ENTREPRENEURIAL ORIENTATION:

AN INVESTIGATION INTO

THE ECOLOGY OF "EO"

MEASURES

by

SHERYL LYNN ROBERTS

Presented to the Faculty of the Graduate School of

The University of Texas at Arlington in Partial Fulfillment

of the Requirements

for the Degree of

DOCTOR OF PHILOSOPHY

THE UNIVERSITY OF TEXAS AT ARLINGTON

AUGUST 2010

DEDICATION

To victusnemus.

ACKNOWLEDGEMENTS

I’d like to thank my son, Zeke, as my inspiration.

April, 17, 2010

ABSTRACT

ENTREPRENEURIAL ORIENTATION:

AN INVESTIGATION INTO

THE ECOLOGY OF "EO"

MEASURES

Sheryl Lynn Roberts, PhD

The University of Texas at Arlington, 2010

Supervising Professor: Gary C. McMahan

This dissertation is designed to investigate variables that may influence the application of Entrepreneurial Orientation (EO) related measures commonly used in Entrepreneurship research. It examines the theoretical development and application of the construct and of Entrepreneurial Orientation related scales over time, and through an historical observation analysis. Theoretical foundations are traced, thus uncovering stages of development in purpose and application of EO related scales. The study explores levels of analysis design and respondent perception factors unique to the setting of these

scales. Empirical analysis examines level of analysis application associated with aspects of profiles, perceptions, and mechanics of respondents answering EO related measures. Several accepted scales are analyzed in terms of respondent job positions, profiles of change and control attributes, and levels of analysis. The scales are assessed for differences in terms of their theoretical development and application. Discussion and results are summarized suggesting a codified ecology describing EO related measures for education and research.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1

INTRODUCTION

1.1 Overview of the Dissertation Topic

1.1.1 Purpose

This dissertation is designed to investigate variables that may influence the application of Entrepreneurial Orientation (EO) related measures commonly used in Entrepreneurship research. It examines the theoretical development and application of the construct and related scales over time, as well as discussing levels of analysis and respondent factors unique to the perception and use of these scales.

Several accepted scales are analyzed in terms of the respondent's perceived level of analysis, respondent preferences for change and control, as well as the perceived situational level of analysis factors. The scales are assessed for differences in terms of their theoretical development and application design for business lifecycle and applied level of analysis.

1.1.2 Research Question

This dissertation investigates three decades of Entrepreneurial Orientation literature to understand and outline a general framework of factors for EO related measures used under the overall Entrepreneurial Orientation paradigm. Some factors identified in that framework are tested to understand the application of these scales at various levels of analysis. The question for this study is: How do perceptions of the respondents align with the application of EO related measures?

The question that guides this dissertation assumes the stance that there is a framework among EO related measures—that various scales have been developed for use at specific levels of analysis. However, in the development of entrepreneurial orientation research, many questions have been raised about the design of the scales, about their application and adaptation to levels of analysis for which they were not originally intended, as well as about how aspects of the respondents affect the results (Kreiser, Marino, & Weaver, 2002; Lumpkin & Dess, 1996). Additionally, though three decades of research exist related to this important entrepreneurship construct, there is little codification of practical aspects for education purposes and limited analysis of the construct or scales that pertains to practical application (Edelman, Manolova, & Brush, 2008; Holcomb, Ireland, Holmes Jr, & Hitt, 2009; Kreiser et al., 2002).

1.1.3 Dissertation Outline

This dissertation uses a multiple study format, allowing for triangulation in the research investigation. It investigates the body of measures themselves and looks at the conceptual motivations and situations behind their development and use. Following the

Chapter One introduction to the topic of Entrepreneurial Orientation with an outline and relevance of the study, a historical context and literature review is presented in Chapter Two. This lays the groundwork for modeling in Chapter Three and for empirical testing in Chapter Four. Discussion of results in Chapter Five for entrepreneurship education and Entrepreneurial Orientation research concludes.

1.1.4 Dissertation Clarification

Due to the nature of Entrepreneurial Orientation research, which uses the construct to assess change attributes and subsequent performance in business settings, it is important to note what this study is and is not. Early results using these instruments were noted before psychometric questions about "attitude, behavior, or process", and "reflective versus formative" issues were raised. More recent questions have sought to clarify definitions and applications of dimensions as well. This study focuses on the perceptions of the scales, the context, and the application.

1.1.4.1 This dissertation does

- Use literature review and meta-analytical observation methods to identify factors pertaining to the perception and use of scales that can be tested.
- Conduct a historical analytical observation of seminal works, identifying development stages, theoretical foundations, and differential factors associated with the family of scales.
- Report on focus-group survey feedback concerning scale elements for assessment of respondent factors that may influence application of the measures.

1.1.4.2 This dissertation does not

- Examine dimensionality issues or argue the definitions or relationships of specific scale dimensions and sub-dimensions.
- Examine specific methodology issues used with a particular EO set.
- Examine or review results specific to the history of Entrepreneurial Orientation related research or specific scale sets.

1.1.4.3 The dissertation elements

The investigation uses both the theoretical and the practical sides of EO related research elements. This dissertation analyzes the background, theory, and use of EO related measures. A historical observation codifies the purposes and development of these scales as used by researchers. An empirical study looks at aspects of respondent perception that may relate to scale results, either in line with original design for level and context of application, or despite the original design for level and context of application. It examines intended design from the standpoint of researchers, and then examines actual perceptual factors that may occur during the survey process. The intention is to look specifically at effects of alignment between the level of analysis-related reporting role the respondent perceives for himself and the level of analysis purpose he perceives for the scale target, and of perceived change context on the profile attributes of the respondent that pertain to his perception of control over change, action, and opportunity. This may relate to application. A discussion looks at study findings and implications for education and research development. Though there is a history of research using EO related measures to investigate individual, strategic and

organizational questions, for the most part this research has assumed that reports statically answer in line with model design (Lumpkin & Dess, 1996); there has been little assessment of perceptions concerning scale questions and answers when the respondent engages with the scale material. This dissertation approaches the issue.

1.1.5 Definition of Entrepreneurial Orientation Topic

This dissertation covers the background of the topic, defining the construct and examining its foundation literature. It traces the development of entrepreneurial orientation research to set the stage for this study.

1.1.5.1 Identification of the Construct

Entrepreneurial Orientation is a primary construct in the domain of Entrepreneurship (Lumpkin & Dess, 1996). It is used to assess the propensity of an organization to create, change, and improve (Wales & Covin, 2009). Entrepreneurial Orientation has traditionally been measured through subjective self-reports on behalf of the firm (Kreiser et al., 2002; Lumpkin & Dess, 1996). It uses perceptive measures of the firm's movement through the business landscape and of the firm's implementations of change for itself, as well as change in its business and social landscapes (Rauch, Wiklund, Lumpkin, & Frese, 2009). Traditional use of the scales asks the respondent to compare between a local and an alter, usually with a dipole likert measure, with choice registered as more like one or another. Dimensions of the traditional firm level construct can include: innovation, proactiveness, risk-taking, autonomy, and aggressiveness (Covin & Slevin, 1989; Lumpkin et al., 1996). These dimensions have served as gestalts, used to guide the design of dimensions in scales applied to lower levels of analysis, such as for

organizational or individual characteristics and motivations (Kropp, Zolin, & Lindsay, 2009). Organizational and individual related dimensions have also been tested that reflect either the well known dimensions, or the opportunity and action-based meaning behind the Entrepreneurial Orientation change concept, interpreted through organizational or cognitive activities. This is important as questions have been raised about entrepreneurial orientation processes and attitudes, as well as about application outside a narrow "economic" lens (Robinson, Stimpson, Huefner, & Hunt, 1991). The concept of entrepreneurial orientation has been referred to in various ways: posture, style, strategy and others with various uses. Some business-related uses of the construct include strategy formation and company survival or performance (Runyan, Droge, & Swinney, 2008), others focus on opportunity (Brown, Davidsson, & Wiklund, 2001; Stevenson & Jarillo, 1990), some focus on business development in unique socio-cultural settings (Krauss, Frese, Friedrich, & Unger, 2005), while still others attempt to understand personal and learning contexts (Wang, 2008). Currently, Entrepreneurial Orientation has become a term of choice when referring to the concept in this body of work. However, many scales are not widely known and used, and some have not been linked together formally under an "EO" umbrella.

1.1.5.2 Theoretical and Empirical Foundations

The theoretical basis for EO related scale development stemmed from sociological observations about organization. It formed from organizational theory arguments concerning contingency or configuration (Donaldson, 2005, 2005; Miller, 1996; Mintzberg, 1981). It included internal structure and human capital as inputs to firm

level performance and often modeled external environment as a moderator of internal and firm level perceptions and adjustments (Covin & Slevin, 1988; Covin et al., 1989; Covin & Slevin, 1990; Khandwalla, 1977). Theories of strategic and organizational behavior that have contributed include opportunity identification and opportunity management (Stevenson et al., 1990), knowledge flows and resource management (Wiklund & Shepherd, 2003), as well as culture and role structures (Monsen, 2005; Solymossy & Hisrich, 2000). Individual level theories that can be used to understand EO measures use and development include planned behavior (Ajzen, 1991; Krueger, 2007), entrepreneurial characteristics, competitive judgment and decision-making, and cognition (Baron, 1998; Baron & Ward, 2004). Scales addressed in this study include: the standard Miller/Covin-Slevin EO scales (Covin et al., 1989; Miller, 1983; Miller & Friesen, 1980); the Entrepreneurial Assessment Instrument (Robinson et al., 1991); the Lumpkin Autonomy Scale (Lumpkin, Cogliser, & Schneider, 2009); assessment with the Stopford-Baden Fuller Stages (Stopford & Baden-Fuller, 1994); the Brown, Davidsson, and Wiklund (Brown et al., 2001) entrepreneurial management (EM) Scale; the Hornsby, Kuratko, and Zahra (2002) Corporate Entrepreneurship Assessment Instrument (CEAI) Scale, and other cognition, orientation, and socialization scale applications (Krauss et al., 2005; Lena & Wong, 2003; Yamada, Kurokawa, & Eshima, 2008; Zhao, Seibert, & Hills, 2005) . Respondent profile measures include locus of control, opportunity motivation, and action likelihood (Dimov, 2007; Hills & Shrader, 1999 ; Singh, 1969; Singh, 1984).

1.1.6 Dissertation contribution

Research using Entrepreneurial Orientation spans several decades, but its measurement techniques and impacts are still being debated (Kreiser et al., 2002; Rauch et al., 2009). After substantial evidence that Entrepreneurial Orientation exists, and with some preliminary evidence on causality (Yamada & Eshima, 2009), questions still exist about relationships between the various measurements of the construct and levels of analysis where dimensions are applied (Kuratko, Hornsby, Holt, & Rutherford, 2009). Theory building in Entrepreneurial Orientation seeks to understand how behaviors and process elements can be identified and then supported at different levels of the organization (Covin, Wales, & Green, 2007; Zahra, 1993). This dissertation seeks to outline the development of popular and lesser-known EO measures, to set the stage for identifying influences on the perceptions recorded in the use of these measures. Assessment of perceptual factors that may affect responses to EO related scales could lead to better understanding of the self-report context and of the application setting.

1.1.7 Summary of the Dissertation Outline

- Chapter One introduces the purpose, research questions, topical focus, contributions, outline of the dissertation, covers topic background, issues, and relevance.
- The Chapter Two Literature review uses a historic observation analysis on the history of the Entrepreneurial Orientation construct, assessing the development and use of EO related measure measures in light of theory and modeling.

- Chapter Three is theoretical with development of hypotheses and modeling of variables.
- Chapter Four is empirical with a study of factors that may affect application of the measures.
- Chapter Five concludes with a discussion, noting implications, limitations, and suggestions for future research. References and scales follow.

1.2 Overview of the Topic Focus and Issues

Recent attention in formal sessions at the Academy of Management conference programs confirm Entrepreneurial Orientation as a primary construct with a majority of Entrepreneurship Division sponsored sessions devoted to studies using EO related measures (Davidsson, in El Tarabishy, Davis, Hornsby, Monsen, Pandey, Pollack, Roberts, Sashkin, Saxton, Wales, & Zolin, 2009). As evidence of its impact outside the realm of the Entrepreneurship domain, the concept has been borrowed, filtering into other domains such as marketing, human resources, and learning (Roberts, Davis, Hornsby, Monsen, Pandey, Pollack, Sashkin, Saxton, Tarabishy, Wales, & Zolin, 2009).

1.2.1 Problem for researchers

Currently in organizational and entrepreneurship research, parts of the Entrepreneurial Orientation concept have been adapted and placed at various positions and levels of analysis in models to assess organizational entrepreneurship characteristics and performance or to adapt sub-dimensions for particular applications (Kreiser, Marino, & Weaver, 2002; Wang, 2008). There are many types and versions of EO related measures, as the construct is pulled into service for a variety of roles (Rausch, Wiklund,

Lumpkin, & Frese, (2009). Despite EO's importance to the entrepreneurship domain many of the scales and basic tenants of Entrepreneurial Orientation are not widely known outside Entrepreneurial Orientation specialists. With decades of research establishing that it exists, scholars and practitioners are asking how to better define it and how to tap it; outside of the items themselves, they are still asking about the essence of Entrepreneurial Orientation —what it represents in the larger picture (Wales & Covin, 2009). They have yet to investigate the part that respondent perceptions play in EO related survey measurement. It seems logical that the time has come to investigate this, hence this dissertation research.

1.2.2 Problem for practitioners

After several decades of study, it is known that Entrepreneurial Orientation exists (Rausch, Wiklund, Lumpkin, & Frese, (2009). Yet currently in business education, the Entrepreneurial Orientation concept is not taught as such, and the principles of its entrepreneurial nature are not used in educational design (Holcomb, Ireland, Holmes, & Hitt, 2009). This is ironic, as researchers have started to use a related concept, "learning orientation", to assess parts of EO related processes (Lena & Wong, 2008; Krauss, Frese, Friedrich, & Unger, 2005). EO, LO, and other entrepreneurship principles, such as interactive social networks, experimental learning (learning by mistakes), and creativity have shown positive relationships with different types of performance (Shalley, Zhou, & Oldham, 2004; Wang, 2008). It seems logical that understanding how to translate these into classroom content and practices would increase accessible EO

related knowledge and skills for students and organizational members. This study hopes to contribute to such understanding.

1.2.3 Need for an investigation

This study was undertaken in order to address several needs. Conversation on the topic of entrepreneurial orientation has lacked historical and comprehensive assessment on the overall depth of the literature, and on the various factors and elements evident in past study. There has been limited research on questions concerning application of the concept in terms of modeling and level of analysis.

1.2.3.1 Lack of historical assessment

EO related measures currently lack an overall listing and definition that can be clearly identified, and so, used for business and education use. This dissertation seeks, under the historical context, to codify factors and elements that have guided the application of various scales in a variety of contexts. Factors are defined as measurable concepts, and elements as topics of effect.

To date, much of the analysis has looked at only a small part of the total history of the scales used, and even then, a subset of those scales and dimensions (Rauch, Wicklund, Lumpkin & Frese, 2008). Literature that has not fallen into that narrow area has not been assessed due to the empirical methods used, and the focus on specific elements. While it is important to assess findings related to dimension items, it is also important to assess the larger picture of theoretical background and of lesser known dimensions and scale sets, in order to build a composite picture of EO related measures. This

dissertation seeks to assess the measures from the perspective of domain development, including the theory-building behind the construct measures and their applications.

1.2.3.2 Lack of comprehensive assessment

Rauch, Wicklund, Lumpkin and Frese (2008) recently compiled a meta-analysis of findings related to some of the dimensions of entrepreneurial orientation at the firm level of analysis. They located 134 papers that addressed entrepreneurial orientation using a particular scale, but only included 51 of them in their study; 37 used a unidimensional method, while 14 used a multidimensional method. The rest of the papers discovered were not addressed as they did not meet the entire criterion for that specific analysis. They also did not address papers using other or adapted scales. Certainly the other papers contain important information, outside the particular type of analysis used by Rauch, et al. (2008). On one hand, this type of analysis was on a very limited set of measure items and factors, not reflecting all of the theory and testing in entrepreneurial orientation literature. On the other hand, because of the strict empirical guidelines of the analysis, the majority of literature could not be assessed or summated. To advance the body of knowledge concerning this important construct, a study of all the measures and how, as a group, they can impact study design and theory building is important. However, this has not been done. This dissertation approaches this issue.

1.2.3.3 Limited research on application of the concept

We know that entrepreneurial orientation exists, and that there are multiple ways to measure it. The original context of measuring at the firm level has expanded to multiple levels and the concept of entrepreneurial orientation has become a type of gestalt, with

use of "EO" as a rich descriptor outside the narrow definition of the original firm level items used in a strategic context. There is not yet a study that addresses this, lays groundwork for understanding how this developed, or analyzes what factors may contribute to perception of the concept across levels of analysis. This dissertation hopes to address this by dealing with the known constellation of measures, their driving theory, their use at various levels, and how they support a general congruent family that reflect a general entrepreneurial orientation concept.

1.2.4 Issues addressed by the dissertation

Issues that are addressed in the dissertation include modeling, perception, practicality and knowledge.

1.2.4.1 Issue 1: modeling

The history of entrepreneurial orientation research shows the construct positioned variously as an independent variable, a dependent variable, and as either a mediator or moderator. Current theorizing faces issues on where to place entrepreneurial orientation related factors and dimensions in an overall framework, and whether it, or a subset should be pulled or adapted to organization, individual, or other process levels.

1.2.4.2 Issue 2: perception

A second issue is the search for an EO process, and the discovery of missing variables that may precede or support entrepreneurial orientation activity and perception. As entrepreneurial orientation research has attended to psychological, strategic, organizational roles, and cultural lenses, other constructs have been tested to see if they contribute. These include opportunity, self-efficacy and intention, as well as human

capital. However, basic process elements of concept transfer—training and support activities for entrepreneurial orientation are noted as in need of research (Kuratko, Montagno, & Hornsby, 1990).

1.2.4.3 Issue 3: practicality

Another issue is how to design entrepreneurship education and training. Without understanding what elements are appropriate for EO design at the managerial, organizational and business levels, the active context of teaching it is muddled. There is a lack of classroom exposure and practice related specifically to entrepreneurial practice (Edelman, Manolova, and Brush, 2008). Elements such as cognitive profiles and states, learning styles and decision-making patterns have lagged in entrepreneurship research (Holcomb, Ireland, Holmes, and Hitt, 2009). Some researchers argue that performance results on the part of students and training programs has also lagged due to this problem (Lobler, 2006). A recent call by Venkataraman during the 2009 "Entrepreneurship Research Exemplars Conference" at the UConn School of Business for the use of entrepreneurship as a design method for teaching and learning is one motivation of this dissertation for addressing the socialization and ecology aspects.

1.2.4.4 Issue 4: knowledge

A last issue is the lack of entrepreneurial orientation specific codified material in entrepreneurship coursework. This includes terminology and basic frameworks of how principles of the dimensions relate in the entrepreneurial process. Much of the content in current entrepreneurship coursework mimics general business and strategy content. It is difficult to discern specific entrepreneurial principles organized around EO

dimensions. With several decades of study behind the construct, it is time this material finds a place in classroom settings. For educational purposes this dissertation seeks to clarify elements that can be used in a framework for the various measures and document how dimensions and elements may relate to principles and activities in the ecology of the entrepreneurial process.

CHAPTER 2

AN HISTORICAL OBSERVATION ANALYSIS OF ENTREPRENEURIAL ORIENTATION RELATED MEASURES

2.1 Overview of the Historical Observation Analysis

2.1.1 Purpose of the method

Chapter Two covers an analysis of the history of the Entrepreneurial Orientation construct, noting influences from related theory. Organized by stages of Entrepreneurial Orientation development discovered the during investigation of these measures, the analysis reviews pertinent literature that traces their development. By using a historical method observing accepted knowledge as established through peer review practices, (Rauch, Wicklund, Lumpkin, & Frese, 2008), we can not only trace the research development, but also note the influences of context over time in light of historically related purpose and thought behind measure use and design.

2.1.2 Overview of the Historical Essay Method

McKelvey (1998) notes that there are two strategies used for analysis. One deals with the use of taxonomy- the development of empirical categories that usually start with a

dichotomy (Nelson & Winter, 1982). The other deals with pattern theory: social/organizational patterns of behavior or "rules of the game" (Powell & Dimaggio, 1991; North, 1990). McKelvey (1998) observes that in the organization and use of analysis, researchers look for degrees of freedom that allow chance or change, and that we often highlight diversity to identify elements of effect. Sometimes studies tend to focus on a particular level of analysis, and miss a bigger picture of what may be happening. This failure to understand level of analysis bracketing can lead studies to overlook important variables or contexts (Hackman, 2003). These intermediary concepts may be overlooked as researchers exhaustively examine details; all the while, an explanation of an occurrence at one level relates to unrecognized phenomena at another level (Hackman, 2003).

2.1.3 Application to Entrepreneurial Orientation study

Miller notes that the entrepreneurial situation inherently requires reconceptualization (Miller, 1983), and this study applies that credo to the examination of one of its chief constructs: Entrepreneurial Orientation (Day & Wensley, 1988; Hult & Ferrell, 1997). Evidence of a general organization of factors and elements used for Entrepreneurial Orientation research can be traced in the literature, but has not been codified in a framework format. This dissertation will use an organizational approach, applying roles and behavior that have developed in the recognition and use of Entrepreneurial Orientation theory and measures (Stevenson & Gronsbech, 1992). Using material from the accepted knowledge base, a social constructionist method is used to establish meanings and contexts of Entrepreneurial Orientation elements. This sets a stage for

understanding the patterns in the general organization of various measures, and also suggests guidelines for understanding future development of general multi-level EO testing. As recognition of patterns "triggers learning" (Dimov, 2007; p 563) this study contributes to social dialog and knowledge structure concerning Entrepreneurial Orientation concepts and practices (Weick, 1995; Crossan, 1999).

2.1.4 Contribution of historical analysis

According to the Ewing and Marion Kaufman Foundation website, in 2005, there were 10 million new ventures started in the United States, contributing to an active and needed component for our socioeconomic health. Demonstration of Entrepreneurial Orientation is positively associated with greater success in venturing (Lee & Peterson, 2000). Current formal entrepreneurship knowledge transfer lacks education materials that reflect the content of the domain (Edelman, Manolova, & Brush, 2008; Holcomb, Ireland, Holmes, & Hitt, 2009). Learning involves information sets that require interpretation and then are used for decision making and action (McKelvey, 1998). A contribution of this study is an outline of construct and measurement development that can be used by academics and practitioners to understand the meaning and use of Entrepreneurial Orientation as a categorical state in the Entrepreneurship domain, reflected by an array of supporting dimensions factors and elements. By reviewing Entrepreneurial Orientation knowledge development we may gain perspective on transferring Entrepreneurial Orientation concepts and skills to business practitioners, researchers, and students.

2.1.5 Design of the analysis

There are several ways to address the historical development of Entrepreneurial Orientation; here its chronological life will be followed. To clarify the implications of development stages the information will be set forth in three ways. The first is a general historical observation recounting seminal studies that contributed to the development of the concept, as reflected in Table 1. The purposes of the studies develop around topics of "systems", individual "actors", "roles" and links with other topics or "cohorts". The second deals with the modeling issues and theoretical purposes as reflected in Table 2. Elements of the Entrepreneurial Orientation concept move between IV, DV, or Mediator positions in models. The third way information is set forth is found in Table 3, concerning how individuals, the common respondent in EO survey research, have been addressed. The treatment of individuals moves from leadership as the firm representative, to actors that initiate, interact, and influence, to structural and behavioral roles of responsibility, initiation, and support, and then across varied characteristics. The development is generally traced here as Stage One: Industry Context; Stage Two: Organizational Context; and Stage Three: Connection Contexts. Development began as studies addressed how companies worked in their larger economic contexts. The level of analysis was at the "firm" level as a market entity among other firms. Study reached into the organizational aspects of the company to understand how systems, structure and decision-making played a part. The "organizational" level was often the level of analysis here, focusing on managers and their situations, including employee and organizational design aspects. Finally, studies have begun to make connections with

broader topics and concepts such as culture, entrepreneurs, and newer ideas about learning and partnering. The elements for this table are organized by theoretical purpose, factors, and formalization of variables. For clarification of specific terms, please see the definitions in Appendix A.

Table 2.1 Overview of Entrepreneurial Orientation Measure Development Stages

Focus	Content / Purpose	Measure	Author	Name	Stage
Contingency Configuration Firm Entity	Systems				Stage One: Firm in Industry Context
	Organizational factors	Performance Criterion, Perception Contingency	Kandwalla	Strategy	1970's
	Entrepreneurship by degree	Organizational Types Configuration	Miller	Arche-Types	1980-1990's
	Measures, methods	Internal/External Context	Covin Slevin	EO	1980-1990's, 2000's
	Modeling	Firm Identity, Dimensionality	Lumpkin Dess	EO	1990's, 2000's
Individual Actor/Member	Actors				Stage Two: Firm in Organizational Context
	Structural Factors, Training	Top down, Intrapreneurship	Kuratko	IAI	1990
	Attitude, Behavior Response	Characteristic Predisposition	Robinson	EAO	1991
	Change Process	Bottom up, Triggers, Patterns, Framebreaking	Stopford Baden-Fuller	Stages	1994
Management Firm-Agent	Roles				
	Organizational Factors	Management Levels	Hornsby, Holt	CEAI	2002
	Management Roles	Opportunity Management Types	Brown	EM	2001
Other Models	Cohorts				Stage Three: Firm in Connection Contexts
	Global	Ach, O's	Krause, Kropp		2006
	Micro	Big Five, Intention Self-Efficacy, Risk	Zhou, Seibert & Hill		2005
	Orientations		Lena & Wong		2003
	Organizational Behaviors	Culture, Identity	Monsen		2001
	Causality	Longitudinal Model	Yamada & Eshima 2009		2009
	Scale definition	Autonomy	Lumpkin		2006

Table 2.2 Overview of Entrepreneurial Orientation Measure Model Position Stages

Model Position Levels: Ent = I, CE = org, EO = firm	Factors	Variables/ dimensions	Author	Name	Stage
					Stage One
DV to factors; contingency fit Factors->perception	4 functional task-environment areas; Performance	Financial, personnel,	Kandwalla	Strategy	
DV to determinants; configuration fit Factors->EO degree	Individual, Structure, Strategy-making	Simple, planning, organic	Miller	Arche-Types	
IV to Performance; effectiveness EO->performance moderators: E, OS	Organizational structure (OS), environmental strategy (E); firm, economy, industry; external competition	Innovation, risk-taking, proactive	Covin Slevin	EO	
IV to Performance EO->performance	Decision-making, strategic positioning	Autonomy, competitive aggressiveness	Lumpkin Dess	EO	
					Stage Two
"entrepreneurship" as mediator to CE Train->Ent->CE	Organizational conditions	Management support, organizational structure, resource availability	Kuratko	IAI	
DV behavior to Attitude I attitude->Ent Response		Affect, cognition, conation; Achievement, innovation, control, self-esteem	Robinson	EAO	
IV/mediator to performance Ent->CE->results	Triggers, Creation behavior, infection renewal patterns, framebreaking results	Team, aspiration, proactive, learning, resolution	Stopford Baden-Fuller	Stages	
CE mediator to performance Org Factors->CE-> performance	Transformation, conditions, participation	Management support Autonomy/Discretion Rewards/reinforce Time availability Organizational boundaries	Hornsby, Holt	CEAI	
IV to performance EM->performance	Opportunistic Managerial perception and practices	strategic orientation, resource orientation, management structure, reward philosophy, growth orientation, entrepreneurial culture	Brown	EM	
Adapted Position					Stage Three
			Krauss		
			Zhou		
			Lena Wong		
			Monsen		
			Kozo		

2.1.6 A note on names and titles

The reader will note that the narratives in the stages described below are titled by the names of their seminal authors or by a single name and abbreviation. Scholars in entrepreneurial orientation often note a scale or stream of work related to a scale set by these designators, so they are used here for parsimony. These labeled references are not meant to slight any of the contributors. Nor is this is a "mistake" in light of correct citation practices, but rather it reflects common reference language usage by entrepreneurial orientation scholars, as occurs in socially constructed and transferred knowledge—an artifact of accepted understanding.

Table 2.3 Overview of Entrepreneurial Orientation Measure Individual Focus, Question Theme, and Firm Context

Individual as	Question View	Firm Context	Study	Name	Stage One
CEO Representative	What is Entrepreneurship at the firm level, and is It there?	Firm centered competition			
			Kandwalla	strategy	
			Miller	types	
			Covin Slevin	EO	
			Lumpkin Dess	EO	
Actor Processes	What is It doing, and what does that mean?	Intra-active organization			Stage Two
			Kuratko	IAI	
			Robinson	EAO	
			Stopford Baden-Fuller	Stages	
Responsible Role	How do we measure and control It?	Managerial environment			
			Hornsby, Holt	CEAI	
			Brown	EM	
Vital Characteristic	What factors are involved?	Impacts and Associations			Stage Three
			Krauss		
			Zhou		
			Lena Wong		
			Monsen		
			Yashima		

2.2 Entrepreneurial Orientation Measures Development

2.2.1 Background

In the short history of modern business administration knowledge, entrepreneurship is a newcomer (Vesper, 1987). It is interesting that the stream leading to recognition of the Entrepreneurship domain sprang from the study of existing businesses and questions about "venture initiation" (Vesper, 1987). Though as far back as revolutionary times, economic arbitrage (Cantillon, 1730) and "enterprising" was considered a general socio-economic artifact. It is now considered reflective of intentional initiation, creation, and change (Krueger, 2007). This is reflected in creation of new entities, concepts, and types of wealth including knowledge, financial and social wealth, via resource coordination for wealth creation (Vesper, 1983), economic rejuvenation (Schumpeter, 1934), entity nascence (Gartner, 1988), new products and service in output and wealth creation (Casson, 1982), exploitation of new information and technology (Drucker, 1985), new combinations (Brush, 2003), and new societal structures or communal sets (Stinchcombe, 1965).

The domain of entrepreneurship implies a permeable boundary, as opportunities are acted on (Shane & Venkataraman, 2000), start-up factors and time windows change in creative exchanges (Busenitz, 2003), and the entrepreneurial state is one of discontinuity and change states even in levels of analysis (Bygrave & Hofer, 1992). Decision-making is of premier importance as the cognitive strategies used to identify, gather and bring new things to fruition lead to action from vision (Gartner, 2001; Venkataraman, 1997; Gaglio & Katz, 2001; Kirnzer, 1973, 2009).

2.2.1.1 Application for modern business research

Queries in early business policy research on how to move industrial factory and commodity-producing and distribution settings to professionally owned and managed enterprises led to observations of work and control structures (Ansoff, 1965; Andrews, 1971). Best practices exemplified by successful, that is to say, large and dominant companies, became guidelines for "business policy" and then ways to "strategize" within industrial fields (Hofer & Schendel, 1978). As concern with management of technologically sophisticated industries began to look at measures of success—being large in assets and in profitability—both powerful tools in the marketplace, policy debates moved to business administration debates (Chandler, 1962).

2.2.1.2 Application to modern business design

The concept of "success", assumed by industrial and political power, has been measured financially as performance. Scholars have noted that internally companies could be operationally and functionally structured in different ways (Donaldson, 2001, 2005; Mintzberg, 1981). They also noticed that companies could impact how their industries and markets were structured (Porter, 1980, 1985). In order to take advantage of structure, companies could not only plan and control, but could strategize. Strategizing, not just following best practice policy, could help the company be more efficient, or it could help the company be more effective—with dividends in the competitive marketplace. Scholars studied thousands of firms to establish that there are a few basic structural configurations, as well as some crucial contingencies (Minztberg, 1979; Donaldson, 2001, 2005). They debated over whether configuration or contingency was

more important, and how to control or use each one. At the heart of this debate was the philosophical issue of whether managers are able to choose and design factors for more successful companies, or whether the industry, market, technology and resources constrain and determine not only performance, but whether companies exist at all (Child, 1972). Donaldson (2001), a contingency theorist, expressed surprise in his recollections of that period that Child, after examining Donaldson's reams of contingency evidence data, replied in a now seminal work that managerial perception of the contingency and company circumstances determined if and how they responded—putting managerial thinking as a prime element into the debate (Child, 1972). Thompson (1967) simplified the conceptual schematic of an organization as consisting of a technical core and an administrative buffer, the connections between which established the groundwork for both the formal and informal structures discussed by DiMaggio & Powell, (1983), after Weber (1947).

2.2.1.3 Application of factors for deeper understanding

Rumelt (1982) made a major discovery with his "core factor theory" which showed that an internal attribute of the firm, such as a technical function, shared across its diverse parts, led to better performance (Rumelt, 1982). Sharma (1981), and Prescott (1986) made methodological breakthroughs showing the performance impact of the external environment and industry factors on companies (Prescott, 1986). Both sides of the debate had fodder—each could recognize factors for success, and could see how business cycles impacted performance. These two elements—internal organizational characteristics and external environmental characteristics, would later play a huge role

in entrepreneurial orientation research development as independent contingencies or moderators. Work by economists over the socio-economic aspects of business cycle mechanics simmered under the surface, also to later play a huge role in Entrepreneurship theory development and in understanding factors in the creation and opportunity processes (Schumpeter, 1934; Kirzner, 1973, 2009).

2.3 Development of Firm Level Treatment: Stage One, An Entrepreneurial System

2.3.1 Khandwalla

One of the attractions to contingency/configuration was the possibility that an optimal company could be designed, which would "run itself". An enthusiastic quote by Khandwalla (1972), stemming from his dissertation work (Khandwalla, 1970) on this topic reflects some of this fervor:

> *If these speculations are borne out by further research, then not only would organization theory get a stronger empirical base, it would begin to move in a different direction — that of a contingency explanation of organizational behavior in which the nature of the task would take its rightful place alongside the nature of the human being for explaining what happens in organizations. The implications for the design of organizations and their components are profound. No more the so-called "principles of management." No more the behavioral scientist plugging away at participative management, job enrichment. Theory Y, and sensitivity training regardless of the nature of the task. No more the management scientist promoting operations research and sophisticated management control and information systems without justifying them in terms of the specific nature of the organization's task and objectives. In its place we would have a more eclectic marshaling of these tools for ultimately more effectively managed and possibly happier organizations (311).*

Khandwalla took this contingency vision to heart, and designed basic study elements based on manager judgments that compared the perceived situation mediated by a register of goal hierarchies and heuristics. Areas included profitability, products, markets, and personnel. In this work he noted environmental "impact" (1972), "organizational design" and "gestalts" (1973), and "techno-economic ecology" (1976). He cited seminal thinkers, such as Likert (1961), a social psychologist whose survey method is now standard in entrepreneurial orientation work, as well as sociologists Thompson (1967) and Weber (1947), who studied organizational context and purpose. However, Khandwalla decried these studies' lack of connection to measurable purpose. He stated that the criterion for study in this area should be profitability—a motivating distinguisher for perception categorization. With strategy—a response to uncertainty, as a contingency relative to the environmental task environment, fit was determined.

In the late 1970's, Khandwalla collected scale sets and published them; these volumes make up an original source for scale sets used by entrepreneurial orientation researchers, and provide us with the first general model of what would become EO: comparative perception—> "strategy", with relation to performance. He placed "strategy" perceptions in the DV position.

2.3.2 Miller

A question arose from this study of strategic perceptions intermingled with the basic contingency or configuration debate: how does one recognize the situation of one's own firm, and how does one identify and perform decision-making that allows movement from one to another, that is, for renewing changes? Khandwalla's 1977 scale

suggestions found a home in the next stage of development. Miller took up this query using configuration to look for strategic descriptor sets for firms. Miller, coining and defining firm-level entrepreneurship in this stream, has to his credit a long stream of research with peers spanning the late 1970's through the 1980's focused on the question of entrepreneurial decision-making on behalf of firms in light of firm types and factors. Miller measured entrepreneurship by degree—more or less of the attribute, not as a category (Miller, 1983; p 772), a practice still followed, placing entrepreneurship as a DV to structural, strategy and environmental IV's. In 1983, following archetypes suggested by Mintzberg (1973), he documented 3 type sets: simple, planning, organic, that reflected organizational "nature". He noted determinants of the "entrepreneurship" renewal process —measured by comparative perceptions of pioneering (proactiveness), innovation, and risk taking. Factors of decision-making/strategy stances, control, power and adaptation were variously important for the types. Along with organization/structure variables, he delineated environmental dimensions of dynamism, heterogeneity, and hostility. These traits, use of organizational, environmental, and strategic perceptions, became a mainstay in EO testing. Miller, despite purposefully defining his research in terms of the firm, noted the importance of organizationally focused individuals as decision-making owner/mangers and perceptive respondents.

2.3.3 Covin-Slevin

Interest in the topic began to propagate studies. In the late 1980's Entrepreneurial Orientation gained a major boost in its development as a construct through the research team of Covin and Slevin. They popularized the term "Entrepreneurial Orientation" and

raised its stature from a concept in organizational study to a driver of competitive success in strategic management research by formally placing "EO" as an IV to performance. Harkening back to Khandwalla's original need for a performance criterion that signals purpose for study, this movement from DV (EO as a result of organizational factors) to IV (EO as a determinant of economic validity) suggested a direct link from intention/perception-based firm strategy to product-market success. This heralded the glamour of firms who could, by engaging entrepreneurial orientation, claim growth and achieve various levels of change, including disrupting the marketplace and justifying venturesome allocations of resources outside of normal institutional expectations. Small firms could perform in big ways and in different modes, a different setting from the norm earlier in the century, when biggest was assumed as evidence of best (Chandler, 1962).

The cumulative measure of EO—summed and averaged across its dimensions, signaled a uni-dimensional construct that, when moderated by organizational and environmental variables for performance relationships, profiled a firm's behavior (Covin & Slevin, 1991). In addition, following Miller's lead, they noted that the degree of useful entrepreneurial orientation related to firm and market types hinged on economic and industrial settings. High levels of entrepreneurial orientation could lead to lower performance in circumstances of poor fit. Firms could be seen as more or less entrepreneurial, simplifying a general categorization state by which to differentiate. Understanding of firm and environmental characteristics, including industrial, temporal, and economic factors was greatly enhanced during this research.

An important conceptual gain was also established through these studies. Not only were the now established EO dimensions of innovation, risk-taking, and proactiveness used as general variables in testing, they began to symbolize gestalt types in discussion used to describe strategic style and vision. In other words, meanings of "innovation", "proactiveness", "risk-taking", and "entrepreneurial orientation" began to be used as descriptors of general states and motivations (later leading to current questions about use as descriptors of more specific states; see for example: Audretsch & Monsen, 2008) aside from the original constraints of the measurement model which used local/external comparative perceptions relating to specific item questions.[1]

This success awakened general attention, as Entrepreneurship itself began to separate in the body of accepted knowledge as a domain unto itself (Vesper, 1987). With this reconceptualization and clarification of definition came examinations of measures, factors, and motivation. Attention to individual actor demographics (compare to "configuration" concept), and setting attributes (compare to "contingencies" concept) saw rapid growth in research.[2]

[1] Current repercussions of this floating terminology have surfaced around "EO" as the "orientation" concept is being for other domains, related to social descriptions of people, ideas and business endeavors. Although the spread of these aspects of cognitive processing across knowledge domains are not the focus of the current study, it is interesting to note that the movement of the orientation concept may be an example of global and local processing, an aspect of hierarchically structured patterning, a tendency to transfer or see reflections of one phenomenon in another (Forster and Higgins, 2005). It may also reflect abstract versus concrete processing, where future or distant concepts hold a higher level of abstraction, as reflected in an "orientation" and those closer in time and distance hold a lower level concreteness, as would be reflected in constraints (Liberman and Trope, 1998; Trope and Liberman, 2003).

[2] The application of the terms "configuration" and "contingency" in individual contexts is not established in the EO related literature, but is used here for illustrative purposes, to cast a lens on general research patterns. These terms are used in entrepreneurial orientation research at the entity level of analysis (Green, Covin, & Slevin, 2008; Wiklund & Shepherd, 2005). This point of comparing general schools of organizational thought is important in understanding the continuing development of the

With excellent development in methodology enabled by technological advancements such as computing software, credible examinations have poured into the field accelerating knowledge building (Rauch, Wicklund & Frese, 2004). Like "the usual suspects" in contingency (size and technology), standardized organizational modeling and the three well known dimensions with respective subdimensions (items) provoked an influx of borrowing, with innovation, and risk taking concepts taking the lead (Kreiser, Marino & Weaver, 2002, Rauch, Wicklund, Lumpkin & Frese, 2009). Recent questions about proactiveness in light of strategic reactiveness are being investigated (Green, Covin & Slevin, 2008). Questions surfaced about the psychometric properties of the items and dimensions, and the dimensions themselves took on lives of their own, as scholars tried to understand how they individually worked in soci-political, psychological, and technology transfer situations. Scholars asked about the nature of the questions and responses—did they measure entrepreneurial attitudes, progressive behaviors, or keen strategy-relative processes (Kreiser, et al., 2002; Davidsson & Wiklund, 2001)?

Meanwhile, scholars took to the Covin-Slevin scale set, and popularized it to the point that it is the set most people are familiar with. This reflects a popular language usage that symbolically implies "entrepreneurship" as "risk" or as "innovation". Covin and Slevin not only published their scales for others to replicate, but also outlined in detail

---

construct's use, as frameworks and paradigms may help understanding. This theoretical tool is addressed in the conclusions and implication section of Chapter 5. In other fields, similar discussions, comparing systems to social behavioral models has illuminated understanding about mixed results and clarified theory building efforts (see, for example, Adler & Kwon, (2002) on social capital; Gersick, (1996) on punctuated equilibrium; Tversky& Kahneman, (1986) on judgment and decision-making, and Tubre & Collins, (2000) on role stress.)

the methodology they used, giving a broad audience a taste of gracious mentorship, a reputation for which both scholars have come to be known.

This scale set, reflecting its history, is currently known as the Miller/Covin-Slevin Scale. It includes three items each for innovation, risktaking and proactiveness, with standard items for environmental hostility, and for organizational factors. It is adaptable to the firm, to organizational and environmental factors pertinent to the study focus, and is short enough that additional scales can be added without detracting from its usability or overwhelming respondents.

2.3.4 Lumpkin and Dess

Getting a handle on the original business model in a strategic setting, Lumpkin and Dess, (1996) published a seminal article outlining basic contingency modeling of the construct, with firm level EO as an IV, based out of Lumpkin's (1996) dissertation on new entrants and task environment configurations. They stated: "new entry explains what entrepreneurship consists of, and entrepreneurial orientation describes how new entry is undertaken". They pulled EO back to its strategic perception and decision-making roots by identifying two more mechanisms: autonomy, and competitive aggressiveness. They also made a bold theoretical statement:

> *new entry refers to actions that may be initiated by an individual, a small firm, or the strategic business unit of a large corporation. As such, this discussion of entrepreneurial orientation will focus at the firm/business-unit level. This firm-level approach is consistent with classical economics in which the individual entrepreneur is regarded as a firm. The small business firm is simply an extension of the individual who is in charge (138).*

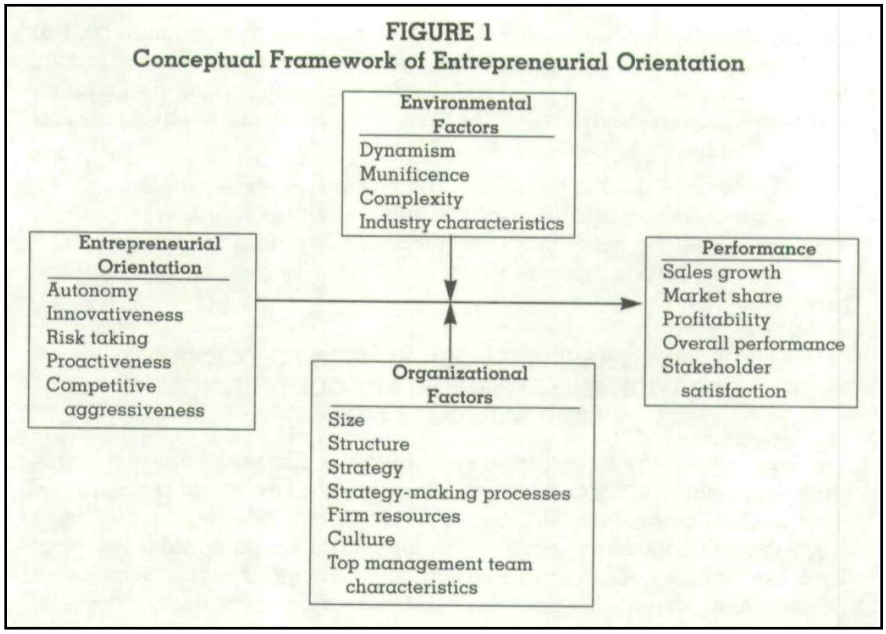
This statement made reference to the issues of a CEO (an individual) answering for an entity level measure. Where strategic research had a history of using archival data, gathered from objective external financial and operational profiles, this new entrepreneurship research used surveys, gathered from the subjective perceptive judgment processes of individuals. Lumpkin and Dess boldly address the intersection of micro and macro by logically assigning agent responsibility to the leader of the firm. The question of whether individuals or firms "responded" to entrepreneurial orientation surveys was subdued by this claim. It would continue to bubble up over time as the study of entrepreneurial orientation took on other directions, in subject areas such as organizational culture, and learning (Monsen, 2005; Lena & Wong, 2003).

Another bold claim that Lumpkin and Dess made pertained to the dimensionality of the construct. They formalized "autonomy" and "competitive aggressiveness" conceptually as factors that had been important in the general discussion, and that needed to be placed in the dimensional space. However, in the face of multiple studies shaped with unidimensional treatment (innovation, proactiveness, and risktaking were summed and averaged for an EO "score"), these two dimensions were odd men out—unless there was a case for arguing for a multidimensional construct—which Lumpkin and Dess made. They cited a history of work using different lists of dimensions that related to the same type of entrepreneurial performance expected from the Covin-Slevin scale set, and then argued that the very definitions or impacts of the dimensions could vary, depending on the situation and discretionary perception of the entrepreneur/firm. In this

way, they argued for a basic structure of entrepreneurial orientation, which, though exhibited at the firm level, could exemplify stronger or weaker positions by independent dimensions, and so, show how different firms' processes could result in very different result profiles.

Both this co-identity of the individual with the firm and the independent attributes of dimensions paved a way for theoretical justification in application of traditional entrepreneurial orientation gestalts at levels of analysis other than the original business/industrial firm level of analysis, a case made by Zahra (1991). While they clearly defined meanings and theoretical foundations for dimensions, some psychometric elements assumed in the design of the standard perceptual test methods were not specifically addressed (Kreiser, et al., 2002).

Lumpkin and Dess' now classic figures of "Conceptual Framework of Entrepreneurial Orientation" and "Alternate Contingency Models of the Entrepreneurial Orientation-Performance Relationship" have served a generation of scholars with clearly defined modeling. Lumpkin and Dess (1996) addressed modeling, representation by respondents, identity of dimensions, and, though they retained a firm centric conceptual base, made a case for differential variance of dimension states within and between firm processes. This opened the way for the next stage of entrepreneurial orientation development: that of looking at actors and role responsibilities in the outworking of entrepreneurial processes.



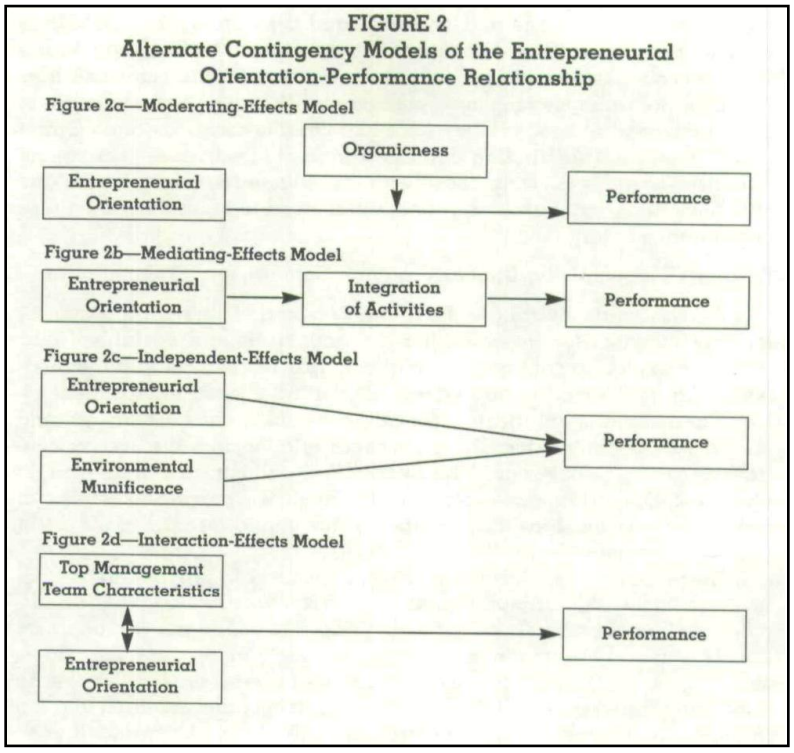


Figure 2.1 Figures 1 and 2 from Lumpkin & Dess, 1996

2.3.5 Summary

The development of the EO construct may be traced in stages that span its use in firm level strategy, in terms of organizational mechanics, and in conjunction with other conceptual elements, including individual level variables. Through its development, it has been positioned at various places in models, depending on the overriding focus of the current research. Originally stemming from the contingency and configuration arguments in strategy literature, scholars tried to determine best fit for performance and for strategic management by looking at contingent variables, and firm structure. Khandwalla, after his dissertation research in the 1970's, identified factors that he deemed important. He included "relative" environment in a contingency debate, and measured factors of finance, process, competition, and management. He placed "strategy" in the DV position. His lists of variables developed into what is now recognized as the most common EO measures. Miller, in the 1980's identified organizational types; he measured entrepreneurship by degree—a label and measurement concept we still use, and as a DV. He included organizational structure and looked at strategy-making from the configuration debate. The types of structure were simple, planning, and organic, with focus on the firm and the market.

Covin and Slevin took the construct through development during the 1980's and 1990's with many studies, placing EO as an IV with a performance DV. They measured "effectiveness", and the variance in performance, standardizing the EO dimensions of innovation, risk taking and proactiveness, into the familiar nine item scale commonly used today. They also not only listed the items of their scales in their papers for

replication by others, but delineated the methodology clearly enough so that others could test with the construct. They used the now common three-way interaction method, finding moderation of entrepreneurial orientation on performance by environment and organizational structure factors. This stage culminated with conceptual work by Lumpkin and Dess in the 1990's, which looked at the process of strategy-making (S-M-P), also with strategy as an IV, added two dimensions, autonomy and competitive aggressiveness, as well as included competitive/integrative positions.

2.4 Transition to Stage Two of EO Research

The transition of focus in the next stage of development reflects changes in social and research areas.

2.4.1 Transition

It is important to note that across the 30 years of system-concept based entrepreneurial orientation, the economic and business landscape changed greatly, including economic and political merger or dismantling of large companies, workforce reductions and increasing mobility of employees, increases in technological sophistication and economic movement from base manufacturing to knowledge work and services, inflation, recession, and "corrections" that saw major industries disbanded and new ones created. The original questions that started the search for "business policy" that would enable profitable management of industrial factory settings gave way to questions of how to best manage assets, trim or outsource work processes, invent markets and serve investors (Wiklund & Shepherd, 2003, 2008; Wales, & Covin, 2009; Yamada, Kurokawa, & Eshima, 2009) . Global pressures and settings found their way

into entrepreneurship and organizational research, illustrating important principles, such as non-ownership of vital assets and resources (Oviatt & Mcdougall, 1994), permeable firm boundaries and new forms, networking impacts of actor knowledge transfer at multiples levels of analysis (Kogut & Zander, 1990; Uzzi, 1997), as well as emergence (Chiles, Meyer & Hench, 2004). No longer simple questions of mechanical design, the variety of firm forms, life-spans coupled with growing social, political, and global pressures stimulated scholars to study deeper levels and processes related to Entrepreneurial Orientation (Krueger, 2007).

A side effect of the critical attention on the Miller/Covin-Slevin set has been that new scale offerings have been subjected to a rigid path of testing, and continue to go through reduction for focus. A good example is the Kuratko IAI scale (1990) that served as a basis for the Hornsby CEAI scale (2002) that continues to go through iterations for parsimony and clarity (Holt, Rutherford, & Clohessy, 2007). Each new EO-related scale reflects an important group of scholarly input. These scales are addressed in order of chronological publication. Some of this work precedes Lumpkin-Dess in time, though not yet in scholarly impact, and so are grouped as a second developmental stage.[3]

While Khandwalla, Miller, and Covin/Slevin related work spanned a long time period, culminating in Lumpkin-Dess' seminal argument and summary, the increase in focus and change from the 1990's to the current time has accelerated with the introduction of different research foci.

[3] "In August 2009, G. Dess (with G. T. Lumpkin) received the Foundational Paper Award at the Second Annual Idea Awards Banquet for their 1996 Academy of Management Review article"; accessed from the internet 11/20/2009: som.utdallas.edu/graduate/phd/ims/imsFacultyPhDResearch/imsFacultyHonors.php

2.5 Inside the Organization: Stage Two Part One, Individuals Matter

2.5.1 Motivators

While Miller/Covin-Slevin and Lumpkin-Dess established that the firm's moderated EO (using dimensions of innovation, risktaking, and proactiveness) related to its performance, researchers wanted to understand what inside the firm led to entrepreneurial orientation —they asked, "what is entrepreneurial orientation and where does it comes from; how can it be controlled or encouraged"? Discovering such elements could theoretically allow the degree of entrepreneurial orientation to be encouraged and controlled in changing circumstances of fit and opportunity (Kuratko, Montagno & Hornsby, 1990; Zahra, 1993). From Lumpkin-Dess we assume that higher entrepreneurial orientation focus in one aspect of the firm or expressed in a particular manner could lead to a very unique firm profile. Wernerfelt's (1984) resource argument, that management of firm assets could be bundled in advantageous ways for performance results, is echoed in this view, as is Teece, Pisano & Shuen's (1997) argument for depth of flexible management and operations, or "dynamic capability". Resource focused theory building that looked at internal path-dependent entity components, allowed human capital and differential use of intangible firm attributes as variables of effect, enriching economic analysis (Penrose, 1959; Wernerfelt, 1984). Researchers began looking at these types of assets for EO-related factors that could be deciphered and then supported by the organization (Kurotka, et al., 1990).

As entrepreneurship study expanded, a specific designation for entrepreneurial orientation manifested as "intrapreneurship", or internal entrepreneurial corporate

strategy: Corporate Entrepreneurship (CE) (Kuratko, et al., 1990). While the preceding stream looked at the firm in its business environment and in terms of market system elements, CE localized the discussion to the focal firm, firm mechanics and firm motivation for change or renewal. Questions surfaced as to how to infuse and manage entrepreneurship into companies and endeavors. Employees, managerial roles, and sources of "instigation" were investigated. Some questions respected the unit of the firm entity, but were designed as inquiries to look for mechanics and principles that existed despite various forms, outworked through organization principles.

2.5.2 Kuratko: IAI

In 1990, Kuratoko, Montagno, and Hornsby published the IAI, or Intrapreneurship Assessment Instrument. It was a compact scale set measuring employee perception of organizational factors, consisting of nine items for management support, six items for organizational structure, and six items for reward/resource availability. They noted that CE involved internal change of established patterns. Here, EO is placed back in the DV position to perception of organizational factors. This is interesting, if we compare the moderating position of the Organizational Style/Structure variables in the Stage One modeling, and Lumpkin and Dess's Figure 2d, where EO and "Top Management Characteristics" impact each other. In Kuratko, subordinates- those who implement managerial vision, are an important factor, modeled as determinants of firm level CE. Their perceptions of "climate" are important markers for assessment of CE. Kuratko noted important elements, such as organizational conditions, champions and results,

incubative efforts from below, and both induced and autonomous entrepreneurial behaviors (Quinn, 1985; Vesper, 1984; Schollhammer, 1982, Burgelman, 1983).

In a Fortune 500 company affected by a recently deregulated environment that spurred a general change setting, Kuratko used a training situation to test their model. This training involved topics of introduction, personal creativity, intrapreneurship, current climate/culture, as well as business planning and action planning. The instrument drew on a number of previous conceptual papers dealing with entrepreneurial issues. After IAI pretesting with the instrument, training sessions with the managers, and IAI posttesting with managers and subordinates several months later, three factors rotated out: management support, organizational structure, and rewards/resources.

2.5.3 Implications

Kuratko posited a prescriptive scenario of conditions: placing intrapreneurial oriented training in the organizational setting (which signals firm level sponsorship and buy-in), leads to higher internal entrepreneurial initiative behaviors, and therefore, to higher levels of CE. They switched the focus of factor comparison range from local/external to organizational/internal.

The factors they identified use comparisons to organizational structural factors relative to the firm actor setting, not general industry-organization behavioral setting, like the firm level EO dimensions do. This is an important issue. The comparative method was still used, but the focus of comparison was now the filter of the organization, and the navigation of the organization by the actor.

Not only that, but while firm level entrepreneurial orientation comparative entity alters—other firms and external industry conditions, are not under the direct control of the company, here, Kuratko deems diagnosis and evaluation of firm level control (training) as pivotally under firm control. In a manner, strategy for change is turned inward. Though not directly cited in Kuratko, the directed process outlined by Romanelli and Tushman (1994) for organizational transition can be seen as a parallel to the IAI scenario. Reflecting a structural system view, assessment of firm assets including "climate" and human capital are seen as designable. The logical result of this is a flexible internal entrepreneurial orientation manifestation that serves as a profile type, and may or may not relate directly to a unidimensional concept. This is also important as we begin to see a gestalt of entrepreneurial orientation characteristics applied to describe firms, individuals, and momentum.

2.5.4 Robinson: EOA

On the other end of the spectrum, Robinson focused at the individual level of analysis, seeking to understand behavior as a psychological response. In thorough psychological fashion, Robinson assembled a matrix of 75 items that joined four motivational dimensions: self esteem, achievement, personal control and innovation, with three aspects of attitude (affect, cognition, and conation) (Robinson, Stimpson, Huefner, & Hunt, 1991). The resulting scale set is the measure of Entrepreneurial Attitude Orientation, or EAO.

Robinson assessed issues raised by scholars who were concerned that measurement of entrepreneurial personality was flawed in part due to inappropriate borrowing from

other domains, and in part due to lack of thorough testing. They also noted that past research at the individual level was inconclusive, and incompletely focused on either limited demographic attributes or personal traits.

Attitude theory holds attitude as a favorable or unfavorable predisposition to an object; as it focuses on that object, measurements need to reflect the target of the attitude (Azjen, 1982, Shaver, 1987). The whole profile of an individual, they argued, must look at the broad mechanics of affect—positive and negative feelings, of cognition—beliefs and thoughts, and of conation—the attribution of meaning evidenced by intention. Behavior, specifically entrepreneurial behavior, was modeled as a predictable dependent response to attitude. Here, reflecting a philosophy of creation (Gartner, 1990), they used "starting a business" in the previous five years as the behavior response. They modeled attitude as leading to a behavior dichotomy, starting or not starting, and assessed behavior differences, based on an historical state.

A practical problem with this is a difficulty in applying this type of method inside of a company setting, without strictly defining an appropriate start-up behavior. While much of the other literature dealing with entrepreneurial orientation looked at the situation of the firm, the focus of this scale set was on the situation of the individual, separate from a firm environment. Instead, validation was based on comparison between individuals who had demonstrated entrepreneurial start-up behaviors, and those who had not. Also different from other EO related scales, this one used a 10 point likert and Manova as a methodology to test for differences in values. Only achievement did not result in predicting the entrepreneur or non-entrepreneur category in a discriminate analysis.

Self-esteem, personal control, and innovation predicted the entrepreneur category. A high rate of correlation between the subdimensions signals the need to reduce the set—which would also provide a shorter, more convenient offering than the massive 75 item one presented.

Unfortunately, there is little evidence that Robinson has seen much use. Recently, the EOA has served as a basis for entrepreneurial opportunity recognition (EOR) testing (Lindsey, 2005). Part of this may be that it was not tied directly to a CE, EO, or a type of firm level outcome such as selection, training, or performance, outside the passive circumstance that one group had "started" companies. There was no information on the success or firm level entrepreneurial orientation of those started companies, data that could have given more strength to the scales. If entrepreneurs who scored high on the EAO also scored high on traditional EO dimensions and performance of their firms, than a direct link of interest may have surfaced.

Robinson looked at the phenomenon as a personal feature that seeded eventual outcomes, with attitude as a triumvirate type of cognition, leading to subsequent behavior. This is quite different from Kandwalla's mechanical system view, where the organization is designed, or Kuratko's system of managerial control, both designing perceptions, decision responses, and desired entrepreneurial behaviors. But it also does not attach the attitudes to anything outside of the individual, such as a firm level process, an organizationally motivated responsibility, or a general environmental condition. It also does not reflect the social context of the individual, which as we see later in Stopford and Baden-Fuller, was crucial for outcomes.

While an idea is offered that choice outcomes affected by contingency might begin with predisposition of responses, that is not tested here. Nor is a target outside of the individual identified; attitudes may vary in terms of cultural or circumstantial differences. We still do not know if this tripartite "attitude" is a perceptual antecedent in terms of entrepreneurial orientation, though it was designed with entrepreneurial oriented behaviors in mind.

A benefit of Robinson, though, is a pureness in its divorce from entity relationships; this EAO rated individual could hypothetically be inside of a company, be a nascent entrepreneur, or be at the helm of firm decision-making, and so, have the seed of predisposition that could be identified, encouraged, or trained. It is interesting that this scale hasn't been used more, in light of the predilection of human resource management to seek out selection and profiling types via scale material. The simplest reason may be that it has been buried in dusty specialty entrepreneurship literature for almost 20 years and hasn't been picked up by an aspiring doctoral student.[4]

One other point of interest in terms of Robinson is a companion paper that posited student populations as undesirable for testing for effects related to business studies such as entrepreneurship. This is ironic as one of the EAO test groups were psychology students. Part of this harkens to a common concept in micro literature that field conditions cannot be replicated nor true testing accomplished by convenience samples. However, current student populations may reflect working, mature, self-employed, and career-transition adults (Edelman, Manolova, & Brush, 2008; Holcomb, Ireland,

[4] Thank you, Erik, for the suggestion.

Holmes Jr, & Hitt, 2009). Classroom situations may also mirror current knowledge worker environments to some extent with the use of case and project methods. There is precedent in using classroom project situations to mimic work and decision-making environments, as they present similar pressures, goals, political, and social dynamics (Lewis, 2000; Austin, 2000).

2.5.5 Stopford and Baden-Fuller: Stages

So far the scales covered have either addressed observations and descriptive research, or types of strategic profiling—all with the underlying connotation of progress—(success), that ever uphill path to profitability and "winning" by using structural or strategic "fit" for the new entry or renewal process. An assumption going back to the original business policy content was that succeeding via top performance was the goal. Better, bigger, more profitable, changing with the market—business is in business to perform![5]

In a hypothetical circumstance any firm seeking to understand growth, flexibility, change and other attributes of entrepreneurial behavior may accomplish those things through guiding leadership, vision and organizational systems. However, firms operate realistically in larger circumstances. Currently we have seen devastating results for companies deeply embedded in economic and financial systems outside their immediate control (quality and motivation of decisions over time notwithstanding).

So, what about firms unable to navigate the business landscape and for whatever reason find themselves faced with disaster? Such firms are not usually the focus for research

[5] Reflected in population theory, just surviving can be deemed as success; see for example: Hannan and Freeman, 1977, 1984.)

except in terms of some sort of pathology; what benefit is there to study, emulate, or pay attention to failing firms (Shepherd, 2004)? One hint is that an underlying paradigm of success for entrepreneurship embraces innovation and disruption (Schumpeter, 1934; Kirzner, 1973, 2009). Learning about and creating niches, tailored markets, and progressive operation settings can be accomplished by experimentation, feedback and knowledge building- and embracing mistakes as part of the change process (Chiles, Meyer & Hench, 2004). We now understand that failure and mistakes are crucial to the entrepreneurial process, but most early studies were framed from a philosophy that failure and mistakes were "loser" activities (Shepherd, 2004). Historically, attributes of failure were not studied (Shepherd, 2004). Yet, Stopford and Baden-Fuller (1994) took the "renewal" question of entrepreneurship at heart. They went inside of troubled companies and looked at entrepreneurial behaviors that led to companies changing from desperate downfall to surviving and thriving.

Miller established testing for entrepreneurial orientation by degree. He also looked at factors that segmented firms into types. The strategic entrepreneurial orientation model assumes a top down design and function. Stopford and Baden-Fuller (S/B-F) conducted a field study of organizations in trouble. They corroborated that these change-state organizations, in a bottom up process of entrepreneurial turnaround, "created the characteristics of organic firms" using "adaptive structural devices" (Stopford & Baden-Fuller, 1994; p 527). However, this result of firm change over time was not initiated by clever and visionary top leadership, who designed a contingency-sensitive strategy from within a configuration of "fit". These companies suffered through debilitating

downturns and disasters, and were turned around through the efforts of unassuming individuals inside the company. There was not one overriding type of entrepreneurship involved in each firm; S/B-F witnessed different types operating simultaneously. The entrepreneurship types become an important variable here, as they signal different types of processes: new business, renewal, and rules of competition. An important component of their observations were "triggers for change", and "conditioned" responses and outcomes. Company individuals and internal system reactions to various stimulus types are modeled as hardwired (DiMaggio & Powell, 1983). They noted that firms able to "shed past behaviors" were able to prosper past unfavorable business situations when nonconformist solutions circumvented and nullified conditioned structures. Though this study does not a have an EO scale set that was tested, S/B-F conceptually outline the behavior parameters in "Observed attributes of corporate entrepreneurship", where lower-level initiative, in conjunction with crisis recognition, led to change upward to the firm level, resulting in CE. This in turn led to performance—survival and profitability.

Table 2. Observed attributes of corporate entrepreneurship

	Stage 1	Stage 2	Stage 3
	Signs of change: 'Sensing'	Renewal: 'Galvanized at the top'	Frame-breaking: 'Deepening understanding'
Team-orientation	Limited	Top team: Extensive within function	Lateral and vertical teams
Aspirations beyond current resources	Individuals	Top team and individuals	Corporate vision widely disseminated: growing understanding
Proactiveness	Individuals and isolated teams	Corporate cutting, function building	Multiple firm-wide initiatives
Learning-capability	Intuition, informal	Investment in information systems	Formal and informal processes
Capability to resolve dilemmas	Not explicitly addressed	Resolution within functions	Firm-wide resolution

Figure 2.2 "TABLE 2" of entrepreneurial orientation stages from Stopford & Baden-Fuller, 1994

The battles in the crisis-ridden company were not always externally competitive or environmental. Although the need for change became apparent in "hostile or mature" markets; the real battle for the companies was internal. It dealt with "rules". In a turn from Khandwalla's picture-perfect system design, the system and its enforcers became a stumbling block, and only creative groups following experimental solutions, initially on their own, were able to "persuade others to alter their behavior, thus influencing the creation of new corporate resources" (p. 522).

S/B-F tracked these cases where pockets of entrepreneurial awareness surfaced and spread, without the firm level system instigating them or even supporting such initiatives; indeed, some initiative and their groups were seen as threats by other groups, and sabotaged by withholding or ignoring information. When crisis loomed and initiatives had found some footing, then perception and mindsets began to break—

"framebreaking", and missions changed. In these cases, we see a factor hinted at in the proactiveness dimension of the Miller/Covin-Slevin scale. This concept denotes decision making behavior, from a cognitively discerning motivation. Framebreaking is an important attribute of entrepreneurial alertness (Gaglio & Katz, 2001). This counterfactual thinking sees patterns, parts and possibilities for recombination. It is able to pick out aspects of opportunity and piece them together experimentally (Kirnzer, 1973, 2009). Other categories of the alertness model either do not see differences, see them but fall back on norms and do nothing about them, or see them and explain them away using the default paradigm, as mistakes, anomalies or threats (Gaglio & Katz, 2001).

Three stages were documented in Stopford and Baden-Fuller (1994). Individual change, often experimental and unsupported, found a rogue home of team cohesion that worked into a renewal project. Then in an interesting process, this became an "infection" into the firm. It spread. In turn, this led to deliverable solutions. New solutions allowed options and some perspective to "norms"; here, they allowed framebreaking. In the face of obvious confrontation with crisis, new solution avenues provided a save into which top management could buy-in. A new mission, now filtering from the top, was able to "disseminate", spurring company wide change. At the firm level, the infection became the cure.

There is not a measure of the proportion of employees who initiated changes, nor is there data offered on their firm-available resources, the deployment and redeployment or creation of them. Compared to Kuratko's IAI, all three factors of importance,

management support, organizational structure, and resources/rewards, were missing at the time of initiation and missing somewhat through infection. Robinson's individual paradigm seems to be operating here, scrambling messily toward a moving target with firm level entrepreneurial orientation being the last state registered in a long uncharted path of CE. S/F-B noticed factors in the process setting: time, social skills, and triggers, in addition to the creation of new patterns based on the repetition of change behaviors.

2.5.5.1 Time

S/F-B discuss several process attributes: the long process, the prelude of circumstance, the stages and their ripple effects; the scope of the problem at the firm level, which eventually provided a sense of urgency; schemas that provoked shock, threat, and arguing as reactions to change. Sequential repetition began to embed patterns of change and solution, especially cognitive patterns, in addition to operational ones. This was not a situation of sudden imposition by lead designers of well thought out plans, or a masterful intervention recognized and heralded at the beginning of a turnaround with everyone on board. It was a long messy process that was uncomfortable for all involved.

2.5.5.2 Social skills

S/B-F list attributes and dimensions they saw as important: proactiveness, aspirations beyond current capabilities, team orientation, capability to resolve dilemmas, and learning capability. It is notable that these focus on social and cognitive skill sets and not functional business knowledge or rules based guidelines. All five attributes occurred in each stage, though in different amounts and at different times (p 528).

2.5.5.3 Triggers

S/B-F note that in the third stage, open communication related to critical analysis and the "persistent sense of dissatisfaction with the status quo" was a trigger for more improvement (p528). Repetition of change oriented thinking and activities morphed into patterns that became evidence of working out firm level CE. The concept of trigger-stimulated communication seems to have begun early, with the rogue initiatives, the infection that followed, and subsequent framebreaking. In addition to the cognitive aspect of alertness discussed above, the social aspect of knowledge creation and exchange appears to be vital (Nonaka, 1994; Hollingshead, 2001; Bryant, 2007). The social context bumped and navigated through embedded daily company level operations and the perceived panorama of industry landscapes. Contact with other company members was filtered through or bypassed institutionalized channels—whatever worked. This process of turning negatives into positives and working from a social context aside from structural roles seems to be missing in the other conceptualizations of EO related scales.

Entrepreneurial orientation measured at the firm level at a cross section in time cannot show the fluctuating suppression or magnification of aspects contributing to CE, though it can register an overall degree compared to others. Lumpkin-Dess presented the possibility of differential change with the multidimensional method; scholars have taken this method and differentially applied parts of the total construct to chosen situations but rarely over time. In light of the method used by Miller/Covin-Slevin to register a degree of firm level entrepreneurial orientation by an external comparison, it would

have been interesting if S/B-F had measured entrepreneurial orientation over time with note of multidimensionality and other internal variables. This was a process followed by Monsen (1995) who investigated internal culture and subordinate/supervisor positions concerning entrepreneurial orientation, social identity, job roles, role ambiguity, and group traits. In light of the "trigger" attribute noted above, it would be interesting to see if increased dissatisfaction, "negative" work environments, and verbal dissent correlated with increased levels of CE and therefore to higher degrees of change and entrepreneurial orientation.

2.5.6 Summary

The second stage of development for the EO construct saw scholars looking inside the firm to understand where the orientation was being generated, and through what mechanisms it worked. By this time the term "CE" had taken hold, standing for Corporate Entrepreneurship. The CE concept gave researchers motivations for attending to renewal, reinvention and change inside the organization. Kuratko, Montagno, and Hornsby (1990) tested an Individual Assessment Instrument (IAI). This is a first hint at a multi-level framework for EO-related measures. They used micro level variables as the IV, and CE as the DV, looking for entrepreneurial input for firm level processes. They saw contribution of organizational influences contributing to behavior, with organizational behavior patterns, conditions, and "incubation". In this model, training as an IV was mediated by entrepreneurial behaviors that led to the DV of Corporate Entrepreneurship. About this time, Robinson, Stimpson, Huefner, and Hunt (1991) published the Entrepreneurship Assessment Instrument (EAO), a massive 75 item

measure for individuals. They noted that the past treatment of the entrepreneur via a psychological lens was incomplete. They assessed attitude in addition to affect and response—or behavior, placing the individual attributes as an IV to an Entrepreneurial DV. The mechanisms of predisposition of response (behavior), affect (feeling), cognition (thought), and conation (intent) were tested in conjunction with factors of achievement, self-esteem, personal control, and innovation. Stopford and Baden-Fuller, in 1994 identified stages that companies went through in strategic renewal. They saw CE as a mediator between the individual entrepreneur-champion and firm performance. They observed how crisis and unstructured entrepreneurial "infection" spread change by way of individual change, team generated renewal, and frame breaking champions.

2.6 Shaping the Endeavor: Stage Two Part Two, The Context of Responsibility

In this section, there is a hint at multiple levels of operation for entrepreneurial orientation processes. Treatment of the EO related scales began to loosely model this: internal activities and cognitions, organizational factors, funnel into CE outcomes, register as entrepreneurial orientation and result performance. It is important to note that there is not a link that shows aggregation from an identified lower level variable to an identified upper level variable. This is important as many studies in the Miller/Covin-Slevin period found entrepreneurial orientation, but the causality was not clear. Did entrepreneurial orientation lead to higher performance, or did higher performance loop around as perception of higher entrepreneurial orientation?

IAI makes a bold progression in modeling, though it stays within the system paradigm, looking at mediation of entrepreneurial orientation by corporate entrepreneurship. By

using one measure of entrepreneurial orientation as an active agent in light of another, they laid a methodological groundwork for an entrepreneurial orientation ecology. This suggests an interplay of entrepreneurial individuals navigating overlying systems who use alertness and relative perception as drivers for entrepreneurial behaviors.

2.6.1 Hornsby: CEAI

Hornsby, Kuratko, and Zahra, (2002) formalized the concept of a mediation model with CE activities mediating organizational factors resulting in organizational performance. They took a stance of organizational roles in the process, the formal responsibility outlined by organizational role expectations that signal support or negative for CE initiates. The Corporate Entrepreneurship Assessment Instrument grew out of development of the IAI as a diagnostic tool. It was intended to rate assessment by respondents at different management levels on five dimensions. These are rewards, management support, autonomy/work discretion, rewards/reinforcement, time availability, and organizational boundaries. As mid-managers serve as official agents for carrying out firm initiatives as well as go-betweens for lower levels in the firm, Hornsby was designed to identify internal managerial motivations toward CE activities on behalf of the firm. This scale continues to go through reduction and analysis (Holt, Rutherford, & Clohessy, 2007).

In light of the historical perspective, the comparative perception tested here is not that of external environments per se, with the position of the firm organizationally and economically in its industry setting. Rather it rates internal environments by the comparative perception of the manager-agent on his position in the larger processes of

the firm entity. A comparison of the manager against other managers or managerial structure is not directly addressed. System designed rewards and discretion represent stamps of approval. CEAI may be useful as a diagnostic tool for valuable insight to overarching values and goals of behavior in a healthy organization. In contrast, Stopford-Baden-Fuller found a perception of approval was often not an initial outcome, but evidence of the old, doomed structure that would be dismantled, and needed to be circumnavigated for survival.

2.6.2 Brown: EM

Brown, Davidsson, and Wicklund, (2001) went back to the theoretical drawing board for the inspiration of their scale set. They looked for value style differences that could reflect the general change gestalt symbolized by the entrepreneurial concept. While traditional EO related scales measured the degree of entrepreneurship by comparing perceptions of firm attributes relative to other firms, Brown evaluated entrepreneurship management (EM) practices by comparing perceptions of firm management style types relative to value creation philosophies held by the focal firm. This reflects Miller's three archetypes, and the type difference Stopford and Baden-Fuller found with demonstration of Organic type development. Brown wanted to reflect value creation processes inside the firm that supported opportunity-seeking behaviors and used Stevenson's definitions of opportunity management as a basis for scale development (Stevenson, 1983; Stevenson & Jarillo, 1990). Value creation related to opportunistic use of resources, planning attitudes, and alertness is modeled in Brown as a dichotomy: either visionary and idealistic pursuit of opportunity development despite resource

ownership and clear operating paths, or powerful hierarchy-based pursuit of opportunity mining through efficient fiduciary practices and system-centric controls. For one, the idea is the focus, positioning entrepreneurial promotion as a gestalt, for the other the firm is the focus, positioning administrative trustees as a gestalt (p 955). This forms the basis for a comparative 10 point likert scale set of 20 items, allowing respondents to choose a degree of similarity to one pole or the other on a set of six dimensions: strategic orientation, resource orientation, management structure, reward philosophy, growth orientation, and entrepreneurial culture.

True to form in the studies of Stage Two, Brown's attention to item and scale development contributes a substantial portion of the study documentation. Where Stage One measures were worked out over time in a stream of studies, Stage Two measure studies focus intensely on factor analysis, reliability and validity testing, perspective and conceptual analysis, in order to bypass the stream of methods questions Stage One measures spurred. Included in Brown is a test of convergent validity in addition to attention to psychometric properties. Stage Two studies continue the spirit of Covin and Slevin's openness and mentoring, with publication of complete scale building and testing methods. Signaling representation of basic "underlying theoretical constructs" EM and traditional EO measures were correlated (58%, measurement error corrected; p. 961), but factor analysis resulted in nine separate factors: six for EM, and three for entrepreneurial orientation. Similar to IAI and CEAI, dimensions reflect organizational attributes: strategic orientation, resource orientation, management structure, reward philosophy, growth orientation, and entrepreneurial culture. Different from IAI and

CEAI, which tested if structural elements were important, these scales tested interpretations of cultural approaches concerning demonstration of the elements relative to the Promoter vs Trustee dichotomy. Kuratko/Hornsby note what the firm may have control over for CE operations, Brown notes what type of outlook may influence controllable aspects. In this way, Brown corroborates Kuratko/Hornsby; however, it takes the internal attribute discussion one step further, providing not only a motivating vision, but also gives room for the individual-actor perspective posited in Stopford/Baden Fuller and Robinson. They approach the guiding perception of opportunity and value creation from the authority points of managerial vision and practice. The firm characteristics are shown as a possible tool for entrepreneurial processes, not necessarily as the operator itself, reflecting a behavioral school. Conceptually this is different from the firm as a structured collection of designed artifacts that are measured at the entity level. The opportunistic management allows for a composite of layers with mediating cognitive and operational processes. In a manner this also reflects the stance of Lumpkin and Dess, who made a case for differential importance of dimensions (multidimensionality).

Brown looked at distinct entrepreneurial conceptualization concerning a crucial entrepreneurial concept—opportunity. The dichotomy is that a firm either runs in its mechanic manner, riding the cycles of business, or it has the ability to discover, recognize, or create, opportunity. The opportunity is the pivotal point to the entity goal; bringing it into fruition demands a unique management perspective and process that reflects the changing circumstance signaled by the opportunity.

Using Stevenson's 1983 theoretical paper on entrepreneurial company opportunity management, Brown assembled a scale set to test the stance and position of how companies viewed and strategized. They tested whether managers were more conducive to taking advantage of opportunity, and if so, how they succeeded—what vision, attitude, and process behavior they followed and how that was enabled. Brown's findings supported Stevenson, with EM reflecting visionary, creative, and resource independence, complementing the proactive, innovation and risk taking dimensions of traditional EO measures.

An important comment during this period was made by Zahra (1993) in his critique of the traditional EO model. He discussed the need for multi-level theorizing. The strategic level analysis of entrepreneurial behaviors, as registered by EO related scales, often lacks discussion of factors across levels of analysis and in terms of different business types and settings. He noted that political, functional, non-financial and participation factors may differentially affect the entrepreneurial orientation registered at the firm level. He also noted individual attributes and understanding of philosophies as important contributors.

2.6.3 Summary

After the investigatory period of the 1970's and 1980's, internal aspects and processes of the organization were recognized as important contributors to entrepreneurial orientation. A big question centered on understanding if firm level entrepreneurial performance was simply an artifact of internal structure and external conditions, or if there was a tie between intentional entrepreneurial orientation firm level design, vision,

and culture. Alignment might signal recognition and process design, rather than competitive-driven performance; to these scholars understanding management of internal entrepreneurial orientation characteristics implies firm level ability to manage EO related characteristics that then can relate to performance. Brown, Davidsson, & Wiklund (2001) used Stevenson's theoretical management of the opportunity process for their measure of entrepreneurial management (EM). This compared a firm culture of ownership and control to one of vision-driven cooptation and staged development. Hornsby, Kuratko, and Zahra (2002) developed the Corporate Entrepreneurship Assessment Instrument that placed organizational factors as an IV to performance, mediated by CE. They saw transformation behavior through and across structural levels based on cultural empowerment, initiative, and facilitation. Organizational factors were management support, work discretion, rewards/reinforcement, time availability, and organizational boundaries.

2.7 Expanding the Context and Influence of Entrepreneurial Orientation: Stage Three, Global settings, Cross-Cultural Methods, and Micro Elements

2.7.1 Segue

There is a temptation in historical assessment to cover past decades of time in an overview, and to expand coverage of the current decade of time disproportionately. As there has not been enough scholarly perspective on entrepreneurial orientation developments of the last ten years, this section will only offer a brief examination of EO related measure applications and contexts.

As mentioned in a recent symposium on the EO construct, theoretical work, even by seminal authors, often cannot make it past blind review, because solidified precepts are hard to challenge—framebreaking must be deeply supported in our literature justifications, even if old precepts falter in light of new discovery (Wales, in Roberts, S., El Tarabishy, A., Davidsson, P., Davis, J., Hornsby, J., Monsen, E., Pandey, A., Pollack, J., Sashkin, M., Saxton, T., Wales, W., & Zolin, R., 2009). It is important to go back to basics and understand difference in schools of thought and underlying motivations to put perspective on study motivations and inferences from results.

2.7.2 Global settings and cross-cultural methods

Working in cross-cultural settings Krauss, Frese, Friedrich, and Unger (2005, 2007) Kropp, Lindsay and Shoham (2006) used interview methods, multiple social factors, and individual level cognitive measures to assess ability, motivation, and success exhibited by business owners, returning to the self-report firm representative position. Testing by Knight (1997) to see if the meaning of the Miller/Covin-Slevin set translated across cultures and languages found that the dimensions hold. But Krauss et al., (2005, 2007) and Kropp et al., (2006) discovered that cultural and social norms preclude the standard testing methods that expect a submissive and trusting respondent to read items and write ticks on long wordy instruments. There may be disconnects between research-domain terminology and grassroots references to entrepreneurship processes. Kropp and Krauss went into noisy operating environments and used culturally acceptable group interview techniques that allowed consensus. They used separate expert evaluation by observers of settings, conditions, and dialog to ascertain what the respondents perceived

and understood. Kropp et al. (2006) and Krauss et al. (2005) used several types of orientation measures. They looked at the importance of the social and cultural settings on values in these cross-cultural studies and noted a difference from western thinking in terms of performance goals. In these settings, perceptions of where the entrepreneurial actors and their firms fit in the community, aspects of social support and recognition of collective goals were important.

2.7.3 Micro elements

Though individual trait research fell into disfavor in the 1990's, Zhao (2005) returned to the literature, and examined it with an entrepreneurial lens (Zhao & Seibert, 2005). The "dark side" is a term used about the negative situations and repercussions that occur in the chemistry set of organizations. As was discussed earlier concerning the strategic paradigm of success, we often assume that people behaving in "nice" ways leads to "good" results. The Big Five Personality test, generally validated over time, uses personality traits to profile individuals. "Nice" traits, such as agreeableness, would seem to stimulate positive working environments with an underlying connotation of "getting along, not nay-saying, and so forth. In terms of S/BF, we might argue that a behavior standard of Agreeableness counters the framebreaking processes in some situations. Zhou & Seibert (2005) found an alternate entrepreneurial profile of Big Five traits that included neuroticism and minimized agreeableness. Other work has looked at the relationship between individual level aspects of self-efficacy, intention, and entrepreneurial orientation. This has laid a case for more examination of entrepreneurial orientation factors at the individual level of analysis and supported a case for "change

agent" actors (Robinson et al., 1991). Lena &Wong, (2003) used an adapted EO scale with other orientation scales to assess education in entrepreneurship. As with Kropp et al. (2006) and Krauss et al. (2005), other orientation scales that look at learning and personality characteristics such as open-mindedness and intention have added to the depth of study of how people approach and use situations and resources.

These studies are important as they open EO related research up to investigations in non-CE (corporate entrepreneurship) settings. Such applications can include nascent entrepreneurship—preparation activities intend to lead up to the formation of a cogent entity designed to pursue new business, and venture initiation, the formalization and primary exchange activities that a new business engages in (Vesper, 1987). This mirrors the situation described in Lumpkin (1995) concerning new entrant situations. Changes in forms of business entities themselves call for better understanding of how entrepreneurial orientation principles are perceived and enacted in non-corporate structures and the flexible business models that are taking shape in a techno-social environment (Chiles, Meyers & Hench, 2004; Dess, Lumpkin & McGee, 1999; Krueger, 2007)

2.8 Conclusion

This chapter traced the development and use of commonly used measures for entrepreneurial orientation research. The theory and modeling in these studies were outlined and discussed. In line with the research question for this study, elements of perception and how it was used to register responses to firm level, organizational level and individual level scale applications across that history has been noted. In addition to

the primary use of perceptions pertaining to situations, behaviors and values, a process of comparison between a focal and alter was often designed into the application and scale. Chapter 3 will look specifically at cognitive aspects to model factors that may influence the understanding and application of EO related measures. Below is a graphic that shows the measures at their respective designed application levels of analysis.

Individual Mobile	Membership Contribution	Managerial	Organizational	Strategic	Performance

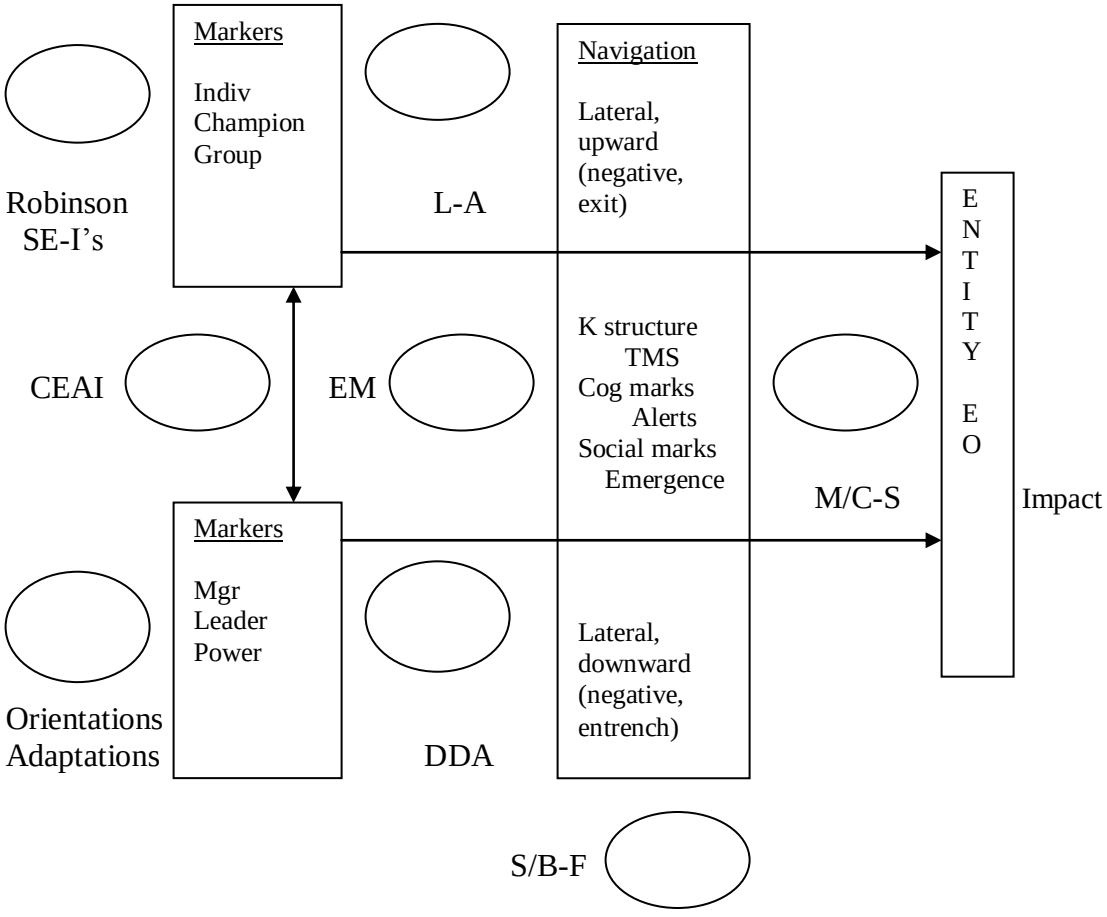


Figure 2.3 Graphic of Measures at Levels of Analysis

Graphic Key:

M/C-S; Firm/Company-External Level of Analysis**:**

Miller/Covin-Slevin EO scales (1989)

Robinson; Individual Level of Analysis**:**

Entrepreneurial Assessment Instrument (Robinson, Stimpson, Huefner, & Hunt, 1991)

L-A, DDA; Organizational-Internal Level of Analysis**:**

Lumpkin Autonomy Scales (Lumpkin, Cogliser, & Schneider, 2009)

S/B-F; Organizational-Internal Level of Analysis**:**

The Stopford-Baden Fuller Stages (1994)

EM; Organizational-Internal Level of Analysis**:**

Entrepreneurial Management Scale (Brown, Davidsson, and Wiklund, 2001)

CEAI; Organizational-Internal Level of Analysis**:**

Corporate Entrepreneurship Assessment Instrument (Hornsby, Kuratko, & Zahra, 2002)

Orientations/Adaptations; Individual, Organizational, Firm Levels of Analysis**:**

Other cognition, orientation, and socialization scales (Krauss, Frese, Friedrich, and Unger, 2005; Lena & Wong, 2003; Zhou, Siebert, & Hill, 2005; Kozo & Eshima, 2009)

CHAPTER 3

HYPOTHESIS DEVELOPMENT

How do I know what I think until I see what I say

Karl Weick (1979)

3.1 Aspects of the study model

3.1.1 Purpose

This study is designed to investigate variables that may influence the application of Entrepreneurial Orientation (EO) related measures commonly used in Entrepreneurship research. It examines factors discovered in the observational historical analysis of the development and use of the construct and related scales.

First, elements concerning levels of analysis and factors are noted. Then an overview of the cognitive concept of perception aspects that are hypothesized in this study is described. A discussion of the part played by level of analysis and change contexts follows. After these discussions, the hypotheses are presented.

3.1.2 Research question

How do perceptions by respondents of level of analysis alignment and of change context associated with EO related measures affect perceptions of respondent profiles?

3.1.3 Important study elements

The basis for the study, the background of the factors of interest and levels of analysis are described below.

3.1.3.1 Study basis

In Chapter Two, the development and modeling of common entrepreneurial orientation related measures was traced. These measures have been used at various levels of analysis, usually designed for application directed at a particular level of analysis, with the assumption that the respondent will report perceptions based on the level of analysis design (Zhao& Seibert, 2006; Zhao, Seibert & Hills, 2005; Zhao, Seibert & Lumpkin, 2009; Kropp, Lindsay, & Shoham, 2006; Holt, Rutherford, & Clohessy, 2007). However, an association between the respondent perception of level of analysis alignment and change context used in answering the surveys has not been tested. Currently, measures designed for one level of analysis, such as for the perception of a strategic application with regards to external factors for the firm, are being applied for internal or individual application. This is being done without understanding if perceptions of the respondent coincide with the measure design. Table 1, Column 1 shows general situations that are assumed for the respondent, and Table 1, Column 2 shows the purpose in the designed application of the scales.

Table 3.1 Overview of Entrepreneurial Orientation Measure Development Stages

Focus	Content / Purpose	Measure	Author	Name	Stage
Contingency Configuration Firm Entity	Systems				Stage One: Firm in Industry Context
	Organizational factors	Performance Criterion, Perception Contingency	Kandwalla	Strategy	1970's
	Entrepreneurship by degree	Organizational Types Configuration	Miller	Arche-Types	1980-1990's
	Measures, methods	Internal/External Context	Covin Slevin	EO	1980-1990's, 2000's
	Modeling	Firm Identity, Dimensionality	Lumpkin Dess	EO	1990's, 2000's
Individual Actor/Member	Actors				Stage Two: Firm in Organizational Context
	Structural Factors, Training	Top down, Intrapreneurship	Kuratko	IAI	1990
	Attitude, Behavior Response	Characteristic Predisposition	Robinson	EAO	1991
	Change Process	Bottom up, Triggers, Patterns, Framebreaking	Stopford Baden-Fuller	Stages	1994
Management Firm-Agent	Roles				
	Organizational Factors	Management Levels	Hornsby, Holt	CEAI	2002
	Management Roles	Opportunity Management Types	Brown	EM	2001
Other Models	Cohorts				Stage Three: Firm in Connection Contexts
	Global	Ach, O's	Krause, Kropp		2006
	Micro	Big Five, Intention Self-Efficacy, Risk	Zhou, Seibert & Hill		2005
	Orientations		Lena & Wong		2003
	Organizational Behaviors	Culture, Identity	Monsen		2001
	Causality	Longitudinal Model	Yamada & Eshima 2009		2009
	Scale definition	Autonomy	Lumpkin		2006

Much of the validation work done on these scales has been done with a mix of respondents in business, as well as school and professional settings. Arguments have been raised about the suitability of populations for which the scales were not designed, and whether a single reported perception registers the entity status, all things considered (Lumpkin & Dess, 1996; Kreiser, et al., 2002; Robinson, et al., 1991). Yet, in use to assess perceptions of business change, these scales are applied without consideration of these questions. In some cases, parts of scales intended for firm level application are applied in conjunction with scales measuring personal traits or organizational variables (Zhao & Seibert, 2006; Zhao, et al., 2005; Zhao, et al., 2009; Kropp, et al., 2006; Holt, et al, 2007). Table 3 Column 1 shows the assumed design of the individual's situation for application of the measures. The respondent is assumed to report for these test components in accordance across levels of application. This study takes a first look at the point of the respondent into perceptual possibilities that may play a part in how EO related measures are applied. Chapter Two noted the changes in variable position in which EO related measures have been placed. Table 2, Column 1 lists this modeling. Recent testing has noted possible overlap of some dimensions and has seen some relationship between measures (Holt, et al., 2007). It is possible that some of what is being captured is associated with the respondent's perception of level of analysis, reflecting situations of individual, organizational, and company levels. The goal of this chapter is to focus on the element of respondent perception pertaining to the scales, as well as to assess differences in respondent perceptions associated with levels of analysis and change contexts concerning the respondent's situation and the application design.

Table 3.2 Overview of Entrepreneurial Orientation Measure Model Position Stages

Model Position Levels: Ent = I, CE = org, EO = firm	Factors	Variables/ dimensions	Author	Name	Stage
					Stage One
DV to factors; contingency fit Factors->perception	4 functional task-environment areas; Performance	Financial, personnel,	Kandwalla	Strategy	
DV to determinants; configuration fit Factors->EO degree	Individual, Structure, Strategy-making	Simple, planning, organic	Miller	Arche-Types	
IV to Performance; effectiveness EO->performance moderators: E, OS	Organizational structure (OS), environmental strategy (E); firm, economy, industry; external competition	Innovation, risk-taking, proactive	Covin Slevin	EO	
IV to Performance EO->performance	Decision-making, strategic positioning	Autonomy, competitive aggressiveness	Lumpkin Dess	EO	
					Stage Two
"entrepreneurship" as mediator to CE Train->Ent->CE	Organizational conditions	Management support, organizational structure, resource availability	Kuratko	IAI	
DV behavior to Attitude I attitude->Ent Response		Affect, cognition, conation; Achievement, innovation, control, self-esteem	Robinson	EAO	
IV/mediator to performance Ent->CE->results	Triggers, Creation behavior, infection renewal patterns, framebreaking results	Team, aspiration, proactive, learning, resolution	Stopford Baden-Fuller	Stages	
CE mediator to performance Org Factors->CE-> performance	Transformation, conditions, participation	Management support Autonomy/Discretion Rewards/reinforce Time availability Organizational boundaries	Hornsby, Holt	CEAI	
IV to performance EM->performance	Opportunistic Managerial perception and practices	strategic orientation, resource orientation, management structure, reward philosophy, growth orientation, entrepreneurial culture	Brown	EM	
Adapted Position					Stage Three
			Krauss		
			Zhou		
			Lena Wong		
			Monsen		
			Yamada		

Table 3.3 Overview of Entrepreneurial Orientation Measure Individual Focus, Question Theme, and Firm Context

Individual as	Question View	Firm Context	Study	Name	Stage One
CEO Representative	What is Entrepreneurship at the firm level, and is It there?	Firm centered competition			
			Kandwalla	strategy	
			Miller	types	
			Covin Slevin	EO	
			Lumpkin Dess	EO	
Actor Processes	What is It doing, and what does that mean?	Intra-active organization			Stage Two
			Kuratko	IAI	
			Robinson	EAO	
			Stopford Baden-Fuller	Stages	
Responsible Role	How do we measure and control It?	Managerial environment			
			Hornsby, Holt	CEAI	
			Brown	EM	
Vital Characteristic	What factors are involved?	Impacts and Associations			Stage Three
			Krauss		
			Zhou		
			Lena Wong		
			Monsen		
			Kozo		
			Lumpkin		

3.1.4 Background of investigation

This study looks the scale set application from the standpoint of respondent perceptions. It seeks to understand factors that may affect the perception of change contexts and the application of measures designed for one level of analysis to a different level of analysis— a practice that is driving research in the Entrepreneurship domain (Holt, et al., 2007; Wang, 2008; Kropp, Zolin, & Lindsay, 2009; Zhao, et al. 2009).

Many of the scales use a design of comparative perception between the local focus position of the respondent and a reference to an external alter in terms of a target inside or outside of the company. For example, The Miller/Covin-Slevin scales ask for a report

of comparison between the focal firm's competitive behavior and the competitive speed or aggressiveness of other companies across the industry in question. Brown, et al.'s (2001) Entrepreneurial Management scale asks for reports comparing degrees of a focal management system's ownership and control culture to either that of other companies in general or to an imagined dipole without a concrete standard. The localization to the manager respondent is nebulous as he is asked for a general "sense" concerning company values or style. Robinson et al.'s (1991) scale, directed at individual cognitive aspects, is now being used as a basis for opportunity recognition in organizational settings (Lindsay, 2005). In addition, the measures often reflect a behavioral purpose unique to the level of analysis. The respondent is required to reflect on their understanding of the purpose and report a value or judgment intention toward the purpose, while at the same time comparing their focus to that of the alter (see, for example: Table 1, Column 2). In short there is a lot going on with relation to the respondent and his perception in these measures that has not been outlined or tested. Past research assumed a firm-entity target in an organizational task environment with comparison based on focal firm versus alter firms and external factors. Current research has begun applying traditional, adapted, and new measures to other levels of analysis, asking for comparisons based on internal organizational and individual level factors. New scales are often compared to a meta-set of dimensions to retain a parallel with the construct gestalt meaning. New level and purpose-specific measures assess factors such as conditions, practices and cognitive frameworks (Brown, et al., 2001; Lumpkin, et al., 2009; Holt, et al., 2007). The aspect of the respondent's perception is assumed to follow

the scale design. Calls have been made to study cognitive aspects for better understanding of entrepreneurship research topics and methods (Baron, 1998, 2004; Krueger, 2007). This study seeks to investigate what parts perception of the respondent may play in the application of entrepreneurial orientation related measures.

3.1.4.1 Level of analysis design assumptions

A general diagram of respondent position and the possible level of analysis conditions for perception, discovered through the observational analysis of Chapter Two, as assumed in measure designs, are illustrated in the list below. The list describes the role position of the respondent, and the level of analysis factors expected in the measures' design.

"I" = self report, perceiving respondent
- "perception" touches on cognitive, socialization factors unique to role position and target application

1) Firm level, external focus:
   - I representative -------→Entity}--→, Goals, Output
     - }perception---→

2) Organization level, internal/external focus:
   - I role/responsibility ----------→Entity}--→, Goals, Output
     - <-navigation/perception---→}

3) Individual level, personal, internal focus:
   - I actor ---------→Entity}→, Goals, Output
   - <-perception/self----→}

The ellipsis-bracket signifies a boundary of the firm. 1) The focus of perception at the firm level occurs toward external targets as the respondent self-identifies with the firm as an entity, comparing to other entities in his industry, economy, etc. 2) Within the organization, however, an additional element comes into play. Here the respondent is an

organizational member, navigating the structure and feedback from his working membership and internal state. Whatever responses he is asked for reflect this internal navigation and his responsible role and position in that outwork. Rather than compare strictly from a strategic perception, the organizational level asks for external perception to be filtered by internal membership and the activities and attitudes that are required in an organizational context. 3) On the individual level, the firm or the organization may be extraneous in the comparison, as some tests at the individual level examine personal states and traits, which the respondent would take with him no matter what situation he is in, or what membership he identifies with. Perceptions of entrepreneurial orientation concepts assumed by various measures are: 1) firm level strategic or competitive; 2) organizational level design, responsible hierarchical role, visionary, or socio-cultural; and 3) individual or "self-reflective" level.

The list of levels of analysis illustrates a simplified version of assumed perception for the respondent in measure design. This design structure is outlined in Table 2 Column 2, which lists study factors identified from the observational analysis in Chapter Two, and Table 3 Column 2, which lists guiding research question areas, also identified from the observational analysis in Chapter Two. For the individual, cognitive and social profile factors are important, as argued by Robinson, et al. (1991). The terms of membership, such as in an organizational or company setting, are labeled "firm" for strategic purposes and "organization" for structural purposes, reflecting the level of analysis. For the firm, the focus for comparative perception is primarily the external arena of markets, economy, industry, competitors, suppliers, customers, and regulatory

policies. For the organizational manager or member, the arena of navigation is internal and is filtered by the organizational attributes. External perception is assumed to be primarily filtered by the organizational boundary. For the individual actor, there may be a dichotomy of self versus the organization, or of identity with the organization that supports a perception of external characteristics, but may be colored by organizational membership and boundaries. Addressing content and process in research has been an important criterion by which to study and assess domains in Management (Schendel, 1992; Rajagopalon, Rasheed, & Datta, 1993). In measuring perceptions of change and control states, entrepreneurial orientation studies ask respondents to report on stances and rates concerning these types of processes in terms of defined content. These are outlined in Table 3 Column 3, pertaining to the context of the studies across the stages identified in Chapter Two. The levels of analysis are outlined below to illustrate aspects of content and process reflected in them, to help clarify the settings and characteristics that study designs assume for respondent reports.

EO Gestalt
- Content: primary dimensions of change management
- Process: opportunity and change management

1) Firm level EO
   - Content: includes strategic perception measures
   - Process: targets structure, process, and environment

2) Organizational level EO
   - Content: includes cultural and support measures
   - Process: targets roles and responsibilities

3) Individual level EO
   - Content: personality, cognitive, behavior measures
   - Process: targets individual, organization and firm factors

Traditionally, to measure a degree of entrepreneurial orientation, the measures ask for a report relative to the level of analysis where evidence of entrepreneurial orientation is hypothesized to exist. This study focuses on the report relative to the level of analysis of the respondent, to assess differences that perception may have on application of the measures. Attributes of setting, values, structure and cognitive traits have been under investigation; however perception itself has not been studied (Monsen & Boss, 2009; Kuratko, Hornsby, Holt, & Rutherford, 2009; Zolin & Roberts, 2009).

3.1.5 Overview of perception as a factor

Cognition is an important lens for studying topics in the entrepreneurship domain. Perspective and subsequent behavior is often measured to understand rates and types of change related to venture initiation and business activities (Robinson, et al., 1991; Baron, 2004; Krueger, 2007). The personal outlook of individuals is pertinent, as links have been found between self-efficacy, traits, intention, and entrepreneurial behavior. (Zhao, et al., 2005, 2006; Krueger, 1993, 2000, 2007; Shane & Venkataraman, 2000). Lichtenstein, Dooley & Lumpkin, (2006) called for exploration of cognitive elements and work across levels of analysis. They note that the cognitive aspects of individuals in the entrepreneurial process are important to our understanding for building theory. Likewise, our understanding of the part cognition plays in the research itself is important—how we use cognitive aspects in our research methods (Baron, 2004). Palich & Bagley (1995) saw that entrepreneurial cognition, including ways of thinking and perceiving in an entrepreneurial context, could be trained and supported. It is

important to identify aspects of entrepreneurial cognition that are unique and may be malleable, such as the different attribution entrepreneurs have about mistakes and failure as positive tools (Shepherd, 2004), or the ability to discern and assemble constructive patterns in disequilibrium events (Schumpeter, 1934; Kirzner, 1973, 2009). Perception, a cognitive aspect, is important in this study. Not only do entrepreneurial orientation surveys ask individuals to report their perceptions on dimensions concerning various settings, as well as ask for a perception of comparative value, but they assume that the reported perceptions statically match level of analysis and change context bases. Levels of analysis and change context provide differing base frames for the respondent, whether from the strategic situation of a firm, the navigation process of organizational work, or the self-assessment of an individual (Obarra, 1999); he may respond to this.

3.1.5.1 Fit

The fit of perception to a role or circumstance has been studied in terms of regulatory focus and framing, in categorization theories such as social identity, and in knowledge organization theories such as transactive memory (Cesario, Grant & Higgins, 2004; Bryant, 2007; Ashforth & Mael, 1989; Hollingshead, 2001). Researchers in cognition have looked at various schemas whereby individuals frame responses, categorize, form judgment and make decisions. Those involved in regulatory focus have discovered that although individuals' framing can be focused and manipulated situationally, they also tend to exhibit underlying chronic regulatory states that serve as a base focus. The framing of regulatory focus pivots around gain and loss reactions, and can "feel right" if aligned with an internal chronic focus and judged as a "right response" (Aaker & Lee,

2006; Grant & Higgins, 2003). Individuals' interpretations and "sense structure" allow pursuit of activities and roles to make sense (Frank & Lueger, 1997). When asked to respond relative to situations, individuals cognitively draw on shared meanings that help build a patterned mental image—a perception that is readily accessible (Cornelissen, Haslam & Balmer, 2007). Image and identity may be adapted in professional settings in response to situational influences, allowing a "provisional" self that helps the individual navigate and fit (Obarra, 1999). In situations that are global or more distant from the individual, sense-making tends toward a gain and its promotion. On the other hand, situations that are local or closer to the individual show sense-making that tends toward a loss and its prevention (Forster & Higgins, 2005). The global and local contexts may be measured in location, time, or rewards, for example. Identification can be different at target levels where different role position and motivation value are ascribed, and where different professional identities are called for (Obarra, 1999; Johnson, Morgeson, Ilgen, Meyer, & Lloyd, 2006). This connotes saliency of the perceived identity, focus, and meaning an individual has about his role and responsibility relative to his professional position (Hogg & Terry, 2001). In terms of categorization, the self tends to attach to a "winning" identifier, similar to what happens with the "fit" and "sense making" of regulatory focus. Categorization requires saliency of both the self-identified pole with its positive exemplars, and the non-identified pole with its negative targets. Imbalance may be met with adjustments through reinterpreting the basis of comparison, changing the pole of identity membership, or simply changing to a different category and hence, identity (Ashforth & Mael, 1989). This allows reports to adapt to perceived context.

3.1.5.2 Use

Perception also relates to target information and its processing by the individual pertaining to the situation at hand. In social settings, inherent in entrepreneurial processes, the generation, storage, retrieval and use of a target-related bundle of knowledge is handled partially through individual and group perceptions related to the depth and breadth of information types inherent in that knowledge context (Hollingshead, 2001). Transactive memory theory notes that information created and used can be "stored" in individuals and groups for later retrieval, such that every person does not need to know and retain all information or information structures, or expertise for information application. Corresponding expectations about expertise and the need to share information points and interpretations can affect how much an individual invests in his ownership and depth or breadth concerning that knowledge (Hollingshead, 2001, Austin, 2000, 2003; Lewis, 2003, 2004). The perception that the individual has about the credibility or dissonance of a target concerning access and use of particular knowledge can be positive or negative (Austin, 2000, 2003; Lewis, 2003, 2004). This can lead to convergent or divergent perceptions pertinent to the information setting and relevant actors and overall goals (Dimov, 2007; Faraj & Sproull, 2000; Killduff, Angelmar, & Mehra, 2000; Hollingshead, 2001). In terms of strategic, organizational, and individual levels of analysis, there are certain expectations and "fit" for varying levels of information and for an individual's cognitive engagement. In registering comparative perceptions about strategic, organizational and individual level measures, the individual classifies the target so that it corresponds to a structure level that makes

sense attributionally and practically (Hollingshead, 2001; Austin, 2003; Lewis; 2003; Obarra, 1999; Johnson, et al., 2006). In conjunction with the ongoing process of reorganizing self in terms of internal and external settings, a "meaning" framework is built (Conway, Singer & Tagini, 2004; Conway & Pleydell-Peirce, 2000). Using a generic feedback setting, that is, a setting detached from a strategic or organizational goal, this study seeks to see if a respondent's perception of his personal preference concerning change contexts is associated with his position, the target, and the change situation he perceives in answering the measures, and hence with scale application.

3.1.5.3 Judgment

As discussed in Chapter 2, contingency and configuration theories helped form the development of research in entrepreneurial orientation. Economic schools, where these theories developed, work from assumptions of rationality. Yet the change and control circumstances of entrepreneurial settings provide a rich arena for interpretive and non-rational cognition (Baron, 2004; Krueger, 2007). Like framing and categorization, prospect theory also deals with a gain/loss paradigm (Tversky & Kahneman, 1973, 1986). In place of economic objectivity the individual uses weighted subjectivity. An individual may use a selective perception; when comparing two things and shown characteristics of both, components shared by both are ignored and judgment is focused on distinguishing characteristics. In a process of making a judgment, individuals may use tools such as decision weights or heuristics. Using a decision weight, such as dominance, one characteristic is perceived as at least better, or tied as "good", on all criteria while other characteristics are ignored, affecting perceived values. Transitivity

and continuity also can affect perceptive judgment. In transitivity, if A is seen to lead to B, and B to C, then A to C is assumed. In continuity, levels of worst (X) and best (Y) possible outcomes are perceived and a mid range outcome (Z) can be colored by the preferred preference (Y). The use of heuristics has been studied to identify differences between entrepreneurs and managers, and to understand why experienced entrepreneurs perform different types and orders of activities than new entrepreneurs do (Buesnitz, & Barney, 1997; Bryant, 2007). Tversky and Khaneman, (1973, 1979) have outlined processes that occur when using a heuristic—a type of judgment shortcut; the individual performs two phases. First is an editing phase that allows for analysis to organize and reformulate in order to simplify; the individual assesses gain or loss to a reference point. Second is an evaluation phase where the best value is chosen; values are attached to changes, not final states. Here is where the value of the perception for judgment comes in—and its variability from objective reality. "Decision weights do not coincide with stated probability" (Kahneman & Tversky, 1979, p 277). Individuals may use like situations, (representativeness), perceived base rate and degree of change judgments (anchoring and adjustment), or presented or familiar choices and characteristics (availability) in the heuristic process. As reflections on change settings demand unique comparative perspectives from respondents, heuristic patterns are more likely used in the cognitive process toward a reported perception than a purely rational report (Ajzen, 1977; Fischoff & Bar-Hillel, 1984; Tversky & Kahneman, 1973; Kahneman & Tversky, 1979). This is important in terms of entrepreneurial orientation related measures as they

require a comparative report, and they require that the respondent report from a position perceived in their own point of reference concerning change and control.

3.1.6 Level of analysis design and the respondent

EO related scales have been designed for application at specific levels of analysis of the company. Researchers have assumed that the perception measured on these scales reflects this design. EO related measures have been used at different levels of analysis than those for which they were designed. Some dimensions have seen substantial adaptation and application, while others have seen little (Rauch, et al., 2009). Lumpkin and Dess (1996) claimed that the respondent speaks for the firm and therefore "is" the firm. They worked from a strategic assumption, where the firm related to an external field of competitors.[6]

Researchers have asked where Entrepreneurial Orientation comes from, from the top or from inside a company, and whether it reflects a profile of attitude, behavior or processes (Zahra, 1993; El Tarabishy & Sashkin, 2007, 2009; El Tarabishy, et al., 2009; Roberts, et al., 2009). Top level sources of motivation would include Corporate and Business strategic fit in an industry and market, or design of company structure. Both structure and strategy have been examined in light of contingencies such as technology

[6] Some recent work has suggested an alternative view of the external field, however, as one made up of network partners and cooperative social behavior rather than dog-eat-dog competitors (see, for example: Gulati, 1995; Uzzi, 1996, 1997; Oviatt & McDougall, 1994). The differences between aggressive competition as espoused by an economic school, and cooperative partnering networks, as espoused by a behavioral or evolutionary schools speak to fundamental differences that could impact use and interpretation of measures and theoretical motivations. This is not addressed in the current study, but may be noted as another issue which respondents are asked to navigate, without clear guidance in study design. This might be pertinent in conditions where firms and members are expected to behave aggressively and dominantly in external environments, but cooperatively and submissively in internal environments—an interesting question of whether role-responsible individuals can or do separate their motives and outlooks so cleanly.

and business environment, or by using organizational configuration (Donaldson, 2001, 2005; Mintzberg, 1981; Miller, 1983; Covin & Slevin, 1989).

Some researchers have examined whether Entrepreneurial Orientation measured at the firm level by a top respondent is reflected internally by manager and individual perceptions of behaviors and values (Holt, et al., 2007). Monsen and Boss (2004, 2008) studied supervisor/subordinate reflection of Entrepreneurial Orientation inside the company using identity and culture. Zahra (1993) noted that capabilities across the managerial operations of the company could allow entrepreneurial behaviors. Lumpkin and Dess (2006) have noted the importance of Strategy Making Process (SMP) decision-making in accordance with how autonomy may be enacted in a company. Stopford and Baden-Fuller (1994) found individuals at many levels of the company were vital primary agents in reorganizing, often bucking traditional structure and strategy, and spreading renewal like an infection (p. 521).

Recent developments in the design and use of EO scales have seen new or adapted scales directed at specific populations, such as individuals or middle managers (Brown, et al., 2001; Wang, 2008). Some of these scales have been adapted because they represent the basic dimensions of Entrepreneurial Orientation and are easy to insert into surveys. Other scales have been expanded on core dimensions with added items that reflect entrepreneurship principles (Krauss, et al., 2005). Measures may ask for comparative reports on factors such as company values, management relationships, culture, general operating procedures—subjective topics where use of framing, categorization and other heuristic tools are likely by respondents. Originally designed to

understand the degree of entrepreneurship possible from innovators inside and at the helm of companies, researchers often use parts of these scales without testing for differences in perception that may be relevant to different settings. A notable exception is work with an organizational assessment and a strategic scale that has found some evidence of mediation in the entrepreneurial orientation process (Hornsby, Holt, & Kuratko, 2008). The basic assumption of measurable awareness of entrepreneurial orientation as a recognizable characteristic might be countered by one set of research widely cited as important (Stopford & Baden-Fuller, 1994). The Entrepreneurial Orientation type of entrepreneurial behavior discovered in their case studies as rebellious, infectious, questing, or championing does not currently have a representative scale. Stopford and Baden-Fuller reported that the EO related activities were often not recognized or supported organizationally, or at the company level, until late in their development. Perception of the individuals and initiatives were lacking until structural and strategic failure allowed them to surface as success factors on behalf of the need for the company to change in order to survive. Some theoretical work in alertness (Gaglio & Katz, 2001) may be useful for understanding blindness, recognition or varying levels of support, and varying degrees of opportunity elements; they describe alertness types as alert, non-alert, recognizing but dismissing in favor of status quo arrangements, and seeing but discounting with redefinition and attribution to mistakes or anomalies. The referent position and circumstance of those who are asked to report comparative perceptions may be seen as very important in these examples. Two important concepts in the body of Entrepreneurial Orientation literature are perceived organizational style

and perceived environment (Covin & Slevin, 1989). The perception of environment is thought to reflect the aggression or compatibility a company needs to operate successfully and to prosper. The environment is often framed as a deterministic state, though firms can be seen as change agents (Porter, 1980, 1985). The perception of organizational style or structure, which includes technology, decision-making procedures, and managerial structures, is often framed in terms of controllable design and mission.

Table 3.4 Possible Respondent Perception Factors

Position	control	focus	goal/target
Level of analysis	reflective or	level of analysis	comparative alter
Responsibility/role	formative role	scale target/application	relative situation
Factor levels			
Owner/Executive	controllability	company-external	general business
Manager/Supervisor	change source	organization-internal	entrepreneurship
Employee	vision	self	mobility

3.2 Model of Factors

Factors that may influence respondent perceptions include position, control, focus, and goal. The organizational/internal, strategic/external or self-trait context in scale design reflects levels of conceptual context for the questions in terms of the situation:

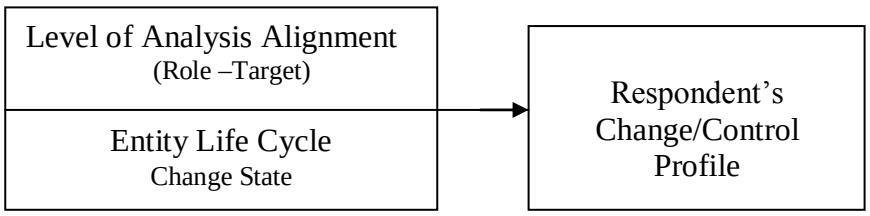


Figure 3.1 Study Model of Perception Factors

When the respondent encounters the scale, it is assumed that he has a membership and responsible association with the focal entity. As an agent, he is assumed to serve a role and to possess accessible judgment aligned between his functional role and the overarching goal of the entity. For an example, a visionary owner might be aligned with strategic goals. Each role carries with it a behavioral association with a level of structure, as firm spokesman, organizational caretaker, or labor contributor.

From a behavioral perspective, EO related measures attempt to assess the activity arena that results from a degree of the orientation. From a cognitive perspective, EO related measures attempt to assess predispositions antecedent to those behaviors. In either case, the measures ask for a report on the nature of change states and the control expressed in initiatives. The source and authority for change and control may be perceived relative to general rates of change ability, exercise of power in the market place or other setting, or in a cultural context. Scales are designed with a focus, measuring perceived degrees of change and control, management of opportunity, and understanding of the task environment. This is perceived as a subjective value between the focal entity and an alter; the situation of change and control, relative to the role and setting comes into play as a reference point for the respondent.

This study focuses on the perception of the respondent in terms of the situation from which he perceives he is answering. This is seen as associated with his perception of the level of analysis to which the scale is being applied and the change context. The perceived change state may affect his awareness or perspective of his own associated change and control profile. If so, the report of orientation may be differential. This

model is based on the design assumptions of alignment between the levels of analysis of the individual respondent and the scale application, but allows for a contrasting view. There are implications in a departure from alignment assumptions, where respondents perceive alignment with a level of analysis that is different from the one for which the scale is designed for application, or perceive varied personal ability toward change orientations. Scales designed for strategic entity levels may not be appropriate for application at individual levels or outside a "firm" setting. However, if the study finds no difference between respondents' perceived levels of analysis alignment and change contexts as reflected in the scale's design, then it may be inferred that basic dimension concepts in the measures may be applied outside their original intended design. In other words, application of measures for which no difference is found might be considered appropriate across levels of analysis. If, however, differences are found, then this may be a factor that can be taken into account when designing studies that adapt scales meant for one level of analysis to study another level of analysis, and change context.

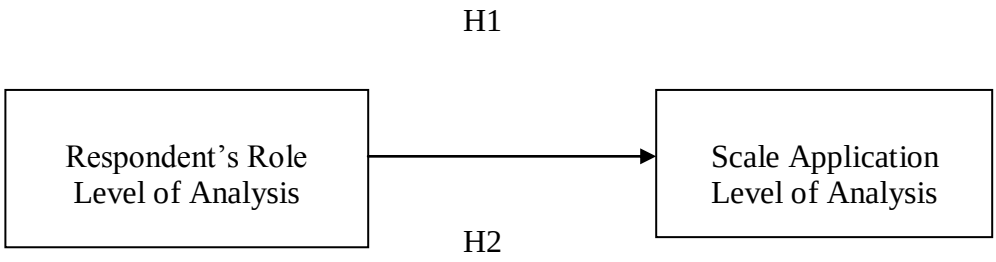
3.3 Hypotheses

This research has identified contexts and factors used in conjunction with EO measures assessing similarities and differences in scale development, use, and factors concerning perceptual responses related to scale use. The examination of the literature has revealed a constant underlying theme of entrepreneurial orientation with differences in stages of development, use, and setting factors. An empirical investigation will assess the perceptions respondents in terms of differences discovered across the stages of measure development.

The initial hypothesized relationships reflect an application of the measures to a level of analysis reported on by a respondent that represents that level of analysis. EO scales are designed with a particular respondent in mind. It is assumed that the role and relevant role responsibility of the respondent's position affects how the respondent will answer questions on behalf of himself or his company. The hypotheses H1a and H1b assume this type of alignment in line with original intentions of entrepreneurial orientation scale designs and the theory under which they were tested. Levels of analysis are either: strategic, with an external focus for the firm; organizational, with an internal focus for the organization; or individual, with a focus on the respondent's self state and traits.

3.3.1 Level to level design

In the model below, the respondent's level of analysis is seen as associated with the level of analysis of the scale application. As such, it is expected that the perceptions he reports will reflect the intended design level with which he is expected to identify. At the strategic level of scale, for example, a responsible position, such as a CEO, will align with reporting with an external firm-level concern. At the organization level of position reporting will be in the economic and behavioral context of organizational management processes stemming from understanding of social contexts, such as internal culture. At the individual level, scales about oneself are expected to show reporting in line with an individual level of analysis. The following hypotheses reflect this alignment between responsible role and scale target levels of analysis.



H1a: The respondent perception of his level of analysis in reporting on the scale will be significantly aligned with the perceived target level of analysis for the scale application.

H1b: There will be significant differences between the perceived level of analysis groups, concerning individual, internal organizational, and external company levels.

H2: The respondent perception of levels of analysis will be significantly aligned with a socially oriented level of analysis reflecting a perceived organizational context, rather than an individual or a strategic level of analysis context.

Figure 3.2 Hypotheses H1 and H2

However, work in Social Identity Theory (Cesario, Grant & Higgins, 2004), and work in organizational culture, and in upper echelons, and agency (Eisenhardt, 1989; Hambrick, Geletkanycz, & Fredrickson, 1993) have shown that there is sometimes misalignment between the objective position of an individual and the unique circumstances and outlook of that individual. As categorization and group theory has

found (Cesario, et al., 2004; Levine & Moreland, 1998), individuals may have a propensity to identify with and assess sense-making from a basis of membership that influences pure objective reporting. These types of factors may serve as criterion suggested by Tversky & Kahneman (1973, 1979) in judgment heuristics, which in turn skew reported perceptions so that they are not aligned objectively with the intended level of analysis design for measure application. This type of misalignment is not assumed in the model hypotheses above; a contrasting hypothesis is offered below that reflects an absence of level to level alignment between the individual and the measure design. A socially oriented context may override objective assessments of strategic or individual levels of analysis, such that a stronger organizational level context is reported (Hackman, 2003). H2 offers a contrasting hypothesis to H1's traditional assumptions.

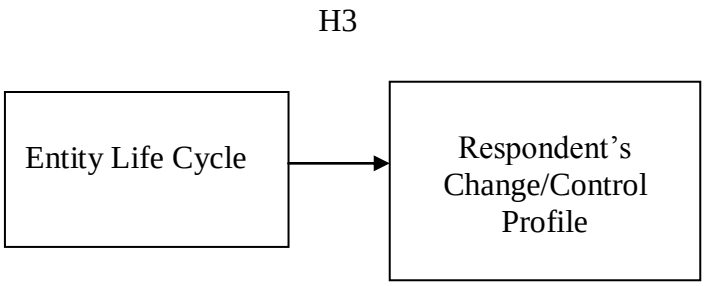
3.3.2 Business life cycle and personal contexts of change

Entrepreneurial orientation has been cited as important in several company contexts, including entity start-up, corporate renewal and organizational rejuvenation (Zahra, 1993). Other contexts related to performance include general contingency and configuration modalities across hostile or munificent environments or organistic versus technocratic management styles (Covin & Slevin, 1989).

Some work in sociological and organizational theory has listed liability of newness and a state of change as threats to existence, with structural inertia and access to resources in light of resource dependence as vital for ongoing survivability (Hannan & Freeman, 1977, 1984). The context of the company situation may make a difference in the respondent's perception of their position and responsibility, and therefore make a

difference in their reported perception on the level and context of scale application. The situation that faces start-ups and reorganizing companies is different than that in which established companies operate due to constraints as much as to innovation activities. While one state emphasizes rapidly changing circumstances of manpower, skills, market, and operating aspects in conjunction with discovery of unknowns or of created elements, the other state uses the strengths of embedded processes and known factors. Related to sociological and organizational theories is the argument of whether situations are determined externally for companies, by market forces, social constraints, and resource dependencies, or whether situations are open to manipulation by choice of motivated actors, due to available knowledge, capabilities and economic opportunities (Donaldson, 2001; Child, 1962). In Entrepreneurial Orientation research, scales have been placed in various locations in models, reflecting stances of either structural design or of strategic initiative. In structural design respondents operate as structure has determined they should for best performance, while respondents in strategic initiative operate as initiating actors motivated out of knowledge, capability and opportunity. Stopford and Baden-Fuller (1994) found bottom up influxes of entrepreneurial behavior, while many studies assume top down design in their assessments (Lumpkin & Dess, 1996). Kreiser, et al., (2002) and Zahra (1993) speak of variation across an organization in terms of process capabilities and motivations that may tie to differential attitudes and behaviors pertaining to entrepreneurial orientation. In the face of the topic of change, different context situations based on differences in business life cycle—either established or in a state of change, may result in different interpretations by the

respondent in terms of the perceived personal change and control profile and levels of analysis. Company or entity life cycle situation concerns whether the company is in a state of change or not. A state of change denotes a start-up or reorganizing entity and a state of no change denotes retention of the status quo as an established entity.



H3: There will be differences in the perceived change and control profile of the respondent associated with the perceived company life cycle change context.

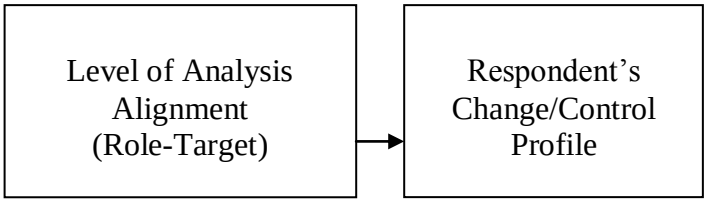
Figure 3.3 Hypothesis H3

3.3.3 Personal outlooks on change and control

The respondent's perception of alignment between job position and responsibility and the target level of analysis application of measures may affect his personal attributes and beliefs surrounding change and control. The concept of intention has been found to be an antecedent of entrepreneurial action (Krueger, 2000, 2007; Krueger, Reilly, & Carsrud, 2000; Krueger & Dickson, 1994). Locus of control, opportunity awareness, and action likelihood can signal degrees of perceived control over change instigated and

used by the respondent; self-efficacy and intent have been shown to relate with perceptions of risk and action likelihood (Dimov, 2007; Hills & Schrader, 1999; Zhou, Siebert, & Hill, 2005).

H4



H4: There will be differences in the perceived change and control profile of the respondent associated with the perceived alignment between role and target levels of analysis.

Figure 3.4 Hypothesis H4

Recognition of entrepreneurial circumstances, with follow-through by entrepreneurial behavior, has been associated with these attributes. An individual, who believes he is closer to enacting, and who is aware of opportunities to act, is thought to be more likely to place himself in a position that can exploit opportunity and to succeed at innovative behavior. Robinson et al. (1991) noted the affect, cognition and conation of an actor as important psychological elements for entrepreneurial testing. This study looks at whether the respondent's perception of his own intent related characteristics in light of change relates with his perception of role-target level of analysis alignment.

3.4 Summary

Study designs used in EO related research assume an alignment between the perceived levels of analysis of the respondent and the target application of the measure as: firm-external, organizational-internal, and individual-self. They also assume an associated perception of change context values. The method used in EO related research is a survey method where respondents are asked to make a value comparison between local and alter examples on factors of change. Cognitive research has shown that the perception and judgment of respondents can be affected by situations, contexts, and heuristics. Hypotheses in Chapter Three posit associations concerning respondent profiles of change and control, perception of entity change contexts, and levels of analysis alignments along three distinct levels of analysis groups: firm, organizational and individual, and of change contexts for the target company. Perceptions of respondent change and control profiles are hypothesized as associated to business change and control contexts and levels of analysis perceptions about which the respondent is queried in the surveys. Chapter Four will cover an empirical inquiry into these hypotheses.

CHAPTER 4

RESULTS

4.1 Overview

This chapter describes the methods used for testing the research model outlined in Chapter 3. The study design, sample, and instrument are discussed, followed by a description of the analysis. Goals of the testing were to assess whether distinct groups of levels of analysis across the sets of EO related measures were perceived, to assess alignment or matches between perceptions of levels of analysis that participants cite as their role in reporting and scale application levels of analysis that participants report as the target purpose of the scale (H1, H2), and to assess possible associations with perceptions of the participants of their own change and control profiles (H4). Tests also measured whether perceived change states of the target of the scale were associated with reported participant profiles (H3).

4.1.1 Research question

How do perceptions by respondents of levels of analysis and of change and control situations affect application of EO related measures? For this empirical study model: Is

the participant's perception of his personal change and control profile associated with the perception of his role, of the target of the scale, and of the change context of the business as he responds to entrepreneurial orientation related measures?

4.2 Study Design

The entrepreneurial orientation concept is assessed as a degree of perceived change, change attributes, and change control elements pertaining to business situations. As discussed in Chapter 1, entrepreneurial orientation measures assess the propensity of an organization to create, change, and improve (Wales & Covin, 2009). Traditionally measured through subjective self reports on behalf of the firm, the perception of the firm's movement through the business landscape and of the firm's implementation of change for itself as well as change in its business and social landscapes is registered (Kreiser et al., 2002; Lumpkin & Dess, 1996; Rauch, Wiklund, Lumpkin, & Frese, 2009). The standard method asks the respondent to compare between a local and an alter with choice registered toward one side or another of a dipole likert. The value base that is used by the respondent is subjective, though study designs have assumed role and responsibility alignment on the part of reports as static and have assumed singular cognitive profiles for respondents that are expected to adhere to design intentions (Kreiser et al., 2002; Lumpkin & Dess, 1996). This study looks at possible variation in respondent perception.

4.2.1 Study Focus

In order to focus on the part played by respondent perception in the comparative analysis these scales require from reports, a survey method was used in conjunction

with feedback questions. These questions asked about perceived scale setting, content, and purpose of each EO-related survey. The focus was on the perception recorded, rather than on particular dimensions or sub-dimensions used by various scales, or on multi/uni dimensional scale methodology. This study used respondents' feedback after the treatment of going through each scale to assess perception related to general EO related measures application factors. The test was not a validation study of the scales.

4.2.2 Study sample

Because this study looks at the part played by perception in light of assumed level of analysis targets and change contexts in study designs, and because the topic of these scales is in the management domain, using a sample of students enrolled in management courses is appropriate (Austin, 2000; Lewis, 2000). As has been described elsewhere in this study, there have been questions about using students for business related surveys. However, the profile of business students has been shown to reflect the general profile of business actors who would normally be the target of management related studies, and as such, have been considered appropriate (Edelman, Manolova, & Brush, 2008; Holcomb, Ireland, Holmes Jr, & Hitt, 2009). Likewise, as discussed in Chapter 2, current course content and activities often replicate the types of work environments found in management contexts, and integration of testing with classroom work has seen precedent in studies looking at psychological variables related to business topics (Lewis, 2000; Austin, 2000). Demographic data allowed for reports of experience and exposure to business, entrepreneurship concepts, and academic topics and terminology, reflecting concepts alluded to in the study measures.

Several classes of students who were studying management topics took part, a sample of approximately 450 people. The number of 344 resulting cases reflects a useable response rate of about 76% which is somewhat high and may be due to the offer of extra credit in return for participation by some instructors even though the study consent itself offered no reward or exchange for participation. The instructions stressed that participants were reporting important information in their honest opinions and preferences toward the improvement and understanding of the scales, thereby recruiting students as partners rather than as subjects in the study. Also noted was their help toward a goal of learning about how to better teach and study entrepreneurship. For the most part, qualitative student responses concerning the instrument related the desire to "do it right", to receive feedback from "how they did", and to insure that they followed response instructions correctly. From this stance students could be more than subjects, but also conscious contributors. They were not told any descriptive information about any of the "A", "B", "C", and "D" labeled scales. No identifying titles or terms were used in the instructions or on the survey.

4.2.3 Survey and feedback

Individuals perceive in a manner that reflects their "sense-making" and "fit" saliency, and may use subjective processes in doing so (Cesario, Grant & Higgins, 2004; Aaker & Lee, 2006; Frank & Lueger, 1997). Exciting research using simulations, fMRI and other medical technology has delved into deep brain and behavior patterns and processes related to perceptual and recognition activities (De Martino, Kumaran, Seymour, & Dolan, 2006; De Neys, Vartanian, & Goel, 2008; LePine, Colquitt, & Erez,

2000). This study is designed with a behavioral focus at the point of decision during the survey reporting to discern differences associated with perceptual factors in survey design, rather than to study deep ordered cognitive processes or to identify content characteristics or criteria of the items themselves (Hollingshead, 2001; Grant & Higgins, 2003; Dimov, 2007).

Feedback is useful in cognitive research to measure adjusted framing and identity for the respondent, in order to assess differences in judgments, decision-making, and value responses (Le Pine, et al., 2000). As noted by Rousseau (1998) individuals may have varying degrees of situated identification, differential priming relative to personal or social circumstances, and may have profiles that attribute areas of control in varying degrees to others. Boundaries outlined in organizational and role settings may guide the individual's context for situations, judgments and behaviors (Katz, 1993; Gartner, Shaver, Gatewood, & Katz, 1994; Kreiner, Ashforth, & Sluss, 2006; Pennington & Roese, 2003). Gartner, Bird & Star, (1992) found individual behavior was different in emerging situations than in organized situations. In light of Robinson et al.'s (1991) discussion of behavior as a result of cognitive predisposition and of the extensive work in perception and judgments outlined above, it was reasonable to design this study so that it measured the perceptions and choices of various contexts.

In this study, the reported feedback perceptions of individual respondents help us understand how people understand the measures and their own preferences as they report. The study asked about aspects of the individual's focus concerning change and control loci. It registered feedback on each set of measures in light of a changing or a

stable setting. The frame of a local/global setting and "provisional" responsibility of the respondent allowed a reference for reporting. Surveys used in entrepreneurial orientation research asked the respondent to consider the situation about which he reports from the standpoint of a responsible role. The surveys were designed to register the perception of the respondent in line with a specific level of analysis. This study asked respondents to go through the activity of reporting on the surveys, and following each survey, asked for feedback to register perceptions used in responding. After this manipulation and feedback exercise, repeated for each scale set, the participants answered demographic questions, followed by questions about their preferences for learning and concerning change and control. They answered questions about how they thought about or preferred to experience entrepreneurship in self-referential situations. These were used to assess whether there was an effect related to the respondent's personal perception of change and control in light of the manipulation and feedback they undertook.

Material for the instrument and the procedure for administering it were distilled from a series of preliminary studies. A goal of this study was to strip away assumed design intentions and to analyze what respondents perceive as the target and situation of the measures in order to understand if there was a match between the perceived measure target application and role position of the respondent, and if there was an association with the participant's reported cognitive profile (H4). This study assessed alignment between the respondent's perceived level of analysis and the perceived application level

of analysis (H1a), looked for evidence of distinctively perceived groups (H1b), and assessed the importance of change and control contexts (H3).

4.3 Study Aspects

This section discusses the instrument, the procedure, and the variables for the study derived from the scale material.

4.3.1 Instrument and procedure

Four sets of entrepreneurial orientation related measures were compiled, and repeated sets of feedback questions were placed after each scale. Following the section of scales and feedback questions were demographic questions and accepted scales for opportunity awareness, locus of control, and action likelihood. For each class that volunteered to take the survey, the lead investigator was introduced by the instructor. The investigator adhered to a script approved by the institutional review board (Protocol #2010-0224) that described the motivation for the study. The students were told their input would help toward understanding the design, meaning, and possible size reduction of the scales and toward understanding better ways of teaching entrepreneurship. The volunteers were asked to go through each scale set and then give feedback on each set. They were shown the parts of the instrument with a verbal walkthrough, highlighting the examples of the dipole and single pole style questions. The four feedback boxes were pointed out, as were the questions about themselves and their preferences about entrepreneurship and learning. After this introduction, the investigator asked for questions, noted contact information in case of future inquiries, and left the room. Either the instructor or a teaching assistant took up the surveys and delivered them to a drop

box. This was done to minimize investigator influence and to maintain instructor authority in the classroom.

Because each of the four scales were tested individually for feedback as part of the study method, it was possible to have a different *n* for each scale set assessment, in case of missed or skipped questions. The instrument inclusive of consent forms, instructions and measures totaled seven double sided pages and took about 35 minutes to complete.

4.3.1.1 Measures

The four measure sets that were used to obtain feedback are found in the appendix, representing entrepreneurial "A" autonomy, "B" opportunity management, "C" strategy, and "D" cognition.

Measures addressed in the study were based on common Miller/Covin-Slevin EO items (1989); the Entrepreneurial Assessment Instrument (Robinson, Stimpson, Huefner, and Hunt, 1991); the reduced version of the Lumpkin Autonomy items (Lumpkin, Cogliser, and Schneider, 2009); and the Brown, Davidsson, and Wiklund (2001) entrepreneurial management (EM) items. The Hornsby, Kuratko, and Zahra (2002) Corporate Entrepreneurship Assessment Instrument (CEAI) Scale was not represented due to poor results in preliminary testing and due to current work being done to reduce and clarify that instrument. A current reduced version was not available with enough lead time to conduct adequate testing for this study.

The feedback design and measures chosen for respondent perceptions were inspired by Stopford-Baden Fuller's case description (1994), and the by the interview techniques used by recent research in non-normal settings, cognitive assessments, and with

students (Hills & Shrader, 1999; Krauss, Frese, Friedrich, & Unger, 2005; Zhou, Siebert, & Hill, 2005).

Feedback questions asked for a report on the perceived level of analysis role and responsibility the respondent used to answer the questions, either an owner, a manager/supervisor, or an employee. They also asked for a report on what level of analysis attributes the survey questions ask about, either themselves, the internal aspects of the organization, or the external aspects of the company. This study asked about two categories of company situation, either a reorganizing/start-up context setting reflecting a state of change, or an established/stable context setting reflecting a state of no change. The feedback questions included filler questions, such as "I answered this survey with a business in mind that was a) real b) imagined", and "These questions asked about things that are more important for general business, or more important for entrepreneurship." Questions the participants answered about themselves had items for gender, years of education and of training, job tenure, and experience or exposure to being an entrepreneur. Aside from the measures to assess the participant's preferences for change and control that were used for this study, other questionnaires that filled out the instrument covered promotion and prevention regulatory focus (Cesario, Grant, & Higgins, 2004), entrepreneurial motivation (Kropp, Linsday, & Shoham, 2006), and preferred learning styles and learning activities (Kolb, 1981; Mumford, & Honey, 1992). Measures that were used to assess the participant's change and control profile came from opportunity awareness, locus of control, and action likelihood (Hills & Shrader, 1999; Duttweiler, 1984; Singh, 1998; Dimov, 2007). All items in the

instrument were standardized to a 10 point likert, following Robinson, et al. (1991); this allowed a suitable range of perception choices and lessened confusion for the volunteers answering across the different measures.

4.3.1.2 Variables

Independent variables that were compiled from the perceived individual level of analysis asked from what role the respondent was answering (as an owner, a manager, or an employee), and from the scale application level of analysis target about which the participant perceived that the items asked (self, organization, or company). In addition to testing individually, these two levels of analysis focused variables were transformed into a categorical variable connoting a "match" or "no-match" alignment of the responses for each scale set. For example, if the response for a scale was "manager" for role and "organization" for target, a match was registered. This allowed testing of the design assumption of a static alignment between the application level of analysis of the scale and the level of analysis responsibility of the representative respondent perceived. A second independent variable was represented by a perceived context situation of the entity life cycle as one of change as would be exhibited in a start-up or reorganizing entity, or of no change, as would be exhibited by an established entity.

The dependent variable was compiled from profile variables that have been commonly used in entrepreneurship research: opportunity awareness, locus of control, and action likelihood (Hills & Shrader, 1999; Duttweiler, 1984; Singh, 1998; Dimov, 2007). These measures included items such as "I often think of new business ideas when I am totally relaxed, doing something unrelated to business" on a 1-10 scale of *strongly disagree* to

strongly agree, "I am responsible for what I achieve, through my own efforts" on a 1-10 scale of *rarely* to *usually*, and "What degree would you be willing to undertake each of the following in terms of a business opportunity, seek potential partners for exploiting the opportunity", on a 1-10 scale of *never* to *as much as possible.* These continuous variables were used individually to assess unique variance in one set of tests, as well as being summed and averaged for a single dependent variable representing the volunteer's change and control preference profile.

4.3.1.3 Demographics, frequencies and data

The demographics of the sample broke out in the approximations shown below:

64% between ages 22-28, with a range of 17-56
43.5% female, 57.5% male
71.5% work tenure of 2-10 years, with a range of 0-33 years
80% 3-6 years college, with a range of 1-17 years of college
63.5% had no outside training
84% have not been an entrepreneur
88% are not one now
46% expect to be one in the future
87.5% know an entrepreneur

entrepreneurial profile:
17-22% lo range
61-64% midrange
19% hi range

Demographic variables were assessed with plots for general information about the sample. Frequency tables and graphs are found in Appendix C. As would be expected in plots measuring attributes in terms of years, which cannot have a negative value, there is positive skewness to the right with a longer tail for higher years of experience in those variables. There is also a peaked kurtosis that reflects the majority of the sample

falling within a life-style age group that is either beginning higher education and career, or is going back after a preliminary time in the workplace for a degree or education related to career change. As a side note, this bodes for a sample that also has a base line of opportunity awareness, locus of control and action likelihood, exemplifying attributes needed to undergo a "second career" and expense of higher education, whether for personal or for job related development. There are tails on the age, tenure and college normal probability plots, that go outside the confidence interval, but that are sufficient enough in number so as not to be occasional outliers. This reflects a part of the sample population of older experienced participants from the classes surveyed. A note for future research might be to focus on this older segment for further testing specifically to assess behavioral results, as Robinson et. al., (1991) did, or for more specific entrepreneurial performance as Dimov (2007), or Zhou, et. al., (2006) did. For the purposes of this study, the cross section of demographics is not crucial to the test of effect on profile and the choices recorded in the feedback.

Age ranged from 17 to 56, with a midrange of from 22 to 28. 20% were over the age of 29. This seems to demonstrate a demographic of general maturity and ability to be self-directed, able to accurately register perceptions. Gender was distributed almost evenly, with 42.5% female, and 57.5% male. Job tenure ranged from 0 to 33 years, with a midrange of 3-10 years. 20% fell below and above the midrange, with a tenure mode of 48 or 14% for 5 years. This seems to demonstrate a general awareness by the sample of business situations and economic contexts, as would be necessary for answering the instrument. College ranged from 1 to 33 years, with a midrange of 3-6 years; about 10%

fell below and above this range, with 86 students each for 3 and 4 years, as would be expected for participation in business classes toward a degree, undertaken after two years of core coursework. Fifth and sixth year totals of 54 and 40, respectively, may reflect part time and evening participation in the business program. The result is that most of the sample demonstrates experience with academic concepts, thinking, and exposure to business topics, as is desired for a study of this type. About 36% had gone through professional or technical training outside of formal education.

On the items concerning experience and exposure to entrepreneurship, only 16% said they had been entrepreneurs in the past, 12% said they were now, but 87% said that they knew one. Almost half said they intended to pursue being an entrepreneur in the future, which is a very high rate. There was not an aspect of this question to differentiate being a start-up or a corporate entrepreneur. This could be a future question for future research. There was a filler scale that addressed motivation for being an entrepreneur, but that variable is not a part of this study. This also could be a focus for future research.

In the plots of the separate variables that make up the change and control profile variable, there is negative left tailed skewness for both opportunity awareness and action likelihood, and a more balanced skewness for locus of control. Tails in the probability plots show some meandering outside the predicted confidence interval on the low end of the values, however, the midrange values track fairly closely a linear form. The kurtosis is not overly peaked, and the left skew reflects the initiating nature of college attendance spoken of above.

It is interesting, though that in the plot of the dependent variable, summed and averaged across the three profile scales for opportunity awareness, locus of control, and action likelihood, the distribution and tails for the plot have a good normal shape, and few points outside the line at the bottom end of the values.

The scales used to assess the change and control profile were run through a principal components factor analysis and rotated with an orthogonal varimax method. The Kaiser-Meyer-Olkin Method of sampling adequacy, at .838 signified enough multicollinearity to assume that the items would factor out, and a significance of p=.000 with chi square of 1325.350 for Bartlett's Test of sphericity signified that the correlation matrix was not an identity. Eigenvalues, scree plot and the rotated component matrix with a .4 cutoff all confirmed three factors explaining 56% of the variance. One item, "effort", did not reach the cutoff; this may be due to the self-selected nature of the sample, people who were making an effort to pursue the non-normal activity of higher education and reflected by the frequency count. Running a principal axis with oblimin rotation also found three distinct factors in the pattern matrix, though this method explained less cumulative variance of 44%. Reliabilities were run on each scale and on the score for the profile variable. Opportunity awareness was .78, action likelihood was .85, both sufficient, though locus of control was low at .36. When computed into the score, reliability was .47; deleted, reliability of the score raised to .65. Both scores were used in computing the tests, due to the shape of the histograms and probability plots, and found no difference in effect.

In the frequencies of the variables for role, those who chose the expected role were only 31% for “A” autonomy, 30 % for “B” management, and 34% for “D” cognition. “C” Strategy saw an expected traditional design choice for role of 43%. None of the scales prompted a perception of the level of analysis role for a majority percentage that would be expected in a traditional design. It is interesting that for “A” autonomy and “C” strategy scales, respondents perceived more a role of subjective manager and employee positions than that of the traditionally assumed guiding ownership position. Likewise, ownership and employee positions perceived outnumbered the expected management positions chosen for the “B” management focused scale. For the “D” cognitive self-assessment scale, more people perceived themselves as owners and managers than as employees in answering.

This speaks to Hypotheses H1a and H2, posited from the traditional and contrasting positions. For H1a, the expected level of analysis job role and responsibility would rationally match with designed level of analysis target application of the scale, or for H2, that respondents would chose a more socially orientation for the perceived levels of analysis. The data seems to illustrate that the sample may not perceive their role as traditionally intended by researchers, and also that the care taken to administer scales to one "official" set of respondents may not actually capture the cognitive decision base reflective of the responsible-position title that researchers expect. It also opens the way for these scales to be administered outside of assumed methodological guidelines; respondents may be able to represent a different level of analysis than that for which the survey was designed.

Concerning the target of these scales, the “A” autonomy scale saw an overwhelming perception (80%) that the scale was about organizational attributes, conflicting with the inclusion of autonomy as a strategic dimension; the strategic attribute level of analysis selection was only chosen 3.5% of the of the time. Autonomy’s partner, the strategic scale set, received only 25% of the "correct" company level of analysis perceived as target of the scale. Here too, respondents perceived that the scale was focused on either themselves (28%) or the organization (47%). This allows for a pause in wondering if respondents answer these types of items from the stance of their own characteristics and views from a socially oriented stance, rather than that of the entity in a rationally oriented stance, especially in light of the high "owner" perceived role selection both strategic scales (“A” autonomy, 31%; “C” strategy, 43%) demonstrated.

The management items were perceived "correctly" as at the internal organizational level of analysis by a majority (almost 60%), and 70% of the perceived scale target for the individual scale set correctly registered "myself" at the individual level of analysis. Generally, this seems to illustrate either a propensity to perceive from a personal or a social aspect, rather than from a rational strategic aspect, or a propensity to assess various types of perception choices from a base that does not "move" from one type of category to another simply because the design intention of the items is different. The individual respondent's attributes may be more important than has been previously assumed, especially in light of the comparative perception with an alter, from a perceived local base that is used in measurement of all these scales. An aspect previously not measured—the profile of the respondent, may be an important variable

that needs to be included or controlled for in using these surveys. In other words, it may be not just about the company, economic situation, or system configuration, but about the cognitive and socio-behavioral elements held by people and by which those aspects are judged, that is most important. Investigation of heuristics, social contexts, and activity contexts from which respondents answer from may illuminate affects on their recorded perceptions and demonstrated self-assessment. This speaks to the theory behind the contrasting H2.

The categorical variable calculated for whether the role and the target level of analysis perceived by the respondent aligned or matched; the majority of the categorical variables registered no match. In other words, for every scale set, overall the job position perceived by the person as he took the scale was different than the target that he perceived that scale was about. As normally, owners and CEOs are asked about strategy items that concern the external competitive aspects of the company, only 33% for the “A” autonomy, and 31% for the “C” strategy items selected this. For the “B” management scale, also, only 30.5% selected both management roles and internal organizational attributes. Oddly, even on the “D” cognitive items, where selection of attributes about "myself" would have been expected to line up with the individual level of analysis, only 33.7% matched. This last set had a "correct" target selection of being about "myself", but the perceived position was spread evenly across the types of roles. One question that could be asked is how much the perception of a role goes into play when people are answering about themselves in a business context. Categorization activities and other cognitive aspects may be important to look at in future research, as

these people may be reflecting not only their assessment of themselves, but the assessment in light of their perceived social and power context, as per experience, attributions, or expectation.

In assessing the categorical variable of whether volunteers perceived if the scales asked about a situation of change (start-up/reorganizing) or of no-change (established), a majority (62.4% and 66%) perceived the "A" autonomy and "D" cognition items, respectively, to reflect a context of no change. The perceived context for the "B" management and "C" strategy items was change, 46% and 43%, and no-change, 53.8% and 56.8%, respectively. This seems to illustrate that it is important to register what participants perceive as the general change context when using these types of scales to measure change rates and change types themselves. This type of difference was very apparent in the Stopford & Baden-Fuller case studies, where a variety of context perceptions underlaid both constructive and sabotaging types of decisions and actions by organizational members as the companies struggled to innovate and to survive.

The items for the profile that respondents reported for themselves concerning change and control included the opportunity awareness scale with 5 items, the locus of control scale with 3, and the action likelihood with 5. People generally seemed to have a positive outlook on their thoughts and activities concerning opportunity, with perception enjoyment related to opportunity and being opportunistic balanced by the ability to see opportunity or do think of opportunities aside from a business context. Though people said that they got farther on their own efforts (to be expected in a sample who is undertaking a degree program) they also demonstrated a belief in chance and in

the impact of others. On action likelihood, selections were made on the high side for investing, partnering and pursuit with respect to time and networks. This possibly reflects the self-initiation evidence of students in pursuit of higher education; the range restriction and life-choice selection patterns here should be noted in future research.

4.3.2 Testing

Methods to assess differences were used for testing. First a MANOVA was run to understand if perception of change, perception of role, of target or of a match between role and target was associated with differences in the reported change and control profile of the respondent. A 2way MANOVA tested all eight categorical IVs and their interactions with the three DVs (NCSS Table 1, Appendix). A post hoc test looked at the scale sets where significance was found with the change and match categories, "A" autonomy and "D" cognition to investigate possible impacts on profile ratings across these decision-making focused items (NCSS Table 5, Appendix). Second, a MANOVA was run with separately for each scale set (A, B, C, D) and two DVs, opportunity awareness and action likelihood (SPSS Table 2, Appendix). Third, this was followed up with ANOVAs that looked at A, B, C, and D category variables and their underlying feedback components of role and target on the profile score (SPSS Table 3, Appendix). Group differences are assessed in this run. Fourth, a test was run on the categories for change, to assess groups differences (SPSS Table 4, Appendix). Therefore, runs were done with DVs as three profile variables and as one score variable, across and separately for the IVs and their base components. Excel, NCSS and SPSS were used. Finally, post hoc crosstab tests were done on the frequencies to assess nonparametric

significance, associations and group differences (SPSS Table 6, Appendix). Note that due to the length of results, only significant findings are discussed or listed.

Independent Variables for each scale set, “A” autonomy, “B” management, “C” strategy, and “D” cognition, based on respondent feedback answers were:

posLoA: perceived level of analysis role in the items

LoAapp: perceived level of analysis target in the items

LoAcat: category of match/no-match transformed from posLoA and LoAapp

Lifcat: Business life cycle for change/no-change in the perceived item context

Dependent Variables for the Profile, based on questions answered about self were:

AlertAve: opportunity awareness

LoCAve: locus of control

ActLkAve: action likelihood

AlLoAct: summed and averaged score of the three profile scales

OppaAct: score of the opportunity awareness and action livelihood scales

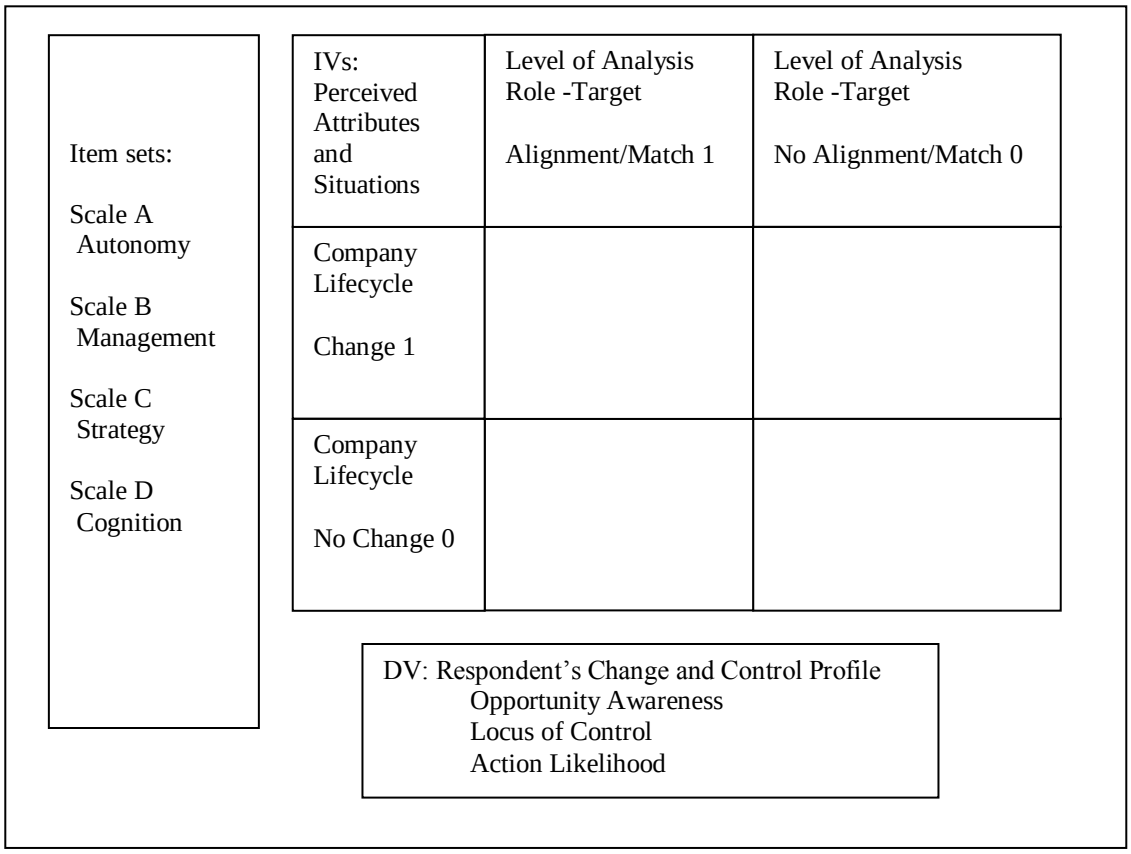


Figure 4.1 Model of Variables and Scales

MANOVA is suitable for the use of multiple dependent variables and the use of categorical independent variables (Haase & Ellis, 1987). Listwise deletion was used, and analysis was done at .05 alpha. MANOVA allows intercorrelation between DVs; the score used as a composite of the self-reported concepts concerning the self-initiation profile was derived from accepted scales, but has not been tested as a particular construct, and therefore is loosely labeled here as "profile". The validation of such was not an objective of this study. MANOVA allowed the variation in the profile variable associated with IVs to be broken out among its three aspects. ANOVA allowed the differences between perceived groups pertaining to the factor levels and their

association with higher or lower profile scores to be assessed. Nonparametric crosstabs allowed chi-square significance of differences between expected and observed frequencies, and Pearson significance of variable associations and group differences to be investigated.

4.3.3 Analysis

MANOVA was run, followed by post hoc ANOVA tests with particular IVs and comparisons that assessed group differences that demonstrated significance.

4.3.3.1 MANOVA

A two-way MANOVA was run with the eight IV categories and the three DVs. The test found significant association for profile opportunity awareness (F: 5.58; 1df; p=.018) and profile action likelihood (F: 3.96; 1df, p=.047) on the role-target match/no-match category for set "A" autonomy (H4 support). For profile action likelihood (F: 5.89; 1df; p=.0158) and on the role-target match/no-match category for set "B" management, significance was found (H4 support). Significance was also found for the interaction between the change/no-change and role-target match/no-match variable and opportunity awareness (F: 8.25, 1df, p=.004) for "D" cognition (H3 and H4 support). NCSS TABLE 1 in Appendix C shows the ANOVA table, means and standard deviations for these items.

Related to H2, in the graph for the significant interaction related to "D" cognition, people who perceived either both a match and change (traditional design, change situation), with a mean of 7.48 (SE .35), or no match and no change (social design, stable situation), with a mean of 7.51 (SE .14) rated higher on opportunity awareness.

This is an interesting dichotomy in the cognitive scale results, with more structurally astute people rating with high perception of perceiving a change context, and with more socially oriented, non-structurally astute people rating higher perceived stability rather than a change context. A question is whether a structure-orientation more readily perceives a contrasting change context, and a social-orientation more readily perceives a stable context or some underlying frame. One question associated with the possibility that people appear to perceive relative to a structure or social orientation is whether the issue of structure serves as a contrasting reference for the perception of context, and if this reflects a heuristic pattern, perhaps related to expected security or activity patterns. Identification of particular heuristics used could shed light on these apparent tendencies. It is also interesting to note that for the opportunity awareness variable, compared to the overall mean of 7.0, the means in this test for no-match on role-target structure for set "A" autonomy (7.3), "B" management (7.1), were high, but low for "D" cognition (6.9); This shows choices that countered traditional assumptions, more so for autonomy and management, less for cognition; ("C" strategy was average; this may be a clue as to why this set has been used outside of its design with results.) Means of change recognition for "A" autonomy (7.2), and "D" cognition (7.1), were high, but high for no-change "C" strategy (7.2); Here, in light of scales designed to rate change, the autonomy and cognition sets were perceived as measuring change, while the strategy set- which is most commonly used for rate of change measurement, was perceived more as measuring no-change contexts; ("B" management was average; with an average score for the change variable, the management set may serve as a decent base-line.) For

action likelihood, the no-match role mean for "A" autonomy (7.7) and "B" management (7.8) were high, with an overall average of 7.5. From the stance of an action profile, autonomy and management may be interesting sets for behavior characteristics in respondents.

Although there is some significance registered between change and match categories across the A, B, C, and D sets of scale feedback, it does not generally make theoretical sense to mix the feedback variables across sets for this study. Even if there is some cognitive carryover from one set to another, such evidence of overall anchoring outside of the intended treatment and feedback sessions for each set is not measured here, and so inferences on this cannot be made.

However, due to the results in the aforementioned test, a post hoc two-way MANOVA with "A" autonomy and "D" cognition was run to examine associations across this data. The results are discussed in section 4.3.3.3 and illustrated in NCSS Table 5, Appendix.

4.3.3.2 ANOVA

To follow up on the MANOVA, ANOVAs were run with the A, B, C, and D change and match categories, the A, B, C, and D role and target variables, and the profile score based on opportunity awareness and action likelihood. This post hoc testing was done to uncover what was going on behind the role-target categories, and so assess differences between groups for both the match and change categories and the component role-target variables. Results are tabulated in SPSS TABLE 3 in the Appendix. This testing relates to distinct groups (H1b) and to socially oriented perceptions over rationally oriented perceptions (H2).

An ANOVA on Profile by “A” autonomy change and match found significance for role-target match (F:7.088, 1df, p=.008) and interaction between change and role-target match (F: 3.892, 1df, p=.049), with R Squared = .043 (Adjusted R Squared = .034). An ANOVA on Profile by “B” management for role and target variables used to compute the categorical match found significance for role (F:4.536, 1df, p=.011), with R Squared = .058 (Adjusted R Squared = .033). An ANOVA on Profile by “C” strategy for role and target variables used to compute the categorical match found significance for role (F:6.692, 1df, p=.001), with R Squared = .090 (Adjusted R Squared = .067). To summarize, significance was found for “A” autonomy role, “A” autonomy role*target, “B” management role, “C” role perceived. It was more likely that the role perceived for set “A”, “B”, “C” had an association with the profile of the respondent. This may show how role assumptions can be by-passed when the scales are used and may contribute to differential results.

In light of the significance found for the initial perceived role variable, ANOVAs were run to test for group differences on these selections. This relates to H1b, which hypothesized according to traditional design assumptions, that 3 distinct groups would be found. The results below show partial support for H1b, with 2 distinct groups identified, one representing ownership and another representing membership. This partial support does not reflect the rationally oriented categories of “firm”, “organizational” and “individual” levels of analysis, but reflects socially oriented categories that seem associated with frame type concepts like control and security.

An ANOVA of profile on “A” autonomy role selection found significance (F: 11.854, 2df, p=.000), with R Squared = .069 (Adjusted R Squared = .063). In a pairwise comparison, with p=.000, group 1 “owner” was found significantly different from groups 2 “manager” and 3 “employee”, and group 2 “manager” was not significantly different from group 3 “employee” (p=.572).

An ANOVA of profile on “B” management role selection found significance (F:9.833, 2df, p=.000), with R Squared = .058 (Adjusted R Squared = .052). In a pairwise comparison, with p=.001 and .000 respectively, group 1 “owner” was found significantly different from groups 2 “manager” and 3 “employee”, and group 2 “manager” was not significantly different from group 3 “employee” (p=.385).

An ANOVA of profile on “C” strategy role selection found significance (F:8.775, 2df, p=.000), with R Squared = .051 (Adjusted R Squared = .046). In a pairwise comparison, with p=.001 and .000 respectively, group 1 “owner” was found significantly different from groups 2 “manager” and 3 “employee”, and group 2 “manager” was not significantly different from group 3 “employee” (p=.665).

An ANOVA of profile on “D” cognition role selection found significance (F:8.479, 2df, p=.000), with R Squared = .050 (Adjusted R Squared = .044). In a pairwise comparison, with p=.001 and .000 respectively, group 1 “owner” was found significantly different from groups 2 “manager” and 3 “employee”, and group 2 “manager” was not significantly different from group 3 “employee” (p=.732).

It is interesting that group 1 mean for role was 7.9 (SE .14) for “A”, 7.767 for “B” (SE .123), vs 7.365 (SE .079) grand means, and 7.71 (SE.117) for “C” and 7.785 (SE.132)

for “D” vs 7.27 (SE .08) grand means. This shows a distinct difference across all scales between the ownership and membership role categories that were perceived, with much higher profile scores for group 1.

The alignment of high profile score for selection with ownership oriented group 1 from the aspect that a higher profile score may signal a more initiating “out of the box” person, while a lower score may signal someone who works within structural cues.

ANOVAs were run to look for differences in the category groups. Results are found in SPSS Table 4 in Appendix C.

An ANOVA of profile on “A” autonomy role-target match/no-match category found significance (F:4.705, 1df, p=.031), with R Squared = .014 (Adjusted R Squared = .011). In a pairwise comparison, with p=.031, match group was found significantly different (|.365|, SE .168) from the no-match group.

An ANOVA of profile on “D” cognition role-target match/no-match category found significance (F:5.312, 1df, p=.022), with R Squared = .016 (Adjusted R Squared = .013). In a pairwise comparison, with p=.022, match group was found significantly different (|.379|, SE .164) from no-match group.

An ANOVA of profile on “A” autonomy change selection found significance (F:4.705, 1df, p=.031), with R Squared = .014 (Adjusted R Squared = .011). In a pairwise comparison, with p=.031, change group was found significantly different from no-change group (p=.031). These ANOVAs confirm the 2way MANOVA results.

(The ANOVA of profile on “B” management change/no change was nonsignificant, but at .059, is included in the list of tabulations for interest.)

The “A” autonomy no-match mean (7.464, SE .097) was higher than the grand mean (7.282, SE .084); “D” cognition No-Match mean (7.494, SE .096) was higher than the grand mean (7.282, SE .084); “A” autonomy change mean (7.58, SE .13) was higher than the grand mean (7.391, SE .082). A higher profile score sees change, and does not perceive a role-target match. This may signal the no-match and change perceptions associated with thinking outside of structure and stability.

4.3.3.3 Post hoc

The first 2-way MANOVA post hoc test between the “A” autonomy and “D” cognition variables found a higher profile mean (8.4) on opportunity awareness for role-target that corresponded to the “A” autonomy manager role selection and self target selection in “A” autonomy (70 count). Also chosen were owner or employee role and organization. However, the majority of people perceived the scale from a manager role, with a lower profile mean (6.7) reflecting an organizational choice for target (92 count), a mid profile mean choosing a company target (93 count).

Across the “D” cognition role and “A” autonomy target, for the opportunity awareness profile most people chose “A” organization also, despite the “D” cognition role chosen (87 count with “D” owner mean of 8), (77 count with “D” manager mean of 7.5), (91 count with “D” employee mean of 7.3). These selections show a tendency for a focus on oneself pertaining to opportunity awareness, and to the organizational context, lending support for H2 across these sets that assess decision-making perceptions. H2 held that respondents would select groups based more on socially oriented bases than on rationally oriented ones—those reflected by the context of the organization.

In the second post hoc 2-way MANOVA test those variables and interactions that were significant from first test were run. “A” variables popped out as significant to this model. For opportunity awareness, the “A” autonomy roles popped out as significant (F=3.26, 2df, p=.03), while for action likelihood, “A” targets popped out as significant (F=3.62, 2df, p=.02). Role “D” was significant in interaction with “A” role for both awareness and action (F=2.99, 4df, p=.01; F=2.56, 4df, p=.03). Concerning this cross-over test between the “A” autonomy and “D” cognition sets, this seems to reflect other results where opportunity awareness perceptions relate to the frame of the respondent’s perceived position in answering the scales, and action likelihood perceptions relate to the target about which he perceives he is answering,

For the awareness profile across “D” cognition and “A” autonomy, those who rated higher in profile also aligned the D role with their perceived choice for A target, with means of employee target and self role at 8.3, of manager role and organizational target at 7.5, and owner role with company target at 8.3. This is in line with traditional general assumptions, though it must be stressed that these alignments were not within the same set. Also, despite the means reflected in this alignment, the frequencies showed that the majority of people who answered on “D” role also chose organization as the “A” target, with an 87 count for “D” owner, 77 count from “D” manager, and 91 count from “D” employee choosing organization. For the action profile the same pattern emerged, though the means for “D” owner role were close with an 8.1 mean for “A” organization and an 8 mean for “A” company targets. ”D” employee selections aligned with the “A” self (8.2mean) and “D” manager with “A” organization (both 7.5 means). Again, the

majority of choices for people who perceived any “D” cognition role went to the “A” organization target.

In the cross-tabulations, a chi-square was run to assess significance on single variables concerning the observed versus the expected counts, first on role and then on target. Cross-tabulations are nonparametric tests that do not require assumptions to be met. A very conservative 50% frequency rate was used for expected perceptions to choose a role or target position assumed in the design (H1a, H1b, H2), and a conservative 25% frequency rate for each of the other two choices were used. The expected rate is that which would be normal across the general population. Researchers design studies under the assumption that most respondents will answer at higher expected rates, but as we are testing this assumption, here we just want to assess if a minimum threshold is met. The results are listed here, showing support for the frequency of these choices, even at a conservative expected percentage, was not by chance. The difference between the expected and observed frequencies is significant for each variable. For role perceived and for target perceived, using a critical alpha of .05, we can see that the difference between expected and observed is significantly different. Thus we can conclude that the number of respondents who do not answer according to the design of the survey differs significantly from those who do.

> “A” role (chi-square 50.1, 2df, p=.000); target (chi-square 578.0, 2df, p=.000)
> “B” role (chi-square 64.3, 2df, p=.000); target (chi-square 20.7, 2df, p=.000)
> “C” role (chi-square 9.1, 2df, p=.011); target (chi-square 114.2, 2df, p=.000)
> “D” role (chi-square 33.6, 2df, p=.000); target (chi-square 89.4, 2df, p=.000)

In the second cross-tabulation, using Pearson’s to assess differences between groups

and associations between variables, the test again looked to see if the frequencies of the selected perceptions were significantly different from chance. Included is a test the expectation that a respondent choosing a role also chooses a certain target. With the listed Pearson's, 4 degrees of freedom, and using alpha .05 for significance, we can conclude that there are significant relationships between perceived roles chosen and perceived targets chosen. "D" role*target did not test as significant; selections for the "correct" target of self were an overwhelming majority, in line with design.

"A" role*target (chi-square 10.3, 4df, p=.036)
"B" role*target (chi-square 10.9, 4df, p=.027)
"C" role*target (chi-square 13.3, 4df, p=.01)
"D" role*target (chi-square 5.2, 4df, p=.26)

4.4 Summary

This chapter conducted an empirical study based on factors discovered in the analysis of the entrepreneurial orientation measurement literature in Chapter Two. Pulling from assumptions used in that literature's research and on cognitive theory, four hypotheses were modeled in Chapter Three pertaining to the association of respondent perception with the application of entrepreneurial orientation measurement. As these measures use respondent perception of rates and conditions of change, and ask the respondent to compare his own recognized situation with that of alters, examining what he perceives is important. The tests asked for feedback on four surveys concerning the position or role the participant perceived he was taking in answering the items, as well as the target entity he was being asked about, and concerning the change context of that target entity. For role and target, the respondent chose a role and target that reflected one of three

levels of analysis: owner and company focused on external competitive markets represented the firm level, manager and organization focused on internal structure and operations represented the organizational level, and self and employee focused on personal characteristics and situations represented the individual level.

Following the assumption held in traditional measurement that the respondent speaks from a role relative to his target's level, H1a contended that there would be a match between role and target in his perception, when answering these scales.

> *H1a: The respondent perception of his level of analysis in reporting on the scale will be significantly aligned with the perceived target level of analysis for the scale application.*

This hypothesis received partial support, but importantly, did not receive full support. In frequencies, perceived role for the autonomy, management, and cognition sets followed assumptions in only 30% of the choices for target, and for strategy, only 43%. Although in some cases the target level was also "correctly" perceived, 60% for organization on the management set and self on the cognition set, matches between role and target overall was not met. Here also, the strategy set was perceived at its strategic company level only 25% of the time. Importantly, expected alignment was not supported for most commonly used scale used in strategy research. In light of current borrowing and adapting items to levels for which they were not designed, a lack of support for this hypothesis is good news. It suggests that there is another factor involved outside of the rational categorization of structural levels by which people perceive these questions and situations. Adaptation of items for levels for which they were not designed may be fine, with the caveat that these study design should address role and target alignment issues.

Indeed, the correction that many people maintain toward conversation about an individual's or group's "EO" with the reminder that it is a "firm level" construct, and not an individual one, may need reexamination.

Table 4.1 Role-Target Associations

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square Role-Target Autonomy	10.308(a)	4	0.036
Likelihood Ratio	10.51	4	0.033
Linear-by-Linear Association	1.768	1	0.184
N of Valid Cases	335		
Pearson Chi-Square Role-Target Management	10.959(a)	4	0.027
Likelihood Ratio	11.508	4	0.021
Linear-by-Linear Association	0.947	1	0.33
N of Valid Cases	328		
Pearson Chi-Square Role -Target Strategy	13.347(a)	4	0.01
Likelihood Ratio	13.265	4	0.01
Linear-by-Linear Association	2.287	1	0.13
N of Valid Cases	342		
Pearson Chi-Square Role-Target Cognition	5.266(a)	4	0.261
Likelihood Ratio	5.23	4	0.265
Linear-by-Linear Association	0.002	1	0.968
N of Valid Cases	334		

Table 4.1 shows significant associations identified in cross-tabulation between role and target variables. Associations are significant for "A" autonomy, "B" management, and "C" strategy; the target selection for "D" showed overwhelming selection of one target, and so is not significant in this test. Table 4.2 illustrates the majority of frequency

selections for perceived non-alignment between the role and the target on all four scales.

Table 4.2 Graph of Role-Target Categories

Frequency Distribution of perceived Role-Target Match(1) or No-Match(0)

		Cumulative		Cumulative	Graph of
"A" autonomy	**Count**	**Count**	**Percent**	**Percent**	**Percent**
0	**230**	**230**	**66.86**	**66.86**	**||||||||||||||||||||||||**
1	**114**	**344**	**33.14**	**100.00**	**||||||||||||**
"B" management					
0	**239**	**239**	**69.48**	**69.48**	**||||||||||||||||||||||||**
1	**105**	**344**	**30.52**	**100.00**	**|||||||||||**
"C" strategy					
0	**237**	**237**	**68.90**	**68.90**	**||||||||||||||||||||||||**
1	**107**	**344**	**31.10**	**100.00**	**|||||||||||**
"D" cognition					
0	**228**	**228**	**66.28**	**66.28**	**||||||||||||||||||||||||**
1	**116**	**344**	**33.72**	**100.00**	**||||||||||||**

H1b held that there would be three levels of analysis perceived by respondents, which would reflect distinctly different groups.

> *H1b: There will be significant differences between the perceived level of analysis groups, concerning individual, internal organizational, and external company levels.*

The ANOVAs provided evidence for differences between the role and target types and the groups represented, but not for three groups. Instead, two groups were significantly different, one representing ownership and the other representing membership. These results were found across all sets, supporting H1b for significant differences between groups, but not for groups associated with traditional level of analysis categories. Significantly distinct levels for the role and target variables for all four scales are shown in Table 4.3, the results of nonparametric cross-tabulation. Significant group differences are documented in Table 4.5 below.

Table 4.3 Variable Level Differences

Chi-Square Role Autonomy	50.183	Chi-Square Target Autonomy	578.095
df	2	df	2
Asymp. Sig.	0	Asymp. Sig.	0
Chi-Square Role Management	64.361	Chi-Square Target Management	20.784
df	2	df	2
Asymp. Sig.	0	Asymp. Sig.	0
Chi-Square Role Stategy	9.111	Chi-Square Target Strategy	114.219
df	2	df	2
Asymp. Sig.	0.011	Asymp. Sig.	0
Chi-Square Role Cognition	33.645	Chi-Square Target Cognition	89.429
df	2	df	2
Asymp. Sig.	0	Asymp. Sig.	0

As a contrasting hypothesis to H1b, H2 draws on social and cognitive theory to posit that respondents might perceive roles and targets outside of the traditional level structure.

> *H2: The respondent perception of levels of analysis will be significantly aligned with a socially oriented level of analysis reflecting a perceived organizational context, rather than an individual or a strategic level of analysis context.*

This reflects use by respondents of situations and influences on the subjective judgment and choice as described in cognitive theory. This hypothesis found support through testing for group differences, and in frequency selections of organizational levels for autonomy, management and strategy scales. It also reflects the two groups mentioned in relation to H1b, which reflect a more social basis for selection than adherence to a structural category, lending support for H2.

Table 4.4 shows the high frequency of organizational choices for the "A" autonomy, "B" management and "C" strategy scales for the perceived target application of the measures.

Table 4.4 Social-Organizational Oriented Selections

Frequency Distribution of "Organization" as Perceived Target Application

		Cumulative		Cumulative	Graph of
Autonomy	**Count**	**Count**	**Percent**	**Percent**	**Percent**
1	**53**	**53**	**15.68**	**15.68**	**||||||**
2	**273**	**326**	**80.77**	**96.45**	**||||||||||||||||||||||||||||||**
3	**12**	**338**	**3.55**	**100.00**	**|**
Management					
1	**88**	**88**	**26.43**	**26.43**	**||||||||||**
2	**197**	**285**	**59.16**	**85.59**	**||||||||||||||||||||**
3	**48**	**333**	**14.41**	**100.00**	**|||||**
Strategy					
1	**95**	**95**	**27.70**	**27.70**	**|||||||||||**
2	**163**	**258**	**47.52**	**75.22**	**||||||||||||||||**
3	**85**	**343**	**24.78**	**100.00**	**||||||||**

Relative to H1b and H2, Table 4.5 shows significant support for groups, but not for the three groups that followed the traditional rational economic design echoed in H1b. While tests showed significant differences between the selection levels respondents perceived for the role and target choices on all four scales, the associations of their perceived choices fell into another type of grouping. The strategic/external, organizational/internal and individual/self, though significant as variables, did not project onto the referent organizational context found in group difference testing. Supporting the contrasting H2, groups were significantly different based on a social-organizational context of two groups (ownership/membership) across all four scales, with the ownership group showing significant difference from the manager and employee groups (membership), and the manager and employee groups (membership) not showing significant differences from each other.

Table 4.5 Group Differences

Pairwise Comparisons

Dependent Variable: Profile Score

Scale and Group (I) LoA Role	Group (J) LoA Role	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
Autonomy Owner1	Mgr2	.759*	0.197	0	0.372	1.147
	Emp3	.867*	0.19	0	0.492	1.241
Mgm't Owner1	Mgr2	.607*	0.187	0.001	0.239	0.976
	Emp3	.784*	0.19	0	0.409	1.158
Strategy Owner1	Mgr2	.615*	0.183	0.001	0.256	0.974
	Emp3	.707*	0.197	0	0.319	1.094
Cognition Owner1	Mgr2	.639*	0.196	0.001	0.253	1.025
	Emp3	.707*	0.188	0	0.337	1.077
Autonomy Mgr2	Owner1	-.759*	0.197	0	-1.147	-0.372
	Emp3	0.107	0.189	0.572	-0.265	0.48
Mgm't Mgr2	Owner1	-.607*	0.187	0.001	-0.976	-0.239
	Emp3	0.176	0.203	0.385	-0.222	0.575
Strategy Mgr2	Owner1	-.615*	0.183	0.001	-0.974	-0.256
	Emp3	0.091	0.211	0.665	-0.324	0.506
Cognition Mgr2	Owner1	-.639*	0.196	0.001	-1.025	-0.253
	Emp3	0.068	0.198	0.732	-0.322	0.457
Autonomy Emp3	Owner1	-.867*	0.19	0	-1.241	-0.492
	Mgr2	-0.107	0.189	0.572	-0.48	0.265
Mgm't Emp3	Owner1	-.784*	0.19	0	-1.158	-0.409
	Mgr2	-0.176	0.203	0.385	-0.575	0.222
Strategy Emp3	Owner1	-.707*	0.197	0	-1.094	-0.319
	Mgr2	-0.091	0.211	0.665	-0.506	0.324
Cognition Emp3	Owner1	-.707*	0.188	0	-1.077	-0.337
	Mgr2	-0.068	0.198	0.732	-0.457	0.322

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

The two hypotheses, H3 and H4, look at the association between the role, target and alignment perceived between them, and the change situation perceived with the

respondent's self assessment of opportunity awareness, locus of control and action likelihood. Across all sets, differences were measured pertaining to higher or lower ratings on the profile, and these were varied for each profile attribute. In other words, though evidence of association was found, it was unique to various roles, targets, alignments and change contexts recorded by respondents. Some patterns were interesting, including the patterns of high means in no-match on role-target selection for awareness, autonomy and management versus low means for cognition and average for strategy, and high means in change for action, autonomy and cognition, but high for no change for strategy perceptions, lending support for both H3 and H4.

> *H3: There will be differences in the perceived change and control profile of the respondent associated with the perceived company life cycle change context.*

Table 4.6 shows the majority selection of no-change for all four scales.

Table 4.6 Graph of Change Categories

Frequency Distribution of perceived Change(1) or No-Change(0) Situation

		Cumulative		Cumulative	Graph of
"A" autonomy	**Count**	**Count**	**Percent**	**Percent**	**Percent**
0	**213**	**213**	**62.46**	**62.46**	**||||||||||||||||||||**
1	**128**	**341**	**37.54**	**100.00**	**||||||||||||||**
"B" management					
0	**182**	**182**	**53.85**	**53.85**	**||||||||||||||||||**
1	**156**	**338**	**46.15**	**100.00**	**||||||||||||||||**
"C" strategy					
0	**195**	**195**	**56.85**	**56.85**	**||||||||||||||||||**
1	**148**	**343**	**43.15**	**100.00**	**||||||||||||||||**
"D" cognition					
0	**225**	**225**	**66.37**	**66.37**	**||||||||||||||||||||||**
1	**114**	**339**	**33.63**	**100.00**	**||||||||||||**

Table 4.7 lists significant associations between independent variables for perceived change situation to the perceived respondent profile variables of opportunity awareness and action likelihood. These 2-way and 1-way

MANOVA results show support for H3 respondent perception associations on the "A" autonomy, "B" management, and "D" cognition scales.

Table 4.7 Significant Associations of Change to Profile Variables

2-way MANOVA						
Significant ANOVA Values						
Source		Sum of	Mean		Prob	Power
Term	DF	Squares	Square	F-Ratio	Level	(a=0.05)
Opportunity Awareness						
"D" cognition change*role-target match	1	22.756	22.756	8.25	0.004*	0.816
S	280	772.784	2.76			
Total (Adjusted)	316	902.448				
Total	317					
1-way MANOVA						
Opportunity Awareness						
"A" autonomy change	1	7.939	7.939	2.910	0.089	0.398
"B" management change	1	9.913	9.913	3.630	0.058	0.476
S	308	840.366	2.728			
Total (Adjusted)	316	902.448				
Total	317					
Action Likelihood						
"A" autonomy change	1	12.154	12.154	4.580	0.033*	0.569
S	308	816.980	2.653			
Total (Adjusted)	316	849.125				
Total	317					
* Term significant at alpha = 0.05						
Table is truncated from original						

Table 4.8 lists significant associations between independent variables for perceived role, target, and role-target match categories to the perceived respondent profile variables of opportunity awareness and action likelihood.

> *H4: There will be differences in the perceived change and control profile of the respondent associated with the perceived alignment between role and target levels of analysis.*

These 2-way and 1-way MANOVA results show support for H4 respondent perception associations on the “A” autonomy, “B” management, and “D” cognition scales.

Table 4.8 Significant Associations of Role-Target to Profile Variables

2-way MANOVA						
Significant ANOVA Values						
Source		Sum of	Mean		Prob	Power
Term	DF	Squares	Square	F-Ratio	Level	(a=0.05)
Opportunity Awareness						
"A" autonomy: role-target match	1	15.408	15.408	5.58	0.018*	0.653
"D" cognition change*role-target match	1	22.756	22.756	8.25	0.004*	0.816
S	280	772.784	2.76			
Total (Adjusted)	316	902.448				
Total	317					
Action Likelihood						
"A" autonomy role-target match	1	10.703	10.703	3.96	0.047*	0.51
"B" management role-target match	1	15.913	15.913	5.89	0.015*	0.677
S	280	755.992	2.7			
Total (Adjusted)	316	849.125				
Total	317					
1-way MANOVA						
Opportunity Awareness						
"A" autonomy role-target match	1	11.241	11.241	4.120	0.043*	0.525
"D" cognition role-target match	1	23.099	23.099	8.470	0.003*	0.827
S	308	840.366	2.728			
Total (Adjusted)	316	902.448				
Total	317					
* Term significant at alpha = 0.05						
Table is truncated from original						

Table 4.9 lists significant associations between independent variables for perceived role, target and role-target match for the profile score variable. These ANOVA results show support for H4 respondent perception associations for the “A” autonomy, “B” management, and “C” strategy scales.

Table 4.9 Significant Associations of Match on Profile

Tests of Between-Subjects Effects *Term significant at alpha = 0.05					
H3: Change*Match to Profile; H4: Match to Profile					
DV: Profile for "A" Autonomy	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	29.232[a]	3	9.744	4.817	0.003
Intercept	14722.13	1	14722.13	7277.823	0
Change	5.481	1	5.481	2.71	0.101
Match	14.339	1	14.339	7.088	0.008*
Change * Match	7.874	1	7.874	3.892	0.049*
Error	653.389	323	2.023		
Total	18313.45	327			
Corrected Total	682.621	326			
a. R Squared = .043 (Adjusted R Squared = .034)					
H4: Role to Profile*					
DV: Profile for "B" Management	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	37.259[a]	8	4.657	2.336	0.019
Intercept	11218.71	1	11218.71	5626.915	0
Role	18.087	2	9.044	4.536	0.011*
Target	0.676	2	0.338	0.17	0.844
Role*Target	3.601	4	0.9	0.451	0.771
Error	606.102	304	1.994		
Total	17560.49	313			
Corrected Total	643.362	312			
a. R Squared = .058 (Adjusted R Squared = .033)					
H4: Role to Profile*					
DV: Profile for "C" Strategy	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	61.082[a]	8	7.635	3.911	0
Intercept	14541.45	1	14541.45	7448.389	0
Role	26.131	2	13.065	6.692	0.001*
Target	7.756	2	3.878	1.986	0.139
Role*Target	16.684	4	4.171	2.136	0.076
Error	620.83	318	1.952		
Total	18325.96	327			
Corrected Total	681.911	326			
a. R Squared = .090 (Adjusted R Squared = .067)					

MANOVAs, ANOVAs and nonparametric tests saw significance for various component and categorical variable differences and contributions; also significance on profile with higher mean profile scores associated with perceived non-alignment of role-target and in ownership group selections. Perceptions of respondents may affect the application of EO related measures by challenging design assumptions and by resulting in differential choices; this may suggest controls or use of decision weights for better study results The respondent's personal perception of opportunity awareness and action likelihood related preferences may have associations with the types of change and attributes he reports for EO related measures.

This study provides evidence that respondents will vary in the types of role-responsibility from which they perceive they are answering, in the types of target attributes about which they perceive they are answering, and in their perception of the change situation, context, and conditions from and about which they are answering concerning EO related measures. Non-matching drew higher profile scores, exemplifying higher awareness and action likelihood ratings for those who did not adhere to the traditional structural design. Respondents perceived more role-target non-matching than matching across the scales. In a caution for study design, respondents may not perceive the representative role or the intended target of an EO related scale, and if they do, they may rate lower on an entrepreneurial profile based on opportunity awareness and action likelihood. Respondents appeared in general to be insensitive to the situation of change, although change measurement is an important purpose in the use of these scales for entrepreneurship study.

It appears that there is evidence that perception is an important factor for participants in entrepreneurial orientation surveys, and that there is a cognitive connection that respondents both use and reflect in answering. More study is needed to understand this factor. Chapter Five discusses the implications and limitations of this study and suggests areas for future research in the conclusion of this paper.

CHAPTER 5

DISCUSSION AND SUMMARY

5.1 Overview of the Dissertation study

This dissertation, *ENTREPRENEURIAL ORIENTATION: AN INVESTIGATION INTO THE ECOLOGY OF "EO" MEASURES*, was motivated by the desire to investigate the constellation of entrepreneurial orientation measures. It sought to understand factors that exist across the theory and use of the entrepreneurial orientation concept in management research. Analysis of the general paradigm exemplified by the entrepreneurial orientation concept included the description of its core definition as initiation and management of change toward added value and entity success. Its measurement was defined as the relative degree of the rate of change, change management and change conditions based on a variety of dimensions and variables. Key across the investigation and tests of theory for EO has been the use of respondent perceptions that compare a local attribute to that of a local or global alter. The history of development and use of entrepreneurial orientation that was traced exemplifies a dynamic and rich set of theory and measures, which continues to feed new research

avenues and prompt timely discoveries in light of ever changing economies and social contexts.

Basic goals of this dissertation included codification of the development and use of the theory, concepts, and measures in conjunction with identifying the family of scales that have been developed for use at varying levels of analysis. Levels of analysis were defined as the strategic or firm level, reflecting the condition and setting of an entity in an economic market, as the organizational level reflecting the coordination of operations and structure in an entity, and as the individual level, reflecting self assessment and personal characteristics, states and traits. In this study, common denominators—the participant and his unique contribution to EO related study—the record of his perceptions pertaining to change, were examined.

Factors, development, and underlying theory were identified and organized in three ways. One looked at purposes for the research which this study broke into stages of development across the 30 years of its history, a second looked at the modeling and variables used, and a third looked at how the "individual" is viewed across the history of investigation. This answered a need for understanding and codification of EO related material for educational and research purposes. It also identified important elements of learning and action that are crucial to entrepreneurial success, and are sometimes different from other theoretical lenses. This set up the basis for the empirical section of the study, a test of factors and assumptions discovered in the analysis of the literature. In line with multiple calls for research about the part played in entrepreneurship theory by cognition, a unique element was investigated that is important to both learning and

research: respondent cognitive profiles based on change and control, and respondent perception. The study associated the importance of cognitive theories to the analysis of how entrepreneurship topics may be better understood and explained. The rational assumptions that have often been used to shape theory and testing were countered with testing that used social and cognitive theory to explain differences. The use of heuristics and other subjective judgment tools may be important topics to study in designing not only better research, but better education concerning entrepreneurship.

5.2 Discussion of the studies

A conceptually based analysis and an empirical analysis formed the anchors of this dissertation.

5.2.1 Historical observation analysis of EO related measures

The conceptual analysis covered three decades of literature, tracing the development and use of the family of EO related measures. Some measures have seen a great deal of use, while others are not widely known outside of EO specialists. One famous set of studies based on cases does not have a scale, but uncovered important elements and identified core EO factors in those cases. While many studies have looked for ways to improve or increase the degree of EO, some sought to uncover new factors or trace known factors in profiling "successful" entrepreneurial behavior in a variety of settings. These included crisis as well as ongoing and general performance situations.

Tables of pertinent elements and factors presented in the analysis illustrated the overall development identified for the EO concept, and broke the streams of development into three general stages. One stage dealt with the strategic issues that firms face toward

change and performance. A second dealt with the investigation inside organizations that sought to understand how and why EO is exhibited in entities and who might contribute to the degree of EO that is measured at the entity or firm level. A third noted an expansion in the use of the EO concept in global, individual, theory building, and cross-domain research. Due to the success of these measures, they are being borrowed by domains of human resources, marketing, education and international studies, among others. However, despite investigating structures, systems, and strategies, an answer to the key question: "Where does EO come from?" is still unknown.

Much of the original research in EO looked at overall performance and at associations between environmental variables, such as economic hostility and dynamic cycles, through traditional models of firms that used contingency and configuration theories to explain why some companies did better than others. When the measures continued to find significance at the firm level, researchers developed ways to assess internal components of management and ideology that they postulated might contribute to control over EO rates and so, increases in performance. It should be noted that in some situations a lower EO rating has been found to lead to better performance. However, it has not been discovered if this pertains to overall "parts" of the entity, if some high EO elements or actors and groups inside organizations balance or work with lower EO counterparts, or if unrecognized factors, such as partnerships, cohorts and general social or psychological variables play important roles. Much of the recent work in EO has been to investigate dimensions, dimensionality, and psychometrics of scales, most of which overlooks a large proportion of the EO literature due to the empirical nature of

the tests. Much of it also overlooks important areas such as crisis or failure management (a huge principle in entrepreneurship), and newer modular forms of both organizations and the economies in which new and evolving organizational forms move. The need to understand a broad range of factors is paramount in order to build and test entrepreneurship theory, to understand where the "orientation" comes from, and to move away from the stultifying validation studies that overlook a great deal of research but have become a norm in chasing successful test results.

This historical observation analysis uncovered a factor: respondent perception, which served as the basis for the empirical part of this dissertation.

5.2.2 Empirical study concerning respondent perception

Entrepreneurial orientation as a concept has a 30 year history in management research, and is a primary construct in entrepreneurship research, contributing to a majority of work presented under the Entrepreneurship Division at the Academy of Management Annual Conference in 2009. Several scales, some known and some not so well known, are used to measure a variety of dimensions pertaining to rates and conditions of change. This study examined the history of the concept, the theory behind its development, and how it is measured. One factor that has not received much attention, but is very important to the common method for measuring it, is the perception profile of the people answering the surveys. Two parts of this profile are the perception people pick up and report concerning entrepreneurial orientation items, and their personal preferences pertaining to change and control in their lives.

Entrepreneurial orientation measurement depends on the perception of the person taking the survey. The surveys are *designed* to measure perceived rates of change and conditions of change. Survey *answers are used* to calculate a perceived rate of change. They are also used to measure perceived conditions that can be used to create or manage change. The person answering the survey is asked to compare his own perceived situation and context of change to that of another. By using comparisons a relative degree of perceived rates of changes and conditions can be identified.

First, the person answering the survey compares with his perceived situation at hand with that of "another". Second these comparisons are cumulated across the group of people answering the survey for the researcher, to assess a perceived degree of change and change conditions from the sample. This "other" with which respondent's are asked to make comparisons is often loosely defined or not defined at all, left to the ambiguity of the participant's subjective understanding. As the perception recorded by the person taking the survey is integral to how EO related results are measured, it seems logical to look at aspects of the perception that relate to the methods and items in the surveys. This study assessed differences in the perception of people taking EO-related surveys, to understand how perception can affect study design and survey application.

This study asked people to report their perceptions about four scales, to see what they thought the scales were asking about. It tested how taking and thinking about the scales was associated with the person's own characteristics concerning change. By looking at what was perceived, and in light of that, what the person's preferences for change were,

we can understand how this might be associated with the application of and results from the use of these measures.

This study addresses two issues, which are outlined below:

1) Traditional study designs require the person answering the survey to represent the target of the survey.
    a. For example, an owner or CEO is expected to answer strictly about strategy for the company in terms of a competitive economy, not about his own characteristics and views.
    This is an assumption about the perceived target that has not been tested. There are not checks that the person is answering statically from a perception assumed in the design, or on his perception characteristics.
    b. Also for example, a manager is also expected to answer about his operations in economic terms of "firm ownership", that is, from the standpoint of a traditionally modeled organization or division configuration, not from a social standpoint of partnership, coopted resources, or common modular forms.
    This assumption about the perceived role also has not been tested. There are not checks on the type of responsibility he perceives that he has or what he perceives the survey is asking about.
2) Due to the success of finding results with some measures, recent studies have adapted items to uses for which they were not designed, although some researchers contend that there is a tight boundary of application for some scale's dimensions.
    a. For example, a scale for strategy, worded in terms of competitive economics, has been used to study individual learning.
    We don't know why results using these items are found outside the original intention of market competition.
    b. We don't know if there is an explanation outside of classical economic structure under which entrepreneurship measurement can be understood.

These issues may stem from two sources. One is due to the original theoretical base of economic (rational) theory versus the possible contribution of social-behavioral (non-rational) theory for various studies. The other is that we really don't know how these measures work. There have been many studies about the items and dimensions themselves, trying to define or describe them.

However, one factor that has not been studied is an aspect of the primary report—the characteristics of the perception of the person taking the survey. If we can understand what part perception plays, we can understand how to better apply the scales, and how to better interpret the results.

Theory building has enjoyed a consistent call for attention in entrepreneurship studies. Entrepreneurship research has found links between entrepreneurial thinking and entrepreneurial behavior. Pertaining to these surveys, as someone perceives cues to think, so they may answer.

This study contends that each respondent has a perception profile concerning change and control of change. This profile is somewhat fluid, and uses heuristics and tools of judgment to make subjective choices. Cognitive theories, such as the theory of planned behavior, prospect theory, regulatory focus, and transactive memory have been discussed in entrepreneurship research and they are useful here.

A short listing of pertinent theory and their possible applications are summarized here:

1) In terms of theory of planned behavior, we have discovered that people who believe that they can, have an intention to do, and have a related experience, will likely go on to act out of the belief on the intention. Here, experience or exposure has been found to affect the perception that feeds intention and resulting action.
2) In terms of transactive memory, how, by whom, and where information is created and stored can affect how people believe they can retrieve and use it. We have discovered that entrepreneurial concepts and thinking patterns can be trained and supported. It is important to identify aspects of how people think and perceive that is unique to entrepreneurship and that may be malleable, in order to better study and teach about entrepreneurship.
3) In terms of regulatory focus, the framing of a situation can shape the perception of someone about a decision. Entrepreneurial situations present ways of considering mistakes and failure as positive tools for learning and creating. Presentation of diverse conditions and resources can relate to the ability to

discern and assemble valuable and constructive decision patterns in the face of ongoing cycles, crisis, or unexpected jolts.

4) In terms of prospect theory, the tendency to look for best choices can demonstrate subjective thinking over objective reasoning. A mental shortcut uses two phases. First, the person edits or simplifies to get a reference point, and then they choose a value attached to the size and direction of the change itself- not to the end result. Three types of reference points that people use can be a similar situation (representativeness), a base marker for a rate and degree of change (anchoring and adjustment), or choices that are presented (availability).
5) There are three ways that perception can work in a person's thinking: "fit", "use", and "judgment".
    a. "Fit" is how people perceive that things "feel right", according to categorization and frames- ways of thinking that people use to make sense of things.
    b. "Use" is the value someone ascribes to the thinking. It is what the person can process, how they can share and gain more information related to the focus of their perception. People can ascribe credibility or dissonance about a situation and information in order to act accordingly, changing their perception of what they can and will do.
    c. "Judgment" is the weighted subjectivity that people use to help them recognize things and make decisions. It has to do with values used to assess a "best choice", in terms of relationships that are seen to cause things, and with heuristics, which are mental shortcuts.

An important aspect of how perception works is that it is not rational. It is subjective and can be manipulated. A question is what do people perceive when they take EO related surveys. A repercussion is how a person's perception might then affect application of EO related measures.

To investigate this, a method of study was devised whereby people were asked to give feedback on their perceptions of four surveys. After doing so, they were also asked about their personal preferences for change. The study used the experience of going through the surveys and giving feedback to manipulate the person's perception of his own change preferences and context.

Previous work in perception frames and identity has found that people have a base or chronic state, but that manipulation by an exercise such as this one can affect their frame of reference. On one hand, by measuring feedback on the surveys general perceptions of settings and conditions can show if design assumptions normally ascribed to the survey usage reflects what people pick up from them. On the other, measuring the personal change preference profile of the people taking the surveys can show if there is an association between the survey attributes and those of the report. Participants were asked to report on what aspect or level they perceived the survey is about. They could perceive that it was about either the strategic firm level, with an eye to external situations and contexts, to the organizational level, with an eye to internal structures and conditions, or to the person's own level, with an eye to his preferences about change. For each scale, participants were asked to report feedback on what position or responsibility they identified with as a taker of the survey. They could perceive a position reflecting a responsible role of owner, of manager or supervisor, or of employee.

The four surveys used included one that reflected three strategic dimensions of entrepreneurial orientation, another that reflected a fourth strategic dimension, a survey that reflected either a promoter or a trustee style of organizational management of opportunities, and a survey that measured cognitive dimensions of entrepreneurial orientation. After each survey, a list of feedback questions asked about what the person perceived as the change state of the business- either established, with a state of no change, or start-up or reorganizing, with a state of change. Also asked were what type

of position or role the person used to answer the survey, either an owner, a manager, or an employee, and what the person thought was the target of the survey, either himself, an organization with internal focus, or a company with external focus. After the surveys and feedback questions were demographic questions about gender, education and training, and entrepreneurial experience. Following this were questions about the person's preferences for change and control. This personal profile was measured by scales focused on opportunity awareness, locus of control and action likelihood.

The IV's used in the analysis were the feedback answers concerning change/no-change responses to the business lifecycle of established or startup-up/reorganizing, the position level of analysis (person's perceived role) for taking the survey, and the level of analysis of the survey application (perceived target of the survey). A categorical IV was also calculated from whether the role and target levels of analysis matched or not. The DV's used were the individual scale values for change a control profile, and an overall summed and averaged score across those items. All measures used a 10 point likert. This followed Robinson et al.'s (1991) design, insured for uniformity across the instrument, and allowed better recording of variance.

Two methods were used for analysis. The scales used represented autonomy, management, strategy, and cognition items. One method used all of the IV's with all of the DV's in a 2-way MANOVA. Then another method used IV sets of role, target, role-target match, and change for each scale, assessed with ANOVAs for both the categorical and the underlying role and target components. All tests were run with multiple DV's and with a single DV profile score, and found no differences in

significant results. Post hoc testing included 2-way MANOVAs of IV's from autonomy and cognition sets, and nonparametric chi-square and Pearson's for IV's, associations and group differences.

Tested were the hypotheses that there was a match between the role and target levels of analysis (H1a) and that there were three distinct levels of analysis (H1b). In contrast was a hypothesis that the organizational and managerial levels of analysis would be perceived more than the others, exemplifying a social context as most prominent (H2). The business lifecycle context of change/no-change was hypothesized as associated with the personal change preferences of the report (H3), as was the perceived role and target levels of analysis and the match between perceived role and target levels of analysis (H4).

Concerning results for concerning the hypotheses, as there were four scales tested, it is possible to see varied support or nonsupport across the sets. The 2way MANOVA with all eight IV's and three DV's found significance in the category for role-target match in "B" management, and interaction of change and role-target match for "D" cognition, with a role-target match perceptions rating a lower than average mean profile in terms of opportunity awareness than was found for a match.

Significance was also found in the category for role-target match in "A" autonomy and "B" management, with a role-target match perceptions rating a lower than average mean profile in terms of action likelihood than was found for a match.

Related to H1a this shows support for recognition of role-target associations with profiles for the autonomy, management and cognition scales, but with two caveats. One

is that non-matching drew higher profile scores, exemplifying higher awareness and action likelihood ratings for those who did not adhere to the traditional structural design, and second, respondents perceived less role-target matching than non-matching across the scales. Lack of support for matching role-targets may actually be a positive thing. The mean profiles for both role-target matching and non-matching for the "C" strategic scale were not different from average. Although there have been some strict demands that the strategy scale only be applied to firm level competitive applications, the trend for using it at the organizational and individual levels may be able to find support as to why it appears to work in those designs. The autonomy scale was the only one that registered significance for awareness and action, though the mean for matching design was below average. This shows a lack of support in general for application of traditional design, but this may allow dimensions that have been applied to one level of analysis, role or target, to be used in more diverse manners if the profile and perception of the respondents are taken into consideration as to their affects in results. The cognition scale was the only one that registered significantly with both role-target and change through an interaction, though here again, matching was below average on and awareness action. The profile was higher without a design match or change. The high frequency for selection of target here was the correct design choice of self.

Concerning H1a: Respondents may not perceive the representative role or the intended target of an EO related scale, and if they do, they may rate lower on an entrepreneurial profile based on opportunity awareness and action likelihood. Perception appears to be an important factor in responses for these scales.

Concerning H1b, that there would be three distinct groups reflecting the traditional levels of analysis, and H2, the contrasting hypothesis that distinct groups would fall into more social types that reflect organizational meanings, there is evidence across all four sets. ANOVAs and the Pearson's chi-square both showed significance in group differences, showing support for different groups. However three groups, as expected from the traditional design, were not found; instead, two groups were identified as significantly different. These groups, one reflected ownership and the other reflected membership, consisting of managers and employees. This supports H1b as there are distinct groups, but does not support the traditional design of strategic, organizational and individual. H2 shows support for social orientation with the groups falling in line with organizational meaning. The profile score means for group differences related to the ownership group on all four scales were distinctly higher than those for the manager or employee selections; the membership group fell below average.

Concerning H3 and H4 that hypothesized associations between the perceived change context and the role-target variables and the profile of the respondents, MANOVA's, ANOVAs and nonparametric tests all saw significance on profile for the component and categorical variables. "A" autonomy and "B" management were significant with high opportunity awareness profile for no-match, and high opportunity awareness profile with "D" cognition for change*role-target. "C" strategy profile was average for no-match. Autonomy and cognition had significant differences between match and no-match (higher mean profile score), and autonomy and management (note: sig of p=.059) for change (higher mean profile score), and no-change, with support for H3 and H4.

The ownership groups had higher profile score means than the membership groups.

Below is a listing for the particular scales and the DV type used.

"A" autonomy:

opportunity awareness	**action likelihood**	**Adj. R^**	**overall mean**
role-target p=.01	role-target p=.047		
No match=high profile mean (7.4)			7.0
	No match=high profile mean (7.7)		7.5
profile			
role-target p=.008 change*match p=.04		.034	
role lvl diff p=.000		.063	7.3
match lvl diff p=.031		.011	7.2
change lvl diff p=.022		.013	7.3
Chi-Square			
Frequencies observed better than expected chance Role P=.000, target P=.000			
Role and target p=.036			

"B" management:

opportunity awareness	**action likelihood**		**overall mean**
	role-target p=.015		
No match=high profile mean (7.1)			7/0
Profile			
Role p=.011		.033	
Role lvl diff p=.000		.052	7.3
change lvl diff p=.059		.008	7.3
Chi-Square			
Frequencies observed better than expected chance Role P=.000, target P=.000			
Role and target p=.027			

"C" strategy:

opportunity awareness	**action likelihood**		**overall mean**
average			7.0
Profile			
Role p=.001		.067	
Role lvl diff p=.000		.046	7.2
Chi-Square			
Frequencies observed better than expected chance Role P=.000, target P=.000			
Role and target p=.01			

"D" cognition:

opportunity awareness	**action likelihood**		**overall mean**
change* role-target p=.004			
No match=high profile mean (7.5)			7.0
Profile			
Role lvl diff p=.000		.044	7.3
match lvl diff p=.007		.019	7.2
Chi-Square			
Frequencies observed better than expected chance Role P=.000, target P=.000			

"D" cognition saw a higher profile mean for no match or change than for match and change on opportunity awareness. "A" and "B" had higher and "D" lower opportunity awareness means for no match; "C" was average."A" and "D" had higher, and "C" had lower opportunity awareness means for change; "B" was average. In light of the rating for profile, respondents appeared to be more perceptive to change if they also did not deviate from the traditional structure for role and target matching. Generally, a higher profile mean corresponded to perception of a social design of no role-target match or a perception of stable context with no change; a lower profile mean corresponded to a traditional design role-target match with a perception of a change context. Looking for heuristics or cognitive bases that people might use to see flex in the social context as an expected norms, or to register alterations in context against the security or benchmark of structure would be an interesting future study. Another study might be to register what types of change was perceived: size and suddenness, and if implications of change are noticed in line with personal/entity opportunity or as threats.

Respondents appeared in general to be insensitive to change in the business life cycle, an important factor in using these scales and in an entrepreneurial setting. They appeared to be sensitive to role perception, which may be associated with power; this would be an interesting study. They also appeared to be sensitive to the social context of the organization as embedded individuals. Respondents may have perceived the scales in terms of the referent context of the organization (social and behavioral) over the pure strategic (rational economic) or individual (self) context. They also seemed to perceive the scales differently if they are in an initiating role or not.

It would be interesting to assess if respondents used the social setting as a contributor to an heuristic base, and if there was a specific framing effect in play. They were enjoined as expert informants in the instruction portion of the survey, asked for their opinions in order to improve the material. This could have served as a positive frame; using a different frame, with threat of loss and possibility of wrong answers could theoretically result in different role choices, for example. The frequency counts for "A" autonomy, "B" management, and "C" strategy showed the organizational target perceived most often out of the three choices possible. The other scale, "D" cognition, registered correctly at the self target. Respondents appeared to perceive roles apart from rigid level of analysis applications that are intended to strictly measure external strategy or internal configuration. The findings here open the door to more investigation with cognitive theories that model fit, use, and judgment factors (such as prospect theory and entrepreneurial motivation). These could help answer questions about "where EO comes from" and could be as important to theory and research development as the rational economic models have been. They certainly may aid in understanding the issues concerning perception in the use of comparative-value survey instruments for entrepreneurial orientation topic research.

5.3 Implications, Limitations and Future Research

This study opens a door to a different way to look at entrepreneurship theory and measures. From the content aspect, which categorizes elements (Datta, Rajagopalan, & Rasheed, 1991) it may be possible to compare the traditional rationally oriented levels of analysis, of entity, organization and individual, with a socially oriented levels of

analysis that reflect ownership and membership. Identifying processes relative to such categories may allow a fresh perspective to this important and successful management concept.

This study provides evidence that:

- Respondents will vary in the types of role-responsibility from which they perceive they are answering concerning EO related measures.
- Respondents will vary in the types of target attributes about which they perceive they are answering concerning EO related measures.
- Respondents will vary in their perception of the change situation, context, and conditions from and about which they are answering concerning EO related measures.

Future research could look at relationships between change perceptions, cognitive profiles and variance in measured EO rates. As the instrument used here included several EO related measures such an analysis is possible with the data collected for this study. A limitation of this study is that it could not include examples from all of the scales, and hence, does not have a full range of possible entrepreneurial orientation measurement.

The profile score used here was extracted from three scales commonly used in entrepreneurship research. For the purposes of this study it was called the "change and control" profile, reflecting the outlook of the individual toward awareness of new things that can be exploited, concerning actions that bring an idea to fruition, and of personal input toward the outcomes of one's own destiny. A limitation of this study was the lack of an identifiable and tested profile construct for this purpose. More study can be done to assess if a general profile concerning change and control sensitivity can be identified

and a measure assembled from these or other concepts. In light of the social context that respondent perceptions tested here seem to exhibit, concepts that could add to understanding include transactive memory, and alertness. Filler scales for regulatory focus, entrepreneurship motivation and learning were included; further study on profiles can be performed on this data.

Although not pertinent to this study, tests run on the demographic portion of the data showed promise in associations between age and opportunity recognition profile and between the intention to be an entrepreneur and action likelihood profile. As mentioned in the study, the sample came from a pool of people who already exhibited an exploitative nature in their pursuit of a degree: students in a four-year program. Future research could also compare types of samples, for example unemployed, business leaders, and workers that reflect different types of knowledge or material product focus. Also, students that develop cohorts or professional identities and students engaged in majors other than management could be interesting to study and compare from the standpoint of mental model and social cohesion development.

Some answers in a category had a low count compared to other categories. It is not clear what contributed to this. Frequency scores and other variables may be further analyzed in larger and more diverse samples to tell a story that could not be fully described by the analysis of the means. Various ways to word the items in the feedback or to design a different behavioral measure also present activities for future research.

The instrument was long. Cut down from longer versions used in preliminary studies that included more scales, it still represents an exercise that demands time and focus to

answer. It does not include all the members of the EO scale family in its current state, or in their current states. Some of the scales that were not included here had very poor feedback in preliminary testing as being too long, too wordy and redundant or just not related to what the respondents perceived the scales should be asking about. Some of these scales are undergoing reduction and clarification and could not be included in their most current iteration. Format of the questions, which asks for a choice, appears to be important. In contrast to the normal dipole item style, one of the deleted scales used a single pole measure, which threw participants off. Interestingly, the longest set, the 75 item self-assessment prompted positive comments. Apparently students enjoyed answering questions about themselves and many reported that they found the items stimulating for self reflection. Also interesting, this scale had relatively few missed or skipped items in preliminary testing, whereas other scales, such as the CEAI had a large amount of skipping. From qualitative feedback, many of the items did not seem to reflect the common respondent's vocabulary; this could be due to age as well as ways of thinking (academic versus popular expression). Future research can also address cumulating an overall entrepreneurial orientation set that would use parts of various scales, as they reflect a variety of dimensions, viewpoints of motivation, activity and expectations related to change initiation and management.

Another topic for future research is that of direction of effect. Research in regulatory focus has found that people exhibit a chronic state, but that it can be manipulated by a frame in a situation. We know that people can learn entrepreneurial thinking. Due to the design of this test, the profile of the respondents was measured after they underwent the

treatment of going through the measures. However, using a pretest-posttest design, with a sufficient amount of time between tests and perhaps using a control designed around partaking and not partaking in entrepreneurial activities and/or training could be illuminating. A longitudinal design would enrich understanding of framing processes or content effects on the profile and on perception reports. Research based in decision probabilities could also uncover how people are assessing the rates and conditions of change that are required of them in entrepreneurial orientation testing. Theories such as prospect theory have been underutilized in entrepreneurship. In light of the subjective gain-loss bases of the items that respondents are asked to use for their comparisons with alters, the use of heuristics such as availability, representativeness and anchoring and adjustment could be tested. Perception seems to be an important contributor to many of the concepts undergoing study: opportunity awareness and recognition, options and creation, failure and mistakes. Uncovering more about this cognitive element could help us understand factors that could lend themselves to better designed training and educational materials.

This study seems to show that adaptation of entrepreneurial orientation scale material may be appropriate in research designs at levels or in populations different from those for which they were designed. The factor of perception and profile may give a reason why this is workable, as well as why results are being found outside the original design. Items that ask about how many new products an individual expects to introduce, or whether he usually beats competitors in the marketplace in a study on learning does not

make sense, but this type of practice is being done with "results". Future research could look at the similarities in perception in these new tests versus those of traditional ones. For EO testing, design aspects that could be addressed include: consideration for variation in respondent perception, outline and use of distinct alters and metrics for the comparative analysis expected by the participant, explanation or support of assumptions such as the role-target alignment assumption tested here, and reassessment of how the methods for testing EO are designed in light of what they actually demand from participants. The presentation here of a social rather than a rational basis for respondent perception may allow the comparison in future research of structure and system views versus learning and dynamic views. Prospect theory, learning theory and social theory may illuminate the entrepreneurial orientation phenomenon and join ranks with the rational economic theory that has been a go-to for so long.

Finally, this study joins the calls that ask for more research concerning cognition factor contributions to variance in entrepreneurship study. Tests done in the spirit of Robinson, et al., (1991) and Stopford & Baden-Fuller, who were thorough in addressing cognition and patterns of decision-making and the resulting relationships to entrepreneurial behavior would add depth to the EO stream. Investigating crisis and abnormal situations fraught with sabotaging and escalation of commitment behaviors, non-alert thinking, or the pursuit of exit models to amass cycle-focused hyper-value could provide important information for researchers seeking to study the renewal, rejuvenation and recovery value of entrepreneurial activities, and provide clues about emergence as we continue to develop our economies, our societies and our future selves.

5.4 Conclusion

Where does entrepreneurial orientation come from? Classic theory has proposed that companies move and change in light of rational economic concepts, and have used contingency and configuration as bases for examination. Cognition and social theory have added a new view, in attempts to understand not just how, why, and when change occurs, but how, why, and when it is recognized and may lead to action. This study has traced work related to entrepreneurial orientation measurement, and has tested a cognitive element- the factors of respondent perception and cognitive profile associated with EO measurement application. It has shown support for a socially oriented cognitive lens rather than a strict rationally oriented cognitive lens for explaining differences in reports related to entrepreneurial orientation measurement. By investigating the aspect of perception, this research has offered some evidence that the orientation may use different types of judgment and decision-making tools than previously assumed or modeled.

How do we better understand entrepreneurial orientation? It is my hope that this dissertation has opened a door to understanding cognitive and social aspects associated with perception of EO elements and has laid out a framework that can facilitate research and learning.

APPENDIX A

DEFINITIONS

DEFINITIONS

Business lifecycle:

Entrepreneurship research looks at relative rates of change in the business context; a company may be either stable and established undergoing little discernable change, or may be reorganizing or starting up undergoing a great deal of change. Business lifecycle for this study concerns a perceived state of change or no change.

Contingency / configuration:

Contingency refers to factors that impact an entity or process, such as size, technology, or time; configuration refers to the design and management of the entity or process, using task identification and coordination in light of work and decision flows. EO study was born from trying to understand initiation and movement between or across contingency or configuration changes.

Ecology: ongoing system of relationships between components

Entrepreneurial Orientation (EO)

Construct:

The original label used in management research to measure rates of change on various dimensions at the company level of analysis; 'entrepreneurial' connotes creative initiation and pursuit of opportunity for returns while 'orientation' connotes momentum and perception in change-supporting decisions, actions, and results.

Dissertation comment page 5: “Entrepreneurial Orientation is a primary construct in the domain of Entrepreneurship (Lumpkin & Dess, 1996). It is used to assess the propensity of an organization to create, change, and improve (Wales & Covin, 2009). Entrepreneurial Orientation has traditionally been measured through subjective self-reports on behalf of the firm (Kreiser et al., 2002; Lumpkin & Dess, 1996). It uses perceptive measures of the firm’s movement through the business landscape and of the firm’s implementations of change for itself, as well as change in its business and social landscapes (Rauch, Wiklund, Lumpkin, & Frese, 2009). Traditional use of the scales asks the respondent to compare between a local and an alter, usually with a dipole likert measure, with choice registered as more like one or another.”

Dimensions:

Well know dimensions are innovation, risk-taking, and proactiveness. Lesser known and more recently discussed dimensions are autonomy, competitive aggressiveness, management support, organizational structure, rewards/resources, time, boundaries, self esteem, achievement, personal control, and strategic orientation, resource orientation, management structure, reward philosophy, growth orientation, and entrepreneurial culture.

Dimensions suggested by case study and recent research include framebreaking, triggering, change repetition, alertness, pattern creation

(decision-making and behavior), aspiration, dilemma resolution, learning capability, team orientation, knowledge creation, knowledge sharing, and reactiveness.

Sub-dimensions are items in dimension scale sets. Dimensions may be summed and averaged as a variable individually (multidimensional) or together (unidimensional).

This study is not concerned with dimensionality or definitions of dimensions.

Paradigm, Gestalt or Concept:

Although well-known use of the term "entrepreneurial orientation" refers to a specific set of measures associated with a strategic construct that was designed for comparison with external alters, the term is broadly used as a gestalt term for the propensity for creative value-adding change. This use refers to general attitudes, processes, and behaviors that may be demonstrated by entities, groups or individuals as entrepreneurially oriented. It may refer to a tendency in direction of future entrepreneurship (formative), or to an evaluation of past evidence of entrepreneurship (reflective).

Environment:

In management research, the term "organizational task environment" (often referred to as "environment") consists of what is needed and what is available to perform business activities. This includes the context, economy, resources,

beliefs, structure and so forth where the socio-economic entity and its representatives operate, that they perceive and measure, and with which they interact.

Common dimensions of this construct are dynamism (rate of change), munificence/hostility (availability for support), and complexity (interdependencies). Environment is perceived as a locally or globally understood unified setting by the respondent. It may include general or industrial economic conditions, culture and climate inside an organization or across broader social situations, and pertinent circumstances.

Environment can be perceived and measured both subjectively and objectively. It can be considered a force of its own that needs to be dealt with, or a force that can be designed and changed by entrepreneurs. Traditional research in EO has used "environment" as a variable, useful in measuring perceptions of rate of change, opportunity, risk, and need for change.

Comment from dissertation page 85: "The perception of environment is thought to reflect the aggression or compatibility a company needs to operate successfully and to prosper. The environment is often framed as a deterministic state, though firms can be seen as change agents (Porter, 1980, 1985)."

Level of analysis (LoA):

A level consists of like groups of units or components that share process and factor characteristics; analysis refers to the operation of examination, usually with methods that are suitable to the level attributes.

Common levels of analysis in management research consist of the company entity level with a boundary of identity and resource ownership and a setting in an external environment, the organizational or group level with an operational, social, or structural boundary and a setting in an internal environment, and the individual level with a boundary of the physical person's cognition, affect, and associated traits, states, activities, and so forth, either embedded or mobile in a setting.

This study uses these basic categories. Examples of company or strategic LoA are identifiable named businesses or ventures, represented by owner or top managers; of organizational LoA are business units, project groups, and operational divisions, represented by managers and supervisors; of individual LoA are single self-referential persons such as owners, supervisors, venturers, employees, citizens, and students.

Research is usually focused on a specific level unless bracketing is used; bracketing looks at influences and impacts of mechanics or characteristics from the level above or below the target level to identify or understand variance at the target level. Dissertation comment page 17: "Sometimes studies tend to focus on a particular level of analysis, and miss a bigger picture of what may be happening. This failure to understand level of analysis bracketing can lead studies to overlook important variables or contexts (Hackman, 2003). These intermediary concepts may be overlooked as researchers exhaustively examine

details; all the while, an explanation of an occurrence at one level relates to unrecognized phenomena at another level (Hackman, 2003). “

These three LoAs are based on traditional assumptions of competitive business theory, and do not necessarily reflect more complicated situations of nascent states of being (pre-ownership or pre-organization), individual or team/partner owners or members aside from entity identification, permeable boundaries, or recently developed cooperative and cooptation theories where resources and structures are not attached to an entity. network or partnership states or system processes (such as institutional policies or industry technologies) may also include or cross one or more of these levels. However, these are not addressed in this study.

This study tests the traditional rational assumption that respondent’s perception of their LoA representation aligns with or matches that of the scale design’s targeted LoA. For example, a respondent would rationally perceive that they answered from a position and responsible role as an owner in response to a scale set designed for a strategic target LoA. This study also tests whether respondents may, based on cognitive theory, tend to non-rationally perceive that they answer from a socially oriented position and role as organizational LoA member, rather than the strategic or individual LoA for which the scale was designed.

Nascent: the activities that precede creation and operation of the formal business entity.

Stages:

Stages are definable sets of activity that can result from or lead to other stages.

The study of the history of EO research development identified three stages that reflect the context of interest for the studies in each stage. The stages are "industry", focused on company strategy and entrepreneurial systems, "organizational" focused on actors and processes, and "connections" focused on characteristics and on adapting measures for uses that range from individual to global study. There is some vague relation between the company level of analysis and Stage One research development and the organizational level of analysis and Stage One research development, but this is more from the general logical development of finding results at the macro level, followed by trying to understand what is going on inside the entity and with its actors. Stage Three research development includes attention to all three levels, with research at each level, with adaptation of scales from one level used at another level in conjunction with other constructs, and with analysis performed across research at one level or crossing levels to understand causality and to further define dimensions.

Stopford & Baden-Fuller Stages are unique to the case studies by those authors, which traced the reorganization and renewal patterns of several companies in crisis.

Venture:

A venture consists of the people, processes, resources, and concept that lead to initiation and performance with a set of business operations in order to gain return from a target market, without a guarantee of success.

APPENDIX B

SURVEY SCRIPT AND QUESTIONAIRES

University of Texas at Arlington

RECRUITMENT SCRIPT

PRINCIPAL INVESTIGATOR: Sheryllynn Roberts

TITLE OF PROJECT: **Investigation of Entrepreneurial Orientation Measurement**

My name is Sheryllynn Roberts, and work in the Department of Management in the College of Business Administration here at UTA.

I am working on a study about the types of surveys we use in entrepreneurship research, and the ways that people think about the surveys.

There are several surveys about entrepreneurship-- some are long, some are short. I am trying to understand how they can be better used, reduced in size, made more clear for the people who are answering them, and how we can use the information better for understanding and teaching about entrepreneurship.

I need your honest and thoughtful feedback on these surveys. Your feedback will help improve the surveys for research and teaching.

I have compiled four surveys, and after each one I have a list of feedback questions.

What I ask you to do is to go through each survey, then answer the feedback questions that follow each one.

For example, go through survey 1, and then answer the feedback questions following survey 1.
[investigator shows the first survey page and feedback questions following]
Then proceed to survey 2, go through it, answer the feedback questions after survey 2, and so forth.

After you have done this for the four surveys, there are some questions about you and how you prefer to think about and learn about entrepreneurship.

I am handing these surveys out to you now. I ask that you bring back the completed surveys to class. I will pick them up from your instructor.

There is a consent form that I have signed, which you can keep.
[investigator shows the signed loose consent sheet]
There is a consent form that is stapled to the survey which you will need to sign and turn in with the survey.
[investigator shows the stapled consent sheet and survey]

If you have any questions, I can answer them now, or you may email me at sroberts@uta.edu.

Thank you for your feedback and participation, which will be an important contribution to better understanding about this topic.

****

SURVEY QUESTION DESCRIPTIONS

"Likert" questions use numbers to register your agreement or disagreement with a statement.

The following questions use a two pole "likert" answer.
They are designed to read both sides and select a number that is close to a choice.

Example 1:

I prefer to		
Stay at home and read a good book	1 2 3 4 5 6 7 8 9 10	Go out and play sports
Color coordinate clothes and fashion accessories	1 2 3 4 5 6 7 8 9 10	wear comfortable clothes, even if they don't match
Cook and eat nutritional rounded meals	1 2 3 4 5 6 7 8 9 10	eat out, fast food is fine, I don't cook

Choose closer to 1 for the answer on the left side *Choose closer to 10 for the answer on the right side*

The following questions use a single pole "likert" answer.
They are designed to select a number that is more or less of a choice.

Example 2:

	Definitely False	1 2 3 4 5 6 7 8 9 10	Definitely True
Sports are my favorite pastime		1 2 3 4 5 6 7 8 9 10	
I plan to play in professional sports		1 2 3 4 5 6 7 8 9 10	
I am able to referee or coach sports		1 2 3 4 5 6 7 8 9 10	

Choose closer to 1 if you disagree with the statement and closer to 10 if you agree

****

INSTRUCTIONS

There are four entrepreneurship surveys in this packet. After each survey is a feedback box with questions.

After the surveys are questions about you, and about your preferences for making decisions and for learning.

After you go through each survey please answer the feedback questions in the box that follows it. When you are done with the surveys and the four boxed feedback questions, answer the questions at the end of the packet that are about how you prefer to think and learn about entrepreneurship.

You may write any comments or other feedback anywhere in the survey packet. You may underline questions that seem like duplicates, that are hard to understand or that have confusing wording.

Remember there is no "right" or "wrong" answer. Your thoughtful and thorough feedback will help in understanding better design for and teaching about these surveys in entrepreneurship. Thank you very much!

****

Feedback Questions:

1.2 The business status I had in mind was: a) a start-up/reorganizing b) well established

1.3 I answered as a(n): a) owner b) manager/supervisor c) employee

1.4 The survey asked more about attributes of:
a) myself b) the organization-internal c) the company-external

****

Survey A

1. The business team:
Supports the efforts of individuals and/or teams that work autonomously

Requires individuals and teams to rely on a leader to guide the work

2. In general, the leadership of the business believes that:
The best results occur when individuals and/or teams decide for themselves what business opportunities to pursue.

The best results occur when the leadership provides the primary impetus for pursuing business opportunities.

3. In the business:
Individuals and/or teams pursuing business opportunities make decisions on their own without constantly referring to their leadership.

Individuals and/or teams pursuing business opportunities are expected to obtain approval from their leadership before making decisions.

4. In the business:
A project leader plays a major role in identifying and selecting the entrepreneurial opportunities the team pursues

Team member initiatives and input play a major role in identifying and selecting the entrepreneurial opportunities the team pursue

****

Survey B

1.Strategic Orientation

Efficient use of available, controlled resources	Pursuit of perceived opportunity
Resources influence strategy	Opportunities influence strategy

2. Resource Orientation

Use of owned/controlled resources	Use of co-opted, rented or borrowed resources
More important: have Money	More important: have Idea
Heavy invest/use	Stages of commitment

3. Management Structure

Control, formal systems, procedures, norms	Loose, informal relations, adaptation, action
Job description	Situation, personality

4. Reward Philosophy

Compensation: responsibility	Compensation: value added
Pay scale and annual raises	Benefit from firm value

5. Growth Orientation

Growth, big fast	Survival, sure steady

6. Entrepreneurial Culture

More ideas than resources	More resources than ideas
Many ideas from society/change	Few ideas from society/change
Ideas convert to profits	Management convert to profits

****

Survey C

In general, our team favors . . .

1. A strong emphasis on the marketing of tried-and-true products or services	A strong emphasis on R&D, technological leadership, and innovations

2. How many new lines of products or services will your business market?

No new lines of products or services	Very many new lines of products or services

3. Changes in product or service lines have been mostly of a minor nature	Changes in product or service lines are quite dramatic

In dealing with its competitors, our business . . .

4. Typically responds to actions which competitors initiate	Typically initiates actions to which competitors then respond
5. Is very seldom the first business to introduce new products/services, administrative techniques, operating technologies, etc.	Is very often the first business to introduce new products/services administrative techniques, operating technologies, etc.
6. Typically seeks to avoid competitive clashes, preferring a 'live-and-let-live' posture	Typically adopts a very competitive, 'undo-the competitors' posture

In general, our business has . . .

7. A strong proclivity for low-risk projects (with normal and certain rates of return)	A strong proclivity for high-risk projects (with chances of very high returns)

In general, our business believes that . . .

8. Owing to the nature of the environment, it is best to explore it gradually via cautious, incremental behavior	Owing to the nature of the environment, bold, wide-ranging acts are necessary to achieve the firm's objectives

When confronted with decision-making situations involving uncertainty, my business

9. Typically adopts a cautious, 'wait and see' posture in order to minimize the probability of making costly decisions	Typically adopts a bold. aggressive posture in order to maximize the probability of exploiting potential opportunities

****

Survey D

Indicate how much you agree with each of the following statements by circling a number between “1" and "10" where "1" indicates that you strongly disagree with the statement and "10" indicates you strongly agree with the statement. A “5” indicates you only slightly disagree and a “6 " shows only slight agreement.

Work as quickly as you can, don't stop to think too deeply about any one question, but mark down your first thought.

Please answer all of the questions.

Strongly disagree Strongly agree

1) I get my biggest thrills when my work is among the best there is.
2) I seldom follow instructions unless the task I am working on is too complex.
3) I never put important matters off until a more convenient time.
4) I have always worked hard in order to be among the best in my field.
5) I feel like a total failure when my business plans don't turn out the way I think they should.
6) I feel very energetic working with innovative colleagues in a dynamic business climate.
7) I believe that concrete results are necessary in order to judge business success.
8) I create the business opportunities I take advantage of.
9) I spend a considerable amount of time making any organization I belong to function better.
10) I know that social and economic conditions will not affect my success in business.

11) I believe it is important to analyze your own weaknesses in business dealings.
12) I usually perform very well on my part of any business project I am involved with.
13) I get excited when I am able to approach tasks in unusual ways.
14) I feel very self-conscious when making business proposals.
15) I believe that in the business world the work of competent people will always be recognized.
16) I believe successful people handle themselves well at business gatherings.
17) I enjoy being able to use old business concepts in new ways.
18) I seem to spend a lot of time looking for someone who can tell me how to solve all my business problems.
19) I feel terribly restricted being tied down to tightly organized business activities, even when I am in control.
20) I often sacrifice personal comfort in order to take advantage of business opportunities.
21) I feel self-conscious when I am with very successful business people.
22) I believe that to succeed in business it is important to get along with the people you work with.
23) I do every job as thoroughly as possible.
24) To be successful I believe it is important to use your time wisely.
25) I believe that the authority I have in business is due mainly to my expertise in certain areas.
26) I believe that to be successful a businessman must spend time planning the future of his business.
27) I make a conscientious effort to get the most out of my business resources.
28) I feel uncomfortable when I'm unsure of what my business associates think of me.
29) I often put on a show to impress the people I work with.
30) I believe that one key to success in business is to not procrastinate.
31) I get a sense of pride when I do a good job on my business projects.
32) I believe that organizations which don't experience radical changes now and then tend to get stuck in a rut.
33) I feel inferior to most people I work with.
34) I think that to succeed in business these days you must eliminate inefficiencies.
35) I feel proud when I look at the results I have achieved in my business activities.
36) I feel resentful when I get bossed around at work.
37) Even though I spend some time trying to influence business events around me every day, I have had very little success.
38) I feel best about my work when I know I have followed accepted procedures.
39) Most of my time is spent working on several business ideas at the same time.
40) I believe it is more important to think about future possibilities than past accomplishments.
41) I believe that in order to succeed, one must conform to accepted business practices.
42) I believe that any organization can become more effective by employing competent people.

43) I usually delegate routine tasks after only a short period of time.
44) I will spend a considerable amount of time analyzing my future business needs before I allocate any resources.
45) I feel very good because I am ultimately responsible for my own business success.
46) I believe that to become successful in business you must spend some time every day developing new opportunities.
47) I get excited creating my own business opportunities.
48) I make it a point to do something significant and meaningful at work every day.
49) I usually take control in unstructured situations.
50) I never persist very long on a difficult job before giving up.
51) I spend a lot of time planning my business activities.
52) I believe that to arrive at a good solution to a business problem, it is important to question the assumptions made in defining the problem.
53) I often feel badly about the quality of work I do.
54) I believe it is important to continually look for new ways to do things in business.
55) I believe it is important to make a good first impression.
56) I believe that when pursuing business goals or objectives, the final result is far more important than following the accepted procedures.
57) I feel depressed when I don't accomplish any meaningful work.
58) I often approach business tasks in unique ways.
59) I believe the most important thing in selecting business associates is their competency.
60) I take an active part in community affairs so that I can influence events that affect my business.
61) I feel good when I have worked hard to improve my business.
62) I enjoy finding good solutions for problems that nobody has looked at yet.
63) I believe that to be successful a company must use business practices that may seem unusual at first glance.
64) My knack for dealing with people has enabled me to create many of my business opportunities.
65) I get a sense of accomplishment from the pursuit of my business opportunities.
66) I believe that currently accepted regulations were established for a good reason.
67) I always feel good when I make the organizations I belong to function better.
68) I get real excited when I think of new ideas to stimulate my business.
69) I believe it is important to approach business opportunities in unique ways.
70) I always try to make friends with people who may be useful in my business.
71) I usually seek out colleagues who are excited about exploring new ways of doing things.
72) I enjoy being the catalyst for change in business affairs.
73) I always follow accepted business practices in the dealings I have with others.
74) I rarely question the value of established procedures.
75) I get a thrill out of doing new, unusual things in my business affairs.

****
****

I. Questions about you:

1. What is your age? _____
2. What is your gender? (m/f) _____
3. How many years have you held a job? _____
4. How many years of college have you had? (include the current year) _____
5. Have you taken formal continuing or professional education outside of high school or college? (y/n) _____

II. Please circle either Yes or No:

1. I have been an entrepreneur in the past, but I am not currently an entrepreneur.
2. I am currently an entrepreneur.
3. I have not been an entrepreneur, but I will be an entrepreneur in the future.
4. I personally know at least one entrepreneur.

III. Please circle a number close to your choice:

Strongly Disagree Strongly Agree

1. I have a special alertness or sensitivity toward opportunities.
2. I would describe myself as "opportunistic".
3. "Seeing" potential new business opportunities does not come very naturally for me.
4. I enjoy just thinking about and/or looking for new business opportunities.
5. I often think of new business ideas when I am totally relaxed, doing something unrelated to business.

****

V. Please circle a number close to your choice:

Rarely Usually

1. I am responsible for what I achieve, through my own efforts
2. My success depends on timing, luck and chance
3. My achievements depend on helpful influence from powerful others

****

VII. What degree would you be willing to undertake each of the following in terms of a business opportunity?

Never As much as possible

(1) Spend more time in the pursuit of the opportunity
(2) Discuss the opportunity with potential investors and partners
(3) Discuss the opportunity with friends, colleagues, or advisors
(4) Seek potential partners for exploiting this opportunity
(5) Invest some of your own resources in toward the opportunity

****

APPENDIX C

DATA AND RESULTS

Frequency Table Report

Frequency Distribution of posLoA13

posLoA13	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	105	105	31.07	31.07	||||||||||
2	108	213	31.95	63.02	||||||||||
3	125	338	36.98	100.00	||||||||||||

Frequency Distribution of LoAapp14

LoAapp14	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	53	53	15.68	15.68	||||||
2	273	326	80.77	96.45	||||||||||||||||||||||||||||
3	12	338	3.55	100.00		

Frequency Distribution of posLoA23

posLoA23	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	139	139	41.49	41.49	||||||||||||||
2	101	240	30.15	71.64	||||||||||
3	95	335	28.36	100.00	||||||||||

Frequency Distribution of LoAapp24

LoAapp24	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	88	88	26.43	26.43	|||||||||
2	197	285	59.16	85.59	||||||||||||||||||||
3	48	333	14.41	100.00	|||||

Frequency Distribution of posLoA3a3

posLoA3a3	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	150	150	43.86	43.86	||||||||||||||
2	109	259	31.87	75.73	||||||||||
3	83	342	24.27	100.00	||||||||

Frequency Distribution of LoAapp3a4

LoAapp3a4	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	95	95	27.70	27.70	||||||||||
2	163	258	47.52	75.22	||||||||||||||||
3	85	343	24.78	100.00	||||||||

Frequency Distribution of posLoA63

posLoA63	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	121	121	35.80	35.80	||||||||||||
2	99	220	29.29	65.09	||||||||||
3	118	338	34.91	100.00	||||||||||||

Frequency Distribution of LoAapp64

LoAapp64	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	236	236	70.24	70.24	||||||||||||||||||||||||
2	88	324	26.19	96.43	|||||||||
3	12	336	3.57	100.00		

Frequency Distribution of age

age	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
10	2	2	0.59	0.59	|
17	1	3	0.29	0.88	|
18	6	9	1.76	2.64	|
19	17	26	4.99	7.62	|
20	20	46	5.87	13.49	||
21	32	78	9.38	22.87	|||
22	44	122	12.90	35.78	|||||
23	31	153	9.09	44.87	|||
24	31	184	9.09	53.96	|||
25	23	207	6.74	60.70	||
26	23	230	6.74	67.45	||
27	27	257	7.92	75.37	|||
28	12	269	3.52	78.89	|
29	13	282	3.81	82.70	|
30	10	292	2.93	85.63	|
31	5	297	1.47	87.10	|
32	7	304	2.05	89.15	|
33	2	306	0.59	89.74	|
34	1	307	0.29	90.03	|
35	6	313	1.76	91.79	|
36	4	317	1.17	92.96	|
37	1	318	0.29	93.26	|
38	4	322	1.17	94.43	|
39	4	326	1.17	95.60	|
40	2	328	0.59	96.19	|
42	2	330	0.59	96.77	|
44	1	331	0.29	97.07	|
46	1	332	0.29	97.36	|
47	2	334	0.59	97.95	|
48	3	337	0.88	98.83	|
53	1	338	0.29	99.12	|
54	1	339	0.29	99.41	|
55	1	340	0.29	99.71	|
56	1	341	0.29	100.00	|

Frequency Distribution of gender

gender	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	145	145	42.52	42.52	||||||||||||||||
2	196	341	57.48	100.00	||||||||||||||||||||||||

Frequency Distribution of college

college	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1	11	11	3.24	3.24	|
2	28	39	8.26	11.50	|||
3	86	125	25.37	36.87	|||||||||
4	86	211	25.37	62.24	|||||||||
5	54	265	15.93	78.17	||||||
6	40	305	11.80	89.97	||||
7	8	313	2.36	92.33	|
8	8	321	2.36	94.69	|
9	4	325	1.18	95.87	|
10	4	329	1.18	97.05	|
11	1	330	0.29	97.35	|
13	1	331	0.29	97.64	|
14	2	333	0.59	98.23	|
15	4	337	1.18	99.41	|
16	1	338	0.29	99.71	|
17	1	339	0.29	100.00	|

Frequency Distribution of tenure

<table>
<tr><th></th><th></th><th>Cumulative</th><th></th><th>Cumulative</th><th>Graph of</th></tr>
<tr><th>tenure</th><th>Count</th><th>Count</th><th>Percent</th><th>Percent</th><th>Percent</th></tr>
<tr><td>0</td><td>13</td><td>13</td><td>3.82</td><td>3.82</td><td>|</td></tr>
<tr><td>1</td><td>27</td><td>40</td><td>7.94</td><td>11.76</td><td>|||</td></tr>
<tr><td>2</td><td>30</td><td>70</td><td>8.82</td><td>20.59</td><td>|||</td></tr>
<tr><td>3</td><td>32</td><td>102</td><td>9.41</td><td>30.00</td><td>|||</td></tr>
<tr><td>4</td><td>37</td><td>139</td><td>10.88</td><td>40.88</td><td>||||</td></tr>
<tr><td>5</td><td>48</td><td>187</td><td>14.12</td><td>55.00</td><td>|||||</td></tr>
<tr><td>6</td><td>31</td><td>218</td><td>9.12</td><td>64.12</td><td>|||</td></tr>
<tr><td>7</td><td>20</td><td>238</td><td>5.88</td><td>70.00</td><td>||</td></tr>
<tr><td>8</td><td>14</td><td>252</td><td>4.12</td><td>74.12</td><td>|</td></tr>
<tr><td>9</td><td>10</td><td>262</td><td>2.94</td><td>77.06</td><td>|</td></tr>
<tr><td>10</td><td>21</td><td>283</td><td>6.18</td><td>83.24</td><td>||</td></tr>
<tr><td>11</td><td>8</td><td>291</td><td>2.35</td><td>85.59</td><td>|</td></tr>
<tr><td>12</td><td>5</td><td>296</td><td>1.47</td><td>87.06</td><td>|</td></tr>
<tr><td>13</td><td>2</td><td>298</td><td>0.59</td><td>87.65</td><td>|</td></tr>
<tr><td>14</td><td>8</td><td>306</td><td>2.35</td><td>90.00</td><td>|</td></tr>
<tr><td>15</td><td>9</td><td>315</td><td>2.65</td><td>92.65</td><td>|</td></tr>
<tr><td>16</td><td>1</td><td>316</td><td>0.29</td><td>92.94</td><td>|</td></tr>
<tr><td>17</td><td>2</td><td>318</td><td>0.59</td><td>93.53</td><td>|</td></tr>
<tr><td>18</td><td>2</td><td>320</td><td>0.59</td><td>94.12</td><td>|</td></tr>
<tr><td>19</td><td>4</td><td>324</td><td>1.18</td><td>95.29</td><td>|</td></tr>
<tr><td>20</td><td>4</td><td>328</td><td>1.18</td><td>96.47</td><td>|</td></tr>
<tr><td>21</td><td>2</td><td>330</td><td>0.59</td><td>97.06</td><td>|</td></tr>
<tr><td>22</td><td>2</td><td>332</td><td>0.59</td><td>97.65</td><td>|</td></tr>
<tr><td>23</td><td>1</td><td>333</td><td>0.29</td><td>97.94</td><td>|</td></tr>
<tr><td>24</td><td>1</td><td>334</td><td>0.29</td><td>98.24</td><td>|</td></tr>
<tr><td>25</td><td>1</td><td>335</td><td>0.29</td><td>98.53</td><td>|</td></tr>
<tr><td>30</td><td>3</td><td>338</td><td>0.88</td><td>99.41</td><td>|</td></tr>
<tr><td>31</td><td>1</td><td>339</td><td>0.29</td><td>99.71</td><td>|</td></tr>
<tr><td>33</td><td>1</td><td>340</td><td>0.29</td><td>100.00</td><td>|</td></tr>
</table>

Frequency Distribution of training

<table>
<tr><th></th><th></th><th>Cumulative</th><th></th><th>Cumulative</th><th>Graph of</th></tr>
<tr><th>training</th><th>Count</th><th>Count</th><th>Percent</th><th>Percent</th><th>Percent</th></tr>
<tr><td>1</td><td>123</td><td>123</td><td>36.50</td><td>36.50</td><td>||||||||||||||</td></tr>
<tr><td>2</td><td>214</td><td>337</td><td>63.50</td><td>100.00</td><td>|||||||||||||||||||||||||</td></tr>
</table>

Frequency Distribution of past

<table>
<tr><th></th><th></th><th>Cumulative</th><th></th><th>Cumulative</th><th>Graph of</th></tr>
<tr><th>past</th><th>Count</th><th>Count</th><th>Percent</th><th>Percent</th><th>Percent</th></tr>
<tr><td>1</td><td>55</td><td>55</td><td>16.18</td><td>16.18</td><td>||||||</td></tr>
<tr><td>2</td><td>285</td><td>340</td><td>83.82</td><td>100.00</td><td>|||||||||||||||||||||||||||||||||</td></tr>
</table>

Frequency Distribution of now

<table>
<tr><th></th><th></th><th>Cumulative</th><th></th><th>Cumulative</th><th>Graph of</th></tr>
<tr><th>now</th><th>Count</th><th>Count</th><th>Percent</th><th>Percent</th><th>Percent</th></tr>
<tr><td>1</td><td>42</td><td>42</td><td>12.35</td><td>12.35</td><td>||||</td></tr>
<tr><td>2</td><td>298</td><td>340</td><td>87.65</td><td>100.00</td><td>|||||||||||||||||||||||||||||||||||</td></tr>
</table>

Frequency Distribution of willbe

<table>
<tr><th></th><th></th><th>Cumulative</th><th></th><th>Cumulative</th><th>Graph of</th></tr>
<tr><th>willbe</th><th>Count</th><th>Count</th><th>Percent</th><th>Percent</th><th>Percent</th></tr>
<tr><td>1</td><td>156</td><td>156</td><td>46.29</td><td>46.29</td><td>||||||||||||||||||</td></tr>
<tr><td>2</td><td>181</td><td>337</td><td>53.71</td><td>100.00</td><td>|||||||||||||||||||||</td></tr>
</table>

Frequency Distribution of know

<table>
<tr><th></th><th></th><th>Cumulative</th><th></th><th>Cumulative</th><th>Graph of</th></tr>
<tr><th>know</th><th>Count</th><th>Count</th><th>Percent</th><th>Percent</th><th>Percent</th></tr>
<tr><td>1</td><td>296</td><td>296</td><td>87.57</td><td>87.57</td><td>|||||||||||||||||||||||||||||||||||</td></tr>
<tr><td>2</td><td>42</td><td>338</td><td>12.43</td><td>100.00</td><td>||||</td></tr>
</table>

Frequency Distribution of LifA2cat

LifA2cat	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
0	213	213	62.46	62.46	||||||||||||||||||||||||||
1	128	341	37.54	100.00	||||||||||||||

Frequency Distribution of LoAA34cat

LoAA34cat	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
0	230	230	66.86	66.86	||||||||||||||||||||||||||
1	114	344	33.14	100.00	||||||||||||

Frequency Distribution of LifB2cat

LifB2cat	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
0	182	182	53.85	53.85	||||||||||||||||||
1	156	338	46.15	100.00	||||||||||||||||

Frequency Distribution of LoAB34cat

LoAB34cat	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
0	239	239	69.48	69.48	||||||||||||||||||||||||||
1	105	344	30.52	100.00	||||||||||

Frequency Distribution of LifC2cat

LifC2cat	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
0	195	195	56.85	56.85	||||||||||||||||||||
1	148	343	43.15	100.00	||||||||||||||||

Frequency Distribution of LoAC34cat

LoAC34cat	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
0	237	237	68.90	68.90	||||||||||||||||||||||||||
1	107	344	31.10	100.00	||||||||||

Frequency Distribution of LifD2cat

LifD2cat	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
0	225	225	66.37	66.37	||||||||||||||||||||||||||
1	114	339	33.63	100.00	||||||||||||

Frequency Distribution of LoAD34cat

LoAD34cat	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
0	228	228	66.28	66.28	||||||||||||||||||||||||||
1	116	344	33.72	100.00	||||||||||||

Frequency Distribution of rseetran

rseetran	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
Up To 1	19	19	5.56	5.56	||
1 To 2	16	35	4.68	10.23	|
2 To 3	22	57	6.43	16.67	||
3 To 4	26	83	7.60	24.27	|||
4 To 5	25	108	7.31	31.58	||
5 To 6	50	158	14.62	46.20	|||||
6 To 7	51	209	14.91	61.11	|||||
7 To 8	67	276	19.59	80.70	|||||||
8 To 9	34	310	9.94	90.64	|||
9 To 10	30	340	8.77	99.42	|||
Over 10	2	342	0.58	100.00	|

Frequency Distribution of oppt

oppt	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
Up To 1	6	6	1.76	1.76	|
1 To 2	4	10	1.17	2.93	|
2 To 3	7	17	2.05	4.99	|
3 To 4	10	27	2.93	7.92	|
4 To 5	20	47	5.87	13.78	||
5 To 6	27	74	7.92	21.70	|||
6 To 7	48	122	14.08	35.78	|||||
7 To 8	81	203	23.75	59.53	||||||||
8 To 9	67	270	19.65	79.18	|||||||
9 To 10	71	341	20.82	100.00	|||||||

Frequency Distribution of enjoy

enjoy	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
Up To 1	17	17	5.00	5.00	||
1 To 2	7	24	2.06	7.06	|
2 To 3	15	39	4.41	11.47	|
3 To 4	20	59	5.88	17.35	||
4 To 5	25	84	7.35	24.71	||
5 To 6	29	113	8.53	33.24	|||
6 To 7	44	157	12.94	46.18	|||||
7 To 8	63	220	18.53	64.71	||||||
8 To 9	60	280	17.65	82.35	||||||
9 To 10	60	340	17.65	100.00	||||||

Frequency Distribution of relax

relax	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
Up To 1	17	17	5.01	5.01	||
1 To 2	14	31	4.13	9.14	|
2 To 3	22	53	6.49	15.63	||
3 To 4	23	76	6.78	22.42	||
4 To 5	23	99	6.78	29.20	||
5 To 6	39	138	11.50	40.71	|||
6 To 7	49	187	14.45	55.16	|||||
7 To 8	47	234	13.86	69.03	|||||
8 To 9	48	282	14.16	83.19	|||||
9 To 10	57	339	16.81	100.00	|||||

Frequency Distribution of AlertAve

AlertAve	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
2 To 3	11	11	3.23	3.23	|
3 To 4	13	24	3.81	7.04	|
4 To 5	22	46	6.45	13.49	||
5 To 6	37	83	10.85	24.34	||||
6 To 7	68	151	19.94	44.28	|||||||
7 To 8	88	239	25.81	70.09	|||||||||
8 To 9	69	308	20.23	90.32	||||||||
9 To 10	33	341	9.68	100.00	|||

Frequency Distribution of effort

effort	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
Up To 1	5	5	1.50	1.50	|
1 To 2	4	9	1.20	2.69	|
2 To 3	1	10	0.30	2.99	|
3 To 4	1	11	0.30	3.29	|
4 To 5	3	14	0.90	4.19	|
5 To 6	11	25	3.29	7.49	|
6 To 7	28	53	8.38	15.87	|||
7 To 8	60	113	17.96	33.83	||||||
8 To 9	81	194	24.25	58.08	||||||||
9 To 10	140	334	41.92	100.00	||||||||||||||

Frequency Distribution of rchatran

rchatran	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
Up To 1	13	13	3.89	3.89	|
1 To 2	15	28	4.49	8.38	|
2 To 3	31	59	9.28	17.66	|||
3 To 4	45	104	13.47	31.14	|||||
4 To 5	42	146	12.57	43.71	|||||
5 To 6	30	176	8.98	52.69	|||
6 To 7	48	224	14.37	67.07	|||||
7 To 8	43	267	12.87	79.94	|||||
8 To 9	42	309	12.57	92.51	|||||
9 To 10	25	334	7.49	100.00	||

Frequency Distribution of rothtan

rothtan	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
Up To 1	28	28	8.38	8.38	|||
1 To 2	23	51	6.89	15.27	||
2 To 3	53	104	15.87	31.14	|||||
3 To 4	60	164	17.96	49.10	||||||
4 To 5	49	213	14.67	63.77	|||||
5 To 6	39	252	11.68	75.45	||||
6 To 7	27	279	8.08	83.53	|||
7 To 8	24	303	7.19	90.72	||
8 To 9	20	323	5.99	96.71	||
9 To 10	11	334	3.29	100.00	|

Frequency Distribution of LoConAve

LoConAve	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1 To 2	1	1	0.30	0.30	|
2 To 3	4	5	1.20	1.50	|
3 To 4	12	17	3.59	5.09	|
4 To 5	39	56	11.68	16.77	||||
5 To 6	83	139	24.85	41.62	||||||||
6 To 7	88	227	26.35	67.96	|||||||||
7 To 8	56	283	16.77	84.73	|||||
8 To 9	37	320	11.08	95.81	||||
9 To 10	14	334	4.19	100.00	|

Frequency Distribution of time

time	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
Up To 1	6	6	1.82	1.82	|
1 To 2	6	12	1.82	3.65	|
2 To 3	11	23	3.34	6.99	|
3 To 4	7	30	2.13	9.12	|
4 To 5	17	47	5.17	14.29	||
5 To 6	26	73	7.90	22.19	|||
6 To 7	61	134	18.54	40.73	||||||
7 To 8	92	226	27.96	68.69	||||||||||
8 To 9	49	275	14.89	83.59	|||||
9 To 10	54	329	16.41	100.00	|||||

Frequency Distribution of formal

formal	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
Up To 1	1	1	0.30	0.30	|
1 To 2	3	4	0.91	1.22	|
2 To 3	12	16	3.65	4.86	|
3 To 4	16	32	4.86	9.73	|
4 To 5	18	50	5.47	15.20	||
5 To 6	29	79	8.81	24.01	|||
6 To 7	49	128	14.89	38.91	|||||
7 To 8	83	211	25.23	64.13	|||||||||
8 To 9	65	276	19.76	83.89	||||||
9 To 10	53	329	16.11	100.00	|||||

Frequency Distribution of informal

informal	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
Up To 1	3	3	0.91	0.91	|
1 To 2	4	7	1.22	2.13	|
2 To 3	6	13	1.83	3.96	|
3 To 4	13	26	3.96	7.93	|
4 To 5	18	44	5.49	13.41	||
5 To 6	15	59	4.57	17.99	|
6 To 7	49	108	14.94	32.93	|||||
7 To 8	80	188	24.39	57.32	||||||||
8 To 9	66	254	20.12	77.44	|||||||
9 To 10	74	328	22.56	100.00	||||||||

Frequency Distribution of partner

partner	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
Up To 1	6	6	1.83	1.83	|
1 To 2	3	9	0.91	2.74	|
2 To 3	15	24	4.57	7.32	|
3 To 4	15	39	4.57	11.89	|
4 To 5	18	57	5.49	17.38	||
5 To 6	31	88	9.45	26.83	|||
6 To 7	44	132	13.41	40.24	|||||

7 To 8	75	207	22.87	63.11	|||||||
8 To 9	64	271	19.51	82.62	|||||||
9 To 10	57	328	17.38	100.00	||||||

Frequency Distribution of invest

invest	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
Up To 1	6	6	1.82	1.82		
1 To 2	10	16	3.04	4.86		
2 To 3	12	28	3.65	8.51		
3 To 4	11	39	3.34	11.85		
4 To 5	21	60	6.38	18.24	||
5 To 6	15	75	4.56	22.80		
6 To 7	49	124	14.89	37.69	|||||
7 To 8	58	182	17.63	55.32	|||||||
8 To 9	63	245	19.15	74.47	|||||||
9 To 10	84	329	25.53	100.00	|||||||||

Frequency Distribution of ActLkAve

ActLkAve	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
Up To 1	1	1	0.30	0.30		
1 To 2	1	2	0.30	0.61		
2 To 3	4	6	1.22	1.82		
3 To 4	9	15	2.74	4.56		
4 To 5	10	25	3.04	7.60		
5 To 6	32	57	9.73	17.33	|||
6 To 7	51	108	15.50	32.83	||||||
7 To 8	85	193	25.84	58.66	|||||||||
8 To 9	79	272	24.01	82.67	||||||||
9 To 10	57	329	17.33	100.00	||||||

Frequency Distribution of AlLoAct

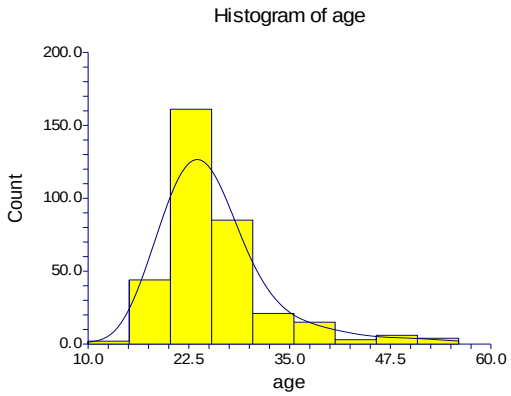
AlLoAct	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
2 To 3	1	1	0.31	0.31		
3 To 4	4	5	1.23	1.54		
4 To 5	10	15	3.08	4.62		
5 To 6	39	54	12.00	16.62	||||
6 To 7	106	160	32.62	49.23	||||||||||||
7 To 8	102	262	31.38	80.62	||||||||||||
8 To 9	54	316	16.62	97.23	||||||
9 To 10	9	325	2.77	100.00		

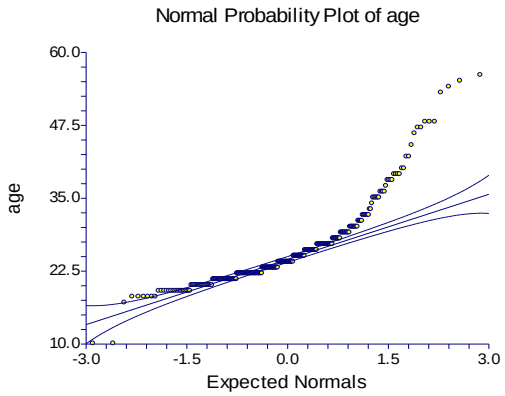
Frequency Distribution of OppaAct

OppaAct	Count	Cumulative Count	Percent	Cumulative Percent	Graph of Percent
1 To 2	1	1	0.30	0.30		
2 To 3	4	5	1.22	1.52		
3 To 4	6	11	1.83	3.35		
4 To 5	27	38	8.23	11.59	|||
5 To 6	35	73	10.67	22.26	||||
6 To 7	84	157	25.61	47.87	|||||||||
7 To 8	98	255	29.88	77.74	||||||||||
8 To 9	59	314	17.99	95.73	|||||||
9 To 10	14	328	4.27	100.00		

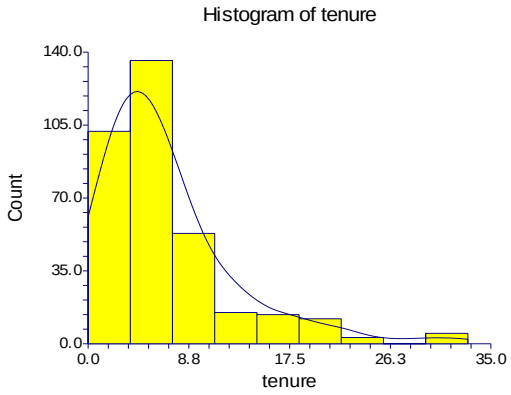
Demographics

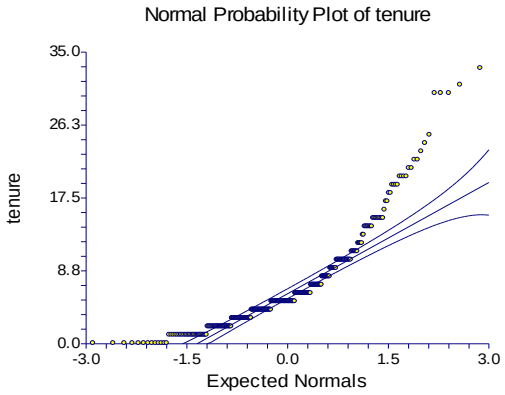
Plots Section of age



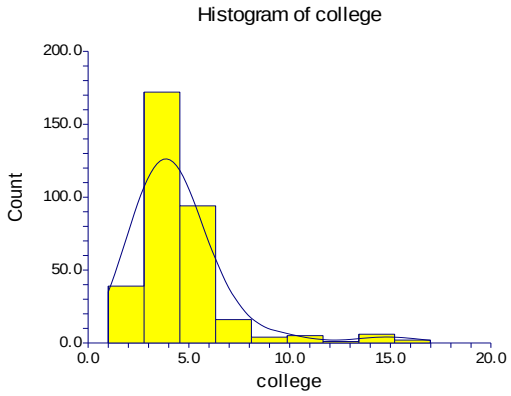


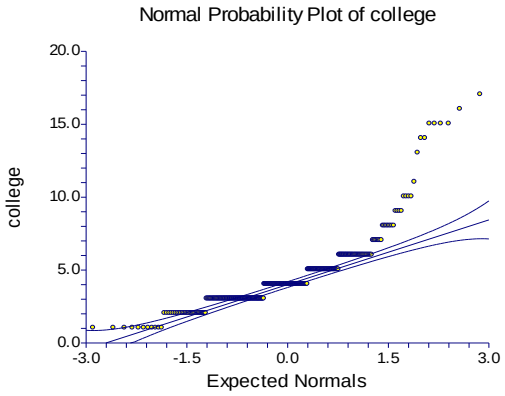
Plots Section of tenure



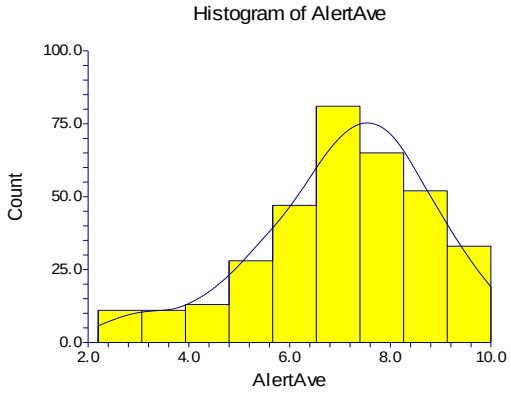


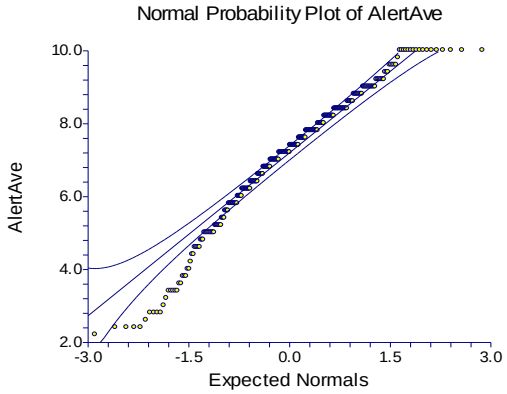
Plots Section of college



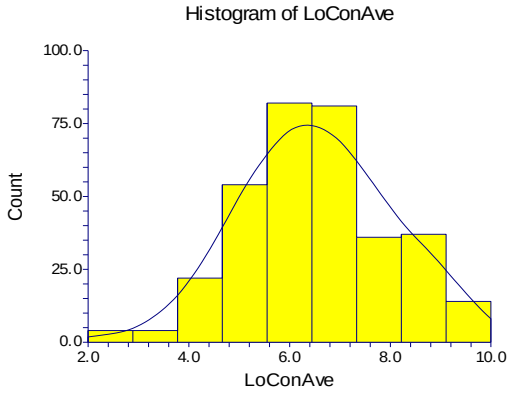


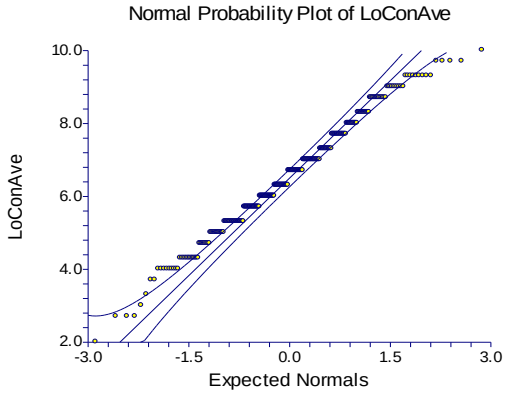
Dependent variable 1 of 3
Plots Section of AlertAve



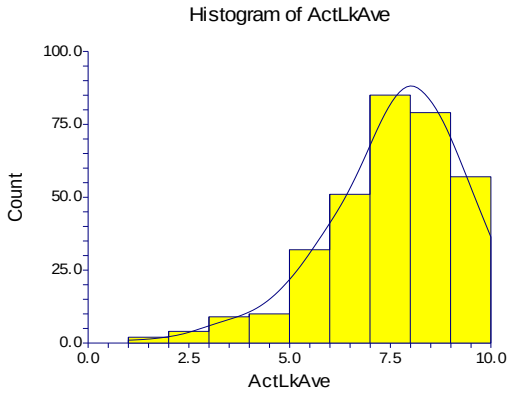


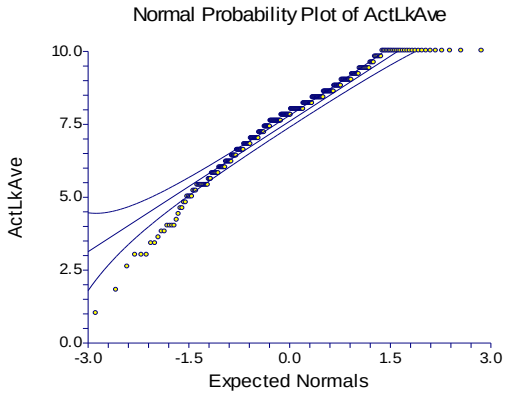
Dependent variable 2 of 3
Plots Section of LoConAve





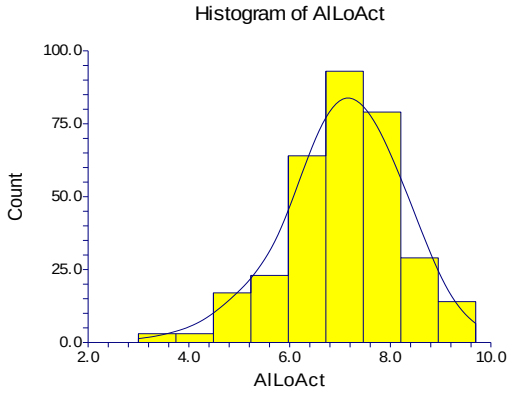
Dependent variable 3 of 3
Plots Section of ActLkAve

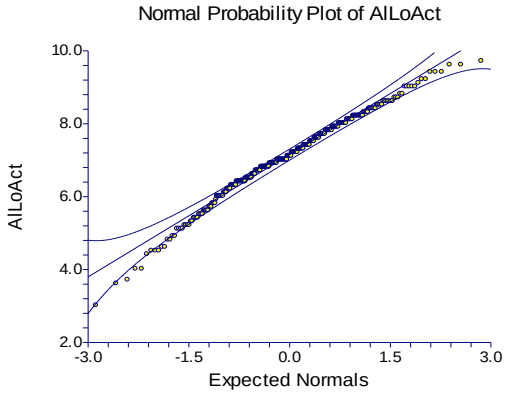




Dependent variable 1, 2, 3 of 3 summed and averaged

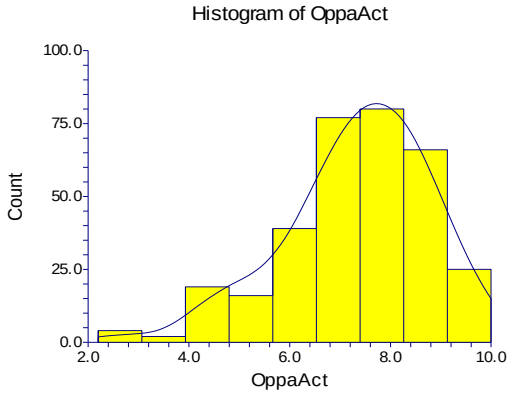
Plots Section of AlLoAct

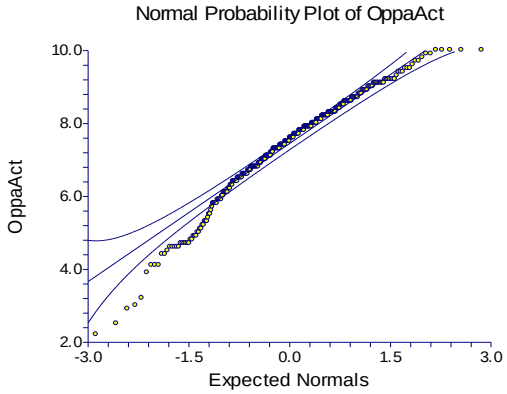




Dependent variable 1, 3 of 3 summed and averaged

Plots Section of OppaAct





NCSS TABLE 1
2way MANOVA categories with three DVs
Response AlertAve,LoConAve,ActLkAve

Analysis of Variance Table for AlertAve

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: LifA2cat	1	6.326317	6.326317	2.29	0.131154	0.326200
B: LoAA34cat	1	15.40834	15.40834	5.58	0.018821*	0.653487
C: LifB2cat	1	8.75296E-03	8.75296E-03	0.00	0.955131	0.050361
D: LoAB34cat	1	1.935409	1.935409	0.70	0.403078	0.132803
AD	1	10.78442	10.78442	3.91	0.049053*	0.504027
G: LifD2cat	1	1.541892	1.541892	0.56	0.455424	0.115584
H: LoAD34cat	1	2.187517	2.187517	0.79	0.374081	0.143900
CH	1	12.17846	12.17846	4.41	0.036569*	0.553103
GH	1	22.75635	22.75635	8.25	0.004398*	0.816373
S	280	772.7836	2.759942			
Total (Adjusted)	316	902.4479				
Total	317					

* Term significant at alpha = 0.05

Analysis of Variance Table for ActLkAve

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: LifA2cat	1	1.911979	1.911979	0.71	0.400777	0.133639
B: LoAA34cat	1	10.70339	10.70339	3.96	0.047448*	0.509714
D: LoAB34cat	1	15.91329	15.91329	5.89	0.015824*	0.677044
AD	1	10.46159	10.46159	3.87	0.050005	0.500726
S	280	755.9917	2.69997			
Total (Adjusted)	316	849.1246				
Total	317					

* Term significant at alpha = 0.05

Means and Standard Errors of AlertAve

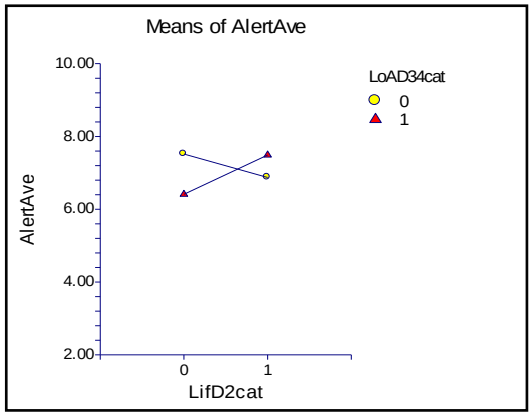
Term	Count	Mean	Standard Error
All	317	7.071625	
A: LifA2cat			
0	199	6.846566	0.1164804
1	118	7.296684	0.151265
B: LoAA34cat			
0	212	7.386837	0.1128526
1	105	6.756412	0.1603559
C: LifB2cat			
0	170	7.079795	0.1260245
1	147	7.063455	0.1355254
D: LoAB34cat			
0	220	7.184382	0.1107817
1	97	6.958868	0.1668375
E: LifC2cat			
0	183	7.277322	0.1214658
1	134	6.865927	0.1419473
F: LoAC34cat			
0	215	7.048788	0.1120625
1	102	7.094461	0.1626969
G: LifD2cat			
0	210	6.963026	0.1133887
1	107	7.180223	0.1588501
H: LoAD34cat			
0	212	7.193815	0.1128526
1	105	6.949434	0.1603559

GH: LifD2cat,LoAD34cat			
0,0	126	7.515359	0.1463842
0,1	84	6.410694	0.1792833
1,0	86	6.872272	0.1771864
1,1	21	7.488174	0.3585666

Means and Standard Errors of ActLkAve

Term	Count	Mean	Standard Error
All	317	7.500055	
B: LoAA34cat			
0	212	7.762771	0.1128526
1	105	7.237339	0.1603559
D: LoAB34cat			
0	220	7.82338	0.1107817
1	97	7.176731	0.1668375

Term(DF) Test Statistic	Test Value	DF1	DF2	F-Ratio	Prob Level (0.05)
GH(1)					
Wilks' Lambda	0.969790	3	278	2.89	0.036023Reject
Hotelling-Lawley Trace	0.031151	3	278	2.89	0.036023Reject
Pillai's Trace	0.030210	3	278	2.89	0.036023Reject
Roy's Largest Root	0.031151	3	278	2.89	0.036023Reject
AlertAve	22.756353	1	280	8.25	0.004398Reject
LoConAve	0.003133	1	280	0.00	0.970721Accept
ActLkAve	1.624585	1	280	0.60	0.438583Accept



SPSS17 TABLE 2
MANOVA categories and levels by dvs 2 3 good
*2DVs cats A B C D

AlertAve ActLkAve BY LifA2cat(0 1) LoAA34cat(0 1)

Univariate Homogeneity of Variance Tests
Variable .. AlertAve Opportunity Awareness
Cochrans C(81,4) = .29256, P = .432 (approx.)
Bartlett-Box F(3,128387) = 1.11080, P = .343

Variable .. ActLkAve Action Likelihood
Cochrans C(81,4) = .32585, P = .066 (approx.)
Bartlett-Box F(3,128387) = 2.75862, P = .041

Multivariate test for Homogeneity of Dispersion matrices
Boxs M = 13.91837
F WITH (9,263066) DF = 1.52552, P = .132 (Approx.)
Chi-Square with 9 DF = 13.73017, P = .132 (Approx.)

EFFECT .. LifA2cat BY LoAA34cat
Non-significant
EFFECT .. LoAA34cat
Multivariate Tests of Significance (S = 1, M = 0, N = 160)

Test Name	Value	Exact F	Hypoth. DF	Error DF	Sig. of F
Pillais	.02148	3.53422	2.00	322.00	.030
Hotellings	.02195	3.53422	2.00	322.00	.030
Wilks	.97852	3.53422	2.00	322.00	.030
Roys	.02148				

Note.. F statistics are exact.

Multivariate Effect Size and Observed Power at .0500 Level

TEST NAME	Effect Size	Noncent.	Power
(All)	.02148	7.06844	.66

Eigenvalues and Canonical Correlations

Root No.	Eigenvalue	Pct.	Cum. Pct.	Canon Cor.
1	.02195	100.00000	100.00000	.14656

Univariate F-tests with (1,323) D. F.

Variable	Hypoth. SS	Error SS	Hypoth. MS	Error MS	F	Sig. of F	ETA^
AlertAve	14.57655	915.43606	14.57655	2.83417	5.14315	.024	.01567
ActLkAve	14.10366	868.02314	14.10366	2.68738	5.24811	.023	.01599

Variable	Noncent.	Power
AlertAve	5.14315	.61529
ActLkAve	5.24811	.62397

Raw discriminant function coefficients

	Function No.
Variable	1
AlertAve	.34213
ActLkAve	.36122

Standardized discriminant function coefficients

	Function No.
Variable	1
AlertAve	.57597
ActLkAve	.59216

Estimates of effects for canonical variables

	Canonical Variable
Parameter	1
3	.16068

Correlations between DEPENDENT and canonical variables

	Canonical Variable
Variable	1
AlertAve	.85169
ActLkAve	.86033

EFFECT .. LifA2cat
Non-significant

AlertAve ActLkAve BY LifB2cat(0 1) LoAB34cat(0 1)

Univariate Homogeneity of Variance Tests
Variable .. AlertAve Opportunity Awareness
Cochrans C(80,4) = .29932, P = .315 (approx.)
Bartlett-Box F(3,117824) = 2.07013, P = .102

Variable .. ActLkAve Action Likelihood
Cochrans C(80,4) = .37200, P = .002 (approx.)
Bartlett-Box F(3,117824) = 3.87674, P = .009

Multivariate test for Homogeneity of Dispersion matrices
Boxs M = 19.12689
F WITH (9,176020) DF = 2.09510, P = .026 (Approx.)
Chi-Square with 9 DF = 18.85692, P = .026 (Approx.)

EFFECT .. LifB2cat BY LoAB34cat
Non-significant

EFFECT .. LoAB34cat
Non-significant

EFFECT .. LifB2cat
Non-significant

AlertAve ActLkAve BY LifC2cat(0 1) LoAC34cat(0 1)
Univariate Homogeneity of Variance Tests
Variable .. AlertAve Opportunity Awareness
Cochrans C(81,4) = .29294, P = .424 (approx.)
Bartlett-Box F(3,129303) = 1.50334, P = .211

Variable .. ActLkAve Action Likelihood
Cochrans C(81,4) = .28935, P = .501 (approx.)
Bartlett-Box F(3,129303) = 1.51223, P = .209

Multivariate test for Homogeneity of Dispersion matrices
Boxs M = 13.52706
F WITH (9,239845) DF = 1.48270, P = .148 (Approx.)
Chi-Square with 9 DF = 13.34480, P = .148 (Approx.)

EFFECT .. LifC2cat BY LoAC34cat
Non-significant

EFFECT .. LoAC34cat
Non-significant

EFFECT .. LifC2cat
Non-significant

AlertAve ActLkAve BY LifD2cat(0 1) LoAD34cat(0 1)
Univariate Homogeneity of Variance Tests
Variable .. AlertAve Opportunity Awareness
Cochrans C(80,4) = .30004, P = .303 (approx.)
Bartlett-Box F(3,70664) = .79776, P = .495

Variable .. ActLkAve Action Likelihood
Cochrans C(80,4) = .28091, P = .726 (approx.)
Bartlett-Box F(3,70664) = .31250, P = .816

Multivariate test for Homogeneity of Dispersion matrices
Boxs M = 4.40806

F WITH (9,45084) DF = .48076, P = .889 (Approx.)
Chi-Square with 9 DF = 4.32773, P = .889 (Approx.)

EFFECT .. LifD2cat BY LoAD34cat
Non-significant

EFFECT .. LoAD34cat
Non-significant

EFFECT .. LifD2cat
Non-significant
SPSS TABLE 3

UNIANOVA OppaAct BY LifA2cat LoAA34cat

Tests of Between-Subjects Effects

Dependent Variable:Change/Control Profile Score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	29.232[a]	3	9.744	4.817	.003
Intercept	14722.128	1	14722.128	7277.823	.000
LifA2cat	5.481	1	5.481	2.710	.101
LoAA34cat	14.339	1	14.339	7.088	.008
LifA2cat * LoAA34cat	7.874	1	7.874	3.892	.049
Error	653.389	323	2.023		
Total	18313.450	327			
Corrected Total	682.621	326			

a. R Squared = .043 (Adjusted R Squared = .034)

Grand Mean

Dependent Variable:Change/Control Profile Score

Mean	Std. Error	95% Confidence Interval	
		Lower Bound	Upper Bound
7.322	.086	7.153	7.491

UNIANOVA OppaAct BY posLoAB3 LoAappB4

Tests of Between-Subjects Effects

Dependent Variable:Change/Control Profile Score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	37.259[a]	8	4.657	2.336	.019
Intercept	11218.706	1	11218.706	5626.915	.000
posLoAB3	18.087	2	9.044	4.536	.011
LoAappB4	.676	2	.338	.170	.844
posLoAB3 * LoAappB4	3.601	4	.900	.451	.771
Error	606.102	304	1.994		
Total	17560.490	313			
Corrected Total	643.362	312			

a. R Squared = .058 (Adjusted R Squared = .033)

UNIANOVA OppaAct BY posLoAC3 LoAappC4

Tests of Between-Subjects Effects

Dependent Variable:Change/Control Profile Score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	61.082[a]	8	7.635	3.911	.000
Intercept	14541.446	1	14541.446	7448.389	.000
posLoAC3	26.131	2	13.065	6.692	.001
LoAappC4	7.756	2	3.878	1.986	.139
posLoAC3 * LoAappC4	16.684	4	4.171	2.136	.076
Error	620.830	318	1.952		
Total	18325.960	327			
Corrected Total	681.911	326			

a. R Squared = .090 (Adjusted R Squared = .067)

UNIANOVA OppaAct BY posLoAA3

Between-Subjects Factors

		N
A LoA Role	1	101
	2	103
	3	119

Tests of Between-Subjects Effects

Dependent Variable:Change/Control Profile Score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	46.953[a]	2	23.476	11.854	.000
Intercept	17426.923	1	17426.923	8799.692	.000
posLoAA3	46.953	2	23.476	11.854	.000
Error	633.728	320	1.980		
Total	18108.640	323			
Corrected Total	680.681	322			

a. R Squared = .069 (Adjusted R Squared = .063)

1. Grand Mean

Dependent Variable:Change/Control Profile Score

Mean	Std. Error	95% Confidence Interval	
		Lower Bound	Upper Bound
7.365	.079	7.210	7.519

Estimates

Dependent Variable:Change/Control Profile Score

A LoA Role	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
1	7.907	.140	7.631	8.182
2	7.148	.139	6.875	7.420
3	7.040	.129	6.787	7.294

Pairwise Comparisons

Dependent Variable:Change/Control Profile Score

(I) A LoA Role	(J) A LoA Role	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	.759*	.197	.000	.372	1.147
	3	.867*	.190	.000	.492	1.241
2	1	-.759*	.197	.000	-1.147	-.372
	3	.107	.189	.572	-.265	.480
3	1	-.867*	.190	.000	-1.241	-.492
	2	-.107	.189	.572	-.480	.265

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Univariate Tests

Dependent Variable:Change/Control Profile Score

	Sum of Squares	df	Mean Square	F	Sig.
Contrast	46.953	2	23.476	11.854	.000
Error	633.728	320	1.980		

The F tests the effect of A LoA Role. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

UNIANOVA OppaAct BY posLoAB3

Between-Subjects Factors

		N
B LoA Role	1	129
	2	98
	3	93

Tests of Between-Subjects Effects

Dependent Variable:Change/Control Profile Score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	38.502[a]	2	19.251	9.833	.000
Intercept	16719.275	1	16719.275	8539.920	.000
posLoAB3	38.502	2	19.251	9.833	.000
Error	620.616	317	1.958		
Total	17959.550	320			
Corrected Total	659.117	319			

a. R Squared = .058 (Adjusted R Squared = .052)

1. Grand Mean

Dependent Variable:Change/Control Profile Score

Mean	Std. Error	95% Confidence Interval	
		Lower Bound	Upper Bound
7.303	.079	7.147	7.458

Estimates

Dependent Variable:Change/Control Profile Score

B LoA Role	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
1	7.767	.123	7.524	8.009
2	7.159	.141	6.881	7.437
3	6.983	.145	6.697	7.268

Pairwise Comparisons

Dependent Variable:Change/Control Profile Score

(I) B LoA Role	(J) B LoA Role	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	.607*	.187	.001	.239	.976
	3	.784*	.190	.000	.409	1.158
2	1	-.607*	.187	.001	-.976	-.239
	3	.176	.203	.385	-.222	.575
3	1	-.784*	.190	.000	-1.158	-.409
	2	-.176	.203	.385	-.575	.222

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Univariate Tests

Dependent Variable:Change/Control Profile Score

	Sum of Squares	df	Mean Square	F	Sig.
Contrast	38.502	2	19.251	9.833	.000
Error	620.616	317	1.958		

The F tests the effect of B LoA Role. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

UNIANOVA OppaAct BY posLoAC3

Between-Subjects Factors

		N
C LoA Role	1	145
	2	102
	3	80

Tests of Between-Subjects Effects

Dependent Variable:Change/Control Profile Score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	35.040[a]	2	17.520	8.775	.000
Intercept	16288.808	1	16288.808	8158.620	.000
posLoAC3	35.040	2	17.520	8.775	.000
Error	646.871	324	1.997		
Total	18325.960	327			
Corrected Total	681.911	326			

a. R Squared = .051 (Adjusted R Squared = .046)

1. Grand Mean

Dependent Variable:Change/Control Profile Score

Mean	Std. Error	95% Confidence Interval	
		Lower Bound	Upper Bound
7.270	.080	7.111	7.428

Estimates

Dependent Variable:Change/Control Profile Score

C LoA Role	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
1	7.710	.117	7.479	7.941
2	7.095	.140	6.820	7.370
3	7.004	.158	6.693	7.315

Pairwise Comparisons

Dependent Variable:Change/Control Profile Score

(I) C LoA Role	(J) C LoA Role	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	.615*	.183	.001	.256	.974
	3	.707*	.197	.000	.319	1.094
2	1	-.615*	.183	.001	-.974	-.256
	3	.091	.211	.665	-.324	.506
3	1	-.707*	.197	.000	-1.094	-.319
	2	-.091	.211	.665	-.506	.324

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Univariate Tests

Dependent Variable:Change/Control Profile Score

	Sum of Squares	df	Mean Square	F	Sig.
Contrast	35.040	2	17.520	8.775	.000
Error	646.871	324	1.997		

The F tests the effect of C LoA Role. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

UNIANOVA OppaAct BY posLoAD3

Between-Subjects Factors

		N
D LoA Role	1	116
	2	95
	3	112

Tests of Between-Subjects Effects

Dependent Variable:Change/Control Profile Score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	34.176[a]	2	17.088	8.479	.000
Intercept	17255.222	1	17255.222	8562.458	.000
posLoAD3	34.176	2	17.088	8.479	.000
Error	644.870	320	2.015		
Total	18139.340	323			
Corrected Total	679.046	322			

a. R Squared = .050 (Adjusted R Squared = .044)

1. Grand Mean

Dependent Variable:Change/Control Profile Score

Mean	Std. Error	95% Confidence Interval	
		Lower Bound	Upper Bound
7.337	.079	7.181	7.493

Estimates

Dependent Variable:Change/Control Profile Score

D LoA Role	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
1	7.785	.132	7.526	8.045
2	7.146	.146	6.860	7.433
3	7.079	.134	6.815	7.342

Pairwise Comparisons

Dependent Variable:Change/Control Profile Score

(I) D LoA Role	(J) D LoA Role	Mean Difference (I-J)	Std. Error	Sig.[a]	95% Confidence Interval for Difference[a]	
					Lower Bound	Upper Bound
1	2	.639*	.196	.001	.253	1.025
	3	.707*	.188	.000	.337	1.077
2	1	-.639*	.196	.001	-1.025	-.253
	3	.068	.198	.732	-.322	.457
3	1	-.707*	.188	.000	-1.077	-.337
	2	-.068	.198	.732	-.457	.322

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Univariate Tests

Dependent Variable:Change/Control Profile Score

	Sum of Squares	df	Mean Square	F	Sig.
Contrast	34.176	2	17.088	8.479	.000
Error	644.870	320	2.015		

The F tests the effect of D LoA Role. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

SPSS Table 4

UNIANOVA OppaAct BY LoAA34cat

Between-Subjects Factors

		N
A LoA Match/No-Match	0	219
	1	109

Tests of Between-Subjects Effects

Dependent Variable:Change/Control Profile Score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	9.712[a]	1	9.712	4.705	.031
Intercept	15435.698	1	15435.698	7478.001	.000
LoAA34cat	9.712	1	9.712	4.705	.031
Error	672.912	326	2.064		
Total	18368.210	328			
Corrected Total	682.624	327			

a. R Squared = .014 (Adjusted R Squared = .011)

1. Grand Mean

Dependent Variable:Change/Control Profile Score

Mean	Std. Error	95% Confidence Interval	
		Lower Bound	Upper Bound
7.282	.084	7.116	7.447

Estimates

Dependent Variable:Change/Control Profile Score

A LoA Match/No-Match	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
0	7.464	.097	7.273	7.655
1	7.099	.138	6.828	7.370

Pairwise Comparisons

Dependent Variable:Change/Control Profile Score

(I) A LoA Match/No-Match	(J) A LoA Match/No-Match	Mean Difference (I-J)	Std. Error	Sig.[a]
0	1	.365*	.168	.031
1	0	-.365*	.168	.031

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Pairwise Comparisons

Dependent Variable:Change/Control Profile Score

(I) A LoA Match/No-Match	(J) A LoA Match/No-Match	95% Confidence Interval for Difference[a]	
		Lower Bound	Upper Bound
0	1	.034	.697
1	0	-.697	-.034

Based on estimated marginal means

a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Univariate Tests

Dependent Variable:Change/Control Profile Score

	Sum of Squares	df	Mean Square	F	Sig.
Contrast	9.712	1	9.712	4.705	.031
Error	672.912	326	2.064		

The F tests the effect of A LoA Match/No-Match. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

UNIANOVA OppaAct BY LoAD34cat

Between-Subjects Factors

		N
D LoA Match/No-Match	0	220
	1	108

Tests of Between-Subjects Effects

Dependent Variable:Change/Control Profile Score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	15.255[a]	1	15.255	7.452	.007
Intercept	15291.868	1	15291.868	7469.858	.000
LoAD34cat	15.255	1	15.255	7.452	.007
Error	667.369	326	2.047		
Total	18368.210	328			
Corrected Total	682.624	327			

Tests of Between-Subjects Effects

Dependent Variable:Change/Control Profile Score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	15.255[a]	1	15.255	7.452	.007
Intercept	15291.868	1	15291.868	7469.858	.000
LoAD34cat	15.255	1	15.255	7.452	.007
Error	667.369	326	2.047		
Total	18368.210	328			
Corrected Total	682.624	327			

a. R Squared = .022 (Adjusted R Squared = .019)

1. Grand Mean

Dependent Variable:Change/Control Profile Score

Mean	Std. Error	95% Confidence Interval	
		Lower Bound	Upper Bound
7.265	.084	7.099	7.430

Estimates

Dependent Variable:Change/Control Profile Score

D LoA Match/No-Match	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
0	7.494	.096	7.304	7.684
1	7.035	.138	6.764	7.306

Pairwise Comparisons

Dependent Variable:Change/Control Profile Score

(I) D LoA Match/No-Match	(J) D LoA Match/No-Match	Mean Difference (I-J)	Std. Error	Sig.[a]
0	1	.459*	.168	.007
1	0	-.459*	.168	.007

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Pairwise Comparisons

Dependent Variable:Change/Control Profile Score

(I) D LoA Match/No-Match	(J) D LoA Match/No-Match	95% Confidence Interval for Difference[a]	
		Lower Bound	Upper Bound
0	1	.128	.790
1	0	-.790	-.128

Based on estimated marginal means

a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Univariate Tests

Dependent Variable:Change/Control Profile Score

	Sum of Squares	df	Mean Square	F	Sig.
Contrast	15.255	1	15.255	7.452	.007
Error	667.369	326	2.047		

The F tests the effect of D LoA Match/No-Match. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

UNIANOVA OppaAct BY LifA2cat

Between-Subjects Factors

		N
A Change/No-Change	0	205
	1	122

Tests of Between-Subjects Effects

Dependent Variable:Change/Control Profile Score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	10.978[a]	1	10.978	5.312	.022
Intercept	16711.678	1	16711.678	8086.589	.000
LifA2cat	10.978	1	10.978	5.312	.022
Error	671.642	325	2.067		
Total	18313.450	327			
Corrected Total	682.621	326			

a. R Squared = .016 (Adjusted R Squared = .013)

1. Grand Mean

Dependent Variable:Change/Control Profile Score

Mean	Std. Error	95% Confidence Interval	
		Lower Bound	Upper Bound
7.391	.082	7.229	7.553

Estimates

Dependent Variable:Change/Control Profile Score

A Change /No-Change	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
0	7.201	.100	7.004	7.399
1	7.580	.130	7.324	7.836

Pairwise Comparisons

Dependent Variable:Change/Control Profile Score

(I) A Change /No-Change	(J) A Change /No-Change	Mean Difference (I-J)	Std. Error	Sig.[a]
0	1	-.379*	.164	.022
1	0	.379*	.164	.022

Based on estimated marginal means

*. The mean difference is significant at the .05 level.

a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Pairwise Comparisons

Dependent Variable:Change/Control Profile Score

(I) A Change /No-Change	(J) A Change /No-Change	95% Confidence Interval for Difference[a]	
		Lower Bound	Upper Bound
0	1	-.702	-.055
1	0	.055	.702

Based on estimated marginal means

a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Univariate Tests

Dependent Variable:Change/Control Profile Score

	Sum of Squares	df	Mean Square	F	Sig.
Contrast	10.978	1	10.978	5.312	.022
Error	671.642	325	2.067		

The F tests the effect of A Change/No-Change. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

UNIANOVA OppaAct BY LifB2cat

Non significant, but at .059, included for interest.

Between-Subjects Factors

		N
B Change/No-Change	0	174
	1	150

Tests of Between-Subjects Effects

Dependent Variable:Change/Control Profile Score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	7.343[a]	1	7.343	3.600	.059
Intercept	17488.085	1	17488.085	8573.944	.000
LifB2cat	7.343	1	7.343	3.600	.059
Error	656.776	322	2.040		
Total	18195.350	324			
Corrected Total	664.119	323			

a. R Squared = .011 (Adjusted R Squared = .008)

1. Grand Mean

Dependent Variable:Change/Control Profile Score

Mean	Std. Error	95% Confidence Interval	
		Lower Bound	Upper Bound
7.367	.080	7.211	7.524

Estimates

Dependent Variable:Change/Control Profile Score

B Change /No-Change	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
0	7.216	.108	7.003	7.429
1	7.518	.117	7.289	7.747

Pairwise Comparisons

Dependent Variable:Change/Control Profile Score

(I) B Change /No-Change	(J) B Change /No-Change	Mean Difference (I-J)	Std. Error	Sig.[a]
0	1	-.302	.159	.059
1	0	.302	.159	.059

Based on estimated marginal means

a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Pairwise Comparisons

Dependent Variable:Change/Control Profile Score

(I) B Change /No-Change	(J) B Change /No-Change	95% Confidence Interval for Difference[a]	
		Lower Bound	Upper Bound
0	1	-.615	.011
1	0	-.011	.615

Based on estimated marginal means

a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Univariate Tests

Dependent Variable:Change/Control Profile Score

	Sum of Squares	df	Mean Square	F	Sig.
Contrast	7.343	1	7.343	3.600	.059
Error	656.776	322	2.040		

The F tests the effect of B Change/No-Change. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

NCSS Table 5
Post Hoc 2-way MANOVA
First test

MANOVA Tests Section

Term(DF) Test Statistic	Test Value		DF1	DF2	F-Ratio	Prob Level	(0.05)
AB(4)							
Wilks' Lambda	0.954829	8	554		1.62	0.116301	Accept
Hotelling-Lawley Trace	0.046932	8	552		1.62	0.116297	Accept
Pillai's Trace	0.045530	8	556		1.62	0.116317	Accept
Roy's Largest Root	0.036690	4	278		2.55	0.039542	Reject
AlertAve	6.568633	4	278		2.53	0.041099	Reject
ActLkAve	3.232665	4	278		1.24	0.296043	Accept
C(2):posLoA63							
Wilks' Lambda	0.972066	4	554		1.98	0.096765	Accept
Hotelling-Lawley Trace	0.028662	4	552		1.98	0.096502	Accept
Pillai's Trace	0.028007	4	556		1.97	0.097038	Accept
Roy's Largest Root	0.025767	2	278		3.58	0.029124	Reject
AlertAve	6.414709	2	278		2.47	0.086706	Accept
ActLkAve	7.540203	2	278		2.88	0.057720	Accept
BC(4)							
Wilks' Lambda	0.944052	8	554		2.02	0.041896	Reject
Hotelling-Lawley Trace	0.058977	8	552		2.03	0.040571	Reject
Pillai's Trace	0.056219	8	556		2.01	0.043279	Reject
Roy's Largest Root	0.053627	4	278		3.73	0.005671	Reject
AlertAve	8.039469	4	278		3.09	0.016320	Reject
ActLkAve	6.350598	4	278		2.43	0.048199	Reject

Within Correlations\Covariances

	AlertAve	ActLkAve
AlertAve	2.600348	1.131464
ActLkAve	0.4337624	2.616654

Analysis of Variance Table for AlertAve

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)	
AB	4	26.27453	6.568633	2.53	0.041099*	0.712691	
BC	4	32.15788	8.03947	3.09	0.016320*	0.808238	
S	278	722.8967	2.600348				
Total (Adjusted)	310	885.5656					
Total	311						

* Term significant at alpha = 0.05

Analysis of Variance Table for ActLkAve

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)	
BC	4	25.40239	6.350598	2.43	0.048199*	0.692827	
S	278	727.4297	2.616654				
Total (Adjusted)	310	863.4871					
Total	311						

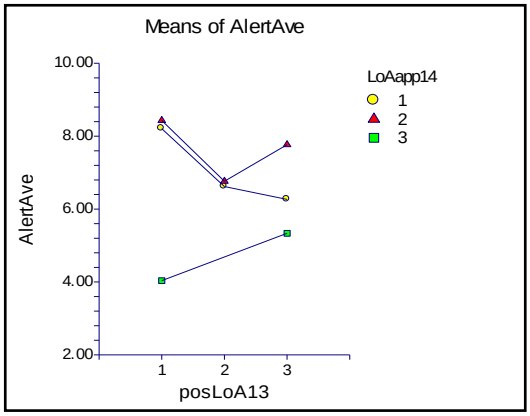
* Term significant at alpha = 0.05

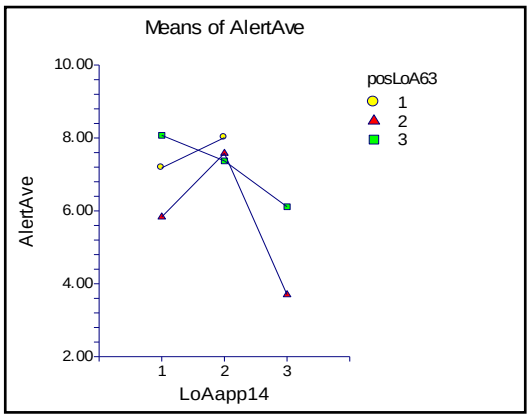
Means and Standard Errors of AlertAve

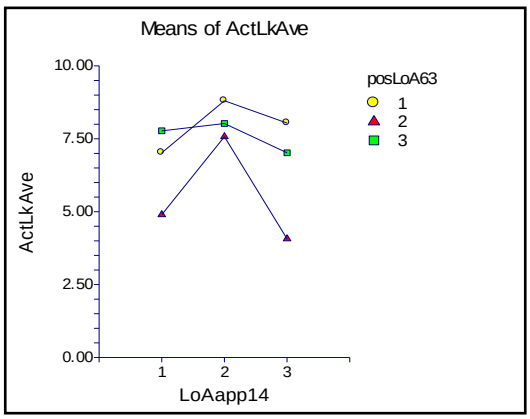
Term	Count	Mean	Standard Error
All	311	7.111616	
AB: posLoA13,LoAapp14			
1,1	23	8.204592	0.3372945
1,2	70	8.430015	0.1933411
1,3	2	4.036199	1.143821
2,1	7	6.615912	0.6113981
2,2	92	6.762432	0.1686472
2,3	3	10.59328	0.933926
3,1	18	6.263364	0.3812737
3,2	93	7.765429	0.1677381
3,3	3	5.333326	0.933926
BC: LoAapp14,posLoA63			
1,1	21	7.179542	0.3529909
1,2	13	5.832438	0.4486436
1,3	14	8.071888	0.4323238
2,1	87	8.008339	0.1734257
2,2	77	7.579288	0.1843435
2,3	91	7.37025	0.1695713
3,1	3	10.15129	0.933926
3,2	2	3.699551	1.143821
3,3	3	6.111964	0.933926

Means and Standard Errors of ActLkAve

Term	Count	Mean	Standard Error
All	311	7.022233	
BC: LoAapp14,posLoA63			
1,1	21	7.01819	0.3529909
1,2	13	4.89546	0.4486436
1,3	14	7.770684	0.4323238
2,1	87	8.800407	0.1734257
2,2	77	7.570231	0.1843435
2,3	91	8.021046	0.1695713
3,1	3	8.037348	0.933926
3,2	2	4.068356	1.143821
3,3	3	7.01838	0.933926


Means of AlertAve
10.00
8.00
6.00
4.00
2.00
AlertAve
1
2
3
posLoA13
LoAapp14
1
2
3


Means of AlertAve
10.00
8.00
6.00
4.00
2.00
AlertAve
1
2
3
LoAapp14
posLoA63
1
2
3


Means of ActLkAve
10.00
7.50
5.00
2.50
0.00
ActLkAve
1
2
3
LoAapp14
posLoA63
1
2
3

Second test

Response AlertAve,ActLkAve

MANOVA Tests Section

Term(DF) Test Statistic	Test Value	DF1	DF2	F-Ratio	Prob Level	(0.05)
A(2):posLoA13						
Wilks' Lambda	0.977872	4	586	1.65	0.160584	Accept
Hotelling-Lawley Trace	0.022620	4	584	1.65	0.159873	Accept
Pillai's Trace	0.022137	4	588	1.65	0.161311	Accept
Roy's Largest Root	0.022204	2	294	3.26	0.039627	Reject
AlertAve	8.400650	2	294	3.26	0.039895	Reject
ActLkAve	1.471270	2	294	0.57	0.568012	Accept
B(2):LoAapp14						
Wilks' Lambda	0.965341	4	586	2.61	0.034886	Reject
Hotelling-Lawley Trace	0.035635	4	584	2.60	0.035199	Reject
Pillai's Trace	0.034918	4	588	2.61	0.034577	Reject
Roy's Largest Root	0.024852	2	294	3.65	0.027091	Reject
AlertAve	5.690030	2	294	2.21	0.111947	Accept
ActLkAve	9.401072	2	294	3.62	0.027954	Reject
AB(4)						
Wilks' Lambda	0.957561	8	586	1.61	0.119980	Accept
Hotelling-Lawley Trace	0.043972	8	584	1.60	0.120163	Accept
Pillai's Trace	0.042771	8	588	1.61	0.119806	Accept
Roy's Largest Root	0.033668	4	294	2.47	0.044516	Reject
AlertAve	5.685574	4	294	2.20	0.068566	Accept
ActLkAve	4.539340	4	294	1.75	0.139344	Accept
BC(4)						
Wilks' Lambda	0.948759	8	586	1.95	0.050281	Accept
Hotelling-Lawley Trace	0.053895	8	584	1.97	0.048341	Reject
Pillai's Trace	0.051349	8	588	1.94	0.052314	Accept
Roy's Largest Root	0.051698	4	294	3.80	0.004980	Reject
AlertAve	7.709569	4	294	2.99	0.019233	Reject
ActLkAve	6.638126	4	294	2.56	0.038977	Reject

Within Correlations\Covariances

	AlertAve	ActLkAve
AlertAve	2.579205	1.137098
ActLkAve	0.4394264	2.596198

Analysis of Variance Table for AlertAve

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
A: posLoA13	2	16.8013	8.40065	3.26	0.039895*	0.617172
BC targetA,roleD	4	30.83827	7.709569	2.99	0.019233*	0.793513
S	294	758.2864	2.579205			
Total (Adjusted)	310	885.5656				
Total	311					

* Term significant at alpha = 0.05

Analysis of Variance Table for ActLkAve

Source Term	DF	Sum of Squares	Mean Square	F-Ratio	Prob Level	Power (Alpha=0.05)
B: LoAapp14	2	18.80215	9.401073	3.62	0.027954*	0.666566
BC targetA,roleD	4	26.5525	6.638126	2.56	0.038977*	0.719130
S	294	763.2823	2.596198			
Total (Adjusted)	310	863.4871				
Total	311					

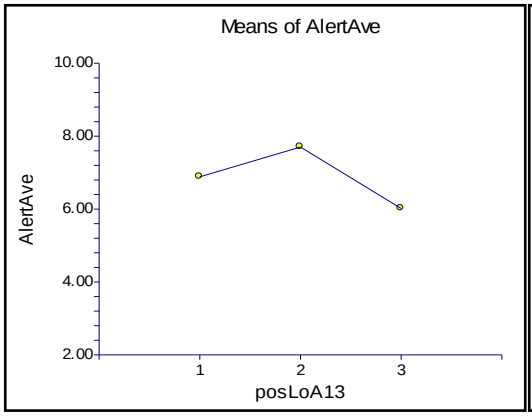
* Term significant at alpha = 0.05

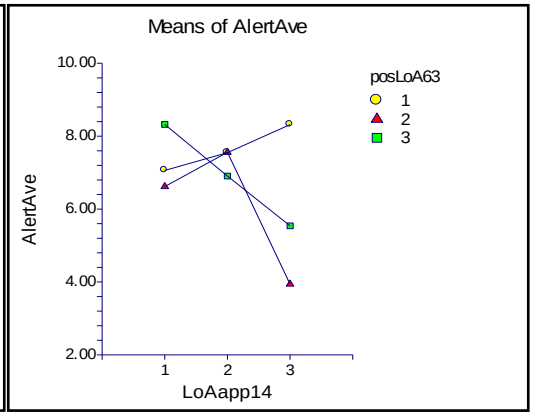
Means and Standard Errors of AlertAve

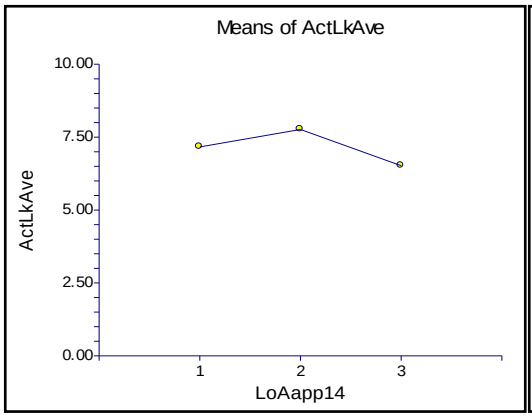
Term	Count	Mean	Standard Error
All	311	6.866127	
A: posLoA13			
1	95	6.882125	0.1653131
2	102	7.701478	0.1595397
3	114	6.014776	0.1509095
BC: LoAapp14,posLoA63			
1,1	21	7.058782	0.3516084
1,2	13	6.615781	0.4468865
1,3	14	8.320593	0.4306306
2,1	87	7.545209	0.1727465
2,2	77	7.555517	0.1836215
2,3	91	6.903811	0.1689072
3,1	3	8.314845	0.9302685
3,2	2	3.9403	1.139342
3,3	3	5.5403	0.9302685

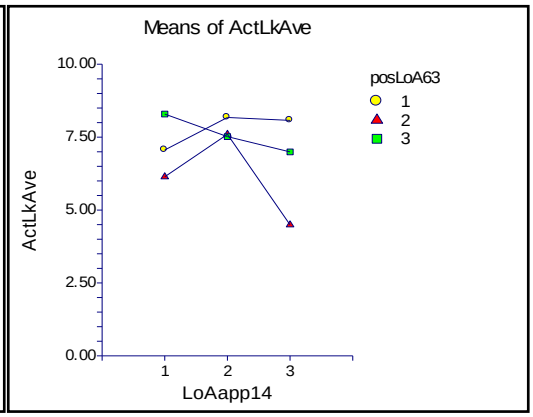
Means and Standard Errors of ActLkAve

Term	Count	Mean	Standard Error
All	311	7.147263	
B: LoAapp14			
1	48	7.161989	0.2325671
2	255	7.761232	0.1009018
3	8	6.518568	0.5696708
BC: LoAapp14,posLoA63			
1,1	21	7.057675	0.3516084
1,2	13	6.138045	0.4468865
1,3	14	8.290246	0.4306306
2,1	87	8.171849	0.1727465
2,2	77	7.595772	0.1836215
2,3	91	7.516074	0.1689072
3,1	3	8.073139	0.9302685
3,2	2	4.491282	1.139342
3,3	3	6.991282	0.9302685


Means of AlertAve
10.00
8.00
6.00
4.00
2.00
AlertAve
1
2
3
posLoA13


Means of AlertAve
10.00
8.00
6.00
4.00
2.00
AlertAve
1
2
3
LoAapp14
posLoA63
1
2
3


Means of ActLkAve
10.00
7.50
5.00
2.50
0.00
ActLkAve
1
2
3
LoAapp14


Means of ActLkAve
10.00
7.50
5.00
2.50
0.00
ActLkAve
1
2
3
LoAapp14
posLoA63
1
2
3

SPSS Table 6 Cross-tabulations
Part 1: Chi Square test of observed versus expected choice frequencies

A LoA Role

	Observed N	Expected N	Residual
1	105	169.0	-64.0
2	108	84.5	23.5
3	125	84.5	40.5
Total	338		

Test Statistics

	A LoA Role
Chi-Square(a)	50.183
df	2
Asymp. Sig.	.000

a 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 84.5.

C LoA Role

	Observed N	Expected N	Residual
1	150	171.0	-21.0
2	109	85.5	23.5
3	83	85.5	-2.5
Total	342		

Test Statistics

	C LoA Role
Chi-Square(a)	9.111
df	2
Asymp. Sig.	.011

a 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 85.5.

B LoA Role

	Observed N	Expected N	Residual
1	139	83.8	55.3
2	101	167.5	-66.5
3	95	83.8	11.3
Total	335		

Test Statistics

	B LoA Role
Chi-Square(a)	64.361
df	2
Asymp. Sig.	.000

a 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 83.8.

D LoA Role

	Observed N	Expected N	Residual
1	121	84.5	36.5
2	99	84.5	14.5
3	118	169.0	-51.0
Total	338		

Test Statistics

	D LoA Role
Chi-Square(a)	33.645
df	2
Asymp. Sig.	.000

a 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 84.5.

A LoA Target

	Observed N	Expected N	Residual
1	53	84.5	-31.5
2	273	84.5	188.5
3	12	169.0	-157.0
Total	338		

Test Statistics

	A LoA Target
Chi-Square(a)	578.095
df	2
Asymp. Sig.	.000

a 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 84.5.

C LoA Target

	Observed N	Expected N	Residual
1	95	85.8	9.3
2	163	85.8	77.3
3	85	171.5	-86.5
Total	343		

Test Statistics

	C LoA Target
Chi-Square(a)	114.219
df	2
Asymp. Sig.	.000

a 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 85.8.

B LoA Target

	Observed N	Expected N	Residual
1	88	83.3	4.8
2	197	166.5	30.5
3	48	83.3	-35.3
Total	333		

Test Statistics

	B LoA Target
Chi-Square(a)	20.784
df	2
Asymp. Sig.	.000

a 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 83.3.

D LoA Target

	Observed N	Expected N	Residual
1	236	168.0	68.0
2	88	84.0	4.0
3	12	84.0	-72.0
Total	336		

Test Statistics

	D LoA Target
Chi-Square(a)	89.429
df	2
Asymp. Sig.	.000

a 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 84.0.

Part 2: Pearson's test of associations and group differences

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
A LoA Target * A LoA Role	335	97.4%	9	2.6%	344	100.0%

A LoA Target * A LoA Role Crosstabulation

			A LoA Role			Total
			1	2	3	
A LoA Target	1	Count	25	9	19	53
		Expected Count	16.5	17.1	19.5	53.0
	2	Count	75	96	100	271
		Expected Count	84.1	87.4	99.5	271.0
	3	Count	4	3	4	11
		Expected Count	3.4	3.5	4.0	11.0
Total		Count	104	108	123	335
	Expected Count		104.0	108.0	123.0	335.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.308(a)	4	.036
Likelihood Ratio	10.510	4	.033
Linear-by-Linear Association	1.768	1	.184
N of Valid Cases	335		

a 3 cells (33.3%) have expected count less than 5. The minimum expected count is 3.41.

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
C LoA Target * C LoA Role	342	99.4%	2	.6%	344	100.0%

C LoA Target * C LoA Role Crosstabulation

			C LoA Role			Total
			1	2	3	
C LoA Target	1	Count	52	21	21	94
		Expected Count	41.2	30.0	22.8	94.0
	2	Count	60	66	37	163
		Expected Count	71.5	52.0	39.6	163.0
	3	Count	38	22	25	85
		Expected Count	37.3	27.1	20.6	85.0
Total		Count	150	109	83	342
	Expected Count		150.0	109.0	83.0	342.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	13.347(a)	4	.010
Likelihood Ratio	13.265	4	.010
Linear-by-Linear Association	2.287	1	.130
N of Valid Cases	342		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 20.63.

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
B LoA Target * B LoA Role	328	95.3%	16	4.7%	344	100.0%

B LoA Target * B LoA Role Crosstabulation

			B LoA Role			Total
			1	2	3	
B LoA Target	1	Count	46	15	25	86
		Expected Count	35.4	26.0	24.6	86.0
	2	Count	70	68	57	195
		Expected Count	80.3	58.9	55.9	195.0
	3	Count	19	16	12	47
		Expected Count	19.3	14.2	13.5	47.0
Total		Count	135	99	94	328
		Expected Count	135.0	99.0	94.0	328.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.959(a)	4	.027
Likelihood Ratio	11.508	4	.021
Linear-by-Linear Association	.947	1	.330
N of Valid Cases	328		

a 0 cells (.0%) have expected count less than 5. The minimum expected count is 13.47.

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
D LoA Target * D LoA Role	334	97.1%	10	2.9%	344	100.0%

D LoA Target * D LoA Role Crosstabulation

			D LoA Role			Total
			1	2	3	
D LoA Target	1	Count	87	64	84	235
		Expected Count	83.0	69.7	82.3	235.0
	2	Count	25	33	29	87
		Expected Count	30.7	25.8	30.5	87.0
	3	Count	6	2	4	12
		Expected Count	4.2	3.6	4.2	12.0
Total		Count	118	99	117	334
	Expected Count		118.0	99.0	117.0	334.0

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	5.266(a)	4	.261
Likelihood Ratio	5.230	4	.265
Linear-by-Linear Association	.002	1	.968
N of Valid Cases	334		

a 3 cells (33.3%) have expected count less than 5. The minimum expected count is 3.56.

REFERENCES

AAker, J. & Lee, A. 2006. Understanding regulatory fit. *Journal of Marketing Research*: 14-19.

Adler, P. S. & Kwon, S.-W. 2002. Social Capital: Prospects for a New Concept. *Academy of Management Review*, 27(1): 17-40.

Ajzen, I. 1977. Intuitive theories of events and the effects of base-rate information on prediction. *Journal of Personality and Social Psychology*, 35(5), 303-314.

Ajzen, I. 1991. Theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50: 179–211.

Andrews**,** K**.** 1971. The Concept of Corporate Strategy. Homewood, IL: R.D. Irwin.

Ansoff, H. I. 1965. Corporate Strategy: An Analytic Approach to Business Policy for. Growth and Expansion. New York: McGraw-Hill.

Ãmo, B. W. & Kolvereid, L. 2005. Organizational strategy, individual personality and innovation behavior. *Journal of Enterprising Culture*, 13(1): 7-19.

Ashforth, B. E. & Mael, F. 1989. Social Identity Theory and the Organization. *Academy of Management Review,* 14(1): 20-39.

Audretsch, D. & Monsen, E. 2008. Entrepreneurship capital: a regional, organizational, team and individual phenomenon. International Handbook of Entrepreneurship and HRM.

Austin, J. R. 2000. Knowing what and with whom other people know: linking transactive memory with external connections in organizational groups. *Academy of Management Proceedings*.

Austin, J. R. 2003. Transactive memory in organizational groups: The effects of content, consensus, specialization, and accuracy on group performance. *Journal of Applied Psychology*, 88(5): 866.

Bahaee, M. S. 1992. Strategy-Comprehensiveness Fit and Performance. *Australian Journal of Management*, 17(2): 195.

Baker, W. E. & Sinkula, J. M. 1999. The Synergistic Effect of Market Orientation and Learning Orientation on Organizational Performance. *Journal of the Academy of Marketing Science*, 27(4): 411.

Baker, W. E. & Sinkula, J. M. 2009. The Complementary Effects of Market Orientation and Entrepreneurial Orientation on Profitability in Small Businesses. *Journal of Small Business Management*, 47(4): 443-464.

Bandura, A. 1977. Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2): 191-215.

Bandura, A. 1977. Social learning theory. Oxford England: Prentice-Hall.

Barringer, B. 1995. The performance implications of achieving a fit between corporate entrepreneurship and strategic management practices. Unpublished doctoral dissertation. University of Missouri-Columbia.

Baron, R. A. 1998. Cognitive mechanisms in entrepreneurship: Why and when. *Journal of Business Venturing*, 13(4): 275.

Baron, R. A. 2004. The cognitive perspective: a valuable tool for answering entrepreneurship's basic "why" questions. *Journal of Business Venturing*, 19(2): 221.

Baron, R. A. & Ward, T. B. 2004. Expanding Entrepreneurial Cognition's Toolbox: Potential Contributions from the Field of Cognitive Science. *Entrepreneurship: Theory & Practice*, 28(6): 553-573.

Baron, R. A. 2009. Effectual versus predictive logics in entrepreneurial decision making: Differences between experts and novices: Does experience in starting new ventures change the way entrepreneurs think? Perhaps, but for now, Caution is essential. *Journal of Business Venturing*, 24(4): 310-315.

Baron, R. A. & Tang, J. 2009. Entrepreneurs' Social Skills and New Venture Performance: Mediating Mechanisms and Cultural Generality. *Journal of Management*, 35(2): 282-306.

Bazerman, M. 1984. Relevance of Kahneman and Tversky's Concept of Framing to Organizational Behavior. *Journal of Management*, 10 (3), p333-343

Begley, T. M. & Boyd, D. P. 1987. Psychological Characteristics Associated with Performance in Entrepreneurial Firms and Smaller Businesses. *Journal of Business Venturing*, 2(1): 79.

Bird, B. & Brush, C. 2002. A Gendered Perspective on Organizational Creation. *Entrepreneurship: Theory & Practice*, 26(3): 41-65.

Birley, S. 1985. The Role of Networks in the Entrepreneurial Process. *Journal of Business Venturing*, 1(1): 107.

Brenner, O. C., Pringle, C. D., & Greenhaus, J. H. 1991. Perceived fulfillment of organizational employment versus entrepreneurship: work values and career intentions of business college graduates. *Journal of Small Business Management*, 29(3): 62-74.

Brockhaus, R., 1982. The psychology of the entrepreneur. In C. Kent, D. Sexton & K. Vesper (eds), Encyclopedia of entrepreneurship (36-56). Englewood Cliffs NJ: Prentice Hall.

Brown, T. 1996. Resource orientation, entrepreneurial orientation and growth: how perception of resource availability affects small firm growth. Unpublished doctoral dissertation, Rutgers, The State University of New Jersey.

Brown, T. E., Davidsson, P., & Wiklund, J. 2001. An operationalization of Stevenson's conceptualization of entrepreneurship as opportunity-based firm behavior. *Strategic Management Journal*, 22(10): 953.

Brush, C. G., Duhaime, I. M., Gartner, W. B., Stewart, A., Katz, J. A., Hitt, M. A., Alvarez, S. A., Meyer, G. D., & Venkataraman, S. 2003. Doctoral Education in the Field of Entrepreneurship. *Journal of Management*, 29(3): 309-331.

Brush, C. G. 2008. Pioneering strategies for entrepreneurial success. *Business Horizons*, 51(1): 21-27.

Bryant, P. 2007. Self-regulation and decision heuristics in entrepreneurial opportunity evaluation and exploitation. *Management Decision*, 45(4): 732-748.

Bryant, P. 2009. Self-regulation and moral awareness among entrepreneurs. *Journal of Business Venturing*, 24(5): 505-518.

Busenitz, L., Barney, J., 1997. Differences between entrepreneurs and managers in large corporations: Biases and Heuristics in strategic decision-making. *Journal of Business Venturing*, 12(1): 22.

Burgelman, R. A. 1983. Corporate entrepreneurship and strategic management: insights from a process study. *Management Science*, 29(12): 1349-1364.

Burgelman, R. A. 1983. A Model of the Interaction of Strategic Behavior, Corporate Context, and the Concept of Strategy. *Academy of Management Review*, 8(1): 61-70.

Burgelman, R. A. 1983. A Process Model of Internal Corporate Venturing in the Diversified Major Firm. *Administrative Science Quarterly*, 28(2): 223-244.

Burt, R. 1992. Structural Holes. Cambridge, Ma. Harvard Business Press.

Cantillon, R. 1730. Essai Sur la Nature du Commerce en Général. # Essai sur la Nature du Commerce en Général (The Nature of Trade in General).

Carter, N. M., Gartner, W. B., & Reynolds, P. D. 1996. Exploring start-up event sequences. *Journal of Business Venturing*, 11(3): 151.

Cesario, J., Grant, H., & Higgins, E. T. 2004. Regulatory Fit and Persuasion: Transfer From "Feeling Right". *Journal of Personality & Social Psychology*, 86(3): 388-404.

Chadwick, K. 1998. An empirical analysis of teh relationships among entrepreneurial orientation, organizational culture and firm performance. Unpublished doctoral dissertation, Louisiana Tech University.

Chen, C. C., Greene, P. G., & Crick, A. 1998. Does entrepreneurial self-efficacy distinguish. *Journal of Business Venturing*, 13(4): 295.

Child, J. 1972. Organizational structure, environment and performance: the role of choice. *Sociology,* 6: 1-22.

Chiles, T. Meyer, A., & Hench, T. 2004. Organizational Emergence: The Origin and Transformation of Branson, Missouri's Musical Theaters. *Organization Science*, 15(5): 499-519.

Chung, Y. & Ding, C. 2002. Development of the sales locus of control scale. *Journal of Occupational and Organizational Psychology*. 75: 233-245.

Coleman, J.S. 1988. Social capital in the creation of human capital, *Journal of Sociology*, 94: S95-S120.

Conover, W. 1999. Practical Nonparametric Statistics, 3rd ed. John C. Wiley and sons, New York.

Conway, M. A. & Pleydell-Pearce, C. W. 2000. The construction of autobiographical memories in the self-memory system. *Psychological Review,* 107(2): 261-288.

Conway, M. A., Singer, J. A., & Tagini, A. 2004. The self and autobiographical memory: Correspondence and coherence. *Social Cognition*, 22(5): 491-529.

Cornelissen, J., Haslam, S., & Balmer, J. 2007. Social identity, organizational identity and corporate identity: towards an integrated understanding of processes, patternings and products. *British Journal of Management*, 18, s1-s16.

Cornelius, B., LandstrÃm, H., & Persson, O. 2006. Entrepreneurial Studies: The Dynamic Research Front of a Developing Social Science. *Entrepreneurship: Theory & Practice*, 30(3): 375-398.

Covin, J. G., & Slevin, D. P. 1986. The development and testing of an organizational-level entrepreneurship scale. In R. Ronstadt, J.A Hornaday, R. Peterson, & K.H.

Vesper (Eds.), Frontiers of Entrepreneurship Research (628-639). Wellesley, MA: Babson College.

Covin, J. G. & Slevin, D. P. 1988. The influence of organizational structure on the utility of an entrepreneurial top management style. *Journal of Management Studies*, 25(3): 217-234.

Covin, J. G. & Slevin, D. P. 1989. Strategic Management of Small Firms in Hostile and Benign Environments. *Strategic Management Journal*, 10(1): 75-87.

Covin, J. G., Prescott, J. E., & Slevin, D. P. 1990. The effects of technological sophistication on strategic profiles, structure and firm performance. *Journal of Management Studies*, 27(5): 485-510.

Covin, J. G. & Slevin, D. P. 1990. New Venture Strategic Posture, Structure, and Performance: An Industry Life Cycle Analysis. *Journal of Business Venturing*, 5(2): 123.

Covin, J. G., Slevin, D. P., & Covin, T. J. 1990. Content and Performance of Growth-Seeking Strategies: A Comparison of Small Firms in High-and Low-Technology Industries. *Journal of Business Venturing*, 5(6): 391.

Covin, J. G. & Slevin, D. P. 1991. A Conceptual Model of Entrepreneurship as Firm Behavior. *Entrepreneurship: Theory & Practice*, 16(1): 7-25.

Covin, J. G. 1991. Entrepreneurial Versus Conservative Firms: A Comparison of Strategies and Performance. *Journal of Management Studies*, 28(5): 439-462.

Covin, J. G. & Slevin, D. P. 1993. A Response to Zhara's "Critique and Extension" of the Covin-Slevin Entrepreneurship Model. *Entrepreneurship: Theory & Practice*, 17(4): 23-28.

Covin, J. O. & Miles, M. P. 1999. Corporate Entrepreneurship and the Pursuit of Competitive Advantage. *Entrepreneurship: Theory & Practice*, 23(3): 47-63.

Covin, J. G., Slevin, D. P., & Heeley, M. B. 2001. Strategic decision making in an intuitive vs. technocratic mode: structural and environmental considerations. *Journal of Business Research*, 52(1): 51-67.

Covin, J. G., Green, K. M., & Slevin, D. P. 2006. Strategic process effects on the entrepreneurial orientation-sales growth rate relationship. *Academy of Management Proceedings*.

Covin, J. G., Green, K. M., & Slevin, D. P. 2006. Strategic Process Effects on the Entrepreneurial Orientation-Sales Growth Rate Relationship. *Entrepreneurship: Theory & Practice*, 30(1): 57-81.

Cross, B., & Travaglione, A. (2003). The untold story: Is the entrepreneur of the 21st century defined by emotional intelligence? *International Journal of Organizational Analysis*, 11, 221-228.

Crossan, M. 1998. Improvisation in action. *Organization Science*, 9(5): 593-599.

Crossan, M. M., Lane, H. W., & White, R. E. 1999. An organizational learning framework: From intuition to institution. *Academy of Management Review*, 24(3): 522-537.

Datta, D. K., Rajagopalan, N., & Rasheed, A. M. A. 1991. Diversification and performance: critical review and future directions. *Journal of Management Studies*, 28(5): 529-558.

Davidsson, P. 2007. Method challenges and opportunities in the psychological study of entrepreneurship. In J.R. Baum, M. Frese, & R.A. Baron (Eds.), The psychology of entrepreneurship (287-323). Mahwah, NJ: Erlbaum.

Davidsson, P. & Wiklund, J. 2001. Levels of Analysis in Entrepreneurship Research: Current Research Practice and Suggestions for the Future. *Entrepreneurship: Theory & Practice*, 25(4): 81.

Davidsson, P. & Wiklund, J. 2009. Scott A. Shane: winner of the Global Award for Entrepreneurship Research. *Small Business Economics*, 33(2): 131-140.

Day, G. S., & Wensley, R. 1988. Assessing advantage: A framework for diagnosing competitive superiority. *Journal of Marketing*, 52(2): 1.

De Clercq, D. & Rius, I. B. 2007. Organizational Commitment in Mexican Small and Medium-Sized Firms: The Role of Work Status, Organizational Climate, and Entrepreneurial Orientation. *Journal of Small Business Management*, 45(4): 467-490.

De Martino, B., Kumaran, D., Seymour, B., & Dolan, R., 2006. Frames, biases, and rational decision making in the human brain. *Science*, 313-683.

De Neys, W., Vartanian, O., & Goel, V., 2008. Smarter than we think: when our brains detect that we are biased. *Psychological Science*. 19(5), 483.

Delmar, F. D. R. & Wiklund, J. 1998. Growth motivation and growth: untangling causal relationships. *Academy of Management Proceedings*.

De Nardi, M. Doctor, P., & Krane, S. 2007. Evidence on entrepreneurs in eth United States: Data from the 1989-2004 *Survey of Consumer Finances*. *Economic Perspectives*.

DeshpandÃ, R., Farley, J. U., & Webster Jr, F. E. 1993. Corporate Culture Customer Orientation, and Innovativeness in Japanese Firms: A Quadrad Analysis. *Journal of Marketing*, 57(1): 23-37.

Dess, G., Ireland, R., Zahra, S., Floyd, S., Janney, J., Lane, P. 2003. Emerging Issues in Corporate Entrepreneurship. *Journal of Management*, 29(3), 351-378.

Dess, G. G., Lumpkin, G. T., & Covin, J. G. 1997. Entrepreneurial strategy making and firm performance: Tests of contingency and configurational models. *Strategic Management Journal*, 18(9): 677-695.

Dess, G. G., Lumpkin, G. T., & McGee, J. 1999. Linking Corporate Entrepreneurship to Strategy, Structure, and Process: Suggested Research Directions. *Entrepreneurship Theory & Practice*, 23(3): 85-102.

Dess, G. G. & Lumpkin, G. T. 2005. The Role of Entrepreneurial Orientation in Stimulating Effective Corporate Entrepreneurship. *Academy of Management Executive*, 19(1): 147-156.

Dickson, P. H. & Weaver, K. M. 1997. Environmental determinants of alliance use. *Academy of Management Journal*, 40(2): 404-425.

DiMaggio, P. 1992. "Nadel's Paradox Revisited: Relational and cultural Aspects of Organizational Structure," in Networks and Organizations: Structure, Form, and Action. Ed. Nitin Nohria and R. G. Eccles. Boston: Harvard Business School Press, 118-142.

DiMaggio, P., Powell, W. 1983. The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields. *American Sociological Review*, 48(2), 147-160.

Dimov, D. 2007. From Opportunity Insight to Opportunity Intention: The Importance of Person-Situation Learning Match. *Entrepreneurship: Theory & Practice,* 31(4): 561-583.

Donaldson, L. 1984. Explaining structural change in organizations: contingency determinism or contingency fit. *Australian Journal of Management,* 9(2): 15.

Donaldson, L. 2000. Design Structure to Fit Strategy, Blackwell Handbook of Principles of Organizational Behavior: 291-303.

Donaldson, L. 2001. The contingency theory of organizations. Thousand Oaks, CA: Sage Publications.

Donaldson, L. 2005. Following the Scientific Method: How I Became a Committed Functionalist and Positivist. *Organization Studies* (01708406), 26(7): 1071-1088.

Dubin, R. 1978. Theory Building. The Free Press. New York.

Dutta, D. K., & Crossan, M. M. 2005. The nature of entrepreneurial opportunities: Understanding the process using the 4I organizational learning framework. *Entrepreneurship: Theory & Practice,* 29(4): 425-449.

Duttweiler, P. C. & A. 1982. Development of a new measure of locus of control in adults: The Internal Control Index. *ProQuest Information & Learning*, US.

Duttweiler, P. C. 1984. The Internal Control Index: A newly developed measure of locus of control. *Educational and Psychological Measurement*, 44(2): 209-221.

Dwairi, M. 2004. The Moderating Roles of National Culture and the Country Institutional Profiles on the Effect of Market Orientation and Entrepreneurial Orientation on the Performance of Banks in Jordan: an Empirical Investigation. Dissertation, Louisiana Tech University.

Edelman, L. F., Manolova, T. S., & Brush, C. G. 2008. Entrepreneurship Education: Correspondence Between Practices of Nascent Entrepreneurs and Textbook Prescriptions for Success. *Academy of Management Learning & Education*, 7(1): 56-70.

Eisenhardt, K. 1989. Agency theory: an assessment and review. *Academy of Management review*, 14(1), 57-74.

El Tarabishy, A., & Sashkin, M. 2007. Entrepreneurial leadership: A predictive study of the relationships among organizational entrepreneurial orientation, CEOs leadership, and organizational performance. Paper presented at the annual meeting of the Academy of Management, Philadelphia.

El Tarabishy, A., & Sashkin, M. 2008. Social entrepreneurship at the macro-level: Three lessons for success. *Innovations*, 3, 56-64.

El Tarabishy, A., & Sashkin, M. 2009. Performance outcomes of CEOs' culture-building actions mediated by entrepreneurial culture. Paper presented at the annual meeting of the Society for Industrial and Organizational Psychology, New Orleans.

El Tarabishy, A., Davidsson, P., Davis, J., Hornsby, J., Monsen, E., Pandey, A., Pollack, J., Roberts, S., Sashkin, M., Saxton, T., Wales, W., & Zolin, R. 2009. EO3: Current Research and Development on the Entrepreneurial Orientation (EO) Construct. Professional Development Workshop at the 2009 Academy of Management Annual Conference in Chicago.

Faraj, S. & Lee, S. 2000. Coordinating Expertise in Software Development Teams. *Management Science*, 46(12): 1554.

Finkle, T. A., Kuratko, D. F., & Goldsby, M. G. 2006. An examination of entrepreneurship centers in the United States: A national survey. *Journal of Small Business Management*, 44(2): 184-206.

Fischhoff, B., & Bar-Hillel, M. 1984. Diagnosticity and the base rate effect. *Memory and Cognition*, 12, 402-410.

Floyd, S. W., & Lane, P. J. (2000). Strategizing throughout the organization: Managing role conflict in strategic renewal. *Academy of Management Review*, 25(1), 154-177.

Frank, H. & Lueger, M. 1997. Reconstructing development processes: conceptual basis and empirical analysis of setting up a business. *International studies in Management and Organization*. 27(3), 34-63

Frese, M., Krauss, S. I., Keith, N., Escher, S., Grabarkiewicz, R., Luneng, S. T., Heers, C., Unger, J., & Friedrich, C. 2007. Business Owners' Action Planning and Its Relationship to Business Success in Three African Countries. *Journal of Applied Psychology*, 92(6): 1481-1498.

Forster, J., Higgins, E.T., 2005. How global versus local perception fits regulatory focus. *Psychological Science*. 16(8), 631-636

Furnham, A. & Steele, H. 1993. Measuring locus of control: A critique of general, children's, health- and work-related locus of. *British Journal of Psychology*, 84(4): 443.

Gaddam, S. 2008. Identifying the relationship between behavioral motives and entrepreneurial intentions: an empirical study based on the perceptions of management students. *The Icfaian Journal of Management Research*. 7(5), 35-55.

Gaglio, C. 2004. The Role of Mental Stimulations and Counterfactual thinking in the Opportunity Identification Process. *Entrepreneurship: Theory & Practice*. 28(6): 523-552.

Gaglio, C. M. & Katz, J. A. 2001. The psychological basis of opportunity identification: Entrepreneurial alertness. *Journal of Small Business Economics*. 16.

Gardner, H. 1983. Frames of Mind: the theory of multiple intelligences, New York: Basic Books.

Gardner, H. 1991. The Unschooled Mind. New York: Basic Books.

Garson, D. 2009. Statnotes: Topics in Multivariate Analysis. Retrieved 03/20/2010 from http://faculty.chass.ncsu.edu/garson/pa765/statnote.htm.

Gartner, W. 1985. A conceptual Framework for describing the phenomenon of new venture creation. *Academy of Management Review*. 10(4), 696-706.

Gartner, W. B. 2001. Is there an elephant in entrepreneurship? Blind assumptions in theory development. *Entrepreneurship: Theory & Practice*, 25(4): 27.

Gartner, W., Bird, B., Star, J. 1992. Acting as if: differentiating entrepreneurial from organizational behavior. *Entrepreneurship: Theory & Practice*, Spring, 13-26.

Gartner, W. B., Davidsson, P., & Zahra, S. A. 2006. Are You Talking to Me? The Nature of Community in Entrepreneurship Scholarship. *Entrepreneurship: Theory & Practice*, 30(3): 321-331.

Gartner, W. B., Shaver, K. G., Gatewood, E., & Katz, J. A. 1994. Finding the Entrepreneur in Entrepreneurship. *Entrepreneurship: Theory & Practice*, 18(3): 5-9.

Gatewood, E. J., Shaver, K. G., & Gartner, W. B. 1995. A longitudinal study of cognitive factors influencing start-up behaviors and success at venture. *Journal of Business Venturing*, 10(5): 371.

Gersick, C. J. G. 1991. Revolutionary change theories: a multilevel exploration of the punctuated equilibrium paradigm. *Academy of Management Review*, 16(1): 10-36.

Glanz, J. 1999. Action Research. Journal of Staff Development, 20(3).

Glass, G., McGraw, B., Smith, M. 1981. Meta-Analysis in Social Research. Sage Publications, Beverly Hills, CA.

Glick, W. H. 1985. Conceptualizing and Measuring Organizational and Psychological Climate: Pitfalls in Multilevel Research. *Academy of Management Review*, 10(3): 601-616.

Gorman, G., & Hanlon, D. 1997. Some research perspectives on entrepreneurship education. *International Small Business Journal*, 15(3): 56.

Gosling, J., & Mintzberg, H. 2004. The education of practicing managers. *MIT Sloan Management Review*, 45(4): 19-22.

Gosling, J., & Mintzberg, H. 2006. Management education as if both matter. *Management Learning*, 37(4): 419-428.

Granovetter, M. 1992. "Problems of Explanation in Economic Sociology," in Networks and Organizations: Structure, Form, and Action. Ed. Nitin Nohria and R. G. Eccles. Boston: Harvard Business School Press, 29-56.

Grant, H. & Higgins, E. T. 2003. Optimism, Promotion Pride, and Prevention Pride as Predictors of Quality of Life. *Personality and Social Psychology Bulletin*, 29(12): 1521-1532.

Green, K. M., Covin, J. G., & Slevin, D. P. 2008. Exploring the relationship between strategic reactiveness and entrepreneurial orientation: The role of structure-style fit. *Journal of Business Venturing*, 23(3): 356-383.

Guilford, J. 1967. The nature of human intelligence. New York: McGraw-Hill.

Gulati, R., 1995. Social Structure and Alliance Formation Patterns: A Longitudinal Analysis. *Administrative Science Quarterly*, 40(4): 619-652.

Haase, R. & Ellis, M. 1987. Multivariate Analysis of Variance. *Journal of Counseling Psychology*. 34(4): 404-413.

Hackman, J. R., 2003. Learning more by crossing levels: evidence from airplanes, hospitals, and orchestras. *Journal of Organizational Behavior*. 24, 905–922

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. 1998. Multivariate Data Analysis (5th ed.). Upper Saddle River, NJ: Pearson Education.

Hambrick, R., Geletkanycz, M., & Fredrickson, J., 1993. Top executive commitment to the staus quo: some tests of its determinants. *Strategic Management Journal*, 14(6): p401-418

Hannan, M., Freeman, J., 1977. The Population Ecology of Organizations, *American Journal of Sociology*, 82:5.

Hannan, M. Freeman, J. 1984. Structural Inertia and Organizational Change. *American Sociological Review*. 49(2): 149-164.

Hanvanich, S., Sivakumar, K., Hult, T. 2006. Relationship of learning and memory with organizational performance: the moderating role of turbulence. *Journal of the Academy of Marketing Science*. 34: 600-612.

Harrison, R. T., & Leitch, C. M. 2005. Entrepreneurial learning: Researching the interface between learning and the entrepreneurial context. *Entrepreneurship: Theory & Practice*, 29(4): 351-371.

Hao, Z., Seibert, S. E., & Hills, G. E. 2005. The Mediating Role of Self-Efficacy in the Development of Entrepreneurial Intentions. *Journal of Applied Psychology*, 90(6): 1265-1272.

Haynie, M. & Shepherd, D. A. 2009. A Measure of Adaptive Cognition for Entrepreneurship Research. *Entrepreneurship: Theory & Practice*, 33(3): 695-714.

Hayton, J. 2002. The effect of intellectual capital on entrepreneurial orientation in high technology new ventures. Unpublished doctoral dissertation, Georgia State University.

Hermans. H. 1970. A Questionnaire Measure of Achievement Motivation. *Journal of Applied Psychology*, 54(4): 353-363.

Higgins, E.T. 1998. "Promotion and prevention: regulatory focus as a motivational principle", *Advances in Experimental Social Psychology*, 30: 1-46.

Hills, G. E. & Shrader, R. C. 1998. Successful Entrepreneurs' Insights Into Opportunity Recognition. Frontiers of Entrepreneurship Research, Babson College: 30-43.

Hills, G. E. & Shrader, R. C. 1999. Successful entrepreneur's insights into opportunity recognition. Frontiers of Entrepreneurial Research, Frontiers of Entrepreneurial Research.

Hindle, K. 2002. A grounded theory for teaching entrepreneurship using simulation games. *Simulation & Gaming*, 33(2): 236.

Hisrich, R., Langan-Fox, J., & Grant, S. 2007. Entrepreneurship Research and Practice: A Call to Action for Psychology. *American Psychologist*, 62(6): 575-589.

Hofer, C. W. 1975. Toward a contingency theory of business strategy. *Academy of Management Journal*, 18(4): 784.

Hofer, C. W. & Schendel, D. 1978. Strategy formulation: Analytical concepts. St. Paul, MN: West.

Hogg, M., Terry, D., 2001. Social identity theory and organizational processes. In M. A. Hogg &D. J. Terry (eds), Social identity processes in organizational contexts (1-12). Philadelphia: Psychology Press.

Holcomb, T. R., Ireland, R. D., Holmes Jr, R. M., & Hitt, M. A. 2009. Architecture of Entrepreneurial Learning: Exploring the Link Among Heuristics, Knowledge, and Action. *Entrepreneurship: Theory & Practice*, 33(1): 167-192.

Hollingshead, A. B. 2001. Cognitive interdependence and convergent expectations in transactive memory. *Journal of Personality & Social Psychology*, 81(6): 1080-1089.

Honig, B. 2004. Entrepreneurship education: Toward a model of contingency-based business planning. *Academy of Management Learning & Education*, 3(3): 258-273.

Holt, D. T., Rutherford, M. W., & Clohessy, G. R. 2007. Corporate entrepreneurship: An empirical look at individual characteristics, context, and process. *Journal of Leadership & Organizational Studies*, 13(4): 40-54.

Hoogland, J.J., & Boomsma, A. 1998. Robustness studies in covariance structure modeling: An overview and a meta-analysis. *Sociological Methods & Research*, 26:329–367.

Hornsby, J. S., Kuratko, D. F., & Montagno, R. V. 1999. Perception of internal factors for corporate entrepreneurship: A comparison of Canadian and U.S. managers. *Entrepreneurship Theory & Practice*, 24(2): 9-24.

Hornsby, J. S., Kuratko, D. F., & Zahra, S. A. 2002. Middle managers' perception of the internal environment for corporate entrepreneurship: assessing a measurement scale. *Journal of Business Venturing*, 17(3).

Hornsby, J. S., Naffziger, D. W., Kuratko, D. F., & Montagno, R. V. 1993. An Interactive Model of the Corporate Entrepreneurship Process. *Entrepreneurship: Theory & Practice*, 17(2): 29-37.

Hult, G. T., & Ferrell, O. C. 1997. Global organizational learning capacity in purchasing: Construct and measurement. *Journal of Business Research*, 40(2): 97-111.

Hunter, J.E. & Schmidt, F.L. 2000. Fixed effects vs. random effects meta-analysis models: Implications for cumulative knowledge in psychology. *International Journal of Selection and Assessment*, 8: 275-292.

Hunter, J.E. & Schmidt, F.L. 2004. Methods of Meta-Analysis: Correcting Error and Bias in Research Findings (2nd ed.). Sage, Thousand Oaks, CA.

Ireland, R. D., Hitt, M. A., Camp, S. M., & Sexton, D. L. 2001. Integrating entrepreneurship and strategic management actions to create firm wealth. *Academy of Management Executive*, 15(1): 49-63.

Ireland, R. D., Hitt, M. A., & Sirmon, D. G. 2003. A model of strategic entrepreneurship: The construct and its dimensions. *Journal of Management*, 29(6): 963.

Ireland, R. D., Kuratko, D. F., & Covin, J. G. 2003. Antecedents, elements, and consequences of corporate entrepreneurship strategy. *Academy of Management Proceedings*, 2003, L1-L6.

Ireland, R. D., Covin, J. G., & Kuratko, D. F. 2009. Conceptualizing Corporate Entrepreneurship Strategy. *Entrepreneurship: Theory & Practice*, 33(1): 19-46.

Jain, S. & Singh, A. P. 2008. Locus of control in relation to cognitive complexity. *Journal of the Indian Academy of Applied Psychology*, 34(1): 107-113.

Jarvis, C. B., Mackenzie, S. B., Podsakoff, P. M., Mick, D. G., & Bearden, W. O. 2003. A Critical Review of Construct Indicators and Measurement Model Misspecification in Marketing and Consumer Research. *Journal of Consumer Research*, 30(2): 199-218.

Johnson, M., Morgeson, F., Ilgen, D., Meyer, C., Lloyd, J. 2006. Multiple professional identities: examining differences in identification across work-related targets. *Journal of Applied Psychology*, 91(2): 498-506.

Ju, F. 2006. Entrepreneurial discovery in promising start-ups: a cognitive analysis of principles of behavior. Unpublished doctoral dissertation. University of Pittsburgh

JosÃ Acedo, F. & Florin, J. 2006. An entrepreneurial cognition perspective on the internationalization of SMEs. *Journal of International Entrepreneurship*, 4(1): 49-67.

Kahneman, D., & Tversky, A. 1979. Prospect theory: An analysis of decision under risk. *Econometrica*, 47(2): 263-292.

Kanter, R. 1993. The Change Masters: Innovations and Entrepreneurs in the American Corporation. New York: Simon and Schuster.

Katz, J., & Gartner, W. 1988. Properties of Emerging Organizations. *Academy of Management Review.* 13(3), 429-441.

Katz, J. 1992. Secondary analysis in entrepreneurship: an introduction to databases and data management. *Journal of Small Business Management*.

Katz, J. 1993. The dynamics of organizational emergence: a contemporary group formation perspective. *Entrepreneurship: Theory & Practice*, Winter, 97-101.

Katz, J. A. 2003. The chronology and intellectual trajectory of American entrepreneurship education: 1876–1999. *Journal of Business Venturing*, 18(2): 283.

Katz, J. A. 2008. Fully mature but not fully legitimate: A different perspective on the state of entrepreneurship education. *Journal of Small Business Management*, 46(4): 550-566.

Katz, J., & Gartner, W. B. 1988. Properties of emerging organizations. *Academy of Management Review*, 13(3): 429-441.

Kayes, A. B., Kayes, D. C., & Kolb, D. A. 2005. Experiential learning in teams. *Simulation & Gaming*, 36(3): 330-354.

Kets de Vries, M. F. R. 1977. The entrepreneurial personality: A person at the crossroads. *Journal of Management Studies*, 14(1): 34-57.

Khandwalla, P. N. 1970. The influence of techno-economic environment on organizational structure of firms. Unpublished doctoral dissertation, Carnegie-Mellon University, Pittsburgh.

Khandwalla, P. N. 1972. Environment and its impact on the organization. *International Studies of Management & Organization*, 2(3): 297-313.

Khandwalla, P. N. 1973. Viable and Effective Organizational Designs of Firms. *Academy of Management Journal*, 16(3): 481-495.

Khandwalla, P. N. 1977. The design of organizations. New York: Harcourt Brace Jovanovich.

Kickul, J. & Gundry, L. 2002. Prospecting for Strategic Advantage: The Proactive Entrepreneurial Personality and Small Firm Innovation. *Journal of Small Business Management*, 40(2): 85-97.

Kilduff, M., Angelmar, R., & Mehra, A. 2000. Top Management-Team Diversity and Firm Performance: Examining the Role of Cognitions. *Organization Science*, 11(1): 21-34.

Kim, P. Aldrich, H. Keister, L. 2006. Access (not) denied: the impact of financial, human and cultural capital on entrepreneurial entry in the United States. *Small Business Economics*, 27: 5-22.

Kirzner, I. 1973. Competition and Entrepreneurship. Chicago, IL: The University of Chicago Press.

Kirzner, I. M. 1997. Entrepreneurial Discovery and the Competitive Market Process: An Austrian Approach. *Journal of Economic Literature*, 35(1): 60-85.

Kirzner, I. M. 2009. The alert and creative entrepreneur: a clarification. Small Business Economics, 32(2): 145-152.

Klein K. J. & Kozlowski, S. W. J. 2000. From micro to meso: Critical steps in conceptualizing and conducting multilevel research. *Organizational Research Methods*, 3, 211-236.

Knight, F. 1921. Risk Uncertainty and Profits, New York: Houghton Mifflin.

Knight, G. A. 1995. Educator insights: International marketing blunders by American firms in Japan--some lessons for management. *Journal of International Marketing*, 3(4): 107-129.

Knight, G. A. 1997. Firm Orientation and Strategy under Regional Market Integration: A Study of Canadian Firms. *International Executive*, 39(3): 351-374.

Knight, G. 2000. Entrepreneurship and Marketing Strategy: The SME Under Globalization. *Journal of International Marketing*, 8(2): 12-32.

Koberg, C. S., Boss, R. W., Goodman, E. A., Boss, A. D., & Monsen, E. W. 2005. Empirical Evidence of Organizational Citizenship Behavior from the Health Care Industry. *International Journal of Public Administration*, 28(5/6): 417-436.

Kogut, B. & Zander, U. 2003. A memoir and reflection: knowledge and an evolutionary theory of the multinational firm 10 years later. *Journal of International Business Studies*, 34(6): 505-515.

Kolb, D. A. 1981. Experiential Learning Theory and The Learning Style Inventory: A Reply to Freedman and Stumpf. *Academy of Management Review*, 6(2): 289-296.

Kolb, D. A. 1984. Experiential learning: Experience as the source of learning and development. Englewood Cliffs, NJ: Prentice Hall.

Kolb, D. A. 1999a. Learning style inventory, version 3. Boston: TRG Hay/McBer Training Resources Group.

Kolb, D. A. 1999b. Learning style inventory, version 3: Technical specifications. Boston: TRG Hay/McBer Training Resources Group.

Kolb, A. Y., & Kolb, D. A. 2005. Learning styles and learning spaces: Enhancing experiential learning in higher education. *Academy of Management Learning & Education*, 4(2): 193-212.

Kolvereid, L. 1996. Organizational employment versus self-employment: Reasons for career choice intentions. *Entrepreneurship: Theory & Practice*, 20(3): 23-31.

Kolvereid, L. 1996. Prediction of employment status choice intentions. *Entrepreneurship: Theory & Practice*, 21(1): 47-57.

Kolvereid, L., & Moen, O. 1997. Entrepreneurship among business graduates: Does a major in entrepreneurship make a difference? *Journal of European Industrial Training*, 21(4): 154-160.

Krauss, S. I., Frese, M., Friedrich, C., & Unger, J. M. 2005. Entrepreneurial orientation: A psychological model of success among southern African small business owners. *European Journal of Work & Organizational Psychology*, 14(3): 315-344.

Kreiser, P.M. (2004). Reconceptualizing firm-level entrepreneurship. Unpublished Dissertation: University of Alabama.

Kreiser, P. & Marino, L. 2002. Analyzing the historical development of the environmental uncertainty construct. *Management Decision*, 40(9): 895.

Kreiser, P. M., Marino, L. D., & Weaver, K. M. 2002. Assessing the Psychometric Properties of the Entrepreneurial Orientation Scale: A Multi-Country Analysis. *Entrepreneurship: Theory & Practice*, 26(4): 71.

Kreiner, G., Ashforth, B., Sluss, D. 2006. Identity dynamics in organizational dirty work: integrating social identity and system justification perspectives. *Organization Science*. 17(5): 619-636.

Kropp, F., Lindsay, N. J., & Shoham, A. 2006. Entrepreneurial, market, and learning orientations and international entrepreneurial - business venture performance in South African firms. *International Marketing Review*, 23(5): 504-523.

Kropp, F., & Zolin, R. (2008). US federal government entrepreneurship: New enterprise structures. *Journal of Small Business and Enterprise Development*, 15, 595-605.

Kropp, F., Zolin, R., & Lindsay, N. J. 2009. Identifying and Implementing Adaptive Strategies in the U.S. Military, Tom Lumpkin and Jeffrey Katz (Eds.), *Advances in Entrepreneurship Research*, Vol. 11. New York: JAI Press/Elsevier.

Krueger, N. 1993. The impact of prior entrepreneurial exposure on perceptions of new venture feasibility and desirability. *Entrepreneurship: Theory & Practice*, 18(1): 5-21.

Krueger, N. 2000. The cognitive infrastructure of opportunity emergence. *Entrepreneurship: Theory & Practice*. 24(3):5-24.

Krueger, N. F. 2007. What lies beneath? The experiential essence of entrepreneurial thinking. *Entrepreneurship: Theory & Practice*, 31(1): 123-138.

Kumar, S., Mishra, L. K., & Singh, A. P. 2004. Role of work culture and locus of control in the relationship of perceived stress and health among managerial personnel. *Journal of the Indian Academy of Applied Psychology*, 30(1-2): 28-35.

Kuratko, D. F. 2005. The emergence of entrepreneurship education: Development, trends, and challenges. *Entrepreneurship: Theory & Practice*, 29(5): 577-597.

Kuratko, D. F., Montagno, R. V., & Hornsby, J. S. 1990. Developing an intrapreneurial assessment instrument for an effective corporate entrepreneurial environment. *Strategic Management Journal*, 11(4): 49-58.

Kuratko, D., Hornsby, J., Holt, D., & Rutherford, M. 2009. Factors affecting corporate entrepreneurship activity and firm performance: an empirical examination as to whether size matters. Paper presented at the Southern Management Association Annual Conference in Asheville, NC.

Kuratko, D. F., Ireland, R. D., Covin, J. G., & Hornsby, J. S. 2005. A Model of Middle-Level Managers' Entrepreneurial Behavior. *Entrepreneurship: Theory & Practice*, 29(6): 699-716.

Kutner, M, Nachsheim, C., Neter, J., Li, W. 2005. Applied Linear Statistical Models. McGraw-Hill, New York.

Lee, A., Aaker, J., Gardner, W., 2000. The pleasures and pains of distinct self-construals: the role of interdependence in regulatory focus. *Journal of Personality and Social Psychology*. 78(6), 1122-1134.

Lee, D. Y., & Tsang, E. W. K. 2001. The effects of entrepreneurial personality, background and network activities on venture growth. *Journal of Management Studies*, 38(4): 583-602.

Lee, S. M. & Peterson, S. I. 2000. Culture, Entrepreneurial Orientation, and Global Competitiveness. *Journal of World Business*, 35(4): 401.

Lena, L. & Wong, P. 2003. Attitude towards entrepreneurship education and new venture creation. *Journal of Enterprising Culture*, 11(4): 339-357.

LePine, J., Colquitt, J. Erez, A. 2000. Adaptability to changing task contexts: effects of general cognitive ability, conscientiousness, and openness to experience. *Personnel Psychology*, 53(3): 563-593.

Levinthal, D. A., & March, J. G. 1993. The myopia of learning. *Strategic Management Journal*, 14: 95-112.

Lewis, K. 2003. Measuring transactive memory systems in the field: Scale development and validation. *Journal of Applied Psychology*, 88(4): 587-604.

Lewis, K. 2004. Knowledge and performance in knowledge-worker teams: A longitudinal study of transactive memory systems. *Management Science*, 50(11): 1519-1533.

Li, Z. 2004 Entrepreneurial alertness: an exploratory study. Unpublished doctoral dissertation, Case Western Reserve University,

Lichtenstein, B. B., Dooley, K. J., & Lumpkin, G. T. 2006. Measuring emergence in the dynamics of new venture creation. *Journal of Business Venturing*, 21(2): 153-175.

Liao, J. Welsch, H., 2005. Roles of social capital in venture creation: key dimensions and research implications. *Journal of Small Business Management*. 43(4), 345-362.

Lumpkin, G. T. & Dess, G. G. 1996. Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*, 21(1): 135-172.

Liberman, N., Trope, Y. 1998. The Role of Feasibility and Desirability Considerations in Near and Distant Future Decisions: A Test of Temporal Construal Theory. *Journal of Personality & Social Psychology*, 75(1): 5-18.

Lindsey, N. 2005. Toward a cultural model of indigenous entrepreneurial attitude. *Academy of Marketing Science Review*, 5; available on the internet at http://www.amsreview.org/articles/lindsay05-2005.pdf

Löbler, H. 2006. Learning entrepreneurship from a constructivist perspective. *Technology Analysis & Strategic Management*, 18(1): 19-38.

Lumpkin, G. 1996. The entrepreneurial orientation of new entrants: performance implications of alternative configurations of EO, environment, and structure. Unpublished Doctoral dissertation. University of Texas at Arlington.

Lumpkin, G. T., Cogliser, C. C., & Schneider, D. R. 2009. Understanding and Measuring Autonomy: An Entrepreneurial Orientation Perspective. *Entrepreneurship: Theory & Practice*, 33(1): 47-69.

Lumpkin, G. T. & Dess, G. G. 1996. Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*, 21(1): 135-172

Lumpkin, T. and Dess, G. 2001. Linking Two Dimensions of Entrepreneurial Orientation to Firm Performance: The Moderating Role of Environment and Industry Life Cycle. *Journal of Business Venturing*, 16: 429-451.

Lyon, D. W., Lumpkin, G. T., & Dess, G. G. 2000. Enhancing Entrepreneurial Orientation Research: Operationalizing and Measuring a Key Strategic Decision Making Process. *Journal of Management*, 26(5): 1055-1085.

MacKenzie, S. B., Podsakoff, P. M., & Jarvis, C. B. 2005. The Problem of Measurement Model Misspecification in Behavioral and Organizational Research and Some Recommended Solutions. *Journal of Applied Psychology*, 90(4): 710-730.

MacNamara, M., & Weekes, W. H. 1982. The action learning model of experiential learning for developing managers. *Human Relations*, 35(10): 879-102.

Mainemelis, C., Boyatzis, R. E., & Kolb, D. A. 2002. Learning styles and adaptive flexibility: Testing experiential learning theory. *Management Learning*, 33(1): 5.

March, J. G. 1991. Exploration and exploitation in organizational learning. *Organization Science*, 2(1): 71-87.

March, J. G. 2008. Three eras in Theories of Choice: a few minor ruminations of an ancient mariner. Presentation at the Academy of Management Annual Conference, Anaheim.

Matta, N. E., & Ashkenas, R. N. 2003. Why good projects fail anyway. *Harvard Business Review*, 81(9): 109-114

Mason, R. B. 2006. Coping with complexity and turbulence- an entrepreneurial solution. *Journal of Enterprising Culture*, 14(4): 241-266.

McClelland, D. C. 1965. N achievement and entrepreneurship: A longitudinal study. *Journal of Personality and Social Psychology*, 1(4): 389-392.

McClelland, D. C. 1969. The role of educational technology in developing achievement motivation. *Educational Technology*, 9(10): 7-16.

McClelland, D. C. 1976. The achieving society. (2nd ed). Oxford England: Irvington.

McKelvey, B. 1999. Complexity Theory in Organization Science: Seizing the Promise or Becoming a Fad? *Emergence*, 1(1): 5.

McKelvey, M. 1998. Evolutionary innovations: learning, entrepreneurship and the dynamics of the firm. *Journal of Evolutionary Economics*. 8:157-175.

McKelvey, M. 2000. Evolutionary innovations: the business of biotech. New York: Oxford University Press

Miles, M. P. & Arnold, D. R. 1991. The Relationship Between Marketing Orientation and Entrepreneurial Orientation. *Entrepreneurship: Theory & Practice*, 15(4): 49-65.

McNamara, R. 1986. Blundering into disaster. New York: Pantheon Books.

Miller, D. & Friesen, P. 1980. Archetypes of Organizational Transition. *Administrative Science Quarterly*, 25(2): 268-299.

Miller, D. 1983. The correlates of entrepreneurship in three types of firms. *Management Science*, 29(7).

Miller, D. 1986. Configurations of Strategy and Structure: Towards a Synthesis. *Strategic Management Journal*, 7(3): 233-249.

Miller, D. (1987). The structural and environmental correlates of business strategy. *Strategic Management Journal*. 8, 55-76.

Miller, D. 1996. Configurations revistied. *Strategic Management Journal*, 17(7): 505-512.

Minniti, M. & Bygrave, W. 2001. A dynamic model of entrepreneurial learning. *Entrepreneurship: Theory & Practice*. 25:5-16.

Mintzberg, H. 1981. Organization design: Fashion or Fit? . *Harvard Business Review*: 103-166.

Mintzberg, H., & Gosling, J. 2002. Educating managers beyond borders. *Academy of Management Learning & Education*, 1(1): 64-76.

Mueller, P. 2006. Entrepreneurship in the region: breeding ground for nascent entrepreneurs? *Small Business Economics*. 27: 41-58.

Monsen, E. W. 2005. Employees do matter: Autonomy, teamwork and corporate entrepreneurial culture. Unpublished Doctoral Dissertation, University of Colorado at Boulder.

Monsen, E. & Boss, W. R. 2009. The Impact of Strategic Entrepreneurship Inside the Organization: Examining Job Stress and Employee Retention. *Entrepreneurship: Theory & Practice*, 33(1): 71-104.

Moreno, A. M. & Casillas, J. C. 2008. Entrepreneurial Orientation and Growth of SMEs: A Causal Model. *Entrepreneurship: Theory & Practice*, 32(3): 507-528.

Morris, M. H., Coombes, S., Schindehutte, M., & Allen, J. 2007. Antecedents and outcomes of entrepreneurial and market orientations in a non-profit context: Theoretical and empirical insights. *Journal of Leadership & Organizational Studies*, 13(4): 12-39.

Moore, C. 2004. Interpreneurship: examining the effects of social structure on the entrepreneurial orientation-organizational performance relationship. Unpublished doctoral dissertation. Texas Tech University.

Mumford, A. & Honey, P. 1992. Questions and Answers on Learning Styles Questionnaire. *Industrial & Commercial Training*, 24(7): 10.

Nahapiet, J., Ghoshal, S.1998. Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review*, 23(2): 242-266.

Naldi, L., Nordqvist, M., SjÃberg, K., & Wiklund, J. 2007. Entrepreneurial Orientation, Risk Taking, and Performance in Family Firms. *Family Business Review*, 20(1): 33-47.

Naman, J. L. & Slevin, D. P. 1993. Entrepreneurship and the concept of fit: a model and empirical tests. *Strategic Management Journal*, 14(2): 137-153.

Newbert, S. L. 2005. New firm formation: A dynamic capability perspective. *Journal of Small Business Management*, 43(1): 55-77.

Nonaka, I. 1988. Self-renewal of the Japanese Firm and the Human Resource Strategy. *Human Resource Management*, 27(1): 45-62.

Nonaka, I. 1994. A dynamic theory of organizational knowledge creation. *Organizational Science*, 5(1):14-37.

Nussbaum, S., Liberman, N., Trope, Y. 2003. Creeping Dispositionism: The Temporal Dynamics of Behavior Prediction. *Journal of Personality & Social Psychology*, 84(3): 485-497.

Obarra, H., 1999. Provisional selves: experimenting with image and identity in professional adaptation. *Administrative Science Quarterly*, 44, 764-791.

Oviatt, B. M. & McDougall, P. P. 1994. Toward a theory of international new ventures. *Journal of International Business Studies*, 25(1): 45-64.

Palich, L., & Bagby, D. 1995. Using cognitive theory to explain entrepreneurial risk taking: challenging conventional wisdom. *Journal of Business Venturing*. 10, 425-438.

Patzelt, H., & Shepherd, D. A. 2009. Strategic entrepreneurship at universities: Academic entrepreneurs' assessment of policy programs. *Entrepreneurship: Theory & Practice*, 33(1): 319-340.

Pearce, J. A., II, Kramer, T. R., & Robbins, D. K. 1997. Effects of managers' entrepreneurial behavior on subordinates. *Journal of Business Venturing,* 12(2), 147-160.

Pei-Di Shen, Tsang-Hsiung Lee, & Chia-Wen Tsai. 2008. Enhancing skills of application software via web-enabled problem-based learning and self-regulated learning: An exploratory study. *International Journal of Distance Education Technologies,* 6(3): 69-84.

Pennington, G. Roese, N. 2003. Regulatory focus and temporal distance. *Journal of Experimental Social Psychology*, 39, 563-576.

Penrose, E.T. 1959. The Theory of the Growth of the Firm. Oxford University Press, Oxford, England.

Peterson, M. F., Smith, P. B., Akande, A., Ayestaran, S., Bochner, S., Callan, V., Nam Guk, C. H. O., Jesuino, J. C., D'Amorim, M., Francois, P.-H., Hofmann, K., Koopman, P. L., Kwok, L., Tock Keng, L. I. M., Mortazavi, S., Munene, J., Radford, M., Ropo, A., Savage, G., & Setiadi, B. 1995. Role conflict, ambiguity, and overload: a 21 nation study. *Academy of Management Journal*, 38(2): 429-452.

Plous, S. 1993. The psychology of judgment and decision making. Philadelphia: Temple University Press.

Polyani, M. 1967. The tacit dimension. London, UK: Routledge and Kegan.

Podsakoff, P. M., MacKenzie, S. B., Jeong-Yeon, L., & Podsakoff, N. P. 2003. Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies. *Journal of Applied Psychology*, 88(5): 879-903.

Podsakoff, P. M., & Organ, D. W. 1986. Self-reports in organizational research: Problems and prospects. *Journal of Management*, 12(4): 531-544.

Porter, M.E. 1980. Competitive Strategy, Free Press, New York, 1980.

Porter, M.E. 1985. Competitive Advantage, Free Press, New York, 1985.

Pratt, M., Rockman, K., Kaufmann, J. 2006. Constructing professional identity: the role of work and identity learning cycles in the customization of identity among medical residents. *Academy of Management Journal*. 49(2): 235-262.

Prescott, J. E. 1986. Environments as moderators of the relationship between strategy and performance. *Academy of Management Journal*, 29(2): 329-346.

Pretorius, M., Millard, S. M., & Kruger, M. E. 2005. Creativity, innovation and implementation: Management experience, venture size, life cycle stage, race and gender as moderators. *South African Journal of Business Management*, 36(4): 55-68.

Quinn, J. B. 1985. Managing Innovation: Controlled Chaos. *Harvard Business Review*, 63(3): 73-84.

Rajagopalan, N. & Prescott, J. E. 1990. Determinants of top management compensation: Explaining the impact of economic, behavioral, and strategic constructs and the moderating effects of industry. *Journal of Management*, 16(3): 515-538.

Rao, H. Davis, G., Ward, A. 2000. Embeddedness, social identity and mobility: why firms leave NASDC and join the New York Stock Exchange. *Administrative Science Quarterly*, 45: 268-292.

Rauch, A., Wiklund, J., Frese, M., & Lumpkin, G. T. 2004. Entrepreneurial Orientation and Business Performance: Cumulative Empirical Evidence. Paper presented at

the Babson-Kauffman Entrepreneurship Research Conference, University of Strathclyde, Glasgow, Scotland.

Rauch, A., Wiklund, J., Lumpkin, G. T., & Frese, M. 2009. Entrepreneurial Orientation and Business Performance: An Assessment of Past Research and Suggestions for the Future. *Entrepreneurship: Theory & Practice*, 33(3): 761-787.

Rhee, K. S. & White, R. J. 2007. The Emotional Intelligence of Entrepreneurs. *Journal of Small Business & Entrepreneurship*, 20(4): 409-425.

Reich, R., 1997. Keynote Speech. Employment in the 21st century conference. University of Pittsburgh and Carnegie Mellon University, Pittsburgh, PA, October, 23.

Revans, R. 1978. The A B C of Action Learning. London, UK: Blond and Briggs

Rizzo, J. R., House, R. J., & Lirtzman, S. I. 1970. Role Conflict and Ambiguity in Complex Organizations. *Administrative Science Quarterly*, 15(2): 150-163.

Roberts, S., El Tarabishy, A., Davidsson, P., Davis, J., Hornsby, J., Monsen, E., Pandey, A., Pollack, J., Sashkin, M., Saxton, T., Wales, W., & Zolin, R. 2009. EO3: Current Research and Development on the Entrepreneurial Orientation (EO) Construct. Symposium at the 2009 Academy of Management Annual Conference in Chicago.

Robinson, P. B., Huefner, J. C., & Hunt, H. K. 1991. Entrepreneurial research on student subjects does not generalize to real world entrepreneurs. *Journal of Small Business Management*, 29(2): 42-50.

Robinson, P. B., Stimpson, D. V., Huefner, J. C., & Hunt, H. K. 1991. An Attitude Approach to the Prediction of Entrepreneurship. *Entrepreneurship: Theory & Practice*, 15(4): 13-31.

Romanelli, E. & Tushman, M. L. 1986. Inertia, environments and strategic choice: a quasi-experimental design for comparative-longitudinal research. *Management Science*, 32(5): 608-621.

Romanelli, E. & Tushman, M. L. 1994. Organizational transformational transformation as equilibrium: an empirical test. *Academy of Management Journal*, 37(5): 1141-1666.

Roberts, S., Davis, J., Hornsby, J., Monsen, E., Pandey, A., Pollack, J. Sashkin, M., Saxton, T., Tarabishy, A., Wales, W., Zolin, R. (2009) Issues and Applications of teh Entreprneurial Orientation Construct. Symposium presented at the 2009 Academy of Management Annual Conference in Chicago.

Robinson, P. B., Stimpson, D. V., Huefner, J. C., & Hunt, H. K. (1991). An attitude approach to the prediction of entrepreneurship. *Entrepreneurship Theory and Practice*, 15(4).

Rousseau, D. 1998. Why workers still identify with organizations. *Journal of Organizational Behavior*, 19, 217-233.

Rumelt, R. P. 1982. Diversification Strategy and Profitability. *Strategic Management Journal*, 3(4): 359-369.

Runyan, R., Droge, C., & Swinney, J. 2008. Entrepreneurial Orientation versus Small Business Orientation: What Are Their Relationships to Firm Performance? *Journal of Small Business Management*, 46(4): 567-588.

Rutherford, M. W. & Holt, D. T. 2007. Corporate entrepreneurship. *Journal of Organizational Change Management*, 20(3): 429-446.

Ryff, C. D. & Keyes, C. L. M. 1995. The Structure of Psychological Well-Being Revisited. *Journal of Personality & Social Psychology*, 69(4): 719-727.

Santos, A. 2004. The influence of entrepreneurial orientation, focus of attention, and environmental turbulence on the strategy-performance relationship. Unpublished doctoral dissertation, Alliant International University, San Diego.

Sapienza, H. J. & Grimm, C. M. 1997. Founder Characteristics, Start-Up Process, and Strategy/Structure Variables as Predictors of Shortline Railroad Performance. *Entrepreneurship: Theory & Practice*, 22(1): 5.

Sashkin, M. & El Tarabishy, A. 2008. Leadership character mediates the effects of leadership behavior on organizational performance. Paper presented at the annual meeting of the Academy of Management, Anaheim.

Sayeki, Y. & Vesper, K. H. 1973. Allocation of importance in a hierarchical goal structure. *Management Science*, 19(6): 667-675.

Scheier, M. F., Carver, C. S., & Bridges, M. W. 1994. Distinguishing Optimism From Neuroticism (and Trait Anxiety, Self-Mastery, and Self-Esteem): A Re-evaluation of the Life Orientation Test. *Journal of Personality & Social Psychology*, 67(6): 1063-1078.

Schein, E. H. (1985). Culture and leadership in organizations. San Francisco: Jossey-Bass.

Schendel, D. 1992. Introduction to the Winter 1992 Special Issue on fundamental Themes in Strategy Process Research. *Strategic Management Journal*, Winter. Special Issue, 13: 1-3.

Scherer, R., Adams, J., Carley, S., Weibe, F. 1989. Role model performance effects on development of entrepreneurial career preference. *Entrepreneurship: Theory & Practice*, Spring, 53-71.

Schollhammer, H. 1982. Internal corporate entrepreneurship. In C. Kent, D. Sexton , & K. Vesper (eds), Encyclopedia of Entrepreneurship. Englewood Cliffs, NJ: Prentice Hall.

Schumpeter, J. A. 1934. The Theory of Economic Development. Cambridge, MA: Harvard University Press.

Senge, P. M. 1990. Fifth Discipline. Doubleday.

Shalley, C. E. & Oldham, G. R. 1997. Competition and creative performance: Effects of competitor presence and visibility. *Creativity Research Journal*, 10(4): 337-345.

Shalley, C. E., Zhou, J., & Oldham, G. R. 2004. The Effects of Personal and Contextual Characteristics on Creativity: Where Should We Go from Here? *Journal of Management*, 30(6): 933-958.

Shane, S., & Venkataraman, S. 2000. The promise of entrepreneurship as a field of research. *Academy of Management Review, 25(1)*.

Shane, S. 2003. A general theory of entrepreneurship: The individual-opportunity nexus approach to entrepreneurship. Cheltenham, UK: Edward Elgar

Shepherd, D. A. & Krueger, N. F. 2002. An Intentions-Based Model of Entrepreneurial Teams' Social Cognition. *Entrepreneurship: Theory & Practice*, 27(2): 167.

Shepherd, D. A. 2004. Educating Entrepreneurship Students About Emotion and Learning From Failure. *Academy of Management Learning & Education*, 3(3): 274-287.

Sheppard, B. H., Hartwick, J., & Warshaw, P. R. 1988. The theory of reasoned action: A meta-analysis of past research with recommendations for modifications and future research. *Journal of Consumer Research*, 15(3): 325-343.

Singh, N. P. 1969. n/Ach among successful-unsuccessful and traditional progressive agricultural entrepreneurs of Delhi. *The Journal of Social Psychology*, 79(2): 271-272.

Singh, R. P. 1984. Experimental verification of locus of control as related to conformity behaviour. *Psychological Studies*, 29(1): 64-67.

Singh, R., 1998. Entrepreneurial Opportunity Recognition through social Networks. Unpublished doctoral dissertation.

Singh, R. P., Hills, G. E., Lumpkin, G. T., & Hybels, R. C. 1999. The entrepreneurial opportunity recognition process: Examining the role of self-perceived alertness and social networks. *Academy of Management Proceedings*: G1-G6.

Singh, S. 1986. Measurement correlates of approach-avoidance motive. *Personality Study & Group Behaviour*, 6(2): 55-62.

Sinkula, J. M., Baker, W. E., & Noordewier, T. 1997. A Framework for Market-Based Organizational Learning: Linking Values, Knowledge, and Behavior. *Journal of the Academy of Marketing Science*, 25(4): 305-318.

Sharma, S., Durand, R., Gurarie, O. 1981. Identification and analysis of moderator variables. *Journal of Marketing Research*, 18 (3), 291.

Slater, S. F. & Narver, J. C. 1995. Market orientation and the learning organization. *Journal of Marketing*, 59(3): 63.

Slevin, D. P. & Covin, J. G. 1997. Time, growth, complexity, and transitions: Entrepreneurial challenges for the future. *Entrepreneurship Theory and Practice*, 22(2): 53-68

Smart, D. T. & Conant, J. S. 1994. Entrepreneurial orientation, distinctive marketing. *Journal of Applied Business Research*, 10(3): 28.

Solymossy, E. & Hisrich, R. D. 2000. Entrepreneurial Dimensions: The Relationship of Individual, Venture, and Environmental Factors to Success. *Entrepreneurship: Theory & Practice*, 24(4): 79.

Spreitzer, G. M. & A. 1993. When organizations dare: The dynamics of individual empowerment in the workplace. *ProQuest Information & Learning*, US.

Spreitzer, G. M. 1995. An empirical test of a comprehensive model of intrapersonal empowerment in the workplace. *American Journal of Community Psychology*, 23(5): 601-629.

Spreitzer, G. M. 1995. Psychological, empowerment in the workplace: dimensions, measurement and validation. *Academy of Management Journal*, 38(5): 1442-1465.

Sternberg, R. 1985. Beyond I.Q.: A triarchic theory of human intelligence. New York: Cambridge University Press.

Stevenson, H. H. & Gumpert, D. E. 1985. The heart of entrepreneurship. *Harvard Business Review*, 63(2): 85-94.

Stevenson, H. H. & Jarillo, J. C. 1990. A paradigm of entrepreneurship: entrepreneurial management. *Strategic Management Journal*, 11(4): 17-27.

Stopford, J. M. & Baden-Fuller, C. 1990. Corporate rejuvenation. *Journal of Management Studies*, 27(4): 399-415.

Stopford, J. M. & Baden-Fuller, C. W. F. 1994. Creating corporate entrepreneurship. *Strategic Management Journal*, 15(7): 521-536.

Swedberg, R. 1998. Max Weber and the Idea of Economic Sociology, Princeton: Princeton University Press.

Tajfel, H. 1982. Social psychology of intergroup relations. *Annual Review of Psychology*, 33: 1-39.

Tajfel, H., Billig, M., Bundy, R., & Flamert, C. 1971. Social Categorization and intergroup behavior. *European Journal of Social Psychology*, 1(2), 149-178.

Tang, J., 2009. Exploring the Constitution of Entrepreneurial Alertness: The Regulatory Focus View. *Journal of Small Business & Entrepreneurship*, 22(3): 221-238.

Tang, J. & A. 2008. Entrepreneurial alertness: A review, reconceptualization and extension. a three-essay approach. *ProQuest Information & Learning*, US.

Tang, J., Tang, Z., & Lohrke, F. T. 2008. Developing an entrepreneurial typology: The roles of entrepreneurial alertness and attributional style. *International Entrepreneurship and Management Journal*, 4(3): 273-294.

Tang, J., Kacmar, K. M., & Busenitz, L. 2009. A social cognition view of alertness in the discovery process of entrepreneurial opportunities. *Academy of Management Proceedings*: 1-6.

Tang, Z., Kreiser, P. M., Marino, L., Dickson, P., & Weaver, K. M. 2009. A hierarchical perspective of the dimensions of entrepreneurial orientation. *International Entrepreneurship and Management Journal*, 5(2): 181-201.

Teece, D. J., Pisano, G., & Shuen, A. 1997. Dynamic capabilities and strategic management, *Strategic Management Journal,* 18(7): 509-533.

Timmons, J. & Spinelli, S. 2005. New Venture Strategies: Entrepreneurship For The 21 st Century. Burr Ridge, IL: Irwin-McGraw-Hill Publishers

Thomas, J., Shankster, L., Mathieu, J. 1994. Antecedents to organizational issue integration: the roles of single-level, cross-level, and content cues. *Academy of Management Journal*. 37(5):1252-1284.

Trope, Y., Liberman, N. 2000. Temporal Construal and Time-Dependent Changes in Preference. *Journal of Personality & Social Psychology*, 79(6): 876-889.

Tubre, T. C. & Collins, J. M. 2000. Jackson and Schuler (1985) Revisited: A Meta-Analysis of the Relationships Between Role Ambiguity, Role Conflict, and Job Performance. *Journal of Management*, 26(1): 155-169.

Tversky, A. & Kahneman, D. 1973. Judgment under uncertainty: heuristics and biases. Oxford, England: Oregon Research Inst., 13(1).

Tversky, A. & Kahneman, D. 1979. Prospect Theory: an analysis of decision under risk. *Econometrica*, 47(2): 263-291.

Tversky, A. & Kahneman, D. 1986. Rational choice and the framing of decisions. *Journal of Business*, 59(4): S251-S278.

Ucbasaran, D., Westhead, P., & Wright, M., 2001. The Focus of Entrepreneurial Research: Contextual and Process Issues. *Entrepreneurship Theory and Practice*, Summer 2001.

Uhl-Bien, M. Marion, R. & McKelvey, B., 2007. Complexity Leadership Theory: Shifting leadership from the industrial age to the knowledge era. *The Leadership Quarterly*. 18: 298-318.

Utsch, A., Rauch, A., RothfuÃŸ, R., & Frese, M. 1999. Who Becomes a Small Scale Entrepreneur in a Post-Socialist Environment: On the Differences between Entrepreneurs and Managers in East Germany. *Journal of Small Business Management*, 37(3): 31-42.

Utsch, A. & Rauch, A. 2000. Innovativeness and initiative as mediators between achievement orientation and venture performance. *European Journal of Work & Organizational Psychology*, 9(1): 45-62.

Uzzi, B. 1996. The sources and consequences of embeddedness for the economic performance of organizations: the network effect. *American Sociological Review*, 61(4): 674-698.

Uzzi, B. 1997. Social Structure and Competition in Interfirm Networks: The Paradox of Embeddedness. *Administrative Science Quarterly*, 42(1): 35-67.

Van, d. S., van Praag, M., & Vijverberg, W. 2008. Education and entrepreneurship selection and performance: A review of the empirical literature. *Journal of Economic Surveys*, 22(5): 795-841.

Van Wyk, R. & Boshoff, A. B. 2004. Entrepreneurial attitudes. *South African Journal of Business Management*, 35(2): 33-38.

Venkatraman, N. & Prescott, J. E. 1989. An Empirical Test of the Performance Implications of Environment-Strategy Coalignment. *Academy of Management Best Papers Proceedings*.

Venkatraman, N. & Prescott, J. E. 1990. Environment-strategy coalignment: an empirical test of its performance implications. *Strategic Management Journal*, 11(1): 1-23.

Vesper, K. H. 1971. Venture initiation course in U.S. business schools. *Academy of Management Journal*, 14 ed.: 525-528.

Vesper, K. H. 1987. Entrepreneurial academics- how can we tell when the field is getting somewhere? *Journal of Small Business Management*, 25(2): 1-7.

Vesper, K. H., & McMullan, W. E. 1988. Entrepreneurship: Today courses, tomorrow degrees? *Entrepreneurship: Theory & Practice*, 13(1): 7-13.

Vesper, K. H. 1994. Experiments in Entrepreneurship Education: Successes and Failures. *Journal of Business Venturing*, 9(3): 179.

Vesper, K. & McMullan, E. 1997. New venture scholarship versus practice: When entrepreneurship academics try the real. *Technovation*, 17(7): 349.

Vesper, K. H. & Gartner, W. B. 1997. Measuring progress in entrepreneurship education. *Journal of Business Venturing*, 12(5): 403.

Virany, B., Tushman, M. L., & Romanelli, E. A Longitudinal Study of the Determinants and Effects of Executive Succession. *Academy of Management Proceedings* (00650668).

Wales, W. J. & Covin, J. G. 2009. Entrepreneurial Orientation: A Re-Examination of the Concept. *Journal of Business Venturing*.

Wang, C. L. 2008. Entrepreneurial Orientation, Learning Orientation, and Firm Performance. *Entrepreneurship: Theory & Practice*, 32(4): 635-657.

Weaver, K. M., Dickson, P. H., Gibson, B., & Turner, A. 2002. Being uncertain: the relationship between entrepreneurial orientation and environmental uncertainty. *Journal of Enterprising Culture*, 10(2): 87.

Weber, M. The Theory of Social and Economic Organization. Henderson and Parsons (trans) and T. Parsons (ed), new York, The Free Press.

Weick, K. E. 1979. Cognitive processes in organizations. *Research in Organizational Behavior*, 1: 41.

Weick, K. E. 1979. The social psychology of organizing (2nd ed). New York: Random House.

Weick, K. E. 1995. What theory is not, theorizing is. *Administrative Science Quarterly*, 40(3): 385-390.

Wernerfelt, B. 1984. A Resource-based View of the Firm. *Strategic Management Journal*, 5(2): 171-180.

Wiklund, J. 1999. The sustainability of the entrepreneurial orientation--performance relationship. *Entrepreneurship: Theory & Practice*, 24(1): 39-50.

Wiklund, J. & Shepherd, D. 2003. Aspiring for, and Achieving Growth: The Moderating Role of Resources and Opportunities. *Journal of Management Studies*, 40(8): 1919-1941.

Wiklund, J. & Shepherd, D. 2003. Knowledge-based resources, entrepreneurial orientation, and the performance of small and medium-sized businesses. *Strategic Management Journal*, 24(13): 1307-1314.

Wiklund, J. & Shepherd, D. 2005. Entrepreneurial orientation and small business performance: a configurational approach. *Journal of Business Venturing*, 20(1): 71-91.

Wiklund, J. & Shepherd, D. A. 2008. Portfolio Entrepreneurship: Habitual and Novice Founders, New Entry, and Mode of Organizing. *Entrepreneurship: Theory & Practice*, 32(4): 701-725.

Wolfe, R. 1994. Organizational innovation review: Critique and suggested research directions. *Journal of Management Studies*. 31(3): 405-431.

Wu, H. L., Su, W. C., & Lee, C. Y. 2008. Employee ownership motivation and individual risk-taking behaviour: A cross-level analysis of Taiwan's privatized enterprises. *The International Journal of Human Resource Management*.

Yamada, K., Kurokawa, S., & Eshima, Y. 2008. Causality Identification between Entrepreneurial Orientation and corporate Performance: use of two-period data from small private firms in Japan. Academy of Management Annual conference. Anaheim.

Yamada, K. & Eshima, Y. 2009. Impact of Entrepreneurial Orientation: Longitudinal analysis of small technology firms in Japan. Academy of Management Annual conference. Chicago.

Zahra, S.A. 1993. A conceptual model of entrepreneurship as firm behavior; A critique and extension. *Entrepreneurship: Theory & Practice*, 17(4): 5-22.

Zahra, S., Covin, J. 1995. Contextual influences on the corporate entrepreneurship-performance relationship: a longitudinal analysis. *Journal of Business Venturing*. 10(1), 43-58.

Zahra, S.A., Jennings, A.F. & Kuratko, D.F. 1999. The antecedents and consequences of firm-level entrepreneurship: The state of the field. *Entrepreneurship Theory & Practice*, (Winter): 45-65.

Zhao, H., Seibert, S., & Hills, G. 2005. The Mediating Role of Self-Efficacy in the Development of Entrepreneurial Intentions. *Journal of Applied Psychology*, 90 (6): 1265-1272.

Zhao, H. & Seibert, S. E. 2006. The Big Five personality dimensions and entrepreneurial status: A meta-analytical review. *Journal of Applied Psychology*, 91, 259-271.

Zhao, H., Seibert, S. E., & Lumpkin, G. T. 2009. The relationship of personality to entrepreneurial intentions and performance: A meta-analytic review. *Journal of Management*.

Zolin, R., & Roberts, S., 2009. Individual and Leadership Entrepreneurial Orientation Behaviors. Working paper.

Zukin, S. & DiMaggio, P. 1990. Structures of capital: the social organization of the economy. New York: Cambridge University Press.

BIOGRAPHICAL INFORMATION

With interests in culture, entrepreneurship, and emergence, Sheryllynn continues to pursue passions related to venturing, research, and mentoring. She received her Master of Business Administration through the UTTelecampus program, hosted by the University of Texas at Arlington, in 1996. Her Bachelors, summa cum laude from St Edwards in Austin, followed time spent at Austin Community College studying art and business, and a technical degree from Lamar University, where she graduated at the top of her class. A love of business, a can-do attitude, and a drive of curiosity have been the foundation for her continued learning. She has had a business of some sort from a young age, and thoroughly enjoys facilitating student experiences with management and entrepreneurial topics. Likewise, with avid interests in "how things work" and in creativity, she is fascinated by the research process and the possibilities that discovery exemplify. One of her joys is seeing intangible theory manifest successfully in daily life.

Her publications and research span topics of cognitive, organizational, entrepreneurship, and education theories and methods. She is an original organizer and chair for the Academy of Management Entrepreneurship and Research Methods divisions' Professional Development Workshops on the Entrepreneurial Orientation topic, known as EO3, and symposiums of the same name. She has served as a reviewer, discussant, chair,

and presenter for the Academy, Southern Management Association, USASBE, and Babson Conferences, awarded Outstanding Reviewer by the Academy Entrepreneurship Division and by USASBE.

Her non-academic interests include the arts, cats, plants, cars, and architecture. A long time bibliophile, she enjoys reading nonfiction. Though thoroughly at home in the great state of Texas, Sheryllynn likes the discovery of new places and people, and the possibility of visits with friends and family that driving across the country offers. There is always room for one more adventure!