bold and aggressive strategic acts (cf. Covin & Wales, 2012). While these are firm *strategy* concepts, Innovation and Risk Taking were expected to be related to entrepreneurial culture because of their mutual connection to a firm's values and beliefs around opportunities. To reduce the number of estimated parameters, composite indicators were created for the Innovation and Risk Taking dimensions in a similar fashion to the EC sub-dimensions. The estimated model fit the data well: $\chi^2(4) = 3.829$, p=.429, RMSEA = 0, CFI = 1.0, TLI = 1.0. In this model, the factor loadings of the sub-dimensions to EC changed. OE was significant and positive, SA was significant and negative, and C, LDS, and ODC were non-significant and negative. This pattern of factor loadings similarly indicates a problem with the hypothesized conceptual connections to the lower order constructs.

As recommended by Diamantopoulos et al. (2008), I also identified the model using one reflectively measured construct and one reflective indicator. For this model I used the EO Innovation construct and the EC1 global reflective indicator. The estimated model fit the data well: $\chi^2(4) = 7.177$, p=.126, RMSEA = .032, CFI = .997, TLI = .986. This model replicated the original factor loading pattern between the first-order and second-order constructs: OE and SA were non-significant and positive, C was significant and negative, LDS and ODC were significant and positive. Collectively, these alternate models indicate that with the non-hypothesized results that were found, it seems unlikely that model identification was the problem. At this stage of the model analysis, I determined that it was therefore appropriate to conceptually reconsider the hypothesized entrepreneurial culture model.

6.5 A Formative to Reflective Transition

The analysis of the first-order reflective, second-order formative construct specification clearly indicates problems between the hypothesized conceptual arrangement and the empirical results. While issues with the data (e.g., the nature and/or number of the original survey items) could certainly be responsible – a topic explored in Chapter Seven – it is also possible that the hypothesized conceptual model is not underlying the data. Generally speaking, formative models represent a comparatively stringent model specification for a number of reasons. For one, the error term of a formative construct is typically set to zero, representing the causal indicators fully forming the construct without residual variance; this is a very strict constraint (Bagozzi, 2007). The choice of outcome variable (e.g., reflective indicator items or constructs) inclusion in the model also creates context-specificity in the result (Diamantopoulos, 2011). Thus, fitting the hypothesized formative model specification is a challenging empirical standard. The results of the analysis suggest that this standard has not been met.

Given this inconsistency between the hypothesized model and the observed data, it becomes appropriate to revisit the conceptual underpinning of the entrepreneurial culture construct. One of the central conceptual points discussed in Chapter Three was the notion that entrepreneurial culture was *theoretically constructed* and may not exist in reality. I originally posited that a firm scoring highly on the five sub-dimensions of entrepreneurial culture would thus be said to have an “entrepreneurial culture." The act of measuring and evaluating these particular scores and their collective contribution would form the construct. The data collected and analyzed in this research does not seem to support this conclusion. The conceptual development of the construct and the justification for the use of formative modeling outlined previously still has merit. However, in the absence of additional data, I must consider an alternate specification of the model to best fit the data at hand. It is possible that with a different set of items or different conceptualizations of the sub-dimensions that this formative specification may yet work. However, given the data collected, I must consider alternative models which may more accurately describe the data. As the factor analysis results indicate that the items do seem to be adequately measuring the dimensions (although some dimensions

more than others), which possible relationships might instead be underlying these dimensions?

With the previous formative model specification, a natural counter-point would be a reflective model specification. In order to consider a reflective, multi-dimensional model specification it is critical to evaluate the conceptual theorizing behind such a model. Even with the empirical results, pursuing a reflective specification makes little sense without a justifiable theoretical rationale for doing so. As indicated in Chapter Three, generally speaking, a reflective model would represent some phenomenon which exists in the world, the effects of which can be measured through observable variables. A second-order construct with reflective first-order constructs describes an "indirect" model where the effect of the second-order construct on the observed variables would be mediated by one or more latent variables (Edwards & Bagozzi, 2000). This would mean that the scoring seen in the survey items do not reflect entrepreneurial culture directly, but rather, as the effects of mediating sub-dimensions such as Organizational Enthusiasm, Cohesiveness, and so on. From a formative perspective, these items measure sub-dimensions which collectively form the entrepreneurial culture construct. From a reflective perspective, the items still measure the sub-dimensions except now each dimension instead reflects disparate but correlated parts of the overall entrepreneurial culture construct. Variance observed in each measure is explained by its first-order construct and the variance in the first-order constructs are explained by the common second-order construct. In other words, some "entrepreneurial culture" exists within a firm which influences the sub-dimensions and the scores on their associated measures. In contrast, as a formative specification, entrepreneurial culture is empirically defined by the total variance among all its indicators and the indicators only capture the entire conceptual domain as a group (MacKenzie et al., 2005).

Although previously argued in Chapter Three that entrepreneurial culture is best conceived of as a formative construct, in light of the results an alternate explanation of the relationship between the conceptual model and empirical data is necessary. I had previously suggested that a broader organizational culture may exist within the firm but it is the collective formulation of sub-dimensions which determine the existence of the

"entrepreneurial culture" organizational culture sub-type. While other researchers may label this collective formulation something else (e.g., a "start-up culture" or a "creative-innovation culture"), I argued that the collective combination of the five sub-dimensions is what constitutes entrepreneurial culture. The existence of the construct flows from the measures to the construct; entrepreneurial culture is determined through the multiplicative relationship of the five sub-dimensions. Their presence, ascertained by researchers, determines whether or not an entrepreneurial culture exists within the firm.

In contrast, a reflective model specification entails a different underlying conceptual ontology. From a reflective perspective, entrepreneurial culture might be thought of as existing within a firm, independent of researchers, with evidence of its existence detected through observable measures. One way to conceptualize this is that an "entrepreneurial culture" is, in fact, one of many facets of an organization's broader organizational culture. In this case, cultural subtypes reflect "real" aspects of the organizational culture that co-exist (and correlate) with one another. An organizational culture may reflect, through different degrees, an entrepreneurial culture, an ethical culture, an innovation-supportive culture, an adaptive culture, and so on with other cultural subtypes. Rather than a theoretical construction explicitly invented by researchers, an entrepreneurial culture might represent *a fundamental, underlying aspect* of an organization. This is much more in line with the perspective of organizational culture being equivalent to a firm's "personality" where entrepreneurial culture is then a specific kind of firm "personality trait." If so, entrepreneurial culture might then exist as part of a firm's underlying personality towards opportunities. In this case, it always exists in some potential or realized capacity within a firm, but will vary across firms and for a number of different reasons. Entrepreneurial culture would not come into existence through the act of measurement and construction, but rather, always exist at some level with the potential to be measured. This notion of entrepreneurial culture existing as a "real" construct versus a theoretical construction is the central ontological distinction between reflective and formative conceptualizations.

An instructive and somewhat analogous example comes from Judge, Erez, Bono and Thoresen (2003), who describe the concept of *core self-evaluations* (CSEs). They define

CSEs as a broad personality trait describing a fundamental appraisal of one's worthiness, effectiveness, and capability as a person. CSEs are indicated by four well established personality traits of self-esteem, generalized self-efficacy, neuroticism, and locus of control. Judge et al. (2003) argue that CSE is a broad, latent trait that is the common source of these four specific traits and is the psychological mechanism that causes the traits to be correlated with one another. Importantly, Judge et al. (2003) argue that these four traits (acknowledging that there may be other traits) are not completely redundant but rather, CSE as a higher-order latent concept explains the conceptual and empirical redundancy among the four traits. CSEs thus represent a higher-order underlying trait which explains variation in the first-order traits, which can be measured individually. The measures of the four core traits are manifestations or indicators of CSE, the inner self-concept or core self-evaluation. In sum, CSE is posited not as a multidimensional aggregate construct but rather a latent psychological construct where "self-esteem, generalized self-efficacy, and the other core traits are different ways in which core self-evaluations is realized" (Judge et al., 2003:305).

Adapting this logic, within the broader domain of organizational culture, entrepreneurial culture might be thought of as a latent, underlying organizational culture construct which is indicated by Organizational Enthusiasm, Stakeholder Alignment, Cohesiveness, Learning and Development Support, and Opportunity Driven Change. These five dimensions act as indicators of the higher-order entrepreneurial culture latent concept. The five dimensions would correlate with one another as distinct but related aspects of entrepreneurial culture. In effect, this underlying entrepreneurial culture is what causes changes in these dimensions which are subsequently observed. For example, *because* an organization has an underlying entrepreneurial culture, the organization would be observed to have higher Cohesiveness or Stakeholder Alignment. It is an underlying entrepreneurial culture which explains variation in these dimensions (and other possible reflective dimensions), and the dimensions, in turn, function as observable indicators of entrepreneurial culture. In comparison, with a formative conceptualization, a firm would have to exhibit high levels of specific dimensions in order to be said to have an entrepreneurial culture (via their collective causal contribution). With a formative

conceptualization, the sub-dimensions may each have different causes or antecedents which give rise to them.

It may be the case that both formative and reflective conceptualizations are plausible explanations for a higher-order entrepreneurial culture construct. Presently, the data tell us that the formative model as specified is problematic (i.e., non-significant paths and a negative path) and that the dimensions are exhibiting some high correlations with one another. Different tests for model identification replicate these results. While intuitively formative and reflective conceptualizations of constructs seem conflicting, researchers have concluded that constructs are not necessarily inherently formative or reflective, and that they can be fruitfully theoretically examined from different perspectives (Covin & Wales, 2012; MacKenzie et al., 2011). The crucial question then is which kind of conceptualization is the most appropriate explanation for the way the construct is envisioned? A reflective higher-order conceptualization of entrepreneurial culture seems to be just such a possible explanation. Fundamentally, the definition of the sub-dimensions and the overall entrepreneurial culture construct do not change; entrepreneurial culture is still defined as a pattern of values, assumptions, and practices shared within an organization, which is centrally concerned with opportunities. The issue is whether this particular shared pattern can exist as a "real" phenomenon within an organization, independent of measurement and observation. If we can accept that they can indeed exist independently, then a reflective conceptualization can be a plausible explanation for the nature and structure of entrepreneurial culture.

6.6 Analysis of the Reflective Model

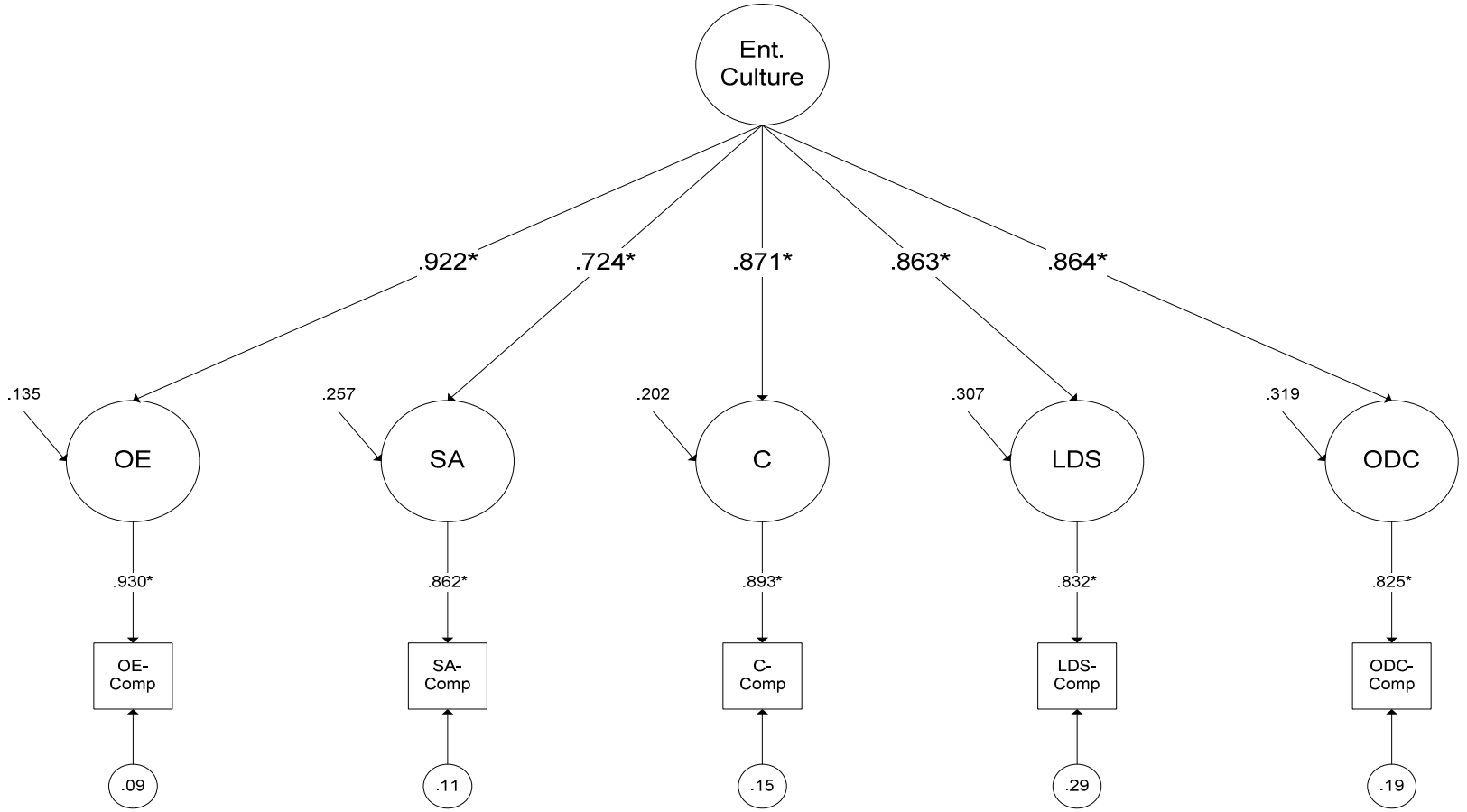
An analysis of the multidimensional entrepreneurial culture construct as a reflective model proceeds in much the same way as with the formative model. Specifically, the EFA process is the same in terms of assessing the dimensionality of the items, and the CFA process is similar except for the specification of the paths from the first-order constructs to the second-order (i.e., the "causal" arrows change direction). The results of the EFA are thus the same, indicating the highest loading items of the five sub-dimensions. The CFA results confirming these individual items are also the same as these models were tested without the second-order formative component added. The

reflective model analysis begins by re-specifying the measurement model to test the five first-order sub-dimensions as reflective indicators of the second-order entrepreneurial culture construct. As a reflective specification, the two global reflective indicators of entrepreneurial culture for identification purposes were no longer required. Even without these additional indicators, the number of free parameters (50) exceeds the number of clusters (41) so the use of composite indicator approach was still required. The rationale for using these composite indicators is the same irrespective of a formative or reflective specification.

The estimated model fit the data well: $\chi^2(5) = 9.214$, p=.101, RMSEA = .033, CFI = .997, TLI = .995. Figure 3 shows a graphical representation of the estimated model with standardized path estimates from the output. The correlation table of the latent variables is the same as in Table 23. With this model, the paths from entrepreneurial culture to the five sub-dimensions were positive, large, and significant. The reflective model specification thus fit the data well and demonstrates the hypothesized relationships, encouraging the subsequent evaluation of the model's validity.

6.6.1 Assessing the Validity of the Set of Indicators at the Construct Level

According to MacKenzie et al. (2011), for higher-order latent constructs with reflective indicators, convergent validity at both the first-order level (i.e., observable measures) and the second-order (i.e., first-order constructs as indicators) needs to be assessed. For the first level, this can be accomplished by calculating the average variance in the indicators that is accounted for by their respective constructs. The average variance extracted (AVE) is calculated by averaging the squared completely standardized factor loadings for the indicators. An AVE greater than .5 is desirable because it suggests that on average the latent construct accounts for a majority of the variance in its indicators (MacKenzie et al., 2011). Using the composite indicators with corrected error terms, the standardized factor loadings for the first-order constructs ranged from .825 to .930. Squaring these loadings resulted in AVEs ranging from .68 to .87, satisfying the greater than .5 recommended criteria. AVE can also be calculated for the first-order constructs as indicators of the second-order construct. It is similarly desirable for the first-order



* = significant at the p=0.05 level

Figure 3 First-order Reflective, Second-order Reflective, Five Dimensions with Composite Reflective Indicators Model (Standardized Paths)

constructs (as indicators) to share the majority of the variance with the second-order construct. The standardized factor loadings for the five sub-dimensions ranged from .724 to .922, the squared loadings ranged from .52 to .85, and the AVE was .724, satisfying the greater than .5 recommendation.

6.6.2 Assessing the Reliability of the Set of Indicators at the Construct Level

As a result of using reflective composite indicators (mean score) with corrected error terms for the first-order constructs, composite reliability calculations (cf. Raykov, 1997) instead of the traditional Cronbach's alpha were required. The composite reliabilities for the five dimensions OE, SA, C, LDS and ODC were .86, .75, .79, .69, and .68 respectively. The generally accepted standard for reliability indices are .7 and greater (MacKenzie et al., 2011). Thus, OE, SA, and C met this standard while the LDS and ODC measures fell slightly below the recommended cut-off. While the reliabilities of LDS and ODC were slightly lower than expected, and indeed, MacKenzie et al. (2011) recommend that new measures exhibit even higher reliabilities, for the purposes of continuing the analysis this limitation is acknowledged but presently set aside.

Fornell and Larcker (1981) provide an index for assessing the reliability of the second-order construct as it is reflected in the first-order constructs as indicators. This formula is given as:

$$\rho_{\eta} = \frac{\left(\sum_{i=1}^{p} \lambda_{yi}\right)^2}{\left(\sum_{i=1}^{p} \lambda_{yi}\right)^2 + \sum_{i=1}^{p} Var(\varepsilon_i)}$$

where ρ_{η} is the reliability coefficient, λ is the completely standardized loading for each first-order dimension to the second-order construct, and ε is residual variance for each first-order dimension. Using the values reported in Figure 3, the calculated reliability is (3.62)/(3.62+1.52) = .74, which meets the greater than .7 recommended criteria. The

model thus appears to demonstrate adequate validity and reliability of the indicators at both the first- and second-order levels.

6.6.3 Assessing the Nomological and Criterion-Related Validity

In construct development, it is essential to examine the nature of the relationships between the focal construct and other, additional constructs and to test whether those relationships perform as expected (MacKenzie et al., 2011). These relationships are known as the *nomological network* of a construct and describe the theoretical relationships between a construct (particularly new ones) and other existing constructs. This step is important for situating the new construct among other theoretical constructs to determine the construct's shared and unique contribution to theory. The potential nomological network, from a conceptual standpoint, was discussed in Section 3.5.

6.6.4 Criterion-Related validity

Criterion-related validity examines the association between the focal construct and theoretically relevant *outcomes*. Given that entrepreneurial culture is a firm-level construct with past proposed links to firm performance (e.g., Flamholtz & Kannan-Narasimhan, 2005), criterion-related validity was assessed using firm performance data. Performance data was collected as part of the entrepreneur's survey. I collected 22 subjective performance variables in 3 groups: (1) degree of importance the firm's top managers place on performance criteria, (2) current satisfaction of the firm's top managers with the firm's performance on certain criteria, and (3) firm's comparative performance against industry competitors. These items were based on performance measures previously used by Anderson and Eshima (2013).

While financial performance variables were also available, because of the varied nature (e.g., industry, age, size) of the different firms surveyed, I expected this diversity to obscure the relationship between EC and financial performance. This encouraged the use of subjective performance data which would all be based on the entrepreneurs' respective perceptions of their firms. I selected the second block of items (current satisfaction of the firm's top managers with performance on certain criteria), as the outcome construct of choice. These questions reflect the entrepreneur's evaluation of the extent to which his or

her top managers were satisfied with the firm's performance on total sales, sales growth rate, return on equity, gross profit, profit to sales ratio, return on investment, and ability to fund growth from profits. These items were scored on a five-point Likert-type scale anchored by "not at all satisfied" to "highly satisfied." Higher scores would reflect that the entrepreneur perceived the firm's top managers were more satisfied with how the firm was doing on those financial metrics. Since past entrepreneurial culture concepts, and the importance of opportunities in particular, have generally been linked with performance outcomes (see Chapter One), the conceptualization of entrepreneurial culture used here retains this expected association.

Due to the same concerns about the number of freely estimated parameters exceeding the number of clusters, composite indicators were again prescribed. Using the same formulas described previously generated composite performance variables with corrected error terms. The composite reliability for the items was .871 and the corrected error term was .068. The relationship between EC and performance can be tested by setting up a reflective CFA model of EC with an additional path connecting EC to performance (i.e., performance regressed on EC). This model fit the data well: $\chi^2(9) = 20.742$, p=.014, RMSEA = .041, CFI = .995, TLI = .991. The relationship between EC and performance was positive (standardized path loading of .133) but only weakly significant at p = .078. Although not strongly supported, this demonstrates the hypothesized positive association between EC and (subjective) performance. However, given the high residual variance in performance (standardized residual variance = .982), EC is evidently explaining only a small amount of variance in performance. This particular performance construct may thus not be the most appropriate for comparison. However, past theorizing has suggested a more indirect relationship between culture and performance (see Chapter Two). Nevertheless, this indicates a small degree of positive association between EC and firm performance measures necessary for criterion-related validity.

6.6.5 Discriminant Validity

Discriminant validity is an important aspect of developing the nomological network to determine if entrepreneurial culture offers a distinct contribution from other constructs it is expected to be related to. As noted in Chapter Three, entrepreneurial orientation (EO)

is an important construct in the entrepreneurship literature reflecting the extent to which a firm is entrepreneurial in its strategic posture (Anderson et al., 2009). While EO has been acknowledged as being distinct from an organizational culture (Covin & Lumpkin, 2011) and EO focuses on firm strategy, EO certainly shares some conceptual similarities with EC. For instance, EO and EC are both firm-level entrepreneurship concepts which broadly focus on the "entrepreneurialness" of the organization. The component dimensions of EO include Innovation, Risk-Taking, Proactiveness, Competitive Aggressiveness, and Autonomy, areas which share similarities with the proposed EC dimensions. While EO addresses different focal elements (e.g., the behaviour of the firm in general), several of the overall concepts are similar to EC, such as pursuing opportunities and encouraging innovation. These connections suggest that EO is an appropriate construct to compare EC with.

This study assessed EO using a 17-item instrument that measured the 5 dimensions of EO and 2 global reflective indicators. The entrepreneurs provided this firm-level data, acting as the head (top management) representative of the organization. By virtue of their role in the company, the entrepreneurs were considered knowledgeable experts on their firm's strategies and activities. This discriminant validity check focuses on three aspects of EO, namely Innovation, Risk-Taking, and Proactiveness, which were each measured by three reflective items. I treated each dimension as a separate construct for the purposes of the discriminant validity comparisons. While there is an ongoing theoretical conversation about the conceptual nature of EO and its implementation (cf. Covin & Lumpkin, 2011), these dimensions and their measurement have a well established research history in entrepreneurship. To conduct the discriminant validity check MacKenzie et al. (2011) suggest a process for comparing pairs of constructs against one another other. This process calls for examining whether the AVE for each construct is greater than the squared correlation between the constructs. Essentially this examines if each construct accounts for more of the variance in its own indicators than it shares with the other construct. Construct pairs can be compared one at a time (i.e., EC with Innovation, EC with Risk-Taking, EC with Proactiveness) to derive the AVE and correlation values. The procedure entails averaging the squared completely standardized item loadings for each of the constructs indicators, and then comparing these averages to the square of the

correlation between the two constructs of interest (see MacKenzie et al., 2011:324). If the two constructs are indeed distinct, then the AVEs for each construct should be higher than the square of their intercorrelation.

The pair comparisons can be set up as individual CFAs in MPlus examining EC and the Innovation, Risk-Taking, and Proactiveness constructs separately, each measured by their respective three reflective items (e.g., EO2, EO3, EO4). The standardized factor loadings for the five EC dimensions (acting as the five reflective indicators of EC) remain the same throughout. The standardized item loading for each of the three EO constructs (i.e., each EC to EO comparison was run separately) change in each comparison. Table 24 presents the loadings, the squared loadings, and the correlations between the EC and EO latent variables.

Following MacKenzie et al.'s (2011) procedure, it is clear that for each pair of constructs, the average squared loading for each construct is greater than the square of their intercorrelation. For example, with the EC-INN pair, the average squared loading of EC is .72 and the average squared loading of INN is .6; each of these values is higher than the square of their intercorrelation, .0009. This demonstrates discriminant validity between EC and the EO Innovation dimension. If there were no discriminant validity between these constructs then the square of their correlation would be higher than each of their squared loadings. This would correspond to greater shared variance between the constructs compared to the construct's own indicators. Since the shared variance between constructs did not exceed the average squared loadings for each pair, EC demonstrates discriminant validity compared to each of the three EO dimensions. It should be noted, however, that the correlations between EC and each of the EO dimensions were quite low. Thus, EC does not appear to be strongly related to EO, or at least these particular three dimensions of EO. This is consistent with past literature which emphasizes that EO and EC are indeed distinct conceptualizations of firm-level entrepreneurialness.

Table 24 Discriminant Validity Construct Pair Comparison

EC	**Loading**	**Loading^2**
OE	0.922	0.85
SA	0.724	0.52
C	0.871	0.76
LDS	0.863	0.74
ODC	0.864	0.75
Average		*0.72*
	Correl.	**Correl.^{2}**
EC-INN	0.03	0.0009
EC-PRO	-0.017	0.000289
EC-RT	0.042	0.001764

Innovation	**Loading**	**Loading^2**
EO2	0.578	0.33
EO3	0.775	0.54
EO4	0.957	0.92
Average		*0.6*
Proactiveness		
EO5	0.821	0.67
EO6	0.872	0.76
EO7	0.307	0.09
Average		*0.51*
Risk-Taking		
EO8	0.911	0.83
EO9	0.63	0.4
EO10	0.717	0.51
Average		*0.58*

6.6.6 Model Summary

The chapter to this point describes a fairly complex journey in the exploration of the entrepreneurial culture construct. Originally this study proposed a first-order reflective, second-order formative, multidimensional model of entrepreneurial culture. After thoroughly analyzing the data and the proposed model, it became clear that the original model as hypothesized was not a compelling fit with the data. While limitations of the data represent possible explanations for this unexpected result, I pivoted the conceptual underpinning of the model to consider a possible first-order reflective, second-order reflective multidimensional model specification. This pivot represents an ontological change which suggests that entrepreneurial culture is not constructed, but rather, exists as a latent, underlying aspect of a firm's organizational culture. Drawing comparisons between Judge et al.'s (2003) conceptualization of a latent underlying personality trait causing change in lower-order traits, I drew the analogy of entrepreneurial culture as a form of higher-order personality trait of the organization (existing among other possible traits). From this perspective, variations in entrepreneurial culture in firms cause changes in five related sub-dimensions as indicators, which are in turn observed by measured variables. This conceptualization seems a plausible alternative explanation of entrepreneurial culture as a phenomenon.

This alternative model specification appeared to fit the data well, indicating that empirically this reflective model may be accurately underlying the observations. Based on the strength of these empirical results, it appears warranted to apply MacKenzie et al.'s (2011) evaluation criteria for assessing indicator and construct reliability and validity. The results of these analyses indicated that the set of items were reliable, convergent measures, and that EC demonstrated the expected relationships with other constructs. EC was positively, albeit weakly, associated with the subjective performance of a firm. EC was distinct from aspects of EO which was considered a related entrepreneurial construct. Accepting the reflective specification, collectively these tests indicate that EC as a higher-order latent construct measured by five sub-dimensions is a reliable and valid representation of an organization's entrepreneurial culture. While there

is considerable work left to be done to further develop the construct, such as cross validating the scale and developing norms for the scale (MacKenzie et al., 2011), the data presented in this analysis provide a solid empirical foundation for the entrepreneurial culture construct.

6.7 Evaluating Interrater Agreement

As a last layer of analysis of the data collected, the degree to which respondent's views within firms agree with one another can also be examined. This helps to address the issue introduced in Chapter Two that past culture research evaluating organizational culture has tended to do so through only one respondent's perspective. While the ICC value calculated as part of the SEM process is related to this analysis, it represents only one part of variance-based agreement analysis. *Interrater agreement* (IRA) indices take a much more firm-specific look at the level of agreement between raters within an organization. Although SEM helps to model the overall structure of the data, IRA analysis is important for answering firm-specific questions about levels of agreement. IRA analysis also provides an important counter-point to the practice of taking one respondent's perspective on culture as indicative of the *overall* organizational culture. Given that the CFA process has established the overall framework for the EC construct, IRA analysis can help examine some of the micro-level differences within firms using this construct.

6.7.1 Aggregation Indices

Generally speaking, indices of IRA are used to gauge the level of agreement or absolute consensus between raters or judges who are evaluating a single target. For example, students in a class rate an instructor, television viewers rate a show, or in this case, employees rate their firm's entrepreneurial culture. The primary question with IRA is whether or not the raters are interchangeable with one another. If one wanted to make inferences about the kind of organizational culture a firm possessed, would it matter if you asked Rater A or Rater B? One might reach different conclusions if Rater A and Rater B were highly interchangeable (i.e., high agreement) than if they were barely interchangeable (i.e., low agreement). Conceptually, IRA differs from indices of *interrater reliability*, which concern the relative consistency in rank orders provided by

multiple raters of multiple targets (LeBreton & Senter, 2008). For example, if multiple students rated multiple instructors, how consistently are students in these classrooms evaluating or discriminating across faculty? Are raters rank ordering targets in a consistent manner? It is possible that raters can have perfect reliability but non-existent agreement.

In cases where a single individual is surveyed for the purposes of representing an entire organization's culture, this is an implicit assumption of perfect IRA. In other words, one respondent's perspective on culture is perfectly interchangeable for any other organizational rater. This is a very strong assumption which intuitively seems unlikely to be true, hence past concerns from researchers about the characterizations of culture from a management-centric perspective (Alvesson, 2002). In fact, as past in-depth research into culture has indicated, there are likely to be many different interpretations and sentiments towards organizational culture (Kunda, 1992). For these reasons this research has endeavoured, since the onset, to sample a number of organizational respondents and use agreement indices to evaluate consensus on culture within the firm.

At least three different kinds of aggregation index can be used to evaluate IRA. This included the traditional variance comparison index *rwg* (James, Demaree, & Wolf, 1984; LeBreton & Senter, 2008), the more recent average deviation index *AD* (Burke & Dunlap, 2002; Burke, Finkelstein, & Dusig, 1999), and the most recent ratio agreement index, *awg* (Brown & Hauenstein, 2005). For rwg, single item rwg(1) and multiple item rwg(j) indices were calculated using both the traditional uniform null distribution and the slight skew distribution for comparison (LeBreton & Senter, 2008). The formula for rwg(1) is:

$$r_{WG} = 1 - \frac{S_X^2}{\sigma_E^2},$$

where S_x^2 = (observed) variance and σ_E^2 is the variance obtained from a theoretical distribution representing different proportions of responses. The formula for rwg(j) is:

$$r_{WG(J)} = \frac{J\left(1 - \frac{\overline{s}^2_{X_j}}{\sigma^2_E}\right)}{J\left(1 - \frac{\overline{s}^2_{X_j}}{\sigma^2_E}\right) + \left(\frac{\overline{s}^2_{X_j}}{\sigma^2_E}\right)},$$

where $\overline{S}^2_{X_j}$ is the mean of the observed variances for *J* essentially parallel items.

For AD, single item ADM(j) and multiple item ADM(J) indices were also calculated. These formulas essentially represent the average deviation of the scores from their central tendency (mean). However, because it has been argued that the use of the median instead of the mean is more robust in cases with high observed variance and small samples (Burke, Finkelstein & Dusig, 1999), median calculations were used as well. These indices are called ADMd(j) and ADMd(J) for a single item and multiple items, respectively. The formula for ADM(j) is:

$$AD_{M(j)} = \frac{\sum_{k=1}^{K} \left| X_{jk} - \overline{X_j} \right|}{K}$$

where *k*=1 to *K* judges, X_{jk} is the *k*th judge's rating on the *j*th item and $\overline{X}_j$ is the item mean (or median in ADMd(j)) taken over the judges. The formula for ADM(J) is the average of the ADM(j) scores over the *J* items.

Brown and Hauenstein (2005) argued that both the rwg and AD indices can be problematic because of their use of the *uniform distribution*. In the case of rwg, the uniform distribution is commonly used as the comparative distribution (σ^2_E). In other words, the observed variance is compared against a uniform distribution of responses indicating random responses (e.g., an equal probability of responses 1-5 on a 5-point Likert scale). However, Brown and Hauenstein (2005) argue that the use of the uniform distribution is inappropriately applied in the majority of cases because the population of respondents is unlikely to truly respond in a random fashion. The use of different

probability distributions has been advocated to address this concern, however Brown and Hauenstein (2005) and others (e.g., LeBreton & James, 2008) argue that these need to be theoretically justified. The AD index does not use a distribution directly; instead the range of values constituting acceptable levels of agreement is indexed to a distribution. Brown and Hauenstein (2005) developed the awg index as an index unreliant on a probability distribution for comparison. As with rwg and AD, the awg index exists for individual items, awg(1), and multiple items, awg(j). The awg index is based on Cohen's kappa, which estimates the level of agreement as a ratio of cases in agreement. The formula for awg is:

$$a_{WG} = 1 - \frac{2 * S_X^2}{\left[(H + L) * \overline{X} - (\overline{X}^2) - (H * L)\right] * \left[K/(K-1)\right]},$$

where H and L are the high and low rating anchors (5 and 1 respectively on a 5-point Likert scale), S^2_x is the observed variance, $\bar{X}$ is the observed mean, and K is the number of judges. For multiple items, awg(j) is calculated as the average of the awg(1) scores over the J items.

While the different indices have various attendant standards for the evaluation of acceptable levels of agreement, in a comprehensive review on the subject of IRA, LeBreton and Senter (2008) argue for plurality. LeBreton and Senter (2008) indicated that the various measures of IRA tend to yield highly consistent conclusions. Monte Carlo simulations find highly convergent results among the indices. As a result, generally speaking, the indices can be used together to "point in the right direction." In any case, the use of agreement indices and the standards for determining acceptable levels of agreement should be dependent on the context of the study, the nature/severity of the decision being made with the information (e.g., rating a TV show versus firing an employee), as well as the judgment of the researcher (LeBreton & Senter, 2008).

6.7.2 IRA Analysis Results

I initially calculated the rwg, AD, and awg indices for each firm using the five reflective indicators per dimension. These calculations were repeated once the three item indicators of the dimensions were selected through the factor analysis steps. This yielded a series of values for each firm reporting the mean for each dimension and the level of agreement demonstrated for each index. The five item versus three item calculations were relatively the same, however, because of the factor analysis results the three item calculations superseded the five item calculations. Given the concerns expressed by the various scholars on aggregation indices noted above, it was necessary to establish a set of evaluation criteria to assess levels of agreement. The reason why a set of criteria were selected rather than simply choosing one index over another is because each index possesses its own sensitivities to sample size and variance. Choosing a single metric such as rwg(j) with the uniform distribution may be too lenient of an agreement standard, while awg(J), for example, may be too strict. Given LeBreton and Senter's (2008) comment about the IRA indices generally converging, incorporating several metrics into an overall set of criteria seemed prudent. These criteria are listed below from most liberal to most conservative standard.

1. rwg(j) using the uniform distribution was treated as the upper bound on agreement. Moderate or below agreement (< .5) on rwg(j) would likely indicate weak or unacceptable levels of agreement from the other indices (LeBreton & Senter, 2008).

2. rwg(j) using the slight skew (i.e., higher probability of scoring two or four on the scale) was treated as a slightly more conservative form of rwg(j) (uniform).

3. ADMD(J) adjusts for outliers in the set of observations by using average deviations from the median. On a 5-point scale, an index of < .83 was considered acceptable agreement (Burke & Dunlap, 2002).

4. ADM(J) is a somewhat redundant index given that in an evenly distributed set of observations the mean and median would be very similar. However, this value was still calculated and treated as a slightly more conservative form of average deviation.

5. The awg(J) index was considered the most conservative metric, calculated as it was based on observed variance, mean, scale anchors, and number of raters. Given the newness of the scale and the influence of outliers on observed variance in small samples, awg(J) may be perhaps too conservative. Nevertheless, .6-.79 is considered reasonable levels of agreement, while .8-1 is considered strong agreement (Brown & Hauenstein, 2005).

This set of criteria can thus be used to form a general, interpreted level of overall agreement for each dimension of the construct for each firm. A level of agreement of the three general reflective Entrepreneurial Culture items could also be calculated, representing a sixth overall EC dimension. The level of agreement was broken into five categories: unacceptable, weak, moderate, strong, and very strong. Assigning the categories a five-point scale value (e.g., unacceptable = 1, very strong = 5) allows for the creation of a general sum score of aggregation. Across firms, the SA dimension exhibited the highest aggregation score (123) while LDS exhibited the lowest aggregation score (72). A perfect score of 210 represents the various firms largely agreeing on the ratings of these individual dimensions, while a score closer to 0 represents virtually no agreement.

Within firms the highest aggregation score was 26 out of 30 possible points while the lowest was 7 out of 30. A perfect score of 30 represents the employees within the firm being in (relatively) complete agreement on the different dimensions, while a low score represents the opposite. These scores were irrespective of the actual mean score for the firm; high or low agreement scores do not necessarily correspond to high or low mean scores either across or within firms. Since the calculations largely rely on observed variance (deviation from central tendency), as long as the variance in results was relatively low by virtue of respondents choosing similar responses, aggregation scores

would be higher. Table 25 presents the mean scores and aggregation assessments over the different dimensions for each company, as well as the sum totals for the aggregation across dimensions and within firms. The table is sorted from lowest to highest levels of aggregation.

The results were surprising for a number of reasons. While there was a certain expectation of lack of agreement, the degree to which respondents tended to disagree was quite high. Only 8 out of the 41 companies demonstrated agreement of moderate or better on at least 5 of the 6 dimensions. Only one company in the whole selection of firms demonstrated strong or better agreement on all dimensions. Nearly half the firms had agreement scores of weak or worse on the majority of dimensions. These results suggest several important conclusions. First, it seems clear that surveying a single organizational respondent on a construct like organizational culture is insufficient. Poor aggregation scores indicate that respondents are generally only weakly interchangeable with one another and individually do not reflect a collective sense of the culture well at all. Second, at least within this selection of firms, exhibiting high aggregation and thus, highly similar ratings by employees, is a comparatively rare event.

In future research, an expectation among firms for high levels of culture agreement is likely unwarranted. Third, from an analytical standpoint, the use of a single aggregation index, such as rwg, may not be sufficient for evaluating agreement (cf. Schaubroeck et al., 2012). For example, relying on the cut-offs for rwg alone would have seen a much higher number of scores included as in at least moderate agreement. Utilizing multiple aggregation indices imposes a much more stringent agreement standard, but is perhaps appropriate when evaluating a collective construct like organizational culture or "culture strength" (Colquitt et al., 2002).

Table 25 Firm-level Means and Aggregation (IRA) Scores

CID	OE	SA	C	LDS	ODC	EC	OE Agg	SA Agg	C Agg	LDS Agg	ODC Agg	EC Agg	Sum Within
11035	2.98	3.86	3.66	3.01	3.54	3.1	1	2	1	1	1	1	7
12002	3.26	4.33	3.82	3.06	3.15	3.08	1	1	2	1	1	1	7
12019	4.03	4.56	3.97	3.92	3.75	4.22	1	2	1	1	1	1	7
13018	3.38	4	3.67	2.57	3.32	3.04	1	2	1	1	1	1	7
5033	3.59	4.14	3.82	3.31	3.08	3.25	1	3	1	1	1	1	8
10028	3.73	4.08	3.67	3.42	3.55	3.91	1	3	1	1	1	1	8
10035	4.01	4.18	4.17	3.78	3.75	3.97	1	1	1	1	2	2	8
12031	3.83	4.36	3.52	3.36	3.21	3.45	1	3	1	1	1	1	8
4023	4.11	4.39	4.12	4.14	3.91	4.26	3	1	1	1	2	1	9
7008	4.14	4.36	3.81	3.81	3.69	4.08	1	4	1	1	1	1	9
12028	3.56	4.32	3.77	3.23	3.71	4.09	2	2	1	1	1	2	9
5038	3.7	4.27	4	3.21	3.52	4.22	1	2	4	1	1	1	10
7004	3.68	3.93	3.78	3.31	3.64	3.57	4	1	1	1	2	1	10
11030	3.69	4.26	4.1	3.45	3.96	3.69	2	2	1	2	2	1	10
5037	3.91	4	3.93	3.67	3.56	4.16	2	1	1	2	1	4	11
10033	3.38	4.17	3.86	3.29	3.29	3.24	2	4	2	1	1	1	11
13011	3.68	4.23	3.79	3.5	3.78	4.13	2	2	1	1	2	3	11
11006	3.72	4.42	4.07	4.03	3.71	4.13	2	4	1	1	2	3	13
13030	3.71	4.16	3.51	3.53	3.39	4.04	4	1	1	1	2	4	13
8006	4.08	4.56	4.53	3.25	3.81	4.06	4	4	3	1	2	1	15
12045	3.03	3.45	3.55	3.67	3.21	3.61	2	2	1	4	1	5	15
10041	4.28	4.52	4.51	3.98	4.11	4.27	3	2	4	1	3	3	16
12043	4.15	4.31	3.91	3.7	3.76	4.11	3	4	1	2	2	4	16
13004	4.28	4.59	4.36	3.74	3.95	4.38	3	4	2	1	2	4	16
13009	4.02	4.45	4.35	3.37	3.51	3.59	3	4	4	1	1	3	16
9009	4.31	4.5	4	3.17	3.78	3.97	1	4	2	4	2	4	17
8011	4.48	4.82	4.41	4.32	4.03	4.41	3	4	1	3	3	4	18

Table 25. Firm-level Means and Aggregation (IRA) Scores con't.

CID	OE	SA	C	LDS	ODC	EC	OE Agg	SA Agg	C Agg	LDS Agg	ODC Agg	EC Agg	Sum Within
8028	3.98	4.41	4.4	4.16	3.98	3.91	5	4	2	1	4	2	18
11005	4.11	4.37	4.28	4.2	3.94	4.39	3	4	2	3	4	2	18
12020	4.19	4.54	4.21	3.98	3.83	4.17	5	1	2	4	5	1	18
13002	3.8	4.59	3.98	4.13	3.61	3.93	3	4	4	2	2	4	19
5023	4.14	4.39	4.21	4.02	3.96	4.11	4	5	4	3	3	1	20
6010	4.14	4.39	4.31	3.97	3.81	4.03	5	5	4	1	1	4	20
6016	4.05	4.67	4.5	4.05	4.05	4.2	5	3	4	1	3	4	20
12039	4.03	4.69	4.44	4.1	4.31	4.46	3	4	4	1	4	4	20
8003	4.44	4.64	4.68	4.49	4.11	4.36	4	4	4	4	4	1	21
13032	4.36	4.56	4.28	4.03	4.03	4.72	5	3	4	2	2	5	21
9041	4.07	4.56	4.44	4.41	3.82	4.24	4	4	4	3	2	5	22
12025	4.26	4.5	4.33	4.4	4.14	4.18	4	4	4	4	2	4	22
11039	3.82	4.31	4.04	3.34	3.61	3.61	4	4	4	1	5	5	23
8034	4.55	4.77	4.6	4.3	4.03	4.38	4	5	4	4	5	4	26
Grand Mean (EMP)	3.92	4.36	4.08	3.72	3.73	3.97	113	123	92	72	88	105	**Sum Btwn.**
Grand Mean (ENT)	4.2	4.67	4.41	4.03	3.93	4.28							

6.7.3 Comparing Employee and Entrepreneur Means

Along with the levels of aggregation within a firm, it is also useful to compare the employee's mean ratings with the entrepreneur's. This comparison more directly addresses the issue of a single management respondent reflecting the company's culture versus a collective assessment of individual ratings. Grand means were presented at the end of Table 25. Simply comparing the mean scores of the entrepreneurs against the means scores of the employees in their company by inspection, in 34 out of 41 cases, the entrepreneurs rated their entrepreneurial organizational cultures *higher* than the employees. In the remaining seven cases, the employees rated the entrepreneurial culture higher than the entrepreneurs. Summing the scores across the different dimensions (including the overall EC measures) the differences in scores within firms ranged from .48 to 5.42 points with an average absolute difference of 1.22 points. Omitting the overall EC measures, this difference ranged from .05 to 4.95 points with an average absolute difference of 1.98 points. With only two mean points of comparison per firm it is not possible to determine the statistical significance of these various differences. However, the emergent pattern appears to be that entrepreneurs tend to *over-estimate* their firm's entrepreneurial culture, relative to their employees. This over-estimation was fairly consistent across every dimension. There was an average over-estimation of .32 with a range from .03 to 2.05.

These discrepancies in culture evaluation coupled with the generally low aggregation scores present clear evidence that cultural evaluations within organizations can be problematic when relying on single respondents. Not only is there the potential for a general lack of agreement among respondents but also the potential for even a knowledgeable insider, such as a founder or owner-manager, to inaccurately assess the culture. In this case, the culture tended to be inaccurately assessed upward in that the culture was rated as more entrepreneurial by the entrepreneur than by the employees. However, there were three firms where the entrepreneur's assessment and the employees' assessments were within .5 (averaged) scale points of each other, indicating that it is possible for some entrepreneurs to have a very accurate gauge of the culture.

Nevertheless, the vast majority of firms exhibited cultural rating over-estimation by the entrepreneurs.

6.8 Conclusion

This chapter presented the sample, methods, and analysis used in Phase Three of the study, the organizational survey. This phase represents an important breadth component of the study, as the survey and the ideas developed in Phases One and Two were deployed to hundreds of respondents in dozens of firms. The analytical work conducted here reveals support for the proposed factor structure of the construct (i.e., five dimensions), as well as indications of reliability and validity in the measures. This was supported when using multilevel analysis techniques required for the nested collected data. However, the initial results indicated that the proposed formative model did not seem to be underlying the empirical results. Despite employing alternative identification techniques, it appeared that formative model was not well supported.

While theory should be driving methodological considerations, in the face of the results it made sense to consider alternative conceptualizations of the model. I discussed the plausibility of a reflective conceptualization of the model. If we consider the reflective model specification as a logically possible alternative interpretation of the model, this leads to a model that appears to fit the data in the expected way. This model also demonstrates the required criterion and discriminant validity. Finally, analyzing the interrater agreement indices of the data reveals that ratings of the culture are not necessarily homogenous and that it is possible that entrepreneurs can actually be incorrectly over-estimating their firm's entrepreneurial cultures. These results and the results from the other phases are discussed in greater detail in the next chapter.

Chapter 7 : Discussion

7 Overview

This chapter draws the dissertation to a close by discussing the main themes of this research and their subsequent implications. The discussion begins with a brief summary of the state of entrepreneurial culture research to recap the existing knowledge base from which this work began (Section 7.1). The core of this chapter discusses advancing entrepreneurial culture research and describing what I found and its implications on our understanding of the phenomenon and the construct (Section 7.2). This section breaks down the main points of the study's findings, their meaning, and the limitations present in the way this research was approached. Based on these developments, this chapter presents a future roadmap for entrepreneurial culture scholarship, introducing several research streams that can help build our understanding of the construct (Section 7.3). I also discuss key implications for practitioners, both entrepreneurs and managers in general (Section 7.4). This chapter then concludes with a brief overview summary of the dissertation (Section 7.5).

7.1 Identifying the State of Entrepreneurial Culture Research

What is *entrepreneurial culture?* What is it supposed to mean and what is its purpose? Is entrepreneurial culture a label of convenience? Is it a buzzword devoid of substance? These questions were posed at the beginning of this study based on the observation that entrepreneurial culture's theoretical development has been lagging. While a great deal of content has been written about the subject, fundamental questions about entrepreneurial culture as a construct remain unanswered. From a conceptual perspective, entrepreneurial culture appears to lack consensus around its definition, conceptual theme, domain, dimensionality, ontological position, and measurement. From a strict construct development and theory building perspective, these deficiencies have been an impediment to research (cf. MacKenzie, 2003; MacKenzie et al., 2011). Previous scholars note that entrepreneurial culture is important and related to a number of critical outcomes (e.g., Hornsby et al., 1999; Hult et al., 2003). However, this equivocal body of

work means that researchers cannot be sure they are studying the same thing. The ideas behind entrepreneurial culture present in the literature, namely a culture which encourages specific behaviours and norms found broadly in entrepreneurship, seem plausible and likely correct. Yet these disparate ideas have lacked a unified focus. The elements of a theoretical foundation have been present all along, but few researchers have attempted to build this foundation into a clearly organized construct.

From a methodological perspective, the existing literature has also ignored the agreement aspect of culture (cf. Weinzimmer et al., 2012). For example, culture has been assessed from a single organizational informant (e.g., Bradley et al., 2011; Minguzzi & Passaro, 2000) or averaged over a group of employees (e.g., Cakar & Erturk, 2010). These approaches implicitly take the shared nature of culture for granted. The former assumes that a single respondent speaks accurately for the organization (i.e., the atomistic fallacy), and the latter assumes that the mean rating represents the "true" evaluation (i.e., the ecological fallacy) (Rabe-Hesketh & Skrondal, 2012). It appears as though few empirical studies of entrepreneurial culture incorporate multi-level analytical procedures. This is particularly problematic given the broader culture literature's long standing acknowledgement that culture is complex and heterogeneous (e.g., Alvesson & Berg, 1992; Cable, Aiman-Smith, Mulvey, & Edwards, 2000; Frost, Moore, Louis, Lundberg, & Martin, 1985; Kunda, 1992). Failing to address this complexity of culture means that potentially incorrect conclusions may be drawn about culture's role in and effect on organizations.

To be certain, past entrepreneurial culture work has largely pointed in the same direction and has effectively connected organizational culture with the broader entrepreneurship literature (cf. Ireland et al., 2009; Ireland et al., 2003). However, gaps in the theory remain substantial and if future work is to advance our understanding of entrepreneurial culture as a phenomena *and* a theoretical construct, more work must be done to substantiate the construct. Addressing these gaps and establishing a path for future studies was the goal of this research.

7.2 Building on Entrepreneurial Culture Research

By presenting a conceptually and empirically sound specification of the entrepreneurial culture construct, this study attempts to resolve these various conceptual issues. As this is a relatively new construct, the findings of this research make a number of scholarly contributions to the study of entrepreneurial culture. The following subsections discuss the meaning and implications of the empirical findings. These sections also note relevant limitations which provide necessary context for the interpretation of these findings.

7.2.1 What is Entrepreneurial Culture?

Entrepreneurial culture is defined as a culture centrally concerned with opportunities; a definition largely supported by the data. This "central concern" manifests itself as values, assumptions, and practices that demonstrate a focus on supporting, facilitating, and executing on new and existing opportunities. In other words, opportunities are the motivations and the goals in such cultures. The interviews were a clear opportunity to sit down with entrepreneurs and delve into this underlying nature of entrepreneurial culture. When asked open-ended questions about entrepreneurial culture, the respondents, with little priming, consistently highlighted the driving importance of opportunities. They described entrepreneurial culture in a variety of ways, such as being flexible, taking charge, taking risks, and chasing ambitious goals.

But why were opportunities so important? Certainly "opportunity" like "innovation" is a biased term, with an inherent positive connotation (Van de Ven, 1986). Yet, the numerous examples from the entrepreneurs demonstrate that their organizations truly were doing something about these opportunities. Their organizations were constantly in motion, in some cases bidding on new contracts or trying to win new clients. In other cases brokering new deals with suppliers or manufacturers. There was a strong underlying theme that the entrepreneurs believed that the ability to develop and go after opportunities is what made organizations entrepreneurial. Going after opportunities is what excited and inspired them. The challenge typically arose from trying to make the management team and employees at every level be equally excited and prepared for all the effort required in the pursuit of opportunities. This speaks to the important *cultural*

component of entrepreneurial culture, in that problem solving and modeled behaviours create the underlying assumptions that drive action (Sackmann, 1992; Schein, 1990). Long hours, hard work, thinking of strategies and ideas, and communication help shapes the culture.

By connecting entrepreneurial culture more closely with opportunities, the construct becomes more concise and clearly articulated. A lengthy list of characteristics and attributes (e.g., Shepherd et al., 2010) can be subsumed under the broader concept of opportunity. Furthermore, the definition ties into long-standing theory of organizational culture by tapping the established cultural elements of values, assumptions, and practices (Schein, 1990). These elements provide conceptual clarity as to what culture is supposed to mean and refer to. Collectively, this understanding of the construct helps make entrepreneurial culture more accessible to theoretical development. By defining and bounding the construct, researchers can begin to explore and test the myriad connections between this construct and others in the field.

A potential limitation with this particular group of entrepreneurs is that they were a convenience sample, identified by a shared personal connection via Quantum Shift. As a result, in this kind of interview there is a distinct possibility of the respondents providing answers they might expect me to want to hear or perceive as most helpful to my research (i.e., an observer-expectancy effect) (Warren, 2002). To mitigate these concerns I structured the questions to be suitably open-ended in order for the respondents to provide as much of their own thoughts as possible. Additional prompts typically asked if they could provide more information and avoided leading the response (cf. Johnson, 2002). Overall, the entrepreneurs appeared to be responding candidly and in a forthright manner. They seemed equally comfortable recalling anecdotes which portrayed their organization and themselves in both a positive and negative light. All things considered, this made the responses appear trustworthy and their insights into entrepreneurial culture seem genuine. Data of this sort is inherently difficult to obtain and a convenience sample has allowed me privileged access to collect a significant amount of unique and interesting data.

7.2.2 The Multi-Dimensional Nature of Entrepreneurial Culture

Where past theory outlined a sensible but unfocused collection of characteristics and attributes of entrepreneurial culture, this research identifies the central theme (i.e., opportunities) and the distinct underlying dimensions describing the construct. If we can identify essential and relatively unique characteristics of the construct (removing any of which restricts the conceptual domain of the construct) then we have identified core dimensions of that construct (MacKenzie et al., 2011). I developed *a priori* a theory-derived set of five sub-dimensions of entrepreneurial culture. The five sub-dimensions were created by categorizing the various characteristics and features attributed to entrepreneurial culture, as well as incorporating others from the broader entrepreneurship literature. This was consistent with past organizational culture studies which often deductively arrive at the culture dimensions of interest (Sackmann, 2006).

The qualitative data generally supported the existence of these five dimensions. The entrepreneurs provided evidence of these various dimensions in action in their organizations through their own experiences and examples from the workplace. Collectively, these reports describe distinct facets of the culture at play in the organization. These data largely confirmed expectations but with added nuance and context provided by the entrepreneurs. This led to changes in the wording of the pre-test questionnaire items to be more representative of the ideas presented by the respondents. From a quantitative perspective, both the exploratory and confirmatory factor analyses supported a five dimensional model of entrepreneurial culture. The conceptualization of entrepreneurial culture developed here thus moves theory forward. This conceptualization goes beyond functional but less comprehensive past models. For example, Bradley et al. (2011) focused on creativity and new ideas as their defining characteristics of entrepreneurial culture, and measured management perceptions towards new ideas. Minguzzi and Passaro's (2000) work focused on personal values and managerial skills, and measured demographic variables. While this past work is important for its relatively rare empirical examination of entrepreneurial culture, it highlights that past models were far more limited in their conceptualizations of

entrepreneurial culture. These models neglect broader understanding of both entrepreneurial and organizational culture.

Whether the conceptualization described throughout this thesis is "correct" from either a formative or reflective perspective remains to be seen. As this study has challenged past conceptualizations of entrepreneurial culture, so too might additional research challenge this conceptualization. However, such theoretical development needs a starting point, which is what this study aimed to achieve. By establishing the necessary core, conceptual aspects of entrepreneurial culture, the field now has a solid construct from which to build.

Going forward, it is important to temper these conclusions by noting that admittedly the results of the factor analysis could have been stronger. While the loadings were largely above recommended cut-offs, higher values for all the items would have provided stronger evidence (Floyd & Widaman, 1995). While great efforts were made to develop the items and carefully structure them for face and content validity (e.g., Hinkin & Tracey, 1999; Spector, 1992), as with all scale development work, there is more to do. This includes cross-validating the scales (i.e., testing the model with new samples of data) and developing new norms (i.e., determine a distribution to help aid in the interpretation of scores) (MacKenzie et al., 2011). However, given some of the indicator issues identified in Chapters Five and Six, it is clear that the existing items themselves would benefit from some supplementary work, perhaps even before undertaking cross-validation. This supplementary work may include creating additional new items (while retaining the old ones) and redoing the content validity check as well as the factor analysis (Hinkin, 1998).

While a fairly substantial additional step, this might be warranted for a number of reasons. Testing only five items per dimension with the intention of dropping two may have been too restrictive. Other scale development examples have often used a battery of a dozen or more items per dimension before engaging in refinement (e.g., Eby et al., 2008; Ferris et al., 2008). This was considered impractical in this research given the volume of questions this would have involved asking respondents. However, this is

likely a necessary step to help further substantiate the scale. It would also help to ensure that the dimensions (i.e., the desired conceptual domain of the construct) were being adequately covered by the measures. Testing additional items would also likely help issues identified in the factor analysis, namely low factor loadings and cross-loadings. Having a greater number of items would provide more choice in the refinement step.

7.2.3 A Reflective Measurement Model

Siding with a constructivist interpretation, this study initially adopted the perspective of entrepreneurial culture as a multi-dimensional *formative* construct. Entrepreneurial culture was viewed as invented by researchers; created as a particular kind of culture formed from lower-order dimensions which collectively measure "entrepreneurial culture" (cf. Bollen, 2007). While the underlying logic justifying the formative conceptualization of entrepreneurial culture remains sound, the organizational survey results call this specification into question. Certainly, theory should be driving the measurement model rather than the empirics, particularly in the context of construct development (Edwards & Bagozzi, 2000). Nevertheless, the story emerging from the data cannot be discounted. The resultant structural equation model describes a conceptually counter-intuitive formative model. Although this is potentially an artifact of the sample, the task remains to try and explain the observed result. If not the proposed formative model, then what model might more accurately be describing the data?

In the absence of collecting new data and/or using new measures, one possible approach was to revisit the measurement model as a potential *reflective* conceptualization instead. As might be expected, a reflective conceptualization presents an important philosophical shift in the interpretation of the construct (Bagozzi, 2007). Entrepreneurial culture might instead be re-envisioned as a kind of underlying cultural trait of an organization. Rather than being interpreted as an invented subtype *formed* for research purposes, perhaps it might be seen instead as an invented descriptor *reflecting* an underlying, fundamental aspect of the organization. From a reflective conceptualization, variations in this underlying entrepreneurial culture causes changes in its sub-dimensions which are manifested as observed, measured variables (cf. Judge et al., 2003). In other words, from a realist perspective entrepreneurial culture is a kind of underlying, latent cultural

attribute of an organization. The origin of such a culture is an open question, perhaps as a geographic, societal, or national culture derivation or as an unlocked potential or dormant aspect of an earlier start-up age. In any case, accepting this alternate, reflective conceptualization as a plausible interpretation of the construct gives rise to a new analysis, albeit utilizing similar SEM methods. Such a model was tested and yielded a good fit with the data with hypothesized paths as expected. While subsequent research may - and indeed should - revisit this conceptual problem, in this initial exploration at least, a reflective specification of entrepreneurial culture seems conceptually and empirically sound.

As an important limitation of this particular finding, it is worthwhile to reiterate that the empirical result and conclusion of a reflective rather than formative model may be an artifact of the data. In other words, with a different set of indicators and/or with a different set of data, a different result may have been produced. This is because a unique solution for the provided paths is derived from the data (i.e., model identification) and thus, the results are data driven (Kline, 2005). An artifact or one-off result is therefore closely linked with the survey items in the factor analysis step. Subsequent evaluations with a potentially more robust (or at least more numerous) set of dimensional indicators may yet provide evidence of the formative conceptualization of the model. Conversely, greater evidence may be provided of the reflective model through additional replication of this initial result. In any case, the relevant lesson is that further testing of the model with additional data is central to empirically evaluating and substantiating the conceptual model of entrepreneurial culture. A more conclusive picture of this model will thus be derived from consistent replication, whether formative or reflective, of the results across different samples of data.

7.2.4 Psychometric Properties of the EC Scale

A crucial outcome of this study was the development of a preliminary measurement scale of the construct. While some have argued that organizational culture research is best suited to in-depth ethnographic work (cf. Weber & Dacin, 2011), it is difficult to discount the tremendous reach available to survey methods. Culture survey measures allow a great many people to be contacted across a number of different organizations. This

breadth is critical to establishing the generalizability of the entrepreneurial culture construct. Generalizability is necessary for demarcating both the scope/boundaries and stability of the construct across organizational settings (Edwards & Bagozzi, 2000). A validated survey tool also provides a standardized instrument for future researchers to deploy, thus increasing what might be learned studying the phenomenon.

Validating the survey consists of establishing the psychometric properties of the scale (MacKenzie et al., 2011). Addressed in Chapter Six, generally speaking the validity of the items was adequate but the reliabilities were somewhat lower than recommended cut-offs. Criterion-related (i.e., entrepreneurial culture and performance) and discriminant validities (i.e., entrepreneurial culture and entrepreneurial orientation) were also adequate but the relationships were somewhat low in magnitude. For the criterion-related validity, it is possible that the relative weakness of this association may be explained by the particular subjective performance variables not being entirely appropriate. The subjective performance variable had a fairly high residual variance indicating that entrepreneurial culture was explaining relatively little variation in this variable (Kline, 2005). An alternative operationalization of performance could conceivably yield a different result. It is also possible that the relationship between entrepreneurial culture and performance may be largely indirect. The potential for mediating constructs intervening between culture and performance has been suggested in the literature (Sackmann, 2011). An unaccounted-for moderating construct may also be diminishing the observed relationship.

As for discriminant validity, the results suggest that entrepreneurial culture and entrepreneurial orientation are indeed distinct from one another, supporting the notion of the constructs being related but separate. While this relationship has been hypothesized in the literature, this has primarily been from a conceptual rather than empirical perspective (Covin & Lumpkin, 2011). Although only a basic test of discriminant validity was performed, it lends empirical support towards this argument. Caution should be exercised as to the extent of this claim, however. As the firm-level sample size shrinks it decreases the statistical power of the test. Perhaps as a result of this the correlations between the constructs seemed almost *unusually* low. While the expectation

was that the constructs are distinct, observed correlations below .1 suggest a very small association indeed.

With multi-level analysis it is often the case that while the number of level-1 (e.g., individual) units is quite high, the number of level-2 (e.g., organization/firm) units drops off considerably (LeBreton & Senter, 2008). In this case, while nearly 800 respondents were surveyed at level-1, the number of level-2 units was only 41. Although some general guidelines encourage a minimum of 30-50 units (Muthén & Muthén, 2009b), this is predicated on relatively simple multilevel models. An insufficient number of second level units led to analysis issues with the number of model parameters versus the number of observed units. While this problem was addressed with composite variables, ideally a greater number of level-2 units would have been sampled and tested in the data, leaving the individual indicators unmodified. As composite indicators substantially reduce the number of free parameters, the chi-square value for model fit may be overstating the goodness of fit (Raykov, 1997). It will be very important for subsequent work investigating entrepreneurial culture using this structural equation model that a far greater number of level-2 units are available (relative to the complexity of the model) (Maas & Hox, 2005). Subsequent testing of firm-level relationships, such as with the criterion and discriminant validity tests, will also require a higher number of level-2 units.

Overall, this first foray into validating the entrepreneurial culture scale demonstrates somewhat satisfactory psychometric properties. Most of the checks, including reliability, criterion-related, and discriminant validity, exhibited the expected direction of relationships, although of a lower magnitude than expected. Significant additional research is required to more strongly evaluate these relationships. In particular, potentially reconsidering the variables used to operationalize the tested constructs. More research testing these relationships is particularly critical for a new construct as there are virtually no empirically established ranges and norms for the relationships between these constructs.

7.2.5 Agreement on Culture

As two of the main empirical references for entrepreneurial culture rely on single respondent reporting (Bradley et al., 2011; Minguzzi & Passaro, 2000), assessing levels of agreement on culture within firms was essential to this study. Agreement analysis would provide, at a minimum, relevant information about how entrepreneurial culture was perceived by the group and how that compared with top management's view (Weinzimmer et al., 2012). Given that agreement is ultimately a subjective interpretation, it was assessed using a number of indices (LeBreton & Senter, 2008) in a rubric described in Chapter Six. The overall results indicate that agreement is far from assured and if culture is interpreted as an agreed upon, socially shared construct, then assuming its homogeneity is likely unwarranted. Nearly half of the firms demonstrated weak or worse agreement on the majority of dimensions. Only about 20% of firms demonstrated moderate or better agreement on at least five dimensions. A single firm in the sample of 41 demonstrated strong agreement on all dimensions. These results clearly indicate that at least with this particular aspect of the organization's culture and in this particular sample, differences in perception of the culture exist. It may also suggest that organizations with very homogenous cultures may be demonstrating a comparatively rare phenomenon.

With respect to the comparison between employee scores and top management the results generally indicate that top managers (i.e., the entrepreneurs as respondents) over-estimate their organization’s entrepreneurial culture scores relative to the employee average. Given what was noted above about agreement, using the average in this way should certainly be exercised cautiously. However, as a basic measure it indicates that there are some important differences in cultural evaluation for particular firms. Even setting aside the issue of the *magnitude* of agreement, it suggests that relying on single culture informants, even at the top management level, may not accurately reflect the underlying shared interpretation of the culture. This supports long-held critiques of measuring organization-wide culture in this single respondent way (Alvesson, 2002; Alvesson & Berg, 1992). As with several other aspects of evaluating this new construct, significant additional research is required to establish ranges and norms for these results. Drawing

strong conclusions is premature until more work can be done to determine generalized patterns rather than sample specific ones. Nevertheless, these results provide grounds for challenging past entrepreneurial culture evaluation assumptions about the unified and homogenous nature of culture (cf. Kuratko et al., 2005).

7.2.6 Studying Entrepreneurial Culture

A significant implication of this study is that it changes what we might assume about "entrepreneurial" firms and their internal cultures. The selection of firms in this study had been grouped together as “entrepreneurial” because of their rapid growth patterns as well as being actively operated by a founder or owner-manager. These are rather broad selection categories, but both growth (McKelvie & Wiklund, 2010; Wiklund, Davidsson, & Delmar, 2003) and founder/owner-manager status (Boeker & Karichalil, 2002; Hoang & Gimeno, 2010) are staples in entrepreneurship research. These firms were thus considered fertile ground for finding "entrepreneurial culture." However, the results of the study indicate that even amongst ostensibly entrepreneurial firms, the entrepreneurial culture present within the firms tend to vary. Indeed, the overall scores in the firms varied, as well as the levels of agreement between individual employees, and between employees and management. While certainly variation within and between firms should be expected, the degree of variation and among which groups is a point generally unaddressed by broader entrepreneurial culture theory.

The findings from this research suggest that while the *presence* of an entrepreneurial culture might be assumed, the "strength" (e.g., agreement) or quality of that culture cannot necessarily be ascertained *a priori*. In other words, being an “entrepreneurial firm” by virtue of growth characteristics, for example, is no guarantee of having a strong, unified entrepreneurial culture. This discrepancy is left essentially unaddressed in the current entrepreneurial culture literature. The question of what to do about culture strength is an important theoretical point. In the climate literature, for example, climate strength has been examined as a moderator (Schneider et al., 2002) as well as a separate construct, distinct from levels of the climate (Colquitt et al., 2002). As entrepreneurial culture research develops, what to do about culture strength both conceptually and methodologically will need to be explored. Based on past climate research it seems

reasonable that culture strength has substantive meaning that will need to be interpreted within research models. This study has drawn important attention to the fact that agreement has been largely overlooked in entrepreneurial culture research, which is a critical oversight based on the assumed shared nature of culture.

Additionally, this study explicitly addressed the multi-level nature of organizational culture data in the entrepreneurship domain. This research highlights the important analytical challenges of studying a construct which exists at the organization-level but is measured at the individual-level. While multi-level research has existed for many years in the psychology literature, particularly with culture, climate, and team/group research (cf. Ashkanasy et al., 2011), it has been inadequately addressed in the entrepreneurial culture literature. Conceptually, entrepreneurial culture theory has acknowledged the shared nature of culture (Shepherd et al., 2010) without articulating the best practices for studying it.

From an empirical perspective, the measurement of culture typically implicitly assumes homogeneity in order to keep the variables at the organizational-level (Bradley et al., 2011; Minguzzi & Passaro, 2000). There is no doubt that introducing multi-level research creates a number of complications in both the data collection and analysis phase (e.g., Yammarino & Dansereau, 2011). And yet, if culture is acknowledged to be a shared construct, it is incumbent on researchers to collect multi-level data and investigate the quality of that shared nature. This is complex and difficult work to be sure, but necessary for accurate culture analysis. The reality is that without multi-level data and agreement analysis, entrepreneurial culture work is essentially meaningless.

The shared nature and meaning of entrepreneurial culture cannot be ascertained from a single individual. Single-respondent reporting of entrepreneurial culture does not provide sufficient evidence of the core cultural components of shared values, assumptions, and practices. This research has documented some basic multi-level approaches that work towards addressing this deficiency in the literature. While there is much that can be done to supplement this work, it demonstrates that even in this modest sample of multi-level data that culture work is highly complex. The theorizing and empirical methods used to

conduct this work must be equally sophisticated. It is incumbent on future entrepreneurial culture work to build on these multi-level methods, some of which are still developing (Aguinis et al., 2013; Ryu & West, 2009).

7.2.7 Additional Limitations of the Study

There are two additional limitations inherent in this study that should be noted when interpreting the results. For one, as noted previously, the sample of firms chosen was a convenience sample of entrepreneurial firms. These firms were largely targeted for their expectation in possessing an observable (measurable) entrepreneurial culture. Due to this potentially biased selection, the resultant entrepreneurial culture scores are likely positively skewed (i.e., higher than what would be observed in a general population of firms). This is not a substantial limitation given that the primary research goal was not testing the relationship between entrepreneurial culture scores and outcomes. Nevertheless, greater diversity in the sample would likely produce much higher entrepreneurial culture variance which would be useful for assessing expected ranges for the scores. In this case, greater diversity would include more industries represented, public and government-owned organizations, and firms with greater numbers of employees. These firms were also all Canadian so an international sample would be helpful in establishing the robustness and generalizability of the construct across countries (cf. Hornsby et al., 1999). This could perhaps be used in concert with national-level studies of entrepreneurial culture utilizing traditional societal culture measures (Hofstede et al., 1990; Ireland et al., 2008) as well as contemporary approaches to national culture (cf. Leung, Bhagat, Buchan, Erez, & Gibson, 2011).

An additional limitation is that culture was only measured at a single time interval. This is a common criticism of the culture as a variable research paradigm (cf. Alvesson, 2002; Weber & Dacin, 2011) but somewhat unavoidable given the research focus. While culture is expected to be relatively stable over time, measuring culture with the same respondents over different time intervals and corroborating results would enhance the accuracy and validity of the culture measurement. Culture measured at a single time interval runs the risk of catching respondents on an unusual day (e.g., just after a good/bad workplace experience) or other workplace stresses that may unduly influence

responses (Judge & Cable, 1997; Rynes, Bretz, & Gerhart, 1991). Future research would benefit from assessing the culture at multiple time intervals to establish test-retest reliability of the measures. Testing at multiple intervals would also help empirically support the expected stability of culture noted in the literature.

7.3 The Future of Entrepreneurial Culture Research

Entrepreneurial culture is an exciting phenomenon with broad implications on strategy, innovation, and the workplace environment. Entrepreneurial culture presents an intriguing and fertile ground for organizational research. However, the existing literature has been unfocused and ambiguous as to how to appropriately deal with entrepreneurial culture in terms of both theoretical development and empirical study. This has resulted in a diverse but equivocal conceptual background which hampers future knowledge accumulation. This study has sought to bring much needed clarity to this topic. Although the research is at an early stage, this dissertation has made important strides towards comprehensively identifying the foundational conceptual issues of entrepreneurial culture and to correct incomplete and missing aspects of the construct. The result of these efforts is an opportunity for interesting future scholarship. We can identify a number of potential new research streams that arise from a more comprehensive understanding of entrepreneurial culture. These streams will provide significant scholarly contributions to entrepreneurial culture as a theoretical construct and to the entrepreneurship field at large.

The first stream looks at the origin and development of entrepreneurial culture and the mechanisms behind its emergence and transmission. While this study has identified some of the underlying values, assumptions, and practices denoting the core aspects of entrepreneurial culture, much work remains in understanding its beginnings and how it spreads. Culture frameworks, both traditional (Schein, 1989) and contemporary (Howard-Grenville et al., 2011) provide general guidance as to what these processes might look like. However, specifically examining these approaches within an entrepreneurial culture context is work which remains to be done. Exploring this area can lead to important insights. From a scholarly perspective, it will help replicate or even challenge existing theoretical models on the development of organizational culture. It

will also help build entrepreneurial culture's own theoretical story by identifying the phenomenon's origin and explaining how and why it is perpetuated. These insights can provide useful practitioner implications by more fully articulating and targeting entrepreneurial culture prescriptions and interventions within organizations.

Qualitative methods may play a particularly important role in this line of research. Ethnographic work, as exemplified by Kunda (1992), Stewart (1989), and Howard-Grenville et al. (2011), would be a natural fit as spending extended periods of time in an organization observing day-to-day interactions and behaviours would undoubtedly provide critical insights into culture. Such insights could include documenting the actual processes of modeling behaviour as well as the congruence or incongruence between stated values and expressed behaviours and attitudes. Ethnographic work would also provide important contextual information such as the physical work environment and the sights and sounds of the workplace (Barley, 1996; Vilnai-Yavetz & Rafaeli, 2011). Focus group interviews with numerous employees of an organization representing different departments and job tenures might reveal helpful insights into the shared nature of culture (Leonardi, 2011). Do the expected core values, assumptions, and practices permeate the organization as much as management might think? Does culture transcend locations, roles, hierarchy, and length of time in the organization? How might culture do those things? There is a great deal more to learn about the development and origin of entrepreneurial culture. Answers to these inquiries may also help to address the formative versus reflective conceptualization question. All of these insights will help strengthen and develop the entrepreneurial culture construct.

A second stream can focus on the entrepreneurial culture and performance relationship. This relationship is a core concept at the intersection of entrepreneurship and strategic management (Ireland et al., 2009). Where entrepreneurial culture shows particular promise is as a separate, disentangled construct. The criterion-related validity tests suggest that entrepreneurial culture is indeed a distinct variable, not confounded with performance. This is an important development because in the past, entrepreneurial culture has been implicitly assumed through performance outcomes (cf. Anderson et al., 2009). In other words, entrepreneurial culture leading to performance has been inferred

from good performance. With entrepreneurial culture as a distinct and measurable construct, the relationship between entrepreneurial culture and performance can be more thoroughly tested and explored.

This could yield a number of different avenues for exploring this important relationship. Potential moderators or mediators of this relationship might now be identified. What factors might enhance or diminish entrepreneurial culture's effect on performance? What intermediary constructs might be involved in this relationship and is this fully or partially mediated? Testing the relationship at different time intervals also provides insights into the longitudinal aspects of the entrepreneurial culture and performance relationship. This might be particularly valuable for analyzing time intervals of the firm life cycle (e.g., Greiner, 1972). Expanding further, quasi-experimentation is a possibility as well (cf. Antonakis, Bendahan, Jacquart, & Lalive, 2010; Cook & Campbell, 1979), where different groups with different interventions can be examined. This could help to extend entrepreneurial culture studies past a small firm perspective, such as within teams or business divisions. Interventions of interest can include training or team building, learning or creativity workshops and exercises, or even firm structure components such as levels of hierarchy or team size. These all present different ways of testing and expanding on the entrepreneurial culture and performance relationship to further substantiate the relevance of entrepreneurial culture to the strategic management literature.

A third research stream can also link entrepreneurial culture with governance and organizational behaviour by looking at the relationship between entrepreneurial culture and leadership. As suggested by the literature but also hinted at by the entrepreneurs interviewed in this research, leadership plays a central role in entrepreneurial culture. Leaders in the organization, by virtue of hierarchical position, seniority and experience, or perhaps even charisma or popularity, provide examples of behaviour that shape culture (Pettigrew, 1979; Schein, 1983). Whether positive or negative, leaders model behaviour and demonstrate acceptable attitudes and conduct either explicitly or implicitly. As a result, leadership plays a significant role in an organization's culture in general and entrepreneurial culture is no exception (Eddleston, 2008; Xenikou & Simosi, 2006).

Given our new understanding of the construct, we can begin to ask questions about what happens to entrepreneurial culture when there is a shift in leadership and/or leadership style. How does leadership influence entrepreneurial culture? Does the selection of internally-promoted or externally acquired leaders make a difference to entrepreneurial culture? What kinds of leadership styles exert the most effect on entrepreneurial culture? Alternatively, does an entrepreneurial culture cause changes in leadership styles? Is entrepreneurial culture driven from the top-down or bottom-up? This line of inquiry is closely related to the hypothesized entrepreneurial spirals model (Shepherd et al., 2010). There are numerous interesting research questions about the entrepreneurial culture and leadership relationship that are open to exploration.

These research streams suggest that entrepreneurial culture straddles the strategic management as well as organizational behaviour (OB) and industrial/organizational (I/O) psychology fields. From a literature standpoint, entrepreneurial culture would seem to have a referential home in the OB and I/O psychology domain through its connection to workplace behaviours and employee well-being (Carroll, Dye, & Wagar, 2011). In parallel, through its connection to entrepreneurship, opportunities, and valuable resources, entrepreneurial culture has a natural fit with strategic management (Barney, 1986; Zahra, Hayton, Neubaum, Dibrell, & Craig, 2008). For these reasons, entrepreneurial culture has been hypothesized in the literature to have positive relationships with outcomes in both these fields. Yet, without a definitive construct and tool for measurement, these hypothesized relationships have not been substantially explored. There is now an opportunity to more comprehensively examine potential relationships in these fields and help support some of the conceptual links between them (cf. Hayton, 2005). The notion of entrepreneurial culture performing some sort of mediating "organizational architecture" role, as in strategic entrepreneurship models (Ireland et al., 2009) for example, might be just such an opportunity.

Collectively, these varied but related research ideas represent several different paths that entrepreneurial culture research can traverse. Rather than single research projects these different paths constitute fertile grounds for a number of research streams to develop and mature. The results of which represent various aspects of the full theoretical picture of

entrepreneurial culture, from its origins and core mechanisms, to its nomological network, to refinement of its scale. Thus, an important scholarly contribution of this study is initiating a multitude of entrepreneurial culture research streams.

7.4 Practitioner Implications

Finally, this study also highlights a number of important practitioner implications, particularly given the in-depth insights provided by the interview participants. These insights provided critical context and real-world examples that complement these implications. The first implication is that by clarifying and defining the concept, this research provides clear focal points for targeted interventions in organizations. The interviews leave no doubt that culture is an important topic for business leaders. Especially in these particular firms, an "entrepreneurial culture" is a meaningful concept. For entrepreneurs, having an entrepreneurial culture is important for a number of reasons including the connection to their own identity as entrepreneurs, their vision for how they see the organization, and their perception of the "right" way to run a company, for example.

This work helps to better understand the concept of entrepreneurial culture and to identify that it is an issue of concern to other entrepreneurs. The purpose of consulting is often to share best practice approaches in a localized setting (cf. Schwartz et al., 2011; Segal et al., 2014). This work helps to derive a consensus view of entrepreneurial culture, built on the experiences of other firms and a broad base of literature. The multi-dimensional view unified under the central focus of opportunities, highlights specific areas of the culture that can be measured and targeted for improvement or maintenance. The conceptual definition states "this is what we are trying to achieve" while the dimensions indicate "these are our areas of cultural strengths and/or weaknesses." Rather than simply attempting to "fix" or "improve" the *broader* culture, an undoubtedly abstract and complex challenge, this study identifies specific and more manageable areas that ultimately contribute to the overall cultural objective of an entrepreneurial culture.

The second implication is highlighting the key functions that communication and role modeling play as mechanisms for effecting culture change. This study provides a number

of examples demonstrating the often disconnected cultural environments that managers have to navigate. For example, a firm may value learning and innovation but provide limited resources to do anything that actually results in new learning and innovative opportunities. Management might want their employees to be flexible and work long hours but not tell them the big picture of *why* they are doing it. The organization might need new opportunities to survive or grow, but are not prepared to change anything about how they work to do anything about them. Communication and role modeling of behaviours are not new processes, as they have long since been identified in the culture literature (e.g., Kunda, 1992; Schein, 1990). However, it became apparent with the interviews that even asking simple questions about these domains lay bare the relevance of these issues and how firms may improve on them. After all, an outsider inquiring about the rationale for underlying assumptions leading to culture change is also part of the cognitive cultural theory (Schein, 1990). What this research helps to articulate to entrepreneurs is that in developing an entrepreneurial culture, there is an important connection between *valuing* a certain way of thinking or acting and *expressing* those values via communication and modeled behaviour in order to shape future actions.

The third implication of this study is reinforcing the notion that culture is not necessarily homogenous and it is entirely possible that management is misreading the cultural landscape. The interviews suggest that this is perhaps something sensed by the entrepreneurs (as management) and comments about keeping an ear to the "water cooler" reflect this. This research provides some evidence as to just what degree culture can vary and how much employees may actually disagree on what the culture is like. Entrepreneurial culture has several facets and is thus complex to manage; employees undoubtedly struggle with various values, assumptions, and practices in the workplace. However, if managers can unify these disparate facets together under the central idea of going after opportunities as the key to future success and prosperity, it may help to persuade employees. This is where the notion of *cohesion* comes into particular effect. Individuals in the workplace likely want to feel supported, respected, and valued for their contributions at work (O'Reilly III, 1989). Culture is complex and building a particular kind of culture all the more so. However, this study helps to provide an overall strategic

map of culture and which areas should be assessed and addressed to achieve an entrepreneurial culture.

7.5 Conclusions

This study had one primary research goal: to understand what entrepreneurial culture was. To accomplish this I undertook a conceptual and empirical exploration of the entrepreneurial culture construct. This endeavour began with a thorough background literature review which revealed substantial, high-quality content, which nevertheless remained unfocused. By strict theoretical construct standards (MacKenzie, 2003; MacKenzie et al., 2011), entrepreneurial culture essentially did not exist as a construct. To address this conceptual deficiency this study defined the construct and its multi-dimensional composition to meet these strict standards, based on an integration of the past literature on entrepreneurial culture. This situated entrepreneurial culture as an organizational culture construct centrally concerned with opportunities. Opportunities encapsulate the core connection between entrepreneurial culture and entrepreneurship more generally. Opportunities are what distinguish an entrepreneurial culture from any other cultural subtype. The five dimensions of entrepreneurial culture represent distinct but connected aspects of the construct which capture various ways the organizational culture supports, develops, and executes on opportunities.

Since this was a new construct, testing it required a comprehensive approach that incorporated breadth and depth. Depth was achieved by conducting numerous interviews with entrepreneurs as expert practitioners, to test the ideas, build knowledge, and gain insightful context and nuance to the ideas. Doctoral students were employed to test the content validity of the initial questionnaire items and to check that the items were matched to their expected dimensions. Breadth was achieved by deploying the survey to hundreds of respondents across dozens of firms. These activities and the subsequent analysis of the data accomplished the goal of testing the new construct's conceptualization and its attendant measurement instrument. This included utilizing multi-level modeling techniques to analyze data collected at the individual and firm level. This study represents one of the first empirical evaluations of entrepreneurial culture from this analytical perspective.

The results of this study present a number of important contributions to the literature. Crucially, this work has brought much needed focus and clarity to the many disparate thoughts on entrepreneurial culture. While there is still work to be done in further developing the construct, this study represents an important first foray into that work. The conceptual and empirical efforts of this study have begun the transition of entrepreneurial culture from a disparate and equivocal list of ideas to a more structured theoretical construct. The empirical results support the conceptualization of entrepreneurial culture as a higher-order reflective multi-dimensional construct. This begins to establish the groundwork for future theoretical development, including understanding possible antecedents, correlates, and outcomes of entrepreneurial culture.

In summary, this study is an important step in understanding the nature and form of entrepreneurial culture as a firm-level construct and ways in which it might be measured. This conceptualization of entrepreneurial culture provides a springboard for future theorizing and research, hopefully providing a unifying construct out of the important existing work that has come before it. Collectively, this endeavour should generate important new insights into how organizational cultures can become more entrepreneurial, an exciting prospect for a diverse array of organizations.

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Appendices

Appendix A: Interview Guide

A. Opportunity Identification and Founding

1. Could you please describe what this business is about and how you came to start the business? If you could, please describe how you arrived at the initial idea, what you were doing at the time, some of the factors you considered when deciding whether or not to start the business, and what you did to pursue the business?

2. Can you describe/elaborate on what you knew about the industry before you started the company?

3. Can you describe/elaborate on what influenced your thinking about the company before you created it? For example, what kind of company did you imagine creating? What were your goals?

4. Did you have any family, friend, or mentor influence you when it came to thinking about your company? How do you think they influenced you?

B. Hiring Employees and Creating Culture

1. Can you tell me a bit about hiring your first employees? What were you looking for? What was your process like? How many people did you hire?

2. Are any of those employees still here? Have their jobs changed? In which ways?

3. What was it like here in the early days, say the first year or two, of your company?

C. The Organizational Culture

1. What does organizational culture mean to you? How would you describe the culture of the organization here?

2. What comes to mind when I say the words “entrepreneurial culture”? Would you say your organization has an entrepreneurial culture?

3. What’s your organization’s vision? Do you think your employees know what the vision is? Are they passionate about it?

4. Can you tell me a bit about your relationship with some of your stakeholders, meaning your customers, suppliers, partners, investors? What is your sense of how your organization is perceived by these groups?

5. Can you tell me what you think the culture is like here with regard to innovation and change? Are people comfortable here with change?

6. How would you describe morale in your organization? For example, do you think people “gel” together well? Do people work together well? Are there politics? Are people honest with each other? Do people communicate and share with each other?

7. What is your take on the professional development of your employees, for example, their opportunities to learn new things, etc.?

8. Finally, do you think the culture has changed since you first started the company? How so?

Appendix B: Entrepreneur Rating Exercise

Instructions

Hello, as an experienced entrepreneur we would like your input to help us design a questionnaire to evaluate an *entrepreneurial organizational culture*.

We have a series of statements related to five different concepts in entrepreneurial culture.

We are interested in selecting only the statements that have the greatest relevance to assessing each of the different concepts.

Your expertise is necessary is in helping us determine this relevance.

On each page, please read the definition of the concept at the top of the page.

Next, read each statement and *circle* on the scale of 1 to 5 how relevant you think the statement is to assessing the specific organizational culture concepts.

Not Relevant				Relevant
1	2	3	4	5

This exercise should take about 10 minutes.

Thank you!

Concept*:* *Organizational Enthusiasm*

Definition: *a pattern of values, assumptions, and practices describing an enthusiasm for the organization, its goals and purposes.*

Please circle how relevant you think the statement is to the definition.

Statement	**Rating**				
	Not Relevant				**Relevant**
Our organization is recognized for its enthusiasm for the job.	1	2	3	4	5
Our organization is recognized for having a clear set of values.	1	2	3	4	5
People in our organization regularly demonstrate a commitment to what our organization is trying to accomplish.	1	2	3	4	5
Sometimes it is not clear to me what our organization is trying to accomplish.	1	2	3	4	5
People in our organization are mainly concerned with their own personal goals.	1	2	3	4	5
My personal goals match those of my organization.	1	2	3	4	5
What is good for my organization is good for me.	1	2	3	4	5
I apply myself in the organization because I believe in its vision.	1	2	3	4	5
I am passionate about what I do for the organization.	1	2	3	4	5
People here share the same understanding of the organization's purpose.	1	2	3	4	5
Our organization has a clear direction for the future.	1	2	3	4	5
People here are enthusiastic about accomplishing organizational goals.	1	2	3	4	5
New employees are taught about the organization's goals.	1	2	3	4	5
It is clear to me how what I do in my job is connected to what the organization is trying to accomplish.	1	2	3	4	5
More experienced employees help new people understand the organization’s goals.	1	2	3	4	5

Concept: *Stakeholder Alignment*

Definition: *a pattern of values, assumptions, and practices about the business relevance and merits of building and maintaining positive relationships with key stakeholders, such as customers, suppliers, partners, and investors.*

Please circle how relevant you think the statement is to the definition.

Statement	**Rating**				
	Not Relevant				**Relevant**
Our organization tries to develop long-term relationships among the stakeholders with whom it works with.	1	2	3	4	5
More experienced employees help new people understand the value of good stakeholder relationships.	1	2	3	4	5
Our organization only pursues relationships with stakeholders after careful cost and benefit calculations.	1	2	3	4	5
Our organization always tries to pursue win-win relationships with new stakeholders.	1	2	3	4	5
Generally speaking, our various stakeholders are a nuisance.	1	2	3	4	5
Our organization takes the feelings of our stakeholders into account when making decisions.	1	2	3	4	5
Our organization tries to help our stakeholders without considering the costs to us.	1	2	3	4	5
Our organization can be proud of how we treat our stakeholders.	1	2	3	4	5
Our organization builds close working relationships with our stakeholders by being cooperative, responsive, and caring.	1	2	3	4	5
We teach new people that our stakeholder relationships are important to our organization.	1	2	3	4	5
Taking advantage of our stakeholders, even if it benefits us, would be viewed negatively in our organization.	1	2	3	4	5
Most people in our organization would rather not have to deal with our stakeholders.	1	2	3	4	5
It is clear to me how our stakeholders impact our organization's business.	1	2	3	4	5
Sometimes it is necessary to be dishonest with our stakeholders for our organizations' overall benefit.	1	2	3	4	5
Close relationships with stakeholders are important to what kind of organization this is.	1	2	3	4	5

Concept: *Cohesiveness*

Definition: *a pattern of values, assumptions, and practices about organizational members' bond and commitment to each other and the organization, irrespective of circumstance.*

Please circle how relevant you think the statement is to the definition.

Statement	**Rating**				
	Not Relevant				**Relevant**
People in our organization generally take responsibility for their own actions.	1	2	3	4	5
In our organization, we like to come up with our own solutions to problems.	1	2	3	4	5
Generally speaking, people work pretty hard in our organization.	1	2	3	4	5
Overall, people know how they specifically contribute to the organization.	1	2	3	4	5
We teach new people what it means to be a team player.	1	2	3	4	5
Our leaders take responsibility for their decisions.	1	2	3	4	5
In our organization, people blame others for their mistakes.	1	2	3	4	5
I feel there is an atmosphere of trust and mutual respect in our organization.	1	2	3	4	5
I will put time and effort into our organization because I know others here do too.	1	2	3	4	5
Our organization has a lot of harmful politics that hinder working together.	1	2	3	4	5
More experienced employees try to set an example for new people what work expectations are like here.	1	2	3	4	5
Everyone in our organization shares responsibility for the organizations' failures and successes.	1	2	3	4	5
People in our organization often try to "hide" (i.e. purposefully avoid contributing).	1	2	3	4	5
Our leaders unnecessarily shift responsibilities onto subordinates.	1	2	3	4	5
People here keep information to themselves to get ahead.	1	2	3	4	5

Concept: *Learning & Development Support*

Definition*: a pattern of values, assumptions, and practices demonstrating a commitment to individual and group self-improvement, learning and professional development.*

Please circle how relevant you think the statement is to the definition.

Statement	**Rating**				
	Not Relevant				**Relevant**
In my organization, managers generally believe that there is no limit for those employees who really want to improve their skills.	1	2	3	4	5
People lack ambition and initiative here.	1	2	3	4	5
In this organization, employees are encouraged to strive for continuously improved performance.	1	2	3	4	5
Our organization provides opportunities (e.g., extra training or courses) for employees to learn and improve themselves.	1	2	3	4	5
I find that development activities are often a waste of time.	1	2	3	4	5
I would devote time and energy into improving my skills and abilities at work.	1	2	3	4	5
I believe work should enable one to learn new things.	1	2	3	4	5
We teach new employees that continuous learning is very important.	1	2	3	4	5
I want other people in my organization to keep improving themselves.	1	2	3	4	5
Generally speaking, people here don't care about learning anything new.	1	2	3	4	5
More experienced employees try to teach new people skills and abilities that help them in their jobs.	1	2	3	4	5
Development activities in my organization interfere with my ability to get my work done.	1	2	3	4	5
Our leaders are genuinely interested in employees developing themselves.	1	2	3	4	5
I'd like to improve my skills and abilities at work but am never given a chance.	1	2	3	4	5
At some point, people in our organization seemed to have lost an interest in learning new things.	1	2	3	4	5

Concept: *Opportunity Driven Change*

Definition: *a pattern of values, assumptions, and practices about the merits of change in identifying/developing, and executing on opportunities for the organization*

Please circle how relevant you think the statement is to the definition.

Statement	**Rating**				
	Not Relevant				**Relevant**
The term "risk taker" is considered a positive attribute for people in our business.	1	2	3	4	5
People in our business are encouraged to take calculated risks with new ideas.	1	2	3	4	5
Our business emphasizes both exploration and experimentation for opportunities.	1	2	3	4	5
We actively introduce improvements and innovations in our business.	1	2	3	4	5
More experienced employees encourage new people to experiment with new ideas.	1	2	3	4	5
Our business is always prepared to change in order to pursue an opportunity.	1	2	3	4	5
Providing opportunities to be innovative is more important than requiring standardized work procedures.	1	2	3	4	5
I would like to try new ideas and approaches at work but am discouraged by coworkers.	1	2	3	4	5
People should avoid making changes in the organization because things could get worse.	1	2	3	4	5
Standardized work procedures are more important than opportunities to be innovative.	1	2	3	4	5
I believe that if I wanted to try a new idea out that the organization would support me.	1	2	3	4	5
In our organization, even if an idea didn't work out, we try to learn from it.	1	2	3	4	5
New people in our organization are encouraged to offer new or different ideas.	1	2	3	4	5
In my organization, I am reluctant to share ideas for fear of criticism.	1	2	3	4	5
Our organization is reluctant to stray from "tried and true" methods of doing things.	1	2	3	4	5

Appendix C: Doctoral Student Rating Exercise Example

"Our organization is recognized for its enthusiasm for the job."

	1 (not at all)	2	3	4	5 (completely)
Organizational enthusiasm is a pattern of values, assumptions, and practices describing an enthusiasm for the organization, its goals and purposes.	○	○	○	○	○
Stakeholder alignment is a pattern of values, assumptions, and practices about the business relevance and merits of building and maintaining positive relationships with key stakeholders, such as customers, suppliers, partners, and investors.	○	○	○	○	○
Cohesiveness is a pattern of values, assumptions, and practices about organizational members' bond and commitment to each other and the organization, irrespective of circumstance.	○	○	○	○	○
Learning and development support is a pattern of values, assumptions, and practices demonstrating a commitment to individual and group self-improvement, learning and professional development.	○	○	○	○	○
Opportunity driven change is a pattern of values, assumptions, and practices about the merits of change in identifying/developing, and executing on opportunities for the organization.	○	○	○	○	○
Management support indicates the willingness of top-level managers to facilitate and promote entrepreneurial behaviour, including the championing of innovative ideas, and providing the resources people require to take entrepreneurial actions.	○	○	○	○	○
Work discretion/autonomy indicates top-level managers' commitment to tolerate failure, provide decision-making latitude and freedom from excessive oversight, and to delegate authority and responsibility.	○	○	○	○	○
Organizational boundaries refer to precise explanations of outcomes expected from organizational work and development of mechanisms for evaluating, selecting, and using innovations.	○	○	○	○	○

Appendix D: Final Phase One Items

Item	Statement
OE1	I am passionate about where our organization is going.
OE2	People in our organization regularly demonstrate a commitment to what our organization is trying to accomplish.
OE3	People here share the same understanding of the organization's purpose.
OE4	Our organization has a clear direction for the future.
OE5	New employees are taught about the organization's goals.
OE6	It is clear to me how what I do in my job is connected to what the organization is trying to accomplish.
OE7	Our organization is recognized for having a clear set of values or guiding principles.
OE8	I apply myself in the organization because I believe in its vision.
OE9	People here are enthusiastic about accomplishing organizational goals.
OE10	More experienced employees help new people understand the organization’s goals.
SA1	Our organization always tries to pursue win-win relationships with new stakeholders.
SA2	It is clear to me how our stakeholders impact our organization's business.
SA3	Our organization tries to develop long-term relationships among the stakeholders with whom it works with.
SA4	We teach new people that our stakeholder relationships are important to our organization.
SA5	Our organization builds close working relationships with our stakeholders by being cooperative, responsive, and caring.
SA6	Taking advantage of our stakeholders, even if it benefits us, would be viewed negatively in our organization.
SA7	Our organization can be proud of how we treat our stakeholders.
SA8	Close relationships with stakeholders are important to what kind of organization this is.
SA9	Our organization takes the feelings of our stakeholders into account when making decisions.

SA10	More experienced employees help new people understand the value of good stakeholder relationships.
C1	People in our organization generally take responsibility for their own actions.
C2	I feel like I can count on others in the organization for support.
C3	I feel there is an atmosphere of trust and mutual respect in our organization.
C4	People here keep information to themselves to get ahead.
C5	I will put time and effort into our organization because I know others here do too.
C6	I feel like even during times of crisis, people in the organization pull together.
C7	More experienced employees try to set an example for new people how to work together as a team.
C8	I would put in extra effort to help out my colleagues in the organization.
C9	Generally speaking, people feel like they're working on the same team.
C10	We teach new people what it means to be a team player.
LDS1	Our organization provides opportunities (e.g., extra training or courses) for employees to learn and improve themselves.
LDS2	We teach new employees that continuous learning is very important.
LDS3	Our leaders are genuinely interested in employees developing themselves.
LDS4	In this organization, employees are encouraged to strive for continuously improved performance.
LDS5	I would devote time and energy into improving my skills and abilities at work.
LDS6	I believe work should enable one to learn new things.
LDS7	I want other people in my organization to keep improving themselves.
LDS8	More experienced employees try to teach new people skills and abilities that help them in their jobs.
LDS9	In my organization, managers generally believe that there is no limit for those employees who really want to improve their skills.
LDS10	People here don't seem to want to improve themselves in their jobs.
ODC1	New people in our organization are encouraged to offer new or different ideas.

ODC2	We actively introduce improvements and innovations in our business.
ODC3	People in our business are encouraged to take calculated risks with new ideas.
ODC4	Our business emphasizes both exploration and experimentation for opportunities.
ODC5	In my organization, people are reluctant to make any kind of change.
ODC6	In our organization, even if an idea didn't work out, we try and find some value in it.
ODC7	Our organization moves quickly to go after opportunities.
ODC8	Our organization generally tries to change up routine if we could be doing things better.
ODC9	Our business is always prepared to change in order to pursue an opportunity.
ODC10	More experienced employees encourage new people to experiment with new ideas or ways of doing things.

Appendix E: Ethics Approval Forms, Phases 1-3

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Use of Human Subjects - Ethics Approval Notice

Principal Investigator: Eric Morse
Re PhD Candidate: Matthew Wong
Review Number: 036/12 BREB
Protocol Title: Entrepreneurial Culture: Developing a Theoretical Construct and its Measurement
Ethics Approval Date: November 29, 2012 **Expiry Date: November 29, 2013**
Documents Reviewed and Approved: Ethics Protocol, Letter of Information, Consent Form, Interview Questions, Survey

This is to notify you that The Ivey School of Business Research Ethics Board for Non-Medical Research Involving Human Subjects (NMREB) which is organized and operates according to the Tri-Council Policy Statement: Ethical Conduct of Research Involving Humans and the applicable laws and regulations of Ontario has granted approval to the above named research study on the approval date noted above.

This approval shall remain valid until the expiry date noted above assuming timely and acceptable responses to the NMREB's periodic requests for surveillance and monitoring information. If you require an updated approval notice prior to that time you must request it using the UWO Updated Approval Request Form.

During the course of the research, no deviations from, or changes to, the study or consent form may be initiated without prior written approval from the NMREB except when necessary to eliminate immediate hazards to the subject or when the change(s) involve only logistical or administrative aspects of the study (e.g. change of monitor, telephone number). Expedited review of minor change(s) in ongoing studies will be considered. Subjects must receive a copy of the signed information/consent documentation.

Investigators must promptly also report to the NMREB:

a) changes increasing the risk to the participant(s) and/or affecting significantly the conduct of the study;
b) all adverse and unexpected experiences or events that are both serious and unexpected;
c) new information that may adversely affect the safety of the subjects or the conduct of the study.

If these changes/adverse events require a change to the information/consent documentation, and/or recruitment advertisement, the newly revised information/consent documentation, and/or advertisement, must be submitted to this office for approval.

Members of the NMREB who are named as investigators in research studies, or declare a conflict of interest, do not participate in discussion related to, nor vote on, such studies when they are presented to the NMREB.

Signature: [redacted]

Roderick White
Associate Dean - Faculty Development & Research

This is an official document. Please retain the original in your files.

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Documents Reviewed and Approved: Notification of Revision

This is to notify you that The Ivey School of Business Research Ethics Board for Non-Medical Research Involving Human Subjects (NMREB) which is organized and operates according to the Tri-Council Policy Statement: Ethical Conduct of Research Involving Humans and the applicable laws and regulations of Ontario has granted approval to the above named research study on the approval date noted above.

This approval shall remain valid until the expiry date noted above assuming timely and acceptable responses to the NMREB's periodic requests for surveillance and monitoring information. If you require an updated approval notice prior to that time you must request it using the UWO Updated Approval Request Form.

During the course of the research, no deviations from, or changes to, the study or consent form may be initiated without prior written approval from the NMREB except when necessary to eliminate immediate hazards to the subject or when the change(s) involve only logistical or administrative aspects of the study (e.g. change of monitor, telephone number). Expedited review of minor change(s) in ongoing studies will be considered. Subjects must receive a copy of the signed information/consent documentation.

Investigators must promptly also report to the NMREB:

a) changes increasing the risk to the participant(s) and/or affecting significantly the conduct of the study;
b) all adverse and unexpected experiences or events that are both serious and unexpected;
c) new information that may adversely affect the safety of the subjects or the conduct of the study.

If these changes/adverse events require a change to the information/consent documentation, and/or recruitment advertisement, the newly revised information/consent documentation, and/or advertisement, must be submitted to this office for approval.

Members of the NMREB who are named as investigators in research studies, or declare a conflict of interest, do not participate in discussion related to, nor vote on, such studies when they are presented to the NMREB.

Signature [redacted]

Roderick White
Associate Dean - Faculty Development & Research

This is an official document. Please retain the original in your files.

IVEY
Business School
WESTERN UNIVERSITY · CANADA

London Toronto Hong Kong

Use of Human Subjects - Ethics Approval Notice

Principal Investigator: Eric Morse
Review Number: 036/12 BREB
Re PhD Candidate: Matthew Wong
Protocol Title: Entrepreneurial Culture: Developing a Theoretical Construct and its Measurement
Revised Ethics Approval Date: April 22, 2013 **Revised Expiry Date: April 22, 2014**
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Curriculum Vitae

Name: Matthew A. Wong

Post-secondary Education and Degrees:

University of Toronto
Toronto, Ontario, Canada
2000-2004 H.B.Sc.

University of Toronto
Toronto, Ontario, Canada
2004-2007 M.I.St.

Western University
London, Ontario, Canada
2008-2014 Ph.D.

Honours and Awards:

Province of Ontario Graduate Scholarship
2010-2011, 2011-2012, 2012-2013

Plan for Excellence Doctoral Fellowship and Dean's Recruiting Scholarship, Western University
2008-2012

Related Work Experience

Research Assistant
Western University
2008-2012

Human Resources Data Analyst
Province of Ontario (MCSS/MCYS)
2007

Research Assistant
Canadian Research Alliance for Community Innovation & Networking
2005-2007

Refereed Conference Proceedings

Wong, M.A. & Lim, S.K. (2013). *A Focus on Opportunities: Developing an Entrepreneurial Culture Construct.* Proceedings of the Administrative Sciences Association of Canada 2013 Conference, June 8-11, 2013, Calgary, Alberta, Canada.

Wong, M.A. & Lim, S.K. (2012). *Symbolic Actions and Stakeholder Management in Entrepreneurial Firm Development. (Abstract).* Frontiers of Entrepreneurship Research 2012, Proceedings of the 32nd Annual Babson College Entrepreneurship Research Conference, June 6-9, 2012, Fort Worth, Texas, USA.

Wong, M.A. & Lim, S.K. (2011). *Determining the Cultural Elements of Strategic Entrepreneurship (Abstract).* Frontiers of Entrepreneurship Research 2011, Proceedings of the 31st Annual Babson College Entrepreneurship Research Conference, June 8-11, 2011, Syracuse, New York, USA.

Wong, M.A. (2011). *The Evolution of Entrepreneurial Culture: Two Competing Perspectives.* Proceedings of the 25th Annual United States Association for Small Business & Entrepreneurship Conference, January 13-16, 2011, Hilton Head, South Carolina, USA.

Conference Presentations

Wong, M.A. & Lim, S.K. (2013). *A Focus on Opportunities: Developing an Entrepreneurial Culture Construct.* Paper presented at the *Annual Conference of the Administrative Sciences Association of Canada*, (June), Calgary, Alberta, Canada.

Woodwark, M.J. & Wong, M.A. (2013). Sawchyn Guitars (A): Can an Old Business Learn New Tricks? and (B): Managing Small Business Growing Pains. Case presented at the *Annual Conference of the Administrative Sciences Association of Canada*, (June), Calgary, Alberta, Canada.

Wong, M.A. & Lim, S.K. (2012). Symbolic Management and Stakeholder Relationships in Entrepreneurial Firm Development. Paper presented at the *Academy of Management Annual Conference, Entrepreneurship Division,* (August), Boston, Massachusetts, USA.

MacMillan, K., Woodwark, M. & Wong, M.A. (2012). Unity Through Differentiation: Exploring a Paradox of Belonging. *The 28th European Group for Organizational Studies Colloquium,* (July), Helsinki, Finland.

Wong, M.A. & Lim, S.K. (2012). Symbolic Actions and Stakeholder Management in Entrepreneurial Firm Development. *The 32nd Annual Babson College Entrepreneurship Research Conference*, (June), Fort Worth, Texas, USA.

Wong, M.A. & Lim, S.K. (2011). Determining the Cultural Elements of Strategic Entrepreneurship. *The 31st Annual Babson College Entrepreneurship Research Conference*, (June), Syracuse, New York, USA.

Wong, M.A. (2011). The Evolution of Entrepreneurial Culture: Two Competing Perspectives. *The 25th Annual United States Association for Small Business & Entrepreneurship Conference.* (January), Hilton Head, North Carolina, USA.

Book Chapters

Wong, M.A. (2012). Wireless Broadband from Individual Backhaul to Community Service: Cooperative Provision and Related Models of Local Signal Access. In Clement, A., Gurstein, M., Longford, G., Moll, M., and Regan Shade, L. (Eds.). Connecting Canadians: Investigations in Community Informatics, Athabasca University Press, p218-234.

Published Cases

Woodwark, M. & Wong, M. (2013). *Sawchyn Guitars: Can an Old Business Learn New Tricks?* (Ivey Publishing Case 9B13M086 and Teaching Note 8B13M084).

Morse, E., Mark, K., & Wong, M. (2010). *Bradley Smoker Inc.: The Licensing Opportunity* (Ivey Publishing Case 9B10M046 and Teaching Note 8B10M46).

Morse, E., Mark, K., & Wong, M. (2010). *Mobilia Interiors Inc.: The Operations Decision* (Ivey Publishing Case 9B10M047 and Teaching Note 8B10M47).