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TESTING THE RELATIONSHIPS AMONG TRANSFORMATIONAL FACTORS IN A POSTSECONDARY ENVIRONMENT

by

GAYLE B. WOOTEN

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctorate of Philosophy
Department of Human Resource Development and Technology

Jerry W. Gilley, Ph.D., Committee Chair

College of Business and Technology

The University of Texas at Tyler
May 2014

The University of Texas at Tyler
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Dedication

This study is dedicated to the brave leaders of change…

Not the individuals who hold a sign with change written on it or those who dream up snappy slogans for change.

Rather this dedication is to the true leaders who spend every day

…making sacrifices for a larger purpose,

…who make difficult decisions for all the right reasons, and

…ultimately, those who are not afraid to say

what if … we try something different instead?

To Heather and Mitchell--

You continue to be my inspiration in all that I do and

In you, resides the greatness to lead change.

Acknowledgments

There are many individuals without whose support, this achievement would not have been possible. ***First and foremost***, I must acknowledge the patience and support of my loving husband, USAF Ret. Col. Randall E. Wooten. Thank you for always listening, even if you had heard it many times before.

To my committee members… *Thank you. Thank you. Thank you. Thank you.*
My phenomenal group of committee members made this dissertation successful! They read what was often very boring and provided edits that created brilliance. My methodologist spent hours away from other commitments to run and re-run analyses to make sure we had it right. My chair made sure the feedback I received was productive and within the scope of the project. Ultimately, I feel extremely fortunate to have had the support of such dedicated and successful scholars as committee members.

To my cohorts… *Thank you all so very much.* It's a road not many travel and to have traveled it with you is truly a privilege. I feel certain that I would not be here if it were not for your support and encouragement along the way and knowing we were all in it together. I hope that our friendships continue to grow in the years ahead.

To the leadership of my host organization…*Thank you for your support of this project and personal encouragement to achieve great things.* I could not have accomplished this endeavor without your encouragement and assistance throughout the study. I wish for you and your organization great success in leading change in the world of higher education.

"In all affairs it's a healthy thing now and then to hang a question mark
On the things you have long taken for granted."
Bertrand Russell (1872-1970)

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Abstract

TESTING THE RELATIONSHIPS AMONG TRANSFORMATIONAL FACTORS IN A POSTSECONDARY ENVIRONMENT

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The University of Texas at Tyler
May 2014

The external environment is forcing many higher education institutions into transformational change. However, institutional change remains elusive and little research exists that explains how organizational change has been implemented in higher education. This study tested the transformational factors in the Burke-Litwin Organizational Performance and Change model (1992) in a statewide technical college system. Two years ago, this four campus system implemented a 100% performance based funding model in response to external environmental demands. The study applied an empirical quantitative research method, using a non-experimental, cross-sectional research design. Structural equation modeling was employed to test the dataset collected by the Burke-Litwin Organizational Assessment Survey against a conceptual study model. The study results support the use of the Burke-Litwin model with some exception. Results suggest the extraordinary influence of the external environment in the host organization permeates the culture and mission and strategy, weakening the role of

leadership in the organization. The findings support the need for future research in the unique role of transformational leadership in the context of high external environmental influence, as is often the case in educational institutions. This study was one of the few to test the Burke-Litwin model using structural equation modeling. The results provide valuable data useful in the continued development of the Burke-Litwin survey instrument. Future research using structural equation modeling to test the Burke-Litwin model will continue to provide valuable knowledge for both organizational researchers and change agent practitioners.

Chapter One

Introduction

A significant amount of research and literature in organizational change theory and empirical studies support the position that organizational change is not easy (Burke, 2011; Hayes, 2010). When considering organizational change within a highly "institutionalized" organization, such as colleges and universities, implementation is especially difficult (DiMaggio & Powell, 1983; Kezar & Eckel, 2002; Meyer & Rowan 1977). The source of these changes is often a result of the external environment, including local governments, politics, legislature, and policies, which presents unique challenges and increased complexity for the leaders of these organizations (Coram & Burns, 2001).

The economic environment for higher education is different than in past eras when education expanded to facilitate growth in the United States. Today, institutions are competing for limited financial resources, while the demand for accountability and quality are increasingly being linked to state funding (Armstrong, Bohl-Fabian, Garland, & Yazdi, 2004; Dougherty & Reddy, 2011; Nemetz & Cameron, 2006; Polatajko, 2011). From an organizational perspective, most government funded institutions are dependent on external funding for survival (Burke, 2011) and colleges and universities are particularly vulnerable to changes in state funding (Hossler, Lund, Ramin, Westfall, & Irish, 1997). Many of these institutions are faced with a sense of urgency and need for

transformational change in response to changes in funding requirements, as well as pressure from stakeholders for increased accountability (Hayes, 2010).

Research Problem

The increasing trend for state policy makers to create accountability by providing state funding for educational institutions based on performance outcomes (Armstrong, et al., 2004; Dougherty & Reddy, 2011) is essentially forcing higher education institutions into organizational change, with varying degrees of success (Dougherty & Reddy, 2011). Many of these colleges and universities hasten to make changes in processes (Armstrong, et al., 2001; Dougherty, Hare & Natow, 2009; Hase, 1999; Lattimore, 2011; Moosai, 2010; Tesfamariam, 2011), often ignoring the importance of alignment between the external environment and mission, strategy, culture, and leadership of the organization (Burke, 2011; Galbraith, 2006; Galbraith, Downey & Kates, 2002; Gilley & Maycunich, 2000; Hayes, 2010; Nadler & Shaw, 1995; Treacy & Wiersema, 1995). According to Burke (2011), it is these factors that must be changed, in order to achieve transformational change within an organization. However, while these factors and theorized relationships were developed and tested primarily in industry, there appears to be minimal research of transformational change within educational institutions. How organizational change, particularly transformational change, is implemented in higher education continues to represent a critical area of needed research (Kezar, 2001; Torraco, 2005).

Research Study Purpose

Organizational change in higher education has been studied primarily at the individual and group levels, including alignment between individuals and the institutional

setting (Gumport, 2000), alignment between processes and outcomes (Eckel, 2003), and adaptability of work units to organizational change (Rubin, 1979). Change research appears to be lacking at the organizational level, and in particular transformational change in response to external factors and for the purpose of organizational performance outcomes. Based on a review of literature, five organizational factors were of particular interest to this study proposal. These included external environment, mission and strategy, leadership, organizational culture, and performance outcomes.

This quantitative, non-experimental research study was designed to test the relationships between external environment, transformational factors, and performance outcomes, within the contextual setting of a technical college system implementing a 100% performance-based funding initiative. Transformational factors, as defined by the Burke-Litwin Organizational Performance and Change (OP&C) model (1992), are culture, leadership, mission and strategy.

Study Organization

One State's legislature, located in the central region of the United States of America, began discussions of performance-based funding with its higher education constituents in 2008 (M. Reeser, personal communication, June 14, 2013). The State's technical college system agreed to a new funding formula model beginning in September 2011. The system receives 100% of its state funding based on student's employment and subsequent return to the state's economic base (Kelderman, 2013). This economic gain is measured by a student's earnings after attendance, compared to average earnings for individuals with a high school diploma for the region. The system's state funding is a percentage of this difference which in business terms, is defined as the returned value on

the state's investment in public education (M. Reeser, personal communication, June 14, 2013).

This externally driven mandate required transformational change across the system of four campuses, because it changed the criteria for receiving a significant amount of the colleges' required operational revenue. The executive leadership team, consisting of the four campus presidents and the system chancellor, under the direction of a governor appointed Board of Directors, led the planning and implementation of change initiatives. However, each campus has continued to operate under unique regional influences, as well as differences in strategy, leadership styles, and organizational culture across the four campuses. It is these differences, combined with the consistency of the external mandate and performance criteria that created a unique and rich opportunity for this research study in organizational development. Figure 1 provides an illustration of the study organization.

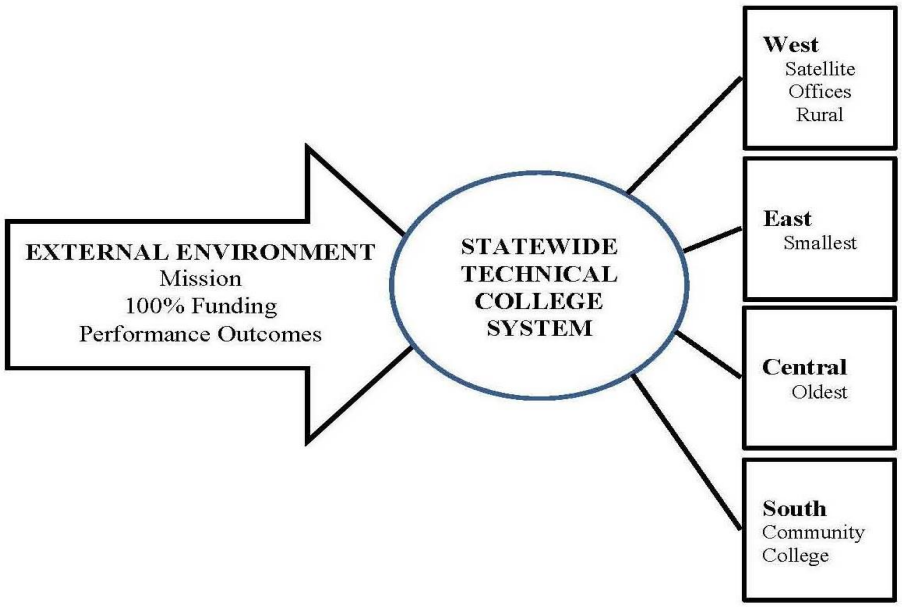

Figure 1. Study organization is a statewide technical college system consisting of four geographic locations.

A brief overview of organizational history and campus environments. In 1965, a technical institution was established under a state university in the central region of the host state, followed in 1967 by a second campus in the south region. Four years later, the institution severed ties with the university and became a statewide system for technical education. Today, this centrally located campus employs approximately 560 individuals and is the oldest and largest campus within the system. The campus includes programs in innovative technologies and is well-regarded within the business community. This campus is a traditional technical college that has experienced little organizational level change over the last 20 years.

The campus located in the eastern region of the state is the smallest, employing approximately 100 individuals. This campus was an extension of the centrally located campus for many years, and became an independent campus approximately 10 years ago. This campus has continued to operate with significant budget restraints, because state funding never accounted for the additional resources needed to run the campus independently. These budget constraints and its size have been credited for the campus' tendency toward innovation. It relies heavily on partnering with the business community for support and appears more adaptive to changing requirements. For these reasons, the eastern region campus is often used as a test environment for new ideas and is often the first to implement new initiatives. Additionally, the necessitated reliance on its external stakeholders for support creates a situation of high influence from the external environment.

The campus located in the south region of the state employs approximately 440 individuals and serves as both a community college and technical college within the

region. The campus originally began as a community college. Today, the split between the core academic programs that prepare students for transfer to universities and the technical programs remains visible, based on the physical layout of the campus buildings. Many aspects of this campus have continued to be characterized by the community college, including more traditional faculty members providing core academic education.

A medium sized campus, with approximately 230 employees, is located in the west region of the state. The west campus includes three satellite locations that meet the needs of a small and sprawling population. These satellite locations are dispersed over a 100 mile radius from the main campus. The community is characterized as independent, strong, and self-sufficient. The campus and its satellite locations embody this same mindset and appear quick to add innovative programs to meet regional needs.

Research Questions

According to Burke (2011), an organization's leadership responds to its external environment through the development of mission, strategy, and culture. However, the missions of educational institutions' are often defined by the government or external stakeholders, and have not changed substantively over the last 50 years (Cohen & Brawer, 2003; Vaughn, 2006). The mandate of performance-based funding and legislatively defined indicators of performance continues to challenge leaders and change agents confronted with transformation change in these institutions. Research questions included:

1. Is the Burke-Litwin Organizational Performance and Change (OP&C) model applicable to educational institutions given the externally defined mission and performance outcomes?

2. What are the relationships between the external environment, transformational factors, and performance outcomes within a technical college system?

3. Does the external environment influence change the role of leadership in achieving transformational change within a higher education setting?

Research Study Significance

For the organizational development and change research community, particularly those involved with governmental and public institutions, this study's results further support the influence of the external environment. For the practitioner challenged with planning and/or implementing organizational change within a higher education setting, the results support the use of the Burke-Litwin OP&C model, with increased knowledge of the relationships between the external environment and transformational factors relative to implementing change in a higher education system.

The complexity of the postsecondary environment, specifically the historical tendency to ignore demands of the external environment (Altbach, 2005, Coram & Burns, 2001), increasing external requirements to demonstrate accountability, conflicts between longstanding measures of effectiveness (Armstrong, et al., 2004; Nemetz & Cameron, 2006; Polatajko, 2011) and changing stakeholder expectations (Ewell, 2002; Matthews, 2010; NCPPHE, 2002; THECB, 2010), requires a significant shift in the organization which Gilley, A., Gilley, J., and McMillan (2009a) define as transformational change.

While organizational change and performance outcomes have been studied both in business and educational research, there has been limited research of the relationship between the external environment and performance outcomes based on the transformational constructs of mission, strategy, leadership, and culture. According to Burke (2011) and subsequent business research, alignment between these

transformational constructs and the external environment is necessary to achieve organizational change for the purpose of performance outcomes.

Notable differences exist between these transformational factors within the organizational environments of educational institutions versus business. While industry and businesses have historically understood the need to change to meet customer needs, technology development, government regulations, and the role of the economy in achieving success (Coram & Burns, 2001), postsecondary education institutions have historically met external economic and social pressures with internal members' commitment to uphold tradition (Altbach, 2005). Similarly, the mission of postsecondary institutions has not changed substantively since the 20th Century (Cohen & Brawer, 2003; Vaughn, 2006) and is often externally defined by legislation or state regulatory agencies.

Relevance to the field of human resource development. The relevance of this study is found within the field of organizational development (OD) and change. Anderson (2012, p. 3) defines OD as the "process of increasing organizational effectiveness and facilitating personal and organizational change." The study results will not only inform researchers in terms of relationships between factors and model development, they provide leaders and change agents valuable knowledge for facilitation of organizational change.

This study is unique because it considers a model most often applied in business, and tests its applicability within a higher education organizational context. Stakeholders of educational institutions maintain expectations underpinned by traditional business economic theory and models (e.g., return on investment). However, organizational change research in higher education institutions rarely explores how these theories and

models behave in colleges and universities (Kezar, 2001). Leaders and change agents of these institutions are increasingly faced with balancing the demands of stakeholder expectations, while implementing organizational change.

"Survival and the ability to thrive require leaders, managers, and employees to think and act strategically" (Gilley & Drake, 2003, p. 105). This statement is increasingly more relevant for higher education institutions today as stakeholders and external pressures threaten the mere survival of these organizations. Understanding the relationships between transformational factors provides a foundation on which leaders can think and act strategically, particularly in response to the external environment and for the purpose of achieving externally defined performance outcomes. This knowledge provides leadership with an understanding of their organization's components and organizational competence needed to achieve performance outcomes (Petty, 2003).

Organizational competence relies on the knowledge and understanding of how leadership responds to the external environment, develops a strategy to implement the mission, influences the organizational culture, and ultimately implements changes within the organization to achieve desired performance outcomes. In essence, the transformational constructs – culture, leadership, mission and strategy, collectively provide clear definition of the organization and its foundation. It is this foundation that has been deemed critical to the transactional components of an organization (Burke, 2011), or more specifically, the effective establishment of goals and objectives combined with the design, implementation, and management of performance, structure, processes and procedures (Gilley, Boughton, & Maycunich, 1999; Gilley & Drake, 2003; PWCIT, 1996; Rummler & Brache, 1995).

Definitions of Terms

Consistency in language is important for a common understanding of this research proposal and subsequent study results. According to Creswall (2003), operational definitions provide consistency in understanding the variables within a study. Burke and Litwin (1989, pp. 281-283) define the study factors of their model as follows:

- *Culture* – the collection of overt and covert rules, values and principles that guide organizational behavior and that have been strongly influenced by history, custom and practice *("the way we do things around here").*

- *External environment* – any outside condition or situation that influences the performance of the organization, including such things as marketplaces, world financial conditions, political/governmental circumstances, government policy, competition, and customers.

- *Leadership* – executive behavior that provides direction and encourages others to take needed action.

- *Mission and Strategy* – what employees believe is the central purpose of the organization and the means by which the organization intends to achieve that purpose over an extended time.

- *Performance outcomes* – the outcomes or results, with indicators of effort and achievement including productivity, customer or staff satisfaction, profit, and services quality.

Additionally, the contextual setting of this research study is a subset of a larger organizational setting referred to as post-secondary education or higher education institutions within the United States of America. Based on the U.S. Higher Education Act of 1965, the following operational definitions are provided for this study:

- *Higher education institution* – a public or privately funded institution that is legally authorized and accredited to provide postsecondary education to individuals who have completed secondary education.

- *Postsecondary education* – includes educational programs for which a bachelor's degree is awarded; a two-year program that is acceptable for full credit toward such a degree; or a one-year program of training that prepares an individual for employment in a recognized occupation.

- *University* – a higher education institution that awards a bachelor's degree or higher.

- *Community College* – a higher education institution that awards a two-year associates degree or certificate.

- *Technical College* – a higher education institution that awards a two-year associates degree, certificate of completion, or certification of skills in preparation for employment in a technical occupation. The two-year associate degree may also be acceptable for credit toward a bachelor's degree.

The study organization is a statewide technical college system, which includes two year or less postsecondary educational programs that are acceptable for full credit toward a bachelor's degree and programs designed to prepare individuals for employment within a technical occupation. This system was created by the state legislature, operates under the boundaries of a state agency, and is primarily funded by the state.

Delimitations and Limitations

Delimitations for this study include the defining of limits that are inherent in the study population and the use of one measurement instrument that affects generalizability of results. Limitations occur when all factors are not controlled by the study design (Locke, Spirduso, & Silverman, 2007). This study was based on perceptions of employees of one technical college system with four geographically dispersed campuses. The non-experimental and non-probability sampling limits the generalizability of results beyond this study organization. Additionally, analyses did not include multi-group analyses. Study results were not evaluated based on differences among groups within the study organization.

The sole use of Burke and Litwin's Organizational Assessment Survey (OAS) (W. Warner Burke Associates, n.d.) for data collection limits the definitions of the study

factors and constrains interpretation of the results to these factors, within the study organization. Study results are further limited to the perceptions of volunteer respondents, as well as by differences between responders and non-responders as may exist.

Summary

This introduction chapter provides an overview of the study components. The remainder of this document includes literature review, methodology, data analyses results, and conclusions.

Chapter Two

Literature Review

Chapter one presented the initial overview of this research study and noted a general lack of research that tests the hypothesized relationships in organizational change theory or models in higher educational organizations. The purpose of this research study was to examine the relationships between the external environment and transformational constructs – leadership, culture, mission, and strategy – during organizational change within a postsecondary educational environment, relative to achieving externally-defined performance outcomes.

This chapter establishes a historical review of the literature as it relates to organizational change theory and models, as well as literature pertaining to organizational change and performance outcomes, with emphasis on transformational factors. A review of materials included peer-reviewed scholarly journals, professional publications, books, dissertations, and professional seminars and conferences. Ridley (2010, p.16) suggests many purposes of a literature review, which may include some or all of the following:

- a historical background to a research study;
- an overview of the current state of issues that provide a contextual setting for a research study;
- a discussion of relevant theories and concepts that support or underpin a research study;
- the introduction of terminology or defining of study factors and variables;

- a description of related research in the field; or
- it provides supporting evidence for a practical problem or issue needed for establishing significance of a research study.

These purposes provided guidance for the literature review of this study. This literature search included the key words: organizational change, performance outcomes, institutional effectiveness, higher education, and postsecondary. Of the 470,696 peer-reviewed articles and 2,920 dissertations written on various subjects regarding organizational change and performance outcomes located in the Business Source Complete, Emerald, Sage Management & Organization, PsycINFO, Wiley Online, and ProQuest Dissertations & Theses databases in October, 2013, less than 5,700 dealt with implementation of organizational change for performance outcomes within higher education institutions.

Because performance outcomes are sometimes referred to as institutional effectiveness in higher education, an additional search for organizational change and institutional effectiveness revealed 182,274 articles and 939 dissertations. From these combined searches, approximately 325 articles and doctoral dissertations included at least one transformational factor as a variable of organizational change within higher education. At the time of this literature search, there appears to be no research testing the relationships among the transformational constructs, hypothesized as critical to achieving organizational change, within a higher education environment. This study addresses this research gap found in the literature.

The following literature review seeks to provide a historical review of organizational change theory and models, transformational factors in organizational change, and organizational change for achieving performance outcomes in higher education.

Open Systems Theory

The latest organizational development theory and models are often underpinned with open systems theory and its assumptions (Burke & Litwin, 1992; Nadler & Tushman, 1980; Tichy, 1983). Open systems theory postulates organizations as social systems with dependence on inputs from the environment, transformation, and outputs to the environment, whereby a feedback loop is created (Katz & Kahn, 1978). The theory allows for repeated, or continual, cycles of inputs and outputs within an organization. Given this study's emphasis on the external environment and defined performance outcomes, this theory explained the feedback loop effect of the external environment input, as well as the output of performance outcomes in response to the external environment. For this reason, open systems theory was appropriate for underpinning this research study.

Organizational Change Theory and Models

Lewin (1947) conceptualized organizational change as a process of *unfreezing, moving, and freezing.* Based on his change process theory, Lewin also developed the Force Field Analysis model for analyzing and managing organizational problems (French & Bell, 1995; Fuqua & Kurpius, 1993; Lewin, 1951) as depicted in Figure 2.

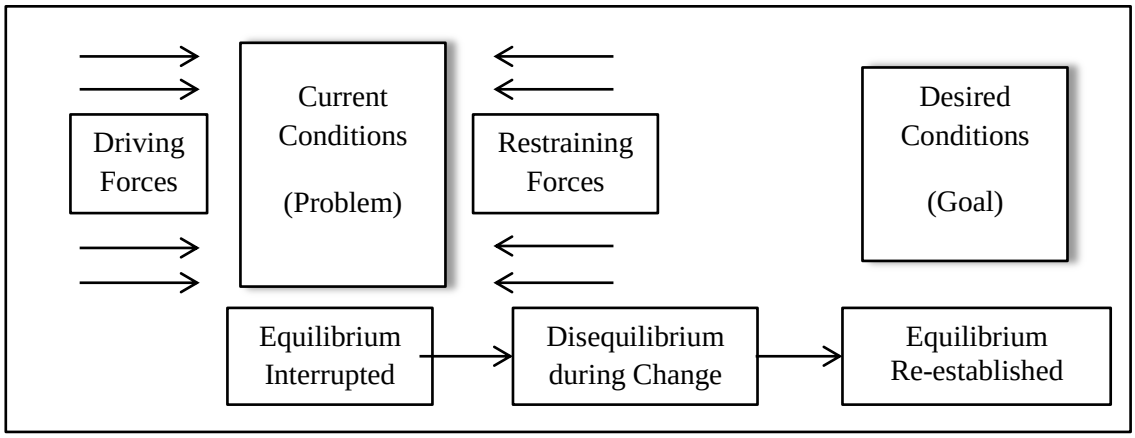

Figure 2. Lewin's force field analysis model. Adapted from "Field Theory in Social Science" by K. Lewin, 1951, Copyright by Harper and Row, New York.

The model depicts driving forces (e.g., external environment) providing inputs to the organization, and when met with the internal organizational factors (e.g., resistant to change), undesirable conditions are created. Once the driving and restraining forces are identified, a plan is developed to increase driving forces and reduce restraining forces, in order to implement organizational change.

Many researchers followed Lewin in the development of multi-phase models for the purpose of implementing organizational change. Table 1 summarizes historical research in the area of organizational change theory and models that expand on Lewin's organizational change process theory.

Table 1

Historical Development of Organizational Change Theory and Models

Date	Author(s)/Model	Variables	External Environment	Hypothesis(es)
1965	Leavitt's Model of Organizational Change	Tasks, structure, technology, and human factors	Not included	The four variables are interdependent and changes are made in structure, technology, and/or factors relative to people for the purpose of a task outcome (i.e. products or services)
1976	Weisbord's Six-Box Model	Purposes, structure, relationships, leadership, rewards and helpful mechanisms	Included in terms of inputs and outputs of the organization	The interdependency between variables is not defined; however, the gap between formal and informal system within the variables impacts organizational effectiveness.
1980	Nadler and Tushman's Congruence Model for Organizational Analysis	Outputs: individual, group, and organization Inputs: Environment, resources, history, strategy Processes: individual, task, informal and formal organization	Influence the inputs and outputs serving as a feedback loop	Open systems theory; fit or congruence between the internal variables, as well as between formal and informal systems, influences effectiveness.
1983	Tichy's Technical, Political, and Culture (TPC) Framework	Inputs: Environment, history, resources Factors: Mission/strategy, tasks, prescribed networks, people, processes, emergent networks Outputs: Performance and impact on people	Influence the inputs and outputs serving as a feedback loop	Open systems theory; there is interdependency between variables, and these are analyzed from a technical, political, and cultural perspective to assess needs for change
1992	Burke and Litwin Organizational Performance and Change (OP&C)	External environment, mission and strategy, leadership, culture, management practices, structure, systems, work unit climate, motivation, skills/job match, individual needs and values, and performance outcomes	External environment is included in the inter-related variables	Grounded in open systems theory, Burke suggests a more appropriate depiction of the model would be a hologram (2011); there is interdependence and the authors posit causal relationships between variables represented in the model

Leavitt's model (1965) identified specific variables in place of Lewin's driving forces, including task, structure, technological and human variables (Burke, 2011). Structure variables included authority, communication, and work flow systems within an organization; technological includes equipment and machinery required for tasks; the task variable includes the tasks involved in producing a product or service; and the human variable refers to individuals associated with producing products or services to meet organizational goals. Leavitt postulated that the interrelationship between variables, as well as changes in variables, influence the other variables. Leavitt did not address the external environment in his model.

Weisbord (1976) developed the Weisbord's Six-Box Model, which emphasized the need to concentrate on the organization as a whole, rather than one particular construct of the model. Weisbord was one of the first researchers to suggest there was an informal system within an organization's culture that was present in each of the six boxes of his model, along with the formal system such as structure. Weisbord also posited inefficiency within an organization was the result of the gap between these formal and informal systems. Weisbord included the influence of the external environment as inputs to the organizational system and receiving outputs in terms of products and services.

Nadler and Tushman (1980) published their Congruence Model for Organizational Analysis (CMOA) based on similar assumptions to Weisbord. The CMOA model, depicted in Figure 3, is grounded in open systems theory and influenced by external inputs and outputs. Nadler and Tushman posited the congruence, or fit, between the components within their transformational process model would result in reduced individual and organizational performance. The areas of potential congruence or

incongruence are numerous and representative of the open systems theory framework on which the model is developed. However, according to Burke (2011), there is a general lack of information regarding the evaluation of congruency, nor is the relative criticality of congruency between the model components clear.

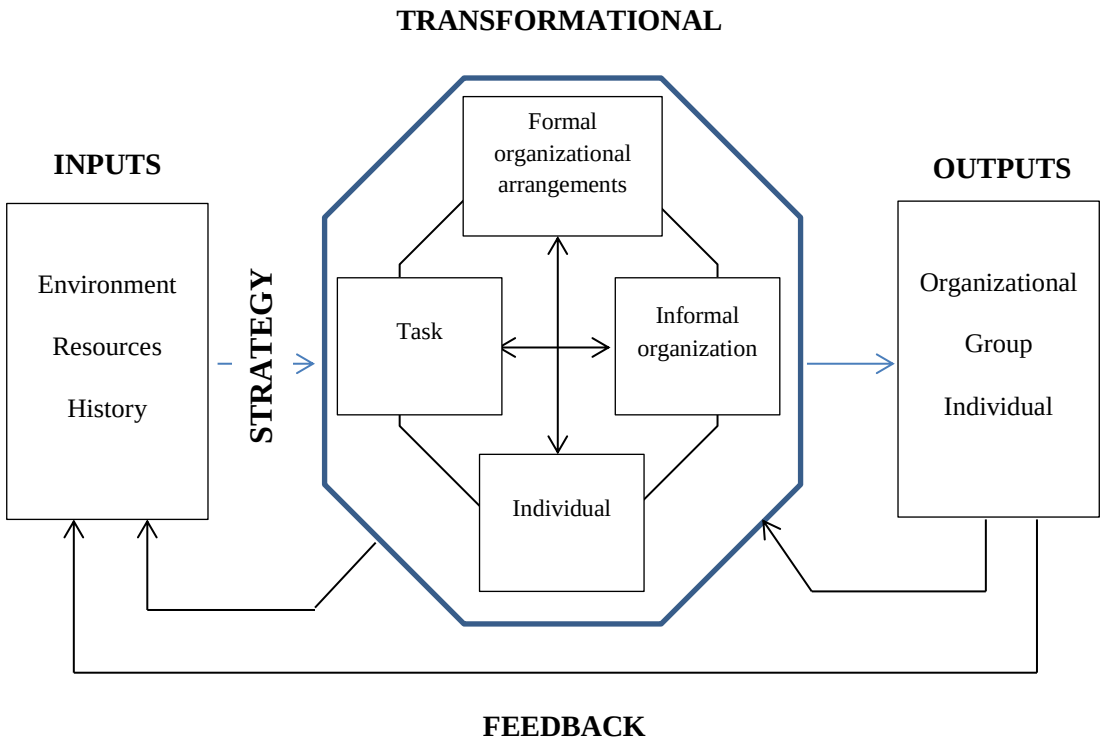

Figure 3. The Nadler and Tushman congruence model for diagnosing organizational behavior. Adapted from "A model for diagnosing organizational behavior," by D.A. Nadler and M.L. Tushman, 1980, in *Organizational Dynamics*, *9*(2), 35–51. Reprinted with permission.

In 1983, Tichy expanded on the Nadler-Tushman model with a focus on organizational change. The Tichy Technical, Political, Culture (TPC) Framework (1983) presents "nine change levers, including external environment, mission, strategy, managing mission and strategy processes, tasks, prescribed networks, organizational processes, people, and emergent networks" (Burke, 2011, pp.203-204). Tichy's

framework emphasized three systems – technical, political, and culture, encompassing all nine change levers as critical for understanding organizational change, specifically alignment within and between the systems (Burke, 2011).

According to Armenakis and Bedeian's (1999) review of organizational change theory, the Burke and Litwin (1992) Organizational Performance and Change (OP&C) model is most comprehensive in understanding factors of organizational change and measuring organizational effectiveness in the context of organizational change. The Burke-Litwin (1992) model is unique among the models by distinguishing between transformational and transactional factors (Armenakis & Bedeian, 1999) and provides diagnostic feedback to be used in predicting the impact on performance from change. Theoretically, the Burke-Litwin OP&C model, illustrated in Figure 4, is grounded in open systems theory, provides both descriptive and prescriptive components (Burke, 2011) and was influenced by Weisbord (1976), Nadler and Tushman (1980), and Tichy (1983).

Burke (2008) hypothesized that organizations often concentrate on transactional activities and overlook the criticality of mission, strategy and culture on achieving successful organizational performance and desired outcomes. These transactional components include psychological and motivational factors that influence performance, including management practices, structure, policies and practices (Burke, 2011). The preponderance of existing research appears to focus on transactional constructs involving the group and individual level factors of organizational change. In contrast, this study focused on the organizational level transformational constructs of Burke-Litwin's model.

The Burke-Litwin model, depicted in Figure 4, divides model constructs between the system or organizational level (mission, strategy, leadership, and culture), the group level (climate, structure, practices and policies), and the individual level factors (skills, abilities, motivation, needs, and values) (Burke, 2011). The open systems principle of the model results in the interconnectivity between all factors and, according to Burke, a more realistic pictorial of the model would be a "hologram" (2011, p. 215).

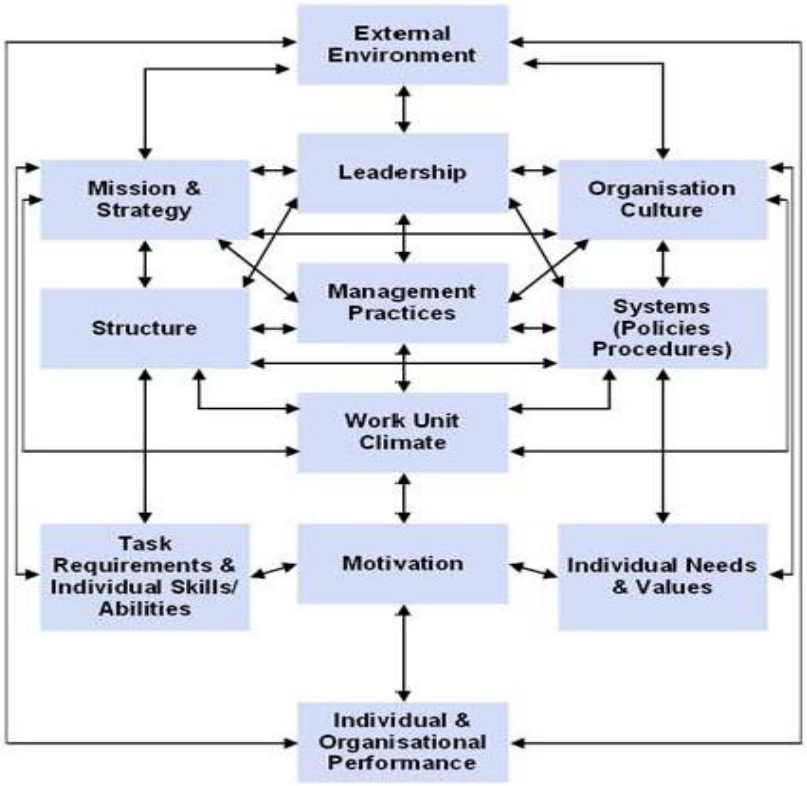

Figure 4. Burke-Litwin's organizational performance and change model. Adapted from "Causal Model of Organizational Performance and Change," by W. W. Burke and G. H. Litwin, 1992, *Journal of Management, 18*(3), p. 528. Reprinted with permission.

However, important to understanding the Burke-Litwin model is the specific order or placement of factors above, below, or in line with each other. The linkage between factors is grounded in prior research and other models; however, the

"weighting" of factors has been developed through quantitative analysis (Burke, 2011) and is suggested by the placement within the model.

This placement of factors becomes more relevant in the context of organizational change as the model provides predictions of subsequent effects of changes on group and individual factors (Burke & Litwin, 1992). It is in this context that the transformational change within an organization can be seen in response to the external environment. The role of mission, strategy, leadership, and culture becomes critical to creating the change needed throughout the organization. This open systems approach and the inter-relationships within the model, extending from the external environment to the performance outcomes, are particularly relevant when conducting an organizational level study.

External Environment in Organizational Change

The relationships between organizational components are heavily influenced by the external environment (Hayes, 2010; Pfeiffer & Salanik, 1978). Additionally, the alignment between an organization and its external environment (Burke, 2011), and reinforcement of organizational components (Schneider, et al., 2003) promotes organizational performance. Through alignment internally and with the external environment, performance is improved and lost resources caused by disruption, friction, and misalignment are also reduced (Schneider, et al., 2003).

From a business perspective, maintaining an awareness of the external environment is a matter of retaining customers, building market share, out-performing competitors, or taking advantage of new business opportunities (Trahant, Burke, & Koonce, 1997). In a review of organizational change research and theory during the

1990s, Armenakis and Bedein (1999) highlight studies on organizational response to external environmental changes and suggest these as representative of other studies focused on internal and external influences shaping an organization which are summarized in Table 2.

Table 2

Organizational Change Research Studies Involving Organizational Response to the External Environmental

Date	Author(s)	Research focus	Environment	Contribution
1990	Meyer, Brooks, and Goes	Organizational change between 1960s to 1980s in response to external regulations and competing internal component changes	Healthcare	Insights into adaptation over time given competing internal and external factors
1991	Kelly and Amburgey	Organizational change due to de-regulation of an industry	Airline industry	Five conclusions: external environment change does not guarantee a change in strategic orientation; younger companies are more likely to implement a product-market strategy; organizational size doesn't matter in responsiveness to change; organizations will repeat prior changes; and there is a lack of connection between organizational failure and changes in product-market strategy.
1993	Amburgey, Kelly, and Barnett			
1991	Damanpour	Meta-analysis		Concluded that the alignment between content of change, the context in which the change is occurring and the process of change is more important to success than the nature of the change itself.
1992	Haveman	Second-order change due to legislative and technological	Financial-Banking	Shift in organizational structure and processes in response to external environmental changes will increase performance. Additionally, there is a positive relationship in the alignment of changes in activities and the organization's fundamental business as measured by net worth and income.
1998	Fox-Wolfgramm, Boal, and Hunt	Change due to the Community Re-Investment Act (CRA)	Financial-Banking	External environmental requirement of change that is not in alignment with the organization's identity or image will not be successful

While each of these studies considers the role of the external environment on organizations' need to for change, individually or collectively, the results do little to extend our understanding of organizational culture, leadership, mission and strategy in response to the external environment as it pertains to performance outcomes.

The external environment of postsecondary institutions is becoming more complex as these organizations face increasing demands for accountability. They must evaluate their interrelationships and interdependencies with society and the economy through both internal stakeholders, such as students, staff and management, as well as external stakeholders such as research communities, alumni, businesses, social movements, consumer organizations, governments and professional associations (Kezar & Eckel, 2002; Jongbloed, Enders, & Salerno, 2008). The categories and groups of constituents provided by Burrows (1999) illustrate the diverse interests that are increasingly influencing higher education institutions reflected in Table 3.

Table 3

Higher Education Stakeholder Categories and Constituents

Stakeholder Category	Constituent Groups
Governing entities	State and federal government; governing boards; sponsor organizations such as a religious affliation
Administration	Chancellor; President; senior administration
Employees	Faculty; administrative staff; support staff
Clienteles	Students; parent/spouses; tuition reimbursement providers; service partners; employers
Suppliers	Secondary education providers; alumni; other educational institutions; and operational vendors, such as insurance, utilities, contracted services
Competitors	Private and public post-secondary educational institutions; distance providers; new ventures; employer-sponsored training programs
Donors	Individuals such as trustees, friends, parents, alumni, employees, industry, foundations, etc.
Communities	Neighbors, school systems, social services, chamber of commerce, special interest groups, etc.
Government regulators	State and federal financial aid; federal research support; IRS; Social Security; Department of Education; Patent Office
Non-governmental regulators	Foundations; institutional and programmatic accrediting bodies; sponsors
Financial intermediaries	Banks, fund managers, analysts
Joint venture partners	Consortia, corporate co-sponsors of research and educational services

Adapted from: "Going beyond labels: A framework for profiling institutional stakeholders." by J. Burrows, 1999, *Contemporary Education, 70(4),* p. 9. Reprinted with permission.

Literature exists regarding how to manage stakeholder needs and expectations (Altbach, 2005; Trow, 1998). However, there is little research regarding the influence of stakeholder expectations and needs on the organization's transformational factors, particularly as leadership seeks to change the organization for the purpose of achieving measureable performance outcomes. The general lack of research may be a result of the difficulty in quantifying this external environment influence (Burke, 2011). For example, do externally defined mission or performance outcomes, such as the study organization's situation, alter the role of leadership during organizational change? Or more specifically, will this external influence change the relationships as hypothesized by Burke and Litwin's OP&C model (1992)?

Transformational Constructs and Organizational Performance and Change

Research of organizational change for the purpose of performance improvement has often focused on transactional constructs such as work processes (Van Tiem, Moseley, & Dessinger, 2012), employee needs (Brown & Humphreys, 2003; Lines, 2005), management (Graetz, & Smith, 2010), and climate (Hayes, 2010). This mirrors Burke's suggestion that there is a tendency for organizations to concentrate on transactional activities, as they overlook the importance of mission, strategy, leadership, and culture on achieving successful organizational performance outcomes (Burke, 2011). This organizational change study was focused on the four constructs of mission, strategy, leadership, and culture, in response to the external environment and relative to achieving externally-defined performance outcomes.

The influence of organizational culture on performance outcomes. According to Burke (2011, p. 220), the non-scholarly, albeit popular, definition of organizational culture is "the way we do things around here and the manner in which these norms and values are communicated" (Deal & Kennedy, 1982). Gilley & Maycunich (2000) suggest that an organization's culture is the result of beliefs, behaviors, and assumptions that historically contributed to its success. An organization's history is also important when understanding its culture (Schein, 1996).

Over the last several decades, organizational researchers have identified a link between organizational culture and performance (Burke, 2011; Cummings & Worley, 2004; Detert, Schroeder, & Mauriel, 2000; Frontiera, 2010; Kotter, 1995; Kotter & Heskett, 1992; Wilkins & Ouchi, 1983). Denison and Mishra (1995) were the first to suggest a theory of organizational culture and effectiveness; however, the measurement of both culture and effectiveness proved challenging at the time. Researchers have also examined the influence of organizational culture on the organizational change process (Gilley & Maycunich, 2000; Schein, 1996).

Organizational culture specifically within higher education institutions has been researched over recent years (Cameron & Ettington, 1988; Cruz, 2011; Eddy, 2003; Fjortoft & Smart, 1994; Kezar & Eckel, 2002; Smart & Hamm, 1993; Smart, Kuh, & Tierney, 1997), with results validating the influence of organizational culture on an institution's effectiveness. Specifically, Smart, Kuh, and Tierney's study (1997) of two-year community colleges found culture to be a mediating factor between the external environment and institutional effectiveness.

The influence of mission and strategy on performance outcomes. Burke (2011) includes both mission and strategy as one construct in his model because both of these concepts address direction, goals, and objectives of an organization. Mission is the "what," while strategy is the "how" (Burke, 2011, p. 219). According to the contingency theory perspective of organizational design, the alignment between strategy, organization, and people is required for high performance (Galbraith, et al., 2002). Models based on this theory share the assumption that "context and structure must somehow fit together if the organization is to perform well" (Drazin & Van de Ven, 1985, p. 514). In this manner, Burke and Litwin's theory and model rely on both the open systems theory perspective of relationships among organizational factors and the contingency theory perspective of alignment (Burke, 2011). While competing stakeholders have created complexity in creating mission statements (Basu & Palazzo, 2008), the relationship between "knowing where one is going" and performance outcomes seems intuitive; however, little research exists to validate this hypothesis in the context of organizational change.

In recent years, the belief in the necessity of a mission statement has become questionable (Basu & Palazzo, 2008). Often the classical mission statements have become a series of statements, including vision statements, statements of purpose, mission statements and even strategy statements (Collis & Rukstad, 2008). Pearce and David (1987) were the first to identify eight components of a mission statement and test whether there was a link between Fortune 500 companies with mission statements composed of these eight factors and corporate financial performance. While the results were limited, the study provided empirical support for the suggestion that companies with

more comprehensive mission statements were more often higher performing organizations (Pearce & David, 1987). This study also concluded that mission influenced strategic decision making that, in turn, affected performance.

Research continues to support the importance of an organization's ability to articulate its purpose, its primary goal, and according to Burke (2011, p. 219) to answer the question "If this organization did not exist, what difference would it make?" Beyond the concept of organizational mission, research has revealed a positive relationship between consensus regarding purpose, referred to as "mission agreement," and performance based on studies of four-year colleges and universities (Ewell, 1989; Fjortoft & Smart, 1994; Smart & Hamm, 1993). However, educational institutions often have competing missions designed to meet various stakeholder expectations which lead to "mission overload" or "mission confusion" (Jongbloed, et al., 2008). This did not appear prevalent in traditional business literature and there appeared to be little research exploring the externally defined nature of an educational institution's mission, particularly relative to transformational change and achieving performance outcomes.

Identifying a strategy is unique to an industry (Hambrick, 2007) and defines an organization in terms of its encompassing environment of customers, regulators, technology, changes, and stakeholders (Ulrich, 1997). A strategy provides potential to align these external environmental components with internal operations (Aldrich, 1979; Miles & Snow, 1978; Olsen & Roper, 1998; Porter, 1985; Snow & Hambrick, 1980). According to Chaffee, (1985), there appeared to be a lack of consensus among many researchers on the definition of strategy (Bourgeois, 2006; Gluck, Kaufman, & Walleck, 1982; Glueck, 1980; Hatten, 1979; Mintzberg, 1987; Steiner, 1979). Despite this lack of

agreement in definition, there appeared to be general agreement that successful implementation of strategy depended on the alignment between organizational factors, such as culture, structure, processes, and performance measurement (Galbraith, et al, 2002; Shah, Rust, Parasuraman, Staelin & Day, 2006; Treacy & Wiersema, 1995; Waterman, 1982).

Research supports the influence of mission and strategy on performance in both business and higher education. However, minimal research exists that explores the unique nature of higher education institutions' multiple missions and the use of strategy to connect competing external stakeholder expectations to performance outcomes.

The influence of leadership on performance outcomes. According to the Burke-Litwin OP&C Model (1992), leadership is a key factor in how culture, mission and strategy align with external environment, as well as the critical role of leadership to achieving performance outcomes. A significant amount of research exists on the role of leadership, in both business and higher education. Kouzes and Posner (2007, p. 2) claimed that leadership has been "one of the most observed and least understood phenomena on earth." Research exists describing differences in leadership, including transformational leadership (Bass, 1985), transactional leadership (Bass, Avolio, Jung, Berson, 2003), servant leadership (Greenleaf, 2002), situation leadership (Blanchard, Hersey, & Johnson, 2000), and laissez-faire leadership (Northouse, 2006). Much of this research has supported the positive effects of transformational, transactional, and servant leadership practices on achieving performance outcomes (Bass, et al. 2003; Kouzes & Posner, 2007; Northouse, 2006).

The criticality of a leader's skills and abilities needed to identify and address employee needs during organizational change has been supported through research (Shook, Priem, & McGee, 2003), as well as, the existence of empirical support of the causal relationship between a lack of leadership skills and less than desirable organizational change results (Gilley, A., McMillan, & Gilley, J., 2009b). Leadership research, particularly in coaching, communication, involving others, motivating, rewarding, and team building (Burke & Litwin, 1992; Conner, 1992; Gill, 2003; Gilley, 2005; Sims, 2002; Ulrich, 1997), has focused on the individual or group level, particularly when measuring outcomes of these leadership skills and abilities.

Leithwood and Duke (1999) conducted a meta-analysis study involving 121 educational research studies published between 1988 and 1995 in four prominent educational administration journals. This study resulted in the development of six broad categories of educational leadership, including instructional, transformational, moral, participative, managerial and contingent leadership or leadership styles. While similar leadership categories may exist in business, these were considered specifically within the context of educational institutions.

Managerial leadership was regarded as the functional approach or often associated with transactional leadership and important to the day-to-day operations of administration (Hanson, 1996; Leithwood & Duke, 1999; Yamasaki, 1999). Myran and Howdyshell (1994) suggested leadership is the integration of strategic management and operational management needed to maintain daily operations. This strategic management according to Myran and Howdyshell was defined as the process of determining mission, vision, and interaction with stakeholders.

Some researchers have suggested educational leaders are high performing managers who concentrate on educational processes and outcomes (Wallace, 1996), while others assert management strategies are the predictors of institutional effectiveness (Cameron, 1986; Cameron & Tschirhart, 1992; Winn & Cameron, 1998). However, Winn and Cameron (1998) found that there was not a consistent relationship between leadership and outcomes within an educational setting, particularly in terms of customer satisfaction and operational results. Additionally, while higher education leadership has been shown to improve performance, some have argued that ultimately it cannot overcome poorly designed organizational structure (Richardson, Bracco, Callan, & Finney, 1999). This suggested a need for further research into understanding the relationship between leadership and achieving organizational outcomes within the postsecondary environment.

Organizational Change and Performance Measurement in Higher Educational Institutions

Since the 1970s, higher education institutions have increasingly been required to measure performance, justify increasing costs, increase efficiency, and defend the prestige of college degrees and faculty (Cohen & Brawer, 2003; Lenning, 1977; Whetton & Cameron, 1985). Accrediting organizations accepted the responsibility for measuring higher education performance (Kern, 1990) based on educational quality and outcomes (Young, 1979), also known as institutional effectiveness. According to Hunt (1983), a landmark report, *Nation at Risk*, by the National Commission on Excellence in Education brought educational quality to the forefront of public attention. While the report was originally aimed at elementary and secondary education, concerns regarding higher

education institutions resulted in subsequent published reports. These were responsible for starting the movement calling for quality and excellence in the United States education system (Jacobi, Astin, & Ayala, 1987; Nichols, 1989). Table 4 summarizes the reports' findings.

Table 4

Stakeholders' Published Reports Regarding a Need for Improved Quality and Effectiveness in Higher Education within the United States

Date	Title	Author-Agency	Conclusions/Recommendations
1984	Involvement in learning: Realizing the potential of American higher education	National Institute of Education	Called for a systematic assessment of knowledge, capacities and skills developed by students and the need for students to be able to synthesize information and think critically to be able to adapt to changing world conditions
1985	Integrity in the college curriculum: A report to the academic community	Association of American Colleges	Recommended that the minimum program should prepare students for critical analysis and abstract logical thinking
1991	Time for results: The governors' 1991 report on education	National Governors' Association	A teacher salary system based on teacher performance; leadership programs for school leaders; parental choice in public schools for their children to attend; nation, state, and district assessment measure of what students know and can do; states should take over schools that do not produce; and better use of technology so that teachers have more time to teach (Alexander, 1986)

These three reports set forth the assessment movement (Ewell, 2002) in higher education, which recommended increased student outcomes that could be accurately assessed for the purposes of assuring quality and institutional effectiveness (Alexander,

1986; AAC, 1985; NIE, 1984). Dissatisfaction with the higher education quality has permeated the opinions of government officials, private citizens, and the business and industry community, resulting in pressure on colleges and universities to establish effective assessment programs that measure student outcomes and experiences (Folger & Harris, 1989). The goals of higher education institutions appeared to be the advancement of knowledge through increased enrollment, programs, research, and graduation rates. These have become the outcomes by which higher education measures institutional effectiveness (Callan, 2008, THCEB, 2006; Umbach & Wawryzynski, 2005).

According to the Lumina Foundation for Education report, *A Stronger Nation through Higher Education* (Matthews, 2010), increasing the number of college graduates was "integral" to the U.S. economic recovery and job creation. At first glance, there appeared to be alignment between the goals of higher education and factors that might contribute to the U.S. economic recovery. Concurrently, states increasingly linked funding to measureable performance outcomes, while institutions were struggling to meet their individual stakeholders' expectations (Armstrong, et al., 2004; Nemetz & Cameron, 2006; Polatajko, 2011). The inconsistencies in measuring institutional effectiveness (Cameron & Tschirhart, 1992; Chaffee & Tierney 1988; Fjorttoft & Smart, 1994; Smart & St. John, 1996), coupled with a lack of connection between performance outcomes and external stakeholder needs, suggested misalignment beginning with the external environment.

Summary

Understanding the effects of change for the purpose of achieving performance outcomes and the relationships among organizational components and external influences

has been explained by open systems theory (Burke, 2011; Katz & Kahn, 1978; Nadler & Tushman, 1980; Thompson, 1967; Tichy, 1983; Vollman, 1996; Weisbord, 1976). The complexity of the postsecondary environment combined with increasing external requirements to demonstrate accountability, conflicts between established measures of effectiveness (Armstrong, et al., 2011; Nemetz & Cameron, 2006; Polatajko, 2011), and changing stakeholder expectations (Ewell, 2002; Matthews, 2010; NCPPHE, 2002; THECB, 2010), requires a transformational change (Gilley, et al., 2009a).

In times of transformational change, culture, leadership, mission and strategy are the primary areas where change must first be focused (Burke, 1994). Given the expanded role of the external environment within higher education institutions, a need exists for research of transformational factors during organizational change for the purpose of achieving measured performance outcomes. The historical tendency by higher education to ignore demands of the external environment (Altbach, 2005, Coram & Burns, 2001) is rapidly coming to an end. According to Kezar (2001), while higher education institutions have been called to be responsive to external expectations (Keith, 1998; Leslie & Fretwell, 1996), there remains a lack of research of the institutions that have become responsive.

Chapter Three

Methodology

The focus of this chapter is to provide details associated with the research design and methodology employed for the study. The study purpose is briefly reviewed to provide an appropriate context for the methodology. The study framework and research hypotheses are provided based on existing literature as discussed previously. Details of data collection, data preparation, reliability, validity, and ethical issues of human subjects in research are also presented in this chapter.

Research Design and Rationale

The preceding chapters established the purpose of this study, which was to test the applicability of the Burke-Litwin Organizational Performance and Change Model (OP&C) (1992) within a postsecondary institution setting. Specifically, this study narrowed its focus to the role of the external environment and factors identified as critical during transformational change, including culture, leadership, mission and strategy, relative to achieving performance outcomes. Figure 5 depicts the transformational factors of the Burke Litwin OP&C Model.

The study employed an empirical quantitative research method, using a non-experimental, cross-sectional research design (Bryman & Bell, 2011; Swanson & Holton, 2005). The central theme of this study was to test whether the postsecondary education context altered the relationships between the transformational constructs posited in the Burke-Litwin model. A cross-sectional research design was appropriate because of the

interest in variation between organizational settings, as well as relationships between multiple variables (Bryman & Bell, 2011). The study used the Burke-Litwin OP&C model (1992), as the framework for testing the hypothesized relationships illustrated in the study's conceptual model.

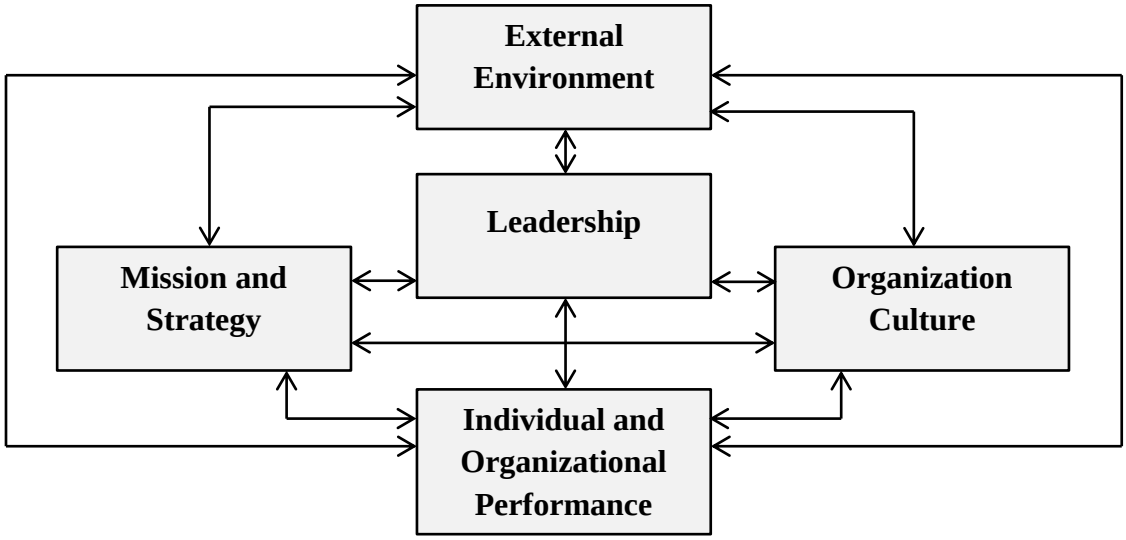

Figure 5. Burke-Litwin OP&C (1992) transformational factors. Adapted from "Causal Model of Organizational Performance and Change," by W. W. Burke and G. H. Litwin, 1992, *Journal of Management, 18*(3), p. 528. Reprinted with permission.

Research Study Framework

The Burke-Litwin OP&C model was developed leveraging the authors' industry experience (Burke, 2011). Several empirical studies have been conducted across different industries based on the Burke-Litwin model (Anderson-Rudolf, 1996; Di Pofi, 2002; Falletta, 1999; Fox, 1990; Stone, 2010). However, there appears to be little research examining relationships between transformational factors within the postsecondary education environment, particularly for the purpose of achieving performance outcomes.

The Burke-Litwin OP&C model hypothesized leadership as a mediator of the relationships between external environment and culture, as well as between external

environment and mission and strategy (1992). This study tests the stability of this relationship in the postsecondary education context. The external environment (e.g., state governance) wields a prominent role within the study organization. This influence is represented by the study organization's mission definition, funding, and performance outcomes, all mandated externally. This contextual setting is notably different from the business environment, in which the Burke-Litwin OP&C model was developed, researched, and validated (Burke, 2011). The present study tests whether the powerful influence of the external environment on postsecondary institutions significantly alters the causal relationships among the transformational constructs as hypothesized by Burke and Litwin (1992). Further examination of these causal relationships within existing literature provides the foundation for the development of alternate relationships to be hypothesized among the transformational factors.

External environment and mission and strategy. The external environment in a business context is often considered in terms of threats or opportunities (Jennings & Seaman, 1994; Prescott, 1986). A key premise of organizational development is the leader's ability to respond to these external influences through mission development and selection of strategy (Hofer & Schendel, 1978; Trahant, et al., 1997). It is in this context that Burke and Litwin (1992) espoused that an organization's mission and strategy is defined by its leader and the causal relationship between leadership and mission and strategy set forth in the OP&C model.

However, mission for some higher education institutions is defined by the external mandate. The study organization's mission was mandated by the state legislature. Smart and Hamm (1993), in their study of the effect of mission orientation on

the performance of two-year colleges, found eight out of ten colleges with singular missions were mandated by the state agencies, leaving local leadership without the discretion to choose between alternative missions. A leader's use of strategy has often been regarded as a way to manage excessive political influence (Johansson, 2009), particularly within the public sector (Andrews, Boyne, Law, & Walker, 2008; Boyne & Walker, 2004). Based on the role of the external environment supported by research, the following relationship is hypothesized:

> *H1: External environment has a significant direct positive effect on mission and strategy of the study organization.*

External environment and leadership. The relationship between the external environment and leadership has often been characterized by the role of leaders in navigating the external environment as an obstacle (Miles, 1982). According to leadership research, leaders achieve successful performance outcomes by seeking to change their organizations to meet external demands (Avolio & Gardner, 2005; Eagly, Johnannesen-Schmidt, & Van Engen, 2003), and/or by demonstrating alternative forms of leadership qualities based on internal and external situations (Avolio, 2007; Chemers, 1997; Van Vugt, Hogan & Kaiser, 2008; Weilkiewicz & Stelzner, 2005; Zaccaro & Klimoski, 2001).There appears little doubt that organizational leadership is influenced by its external environment, regardless of how the influence is perceived. Based on the existing research, the following relationship is hypothesized:

> *H2: External environment has a significant direct positive effect on leadership within the study organization.*

External environment and culture. According to Burke and Litwin (1992), culture represents both written and unwritten rules, values, and principles that guide employees, grounded in history and serving as a way of sense-making for organizational members. In a study of two-year colleges, culture was found to have a mediating role between the external environment and institutional effectiveness (Smart, et al., 1997). Burke and Litwin (1992) hypothesized that leadership mediates the relationship between the external environment and the organization's culture. Research of culture within the contextual settings of financial institutions and utility companies suggested culture is directly influenced by the unique external environment of the industry (Burke & Litwin, 1992), suggesting there are differences in these relationships unique to an industry. Based on the unique role of the external environment in the study environment, the following relationship is hypothesized:

> *H3: External environment has a significant direct positive effect on culture within the study organization.*

Culture, mission and strategy, and leadership. The Burke-Litwin OP&C model (1992) illustrates leadership as a mediator between external environment and culture, as well as between external environment and mission and strategy. A debate exists between those who believe leadership creates or can change organizational culture (Deal & Kennedy, 1982; Tichy, 1983; Schein, 1996) and those who believe leadership is changed by organizational culture (Avolio & Bass, 1995; Schein, 1996). According to Burke (2011), leaders should concentrate on changing behaviors, which leads to changes in organizational culture over time. Kezar and Eckel's (2002) study of higher education found leaders who understood and worked within the culture were more successful in

creating organizational change. Based on Kezar and Eckel's research in higher education, the following relationship is hypothesized:

> *H4: Culture has a significant direct positive effect on leadership within the study organization.*

As previously discussed, leaders in higher education are often restricted by an externally defined mission (Smart & Hamm, 1993). For the study organization, the external environment has also influenced strategy through mandated performance based funding and the defining of acceptable performance outcomes. Therefore, while literature previously discussed suggests leadership has control over mission and strategy, in the study environment, this relationship is hypothesized differently. Based on the extraordinary external environmental defining of mission and strategy within the study environment, the following relationship is hypothesized:

> *H5: Mission and strategy has a significant direct positive effect on leadership within the study organization.*

Culture, mission and strategy, and performance outcomes. As discussed in the literature review, organizational researchers have identified a link between organizational culture and performance (Burke, 2011; Cummings & Worley, 2004; Detert, Schroeder, & Mauriel, 2000; Frontiera, 2010; Kotter, 1995; Kotter & Heskett, 1992; Wilkins & Ouchi, 1983). Based on existing literature, the following relationship is hypothesized:

> *H6: Culture has a significant direct positive effect on performance outcomes within the study organization.*

As previously discussed in the literature review, the relationship between mission and strategy's role in achieving performance has been supported in research (Burke, 2011; David, 1987; Pearce & David, 1987), including achieving institutional

effectiveness in postsecondary education (Chaffee, 1984; Ewell, 1989; Smart & Hamm, 1993). Based on existing research, the following relationship is hypothesized:

H7: Mission and strategy has a significant direct positive effect on performance outcomes within the study organization

Leadership and performance outcomes. While culture, mission and strategy are found to influence performance outcomes, research also supports the existing role of leadership on achieving organizational performance (Kouzes & Posner, 2007), including the context of postsecondary institutions (Cameron, 1984; Peterson, Chaffee & White, 1991; Schermerhorn, 1996). Based on previously discussed literature and research, the following relationship is hypothesized:

H8: Leadership has a significant direct positive effect on performance outcomes in the study organization.

Based on these hypotheses, a research model that represents the hypothesized causal relationships, suitable for structural equation model testing, is provided in Figure 6.

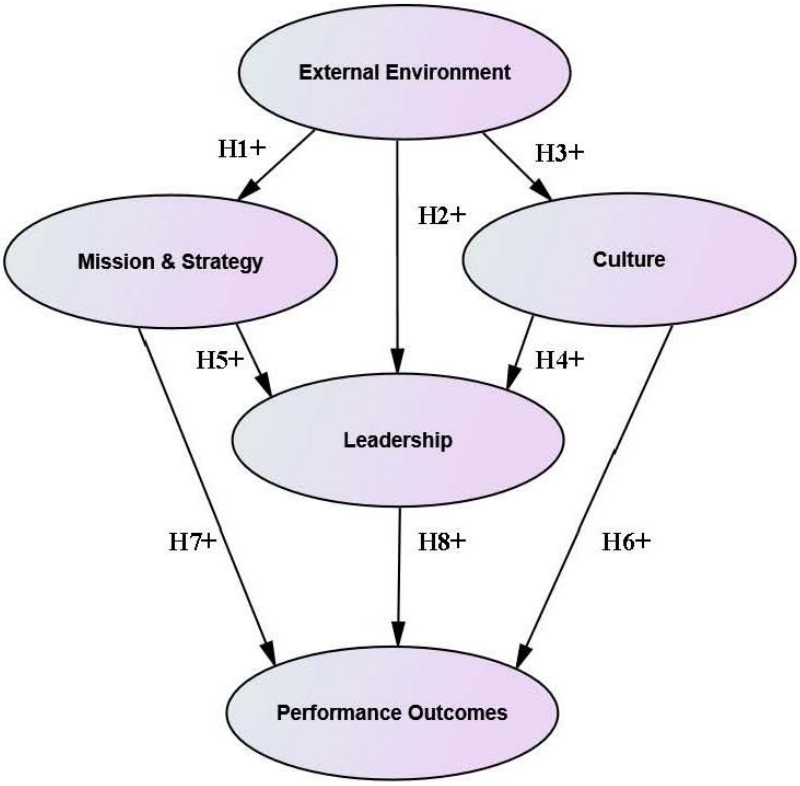

Figure 6. Conceptual model with proposed hypothesized relationships.

Data Collection

Survey instrument. This study utilized the Burke-Litwin Organizational Assessment Survey (OAS) developed by W. Warner Burke and Associates (n.d.). The OAS includes 82 questions that measure the 12 latent constructs in the Burke-Litwin OP&C model (1992).This study utilized five of the 12 constructs – external environment, mission and strategy, leadership, culture, and performance outcomes. The 34 measurement items associated with these five constructs were measured using a 5-point Likert scale. Seven questions pertaining to demographic and respondent information were modified to fit the organization.

The use of web-based surveys has increased significantly over the last twenty years. The primary advantage of using a web-based survey for this study was the convenience for participants. Web-based surveys also present an advantage in terms of data entry error. Data is quickly accessible and can be downloaded by the researcher into a data storage format to be used in analysis (Bryman & Bell, 2011; Sue & Ritter, 2007).

Though many advantages to web-based surveys exist and many of the early disadvantages have been minimized, unfortunately some disadvantages remain (Bryman & Bell, 2011; Stanton & Rogelberg, 2002; Umbach, 2004). Disadvantages can include respondent's lack of access to the internet, a lack of familiarity or comfort level with computers, and lack of confidence in anonymity of participation. The technical skill needed by a researcher to develop an online survey (Birnbaum, 2004) was also found to be a disadvantage.

An evaluation of advantages and disadvantages supported the development and use of web-based survey technology for data collection. The availability and accessibility of the internet within the study organization and its common use among its employees provided a compelling environment for participants to participate in the survey. Advancements in both web-based software tools and internet accessibility significantly reduced the technical disadvantages, enabling the researcher to easily develop the OAS into an online survey. And, the ability to download completed survey data directly to an excel spreadsheet eliminates opportunities for data entry error.

Swanson and Holton (2001) suggested that coverage, sampling, and measurement errors introduced by web-based surveys remain limitations for researchers. Given the bounded study organization population, coverage and sampling errors were minimized

for this study. A potential sampling error involving the diversion of an outside email message invitation to SPAM or blocked by the organization's internet security was anticipated. The researcher's email message was sent to all employees by the President at each location of the study's organization to address this potential error. This ensured receipt of the initial email invitation to participate in the study and accessibility to the online survey.

Response rate using web-based surveys has been debated (Bryman & Bell, 2011) and the survey length has been shown to be a factor in successful completion of a survey. The researcher will offer five incentive gift card drawings to accommodate for time spent for completing the survey. Anonymity achieved through the online survey method should also encourage participation, as well as encourage honest answers (Bryman & Bell, 2011; Sue & Ritter, 2007). Sample bias resulting from demographic differences, such as computer literacy, (Sue & Ritter, 2007) should not be an issue with the study organization employee population. Nonresponse bias occurs when there is a difference among those who participate and those who do not (Bryman & Bell, 2011).

The OAS will be recreated as an online survey instrument and made available to potential participants through a web-based survey service provider, SurveyMonkey.com. Appendix A contains the Burke-Litwin OAS instrument as created online for this study. The hyperlink to the survey will be provided to organization's employees through an emailed invitation to participate in the study. Study details and consent to participate will be included in the invitation email, as well as on the first page of the survey, allowing participants to choose whether or not to voluntarily and anonymously participate in the survey.

Assumptions and limitations. Three assumptions are made regarding the administration of the online survey for the study. The respondents are presumed to understand and answer questions written at a Flesh-Kincaid Level 10.6 or Flesch Reading Ease of 43.1, indicating a tenth grade reading level. Through voluntary participation, it is assumed that respondents will be honest when answering the questions. And finally, it is assumed that the respondents' answers are representative of the technical college system population.

Three limitations are believed to exist when administrating the survey instrument. The study is limited to the information included in the pre-defined survey instrument. The respondents might lack sufficient knowledge or work experience to accurately answer the questions. And finally, the use of one data collection technique limits the study results to the respondents' perception as reflected by their answers to the survey questions.

Ethical considerations. Four ethical guidelines for data collection were recommended for data collection (Bryman & Bell, 2011; Swanson & Holton, 2005). Only general demographic information and summary information is provided to protect the individual identity of respondents. There was no indication of respondent identity in any document produced by this study. Respondents experienced no physical, mental or emotional harm in any form as a result of their participation in the study. Institutional Review Board (IRB) approval was earned before starting the data collection. Information regarding the details of this study was submitted to the Institutional Review Board of The University of Texas at Tyler. Approval was received in recognition of a study involving minimum risks to human subjects with full disclosure, voluntary, and

confidentiality participation in a survey study. Additionally, permission was received from Dr. W.W. Burke for the use of the Organizational Assessment Survey for the purpose of research. IRB documentation is included in Appendix B. Data will be protected in a private and secure place accessible only by the researcher.

Population. Data will be gathered from four postsecondary institutions within a statewide system experiencing transformational change. This provides the context for identifying potential differences between higher education and business environments, based on external environment demands, leadership, culture, mission and strategy. The empirical examination of contextual environment represented by this population is distinct from the previously researched business contexts. This empirical research adds to existing literature on organizational development and change based on this unique contextual environment.

Sample plan. The study organization has approximately 1300 employees across four geographic locations. The response rate for the study is expected to be high and the total population set appears sufficient for model analysis. Sample size and missing data can have a significant impact on the analysis results (Cohen, J., Cohen, P., West, & Aiken, 2003; Hair, Black, Babin, & Anderson, 2010; Schumacker & Lomax, 2010; Tabachnick & Fidell, 2007). Particularly, the effect of sample size on model fit using structural equation modeling is debated among researchers (Schumaker & Lomax, 2010). However, it is generally agreed that sample size should be considered in terms of model complexity, missing data, reliability, and data variability (Muthén & Muthén, 2002).

According to Jöreskog and Sörbom (1993), the sample size of a dataset should be between five to ten times the indicators in the measurement model. While determining

sample size varies across sources (Cohen, et al., 2003; Hair, et al., 2010; Schumacker & Lomax, 2010; Tabachnick & Fidell, 2007), the minimum sample size was set at 170 for the study, based on the conceptual model consisting of five factors and 34 measurement indicators.

Data Analysis

Data analysis includes data preparation, testing of assumptions, and testing the hypotheses of the study. Four data analyses are appropriate for this study. They are descriptive analysis, reliability and validity of the survey instrument, confirmatory factor analysis (CFA), and structural equation modeling (SEM). Two statistical software programs, IBM Statistical Package for Social Sciences (SPSS) Version 20 and AMOS 22 (Arbuckle, 2007), will be used to conduct these analyses of the data set collected by the study.

Dataset preparation and assumption testing. Data will be downloaded into a Microsoft Excel spreadsheet, which will be uploaded into the SPSS program. This automated process from online data to spreadsheet reduces many data coding errors and outliers. The dataset based on a 5-point Likert scale will include a one to five data range representing continuous variables. Survey questions are written in a consistent manner, such that reverse coding is not needed.

Missing data is eliminated through survey design. Respondents are prompted to answer all questions within a section before continuing to the next section. Since participants can elect at any time to withdraw from the study, incomplete surveys will not be downloaded for data analyses. Surveys will be considered complete when participants answer all 34 questions used to measure the five constructs of the study.

Descriptive statistics. Descriptive statistics include means, standard deviations, and correlations of the data set according to the American Psychological Association recommendations (APA, 2010). Descriptive statistical analysis will be conducted using SPSS Version 20 software. Descriptive statistics of data including sample size, minimum, maximum, mean, and standard deviations, as well as a Pearson's correlation coefficient for variables are provided in Chapter 4.

Reliability and validity. Reliability is concerned with the consistency and stability of the data collected by a study and what the researcher intended to measure (Bryman & Bell, 2011). Several existing studies provide statistical results helpful in describing internal reliability of the OAS instrument (Anderson-Rudolf, 1996; Di Pofi, 2002; Falletta, 1999; Fox, 1990; Stone, 2010). Table 5 includes these results. Prior research suggested this OAS instrument has been modified over time and the changes, including corresponding reliability data, are not well documented (Falletta, 1999). The OAS provided to this researcher by Burke is substantively the same as the instrument included in Falletta's research (1999), as well as Stone's research (2010).

Anderson-Rudolf (1996) notes the lack of a reliable and valid measurement of the external environment as a shortcoming of their study. This suggested the measurement of this construct occurred after 1996 and prior to Falletta's use of the OAS in 1999. Based on available research results, measurement of the external environment had the least internal reliability, as measured by Cronbach's alpha results less than 0.70. Otherwise, the results presented in Table 5 suggested stability of the OAS as a measurement of the constructs. This reliability data spanned different time periods and business environments in research. Reliability will be examined for the constructs in this study using Cronbach's

alpha to determine internal reliability of the construct measurements based on the study's data set.

Table 5

Internal Reliability of the Burke-Litwin OAS Variables of Interest

		Fox (1990)	Anderson-Rudolf (1996)		Falletta (1999)	Di Pofi (2002)	Stone (2010)	Stone (2014)
	n =	*260*	*4,644*	*10,078*	*268*	*188*	*256*	*362*
Survey Variables	# Items							
External Environment	4	n/a	n/a	n/a	0.59	0.58	0.55	0.52
Mission & Strategy	11	n/a	n/a	n/a	0.86	0.88	0.90	0.90
Leadership	7	0.97	0.84	0.83	0.90	0.93	0.93	0.94
Culture	12	0.95	0.83	0.78	0.85	0.88	0.89	0.89
Performance Outcomes	10	0.84	0.83	0.84	0.87	0.90	0.87	0.92

Multivariate normality. Multivariate normality of data is an assumption of most multivariate statistical analyses to ascertain the variables and linear combinations of the variables are normally distributed (Tabachnick & Fidell, 2007). Multivariate normality means all the univariate distributions are normal, including normal linear combinations and joint bivariate distributions between variables (Tabachnick & Fidell, 2007). Skewness in the measurement scale affects the variance and covariance between variables (Schumacker & Lomax, 2010). Kurtosis in the data is particularly problematic

for SEM based on its covariance analysis. Skewness and kurtosis will be evaluated to determine univariate normality of the data (Schumacker & Lomax, 2010).

Data are normally distributed when skewness and kurtosis are zero, meaning an equal number of data points exist on either side of the mean and without peaks in the data. Positive skew indicates most data are below the mean and a negative skew reflects most data are above the mean (Shumacker & Lomax, 2010). Kurtosis represents the peaks in data distribution. Positive kurtosis, leptokurtic, is demonstrated in scree plots by a higher peak and heavier short tails, while negative kurtosis, platykurtic, is reflected by a lower peak and thin and long tails (Tabachnick & Fidel, 2007). Data distribution can contain significant skewness, kurtosis, or both.

The AMOS program provides a test for nonnormality and interpretation of the results were based on Byrne's (2010) guidelines. According to Schummacker & Lomax (2010), a moderate range of kurtosis values is -1.5 to +1.5. However, Byrne points out that computer program typically rescale values to adjust for zero as the indicator of normal distribution. Though there is a lack of consensus on the point when extreme kurtosis exists (Kline, 2011), according to West, Finch, & Curran (1995) the rescaled value of seven or greater indicates the beginning of nonnormality. According to Byrne, The critical value (C.R.) value provided by AMOS represents Mardia's (1970, 1974) normalized estimate of multivariate kurtosis. According to Bentler (2005), estimates of multivariate kurtosis greater than 5.0 indicated nonnormality of data.

Structural equation modeling. ***Confirmatory factor analysis.*** Confirmatory factor analysis (CFA) is employed to develop a measurement model. This measurement model is the foundation of the structure equation modeling analysis used to test the hypotheses. The development of the measurement model is to assure validity of the model before testing the hypotheses. According to Bagozzi and Phillips (1982), content, convergent, and discriminant validity are key indicators of a measurement model's validity. Content validity of the Burke and Litwin's OP&C was determined through an examination of model development found in a comprehensive literature review (Nunnally, 1978). CFA will be used to test convergent and discriminant validity of the constructs within the conceptual model (Cohen, et al., 2003; Hair, et al., 2010; Schumacker & Lomax, 2010).

Factor loadings for each construct should be statistically significant and with values greater than 0.70 (Hair, et al., 2010). Additionally, the average variance extracted (AVE) provides an average percentage of variation explained by each item explaining a construct (Hair, et al., 2010). AVE values should be at least 0.50 (Hair, et al, 2010) to support discriminant validity. Discriminant validity is based on whether indicators load more heavily on their corresponding construct than on other constructs in the model. Factor loadings, AVE, and Cronbach's alpha indicating reliability will be used to evaluate measurement validity.

Structural model testing. Structural equation modeling (SEM) is the preferable statistical tool selected for this research study for two reasons. First, SEM is applicable for testing a structural theory, such as the Burke-Litwin OP&C model, which demonstrates hypothesized causal relationships between multiple variables. Second, SEM path analysis is an extension of multiple regression analysis to test multiple relationships between variables, including mediation, directional influences, reciprocal, and interdependence, simultaneously (Schumacker & Lomax, 2010). The primary advantage of SEM as an advanced regression analysis technique is its ability to establish causality between factors (Byrne, 2010; Bentler, 1988; Schumacker & Lomax, 2010).

Kline (2011) recommends several steps involved in SEM analysis, beginning with specification of structural equation model. This study specified a full latent variable model (Bryne, 2010) comprised of both a measurement model and the structural model reflecting the hypothesized relationships between the factors. The measurement model, also known as the confirmatory factor analysis (CFA) model, reflects the link between a latent variable and its observed variables. This study's model is also recursive, which means causal relationships are one directional and does not allow for reciprocity or feedback effects between variables.

The second step of SEM is to identify the model. SEM involves two steps for model identification: 1) create a measurement model for confirmatory factor analysis, and 2) create a structural equation model for path analysis (Bryne, 2010, Schumacker & Lomax, 2010). The structural equation model for this study is identified based on these two steps, involving validation of the measurement model, followed by analysis of fit

between the structural model and hypothesized conceptual model. An alternative model is not considered or tested in this study.

There are three estimation methods commonly used in calculating goodness-of-fit indices (Loehlin, 1987). These are generalized least squares (GLS), unweighted least squares (ULS), and maximum likelihood method (ML). Study specifics, such as theory testing versus theory development, sample size, and normality of data distribution, influence which of these is most appropriate (Anderson & Gerbing, 1988). ML estimation is one of the most common methods for estimations of structural path coefficients and model-fitting (Schumacker & Lomax, 2010). Multivariate normality of data is an assumption for using ML as an estimation technique. However, given the lack of options available in AMOS to deal with multivariate non-normality of data, ML estimation remains the most appropriate technique for testing the model (Bryne, 2011) in many cases.

Goodness of fit. Goodness-of-fit (GOF) is used to determine if there is a fit between the data representing the study organization and the relationships which have been hypothesized within the model. This is achieved through the evaluation of similarity between the theorized estimated covariance matrix and the observed covariance matrix (Hair, et al., 2010). Several fit indices exist, with few consistent guidelines for choosing which fit index will provide the most accurate analysis or conclusion. A model that generates consistent results across several indices indicates a good-fitting model (Tabachnick & Fidell, 2007). Therefore, this study will evaluate the chi-square (χ^2), normed chi-square (χ^2/df), comparative fit index (CFI), and root mean square error of

approximation (RMSEA) to assess GOF. Table 6 summarizes fit indices for model evaluation criteria.

Table 6

Indices for Model Fit Evaluation

Indices		Criteria
Chi-square	χ^2	Small number suggests better fit; non-significant $p > 0.05$ indicates model fit
Normed chi-square	χ^2/df	≤ 3.0 indicates model fit
Root mean square error of approximation	RMSEA	< 0.03: the best fit 0.03 - 0.05: good fit 0.05 - 0.08: acceptable fit >0.10: poor fit
Comparative fit index	CFI	> 0.90

Note: Adapted from "Multivariate Data Analysis: Global Edition, Seventh Edition," by J.F. Hair, W.C. Black, B.J. Babin, and R.E. Anderson, 2010 and from "A Beginner's Guide to Structural Equation Modeling, Third Edition," by R.E. Schumacker and R.G. Lomax, 2010.

The chi-square (χ^2) test, an absolute fit index, is the most commonly used statistic and is considered sensitive with large sample sizes (Kline, 2011). The χ^2 statistic is a function of sample size and difference between the observed and estimated covariance matrix, with small differences represented by a low χ^2 value. As sample size increases, such as greater than 750, or with increased measurement variables, χ^2 mathematically increases, which creates difficulty in achieving model fit (Cohen, et al., 2003; Hair, et al., 2010; Schumacker & Lomax, 2010; Tabachnick & Fidell, 2007). This suggests a weakness in using χ^2, such that good model fit may be suggested when sample sizes are

small, and bad model fit may be suggested when sample sizes are larger. Therefore, while χ^2 is commonly reported, it is not recommended as the only index used to determine model fit (Hair, et al., 2010). Normed chi-square approach considers χ^2 relative to the degrees of freedom, with a $\chi^2/df \leq 3.0$ ratio suggesting better model fit, except in cases of large sample sizes or complex models (Hair, et al., 2010).

Root mean square error of approximation (RMSEA) was developed to correct for the shortcomings of χ^2 pertaining to sample size and model complexity. According to Hair, et al. (2010), RMSEA is best suited for evaluating model fit based on larger sample sizes, such as greater than 500 respondents. A confidence interval approach to RMSEA values .03 to .08 allows for variation in rejecting the model fit. Comparative fit index (CFI) is an incremental fit index, sometimes referred to as model comparison (Shumacker & Lomax, 2010). For this study, RMSEA and normed chi-square were appropriate for evaluating the system wide data set relative to model fit. CFI was used to assess how well the estimated model compared with a null model, with uncorrelated observed variables or covariances set to zero.

In the situation where the dataset does not fit the theoretical model, SEM suggests modification indices for an improved fit. This post hoc modification shifts the analysis from confirming a theoretical model to exploratory or model creation, often resulting in indefensible models based on the unique sample data set (Browne & Cudeck, 1993; Tomarken & Waller, 2003). Any change in specifications must be explicitly accounted for (Tomarken & Waller, 2003) and such a model requires cross-validation with independent sample data (Browne & Cudeck, 1993). Post hoc modification was not conducted in this study.

Testing of study hypotheses through path analysis. The structural model analysis examines the study hypotheses through path analysis. Path analysis uses bivariate correlations to estimate the strength of relationships between constructs within the model. The estimated correlations are similar to regression coefficients and are used to compute predicted values for dependent variables. Unlike regression analysis, SEM indicates measurement error and can provide estimated values for factors when multiple variables are involved in defining the construct (Hair, et al, 2010). Specifically the standardized estimated path coefficient, with its associated significance level, indicate direct and indirect significant affect, or lack thereof, between factors. This is the final step in SEM analysis.

Summary

In this chapter, research design and methodology were discussed. Most importantly, the study framework and development of research hypotheses development was outlined based on existing literature. Data collection procedures, survey instrument, and sample plan were also explained. A detailed description of methodology and techniques used to test the hypothesized study model and structural relationships was provided. Chapter four contains the study's data analyses results.

Chapter Four

Data Analyses Results

This chapter presents data analyses results, beginning with descriptive statistics of the study data. This is followed by reliability analysis of the survey instrument, and development of the confirmatory factor analysis (CFA) model. This chapter ends with the analysis of the structural equation modeling (SEM) for hypotheses testing and summary of data analysis results.

The purpose of this study was to test the relationships among transformational factors and performance outcomes hypothesized by Burke and Litwin (1992), specifically external environment, mission and strategy, leadership, culture, and performance outcomes. In particular, this study focused on examining these relationships within the contextual setting of a technical college system. The conceptual study model included eight hypothesized relationships among these factors based on literature. Figure 6 on page 43 illustrates the study's conceptual model.

Descriptive Statistics

The study sample was derived from volunteer employee participation within a statewide technical college system. This system consisted of four primary campuses, with several satellite operations, geographically dispersed across a southwestern state within the United States of America. Table 7 summarizes sampling response rates across the campuses. The sample population included 1303 employees, from which 568

participants completed the survey, representing a 44% response rate across the technical college system. Response rates among campuses ranged between 34 to 89%, which are included in Table 7. Though reporting of demographic data for respondents was limited by the study organization, demographic data was provided for the sample population and is also included in Table 7.

Table 7

Respondent Response Rate and Demographic Information

	Accessible Population	**Actual Sample**	**Response Rate**	**Ethnicity**				**Gender**	
Campus	*Total Employees*	*Participants*		*Caucasian*	*Hispanic*	*African-American*	*Other*	*Male*	*Female*
West	200	104	52%	78%	18%	3%	1%	41%	59%
East	92	82	89%	66%	4%	30%	0%	48%	52%
Central	567	231	41%	78%	9%	10%	3%	57%	43%
South	444	151	34%	18%	80%	1%	2%	47%	53%
Total	1303	568	44%	60%	29%	8%	2%	50%	50%

Respondents were asked to identify the time period of employment based on three time periods relative to the organizational change implementation. These options identify whether the respondent began employment prior to the initial planning for organizational change, during the initial planning phases of organizational change, or whether respondents began employment most recently. Forty-eight percent of the respondents have been with the organization eight or more years, 26% have been with the

organization three to eight years, and 26% have been with the organization less than three years.

Respondents were also asked to self-identify their position within the organization, with five percent as executive management, 23% as middle management or supervisor level, 27% faculty members, 26% were administrative or clerical, and 18% identified "other" for their position in the organization. The "other" category was not further defined in the survey. This respondent information is provided by location and summarized in Table 8.

Table 8

Respondents' Employment Tenure and Work Level

	West	**East**	**Central**	**South**	**Total**	
	n	*n*	*n*	*n*	*n*	*%*
Years of Employment						
– Less than 3 years	22	35	53	37	147	26%
– 3 - 8 years	28	18	65	39	150	26%
– More than 8 years	54	29	113	75	271	48%
Work Level						
– Executive Management	5	7	13	6	31	5%
– Middle Management/Supervisor	21	12	58	39	130	23%
– Faculty	32	28	61	34	155	27%
– Administrative/Clerical	22	23	61	41	147	26%
– Other	23	12	37	31	103	18%
– Blank	1	0	1	0	2	1%

Table 9 summarizes total sample descriptive statistics, including sample size, minimum, maximum, mean, and standard deviation for each study variable. Descriptive statistics for indicators are included in Appendix C. Mean results ranged from a low of 3.16 to 3.55, with standard deviations ranging from 0.78 to 1.16.

Table 9

Descriptive Statistics for Each Study Factors

	Mean	**Range**		**Standard Deviation**
Study Variable		*Minimum*	*Maximum*	
External Environment	3.53	1.00	5.00	0.78
Mission and Strategy	3.55	1.00	5.00	0.81
Leadership	3.23	1.00	5.00	1.16
Culture	3.16	1.00	5.00	0.83
Performance	3.31	1.00	5.00	0.94

Note: N=568

Instrument Reliability and Validity

Table 10 provides internal consistency data for the Burke-Litwin Organizational Assessment Survey (OAS) constructs included in this study, based on the Cronbach's alpha test. The data collected by this study had reliability results consistent with prior research findings. Cronbach's alpha (α) equal to .70 or above indicated acceptable measurement reliability (Hair, et al., 2010). Similar to other studies, mission and strategy, leadership, culture, and performance indicated acceptable reliability with α greater than 0.90, and external environment construct indicated a lack of internal reliability with α equal to 0.60. Reliability for external environment was improved to an acceptable level through additional analysis of item factor loadings discussed later in this chapter.

Table 10

Internal Consistency of the Burke-Litwin OAS Constructs

		Fox (1990)	Anderson-Rudolf (1996)		Falletta (1999)	Di Pofi (2002)	Stone (2010) (2014)		Wooten (2014)
	N =	*260*	*4,644*	*10,078*	*268*	*188*	*256*	*362*	*568*
Survey Variables	**# Items**								
External Environment	4	n/a	n/a	n/a	0.59	0.58	0.55	0.52	0.60
Mission & Strategy	11	n/a	n/a	n/a	0.86	0.88	0.90	0.90	0.92
Leadership	7	0.97	0.84	0.83	0.90	0.93	0.93	0.94	0.96
Culture	12	0.95	0.83	0.78	0.85	0.88	0.89	0.89	0.92
Performance Outcomes	10	0.84	0.83	0.84	0.87	0.90	0.87	0.92	0.93

Structural Equation Modeling

Confirmatory factor analysis. Confirmatory factor analysis (CFA) is step one of structural equation modeling (SEM) (Bryne, 2010; Hair, et al., 2010; Schumacker & Lomax, 2010). This step one is often referred to the measurement model development phase of SEM. This measurement model provides the foundation of the conceptual model to be tested by SEM. CFA tests for reliability and validity of individual factor items associated with a specific factor, as well as analysis of the interaction among all factors in the final measurement model. The final CFA model is sometimes referred to as the measurement model.

The initial test of indicators to designated factors revealed one of the four items designed to measure external environment was not significant. This item was removed as an indicator of the external environment factor. All other indicators loaded significantly.

According to Hair (2010), indicators should have factor loadings greater than 0.50. One culture indicator was removed with a factor loading of 0.48, with all other indicators above the 0.50 threshold. This data is included in Appendix D. The initial goodness-of-fit between the CFA model and the data set reveals a less than acceptable fit based on the following indices: chi-square $\chi^2_{(892)} = 4358.696$, $p < 0.000$; normed chi-square $\chi^2/df = 4.886$; comparative fit index (CFI) = 0.825; and root mean square error of approximation (RMSEA) = 0.083.

Parsimonious model trimming. Removal of indiscriminate indicators improved the goodness-of-fit, without creating negative theoretical consequences (Hooper, Coughlan, & Mullen, 2008). Each construct was tested for covariance between indicators, and items with a high covariance with another observed variable were removed to improve the measurement model (Hooper, Coughlan, & Mullen, 2008; Yuan & Bentler, 1997).

The final results of trimming included the removal of an additional item from external environment, leaving two indicators, one item removed from mission and strategy, resulting in ten indicators, and seven items removed from culture, with five indicators remaining for measurement of the constructs. No indicators were removed from the measurement of the leadership construct. Additionally, removal of these indicators did not alter or diminish the construct for which the indicators measured (Yuan & Bentler, 1997). The final confirmatory factor analysis is illustrated in Figure 7.

The final CFA model exhibit acceptable fit based on the following indices: chi-square $\chi^2_{(242)} = 733.138$, $p < 0.000$; normed chi-square $\chi^2/df = 3.029$; comparative fit

index (CFI) = 0.954; and root mean square error of approximation (RMSEA) = 0.060 (Hair, et al., 2010; Schumacker & Lomax, 2010).

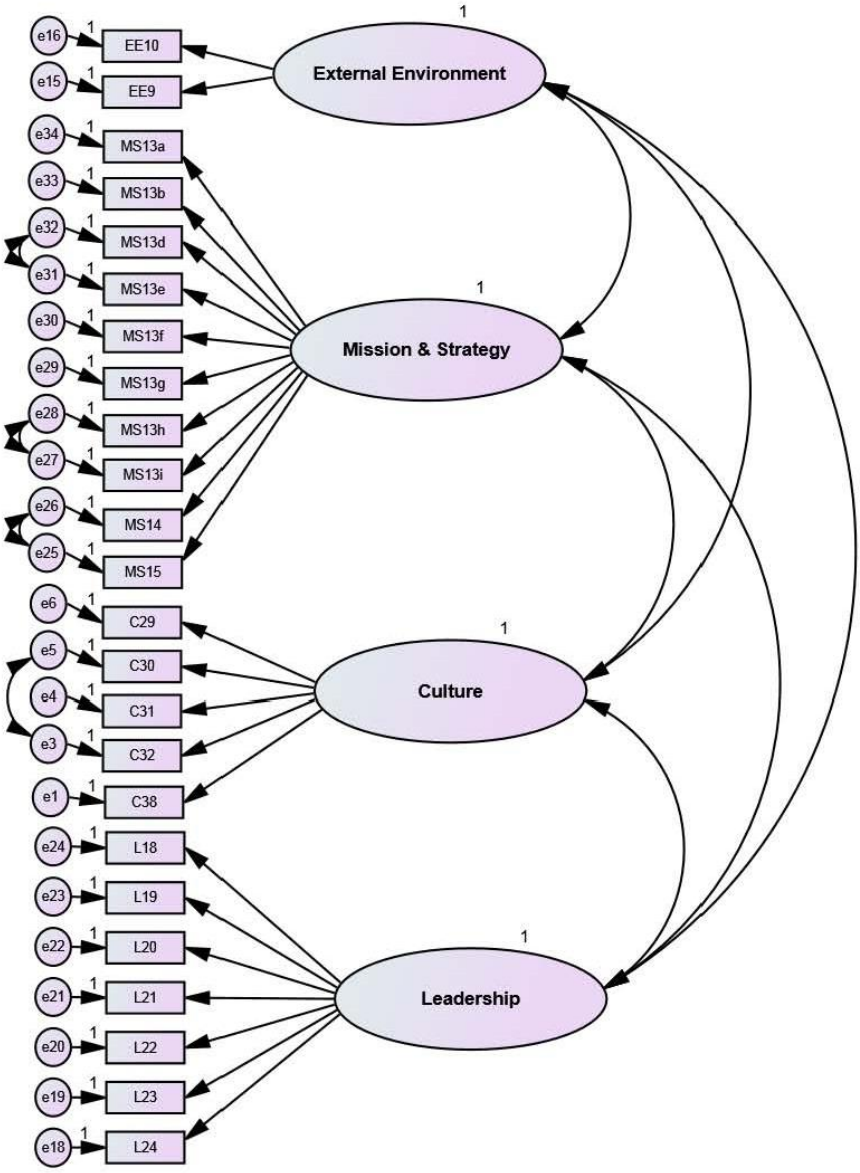

Figure 7. Final confirmatory factor analysis model after parsimonious trimming.

The testing of indicators to the dependent variable, performance outcomes, resulted in the removal of two indicators. The performance outcomes factor was

measured by eight observed variables as depicted in Figure 8. The final CFA model and the performance outcomes factor as the dependent variable were combined to create the study model used in SEM.

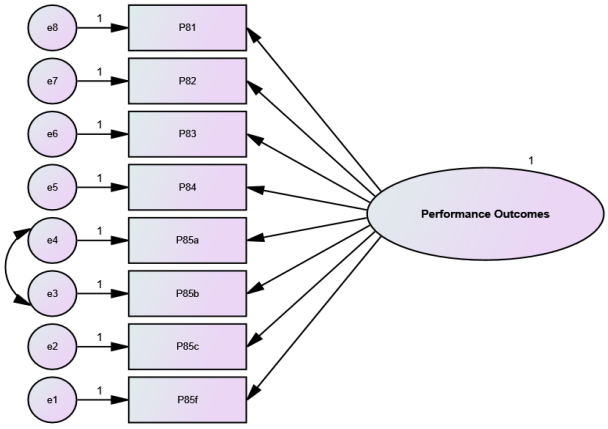

Figure 8. Measurement indicators for performance outcomes factor.

Testing of assumptions. Independence and multivariate normality are the fundamental assumptions of SEM analysis. Independence is addressed through random sampling, which results in independent observation data. This assumption was addressed by the study's sampling design. The multivariate normality assumption is the most fundamental assumption of multivariate analysis (Hair, et al., 2010).

Normality of data was tested through skewness and kurtosis analysis (Schumacker & Lomax, 2010). When data is normally distributed, skewness and kurtosis are zero, meaning an equal number of data points exist on either side of the mean with no peaks in the data. Skewness was minimal with a range from -0.89 to 0.245. Kurtosis was moderate with a range from -1.229 to 0.493 (Schumacker & Lomax, 2010). According to Bryne (2010), computer programs typically rescale values to adjust for zero as the indicator of normal distribution. For this reason, estimates of kurtosis greater than 5.0 would have indicated data nonnormality. Appendix E includes the normality assessment table for

observed variables in the model. The assumption of normality of data is supported through an AMOS assessment.

The measurement model was tested for construct validity. Construct validity is based on convergent and discriminant validity whereby observed variables measure the same factor and the factors are distinctly different in their measurement of the study concept (Schumacker & Lomax, 2010). Table 11 includes the results of this AVE analysis. Convergent validity was supported based on composite reliabilities (CR) greater than 0.7, CR greater than the average variance extracted (AVE), and AVE greater than 0.50 for all factors (Tabachnick & Fidell, 2007).

Discriminant validity was not supported based on the correlation between two constructs were less than the square root of the AVE (Hair, et al, 2010). The square root of AVEs for culture and leadership were less than the absolute value of the correlations between these two factors. This suggested potential lack of discriminant validity of these constructs, as measured by the Burke-Litwin OAS.

Table 11

Factor Average Variance Extracted Analysis

	Composite Reliability	**AVE**	**1**	**2**	**3**	**4**	**5**
External Environment	0.755	0.623	0.790				
Mission & Strategy	0.917	0.527	0.580	0.726			
Leadership	0.956	0.757	0.680	0.687	0.870		
Culture	0.873	0.547	0.660	0.665	*0.902*	0.740	
Performance Outcomes	0.924	0.603	0.656	0.690	0.759	0.766	0.771

Another indicator of discriminant validity involves common method bias. Research measurement methods seek to measure study factors and when variation in the observed variable's measurement is attributable to the use of one data collection method, common method bias can occur (Doty & Glick, 1998; Jones & Runyan, 2013; Podsakoff, P., MacKenzie, & Podsakoff, N., 2003). Harman's one-factor test (Podsakoff & Organ, 1986) is one method for assessing the presence of common method bias. The Harman's one-factor test revealed six factors with Eigenvalues greater than one and collectively accounting for 66% of the model. This suggested little to no potential influence in the data attributable to common method variance (CMV).

Structural model testing. The measurement model was converted to the structural model representing the hypothesized study model. This structural model was then used to test the research hypothesized relationships among the Burke-Litwin (1992) transformational factors, external environment, and performance outcomes as hypothesized in the study model. The conceptual model demonstrates an acceptable fit to the study's data set, based on the following goodness-of-fit indices: chi-Square $\chi^2_{(451)}$ = 1445.947, $p < 0.000$; normed chi-square χ^2/df ratio = 3.206; CFI = 0.932; and RMSEA = 0.062 (Hair, et al, 2010; Schumacker & Lomax, 2010). Figure 9 illustrates the structural equation model.

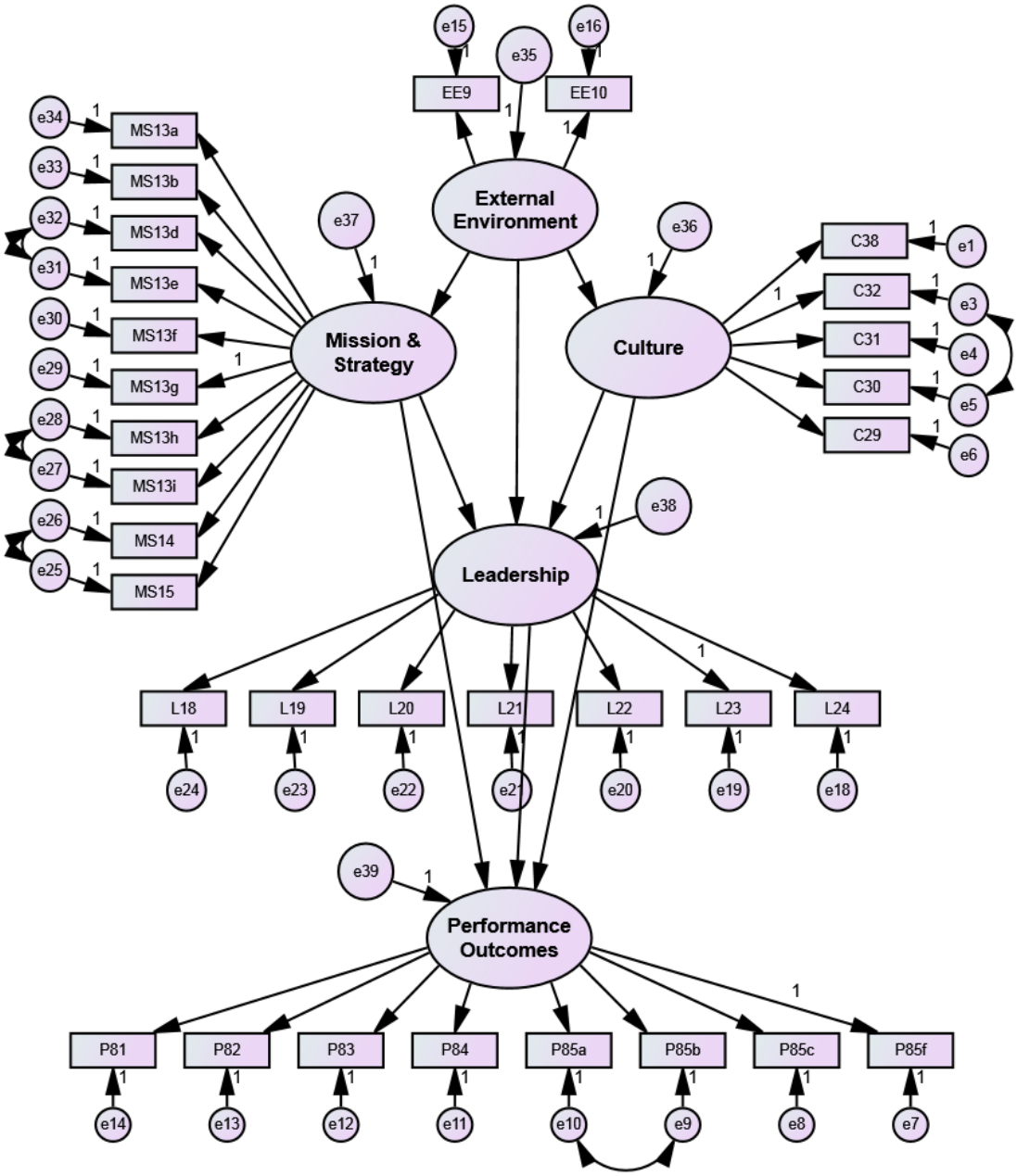

Figure 9. Structural equation model for testing.

Hypotheses testing results. Eight hypothesized relationships among five factors included in the Burke-Litwin OP&C model (1992) were tested. Table 12 includes SEM analysis results, including standardized regression weights for the direct relationships between factors. Hypotheses one through seven were supported and hypothesis eight was not supported.

Table 12

Analyses Results for Structural Equation Modeling

Hypotheses				Standardized Estimate	Estimate	S.E.	C.R.
H1	**Mission & Strategy**	←	**External Environment**	0.716	0.644	0.050	12.82***
H2	**Leadership**	←	**External Environment**	0.168	0.198	0.081	2.453*
H3	**Culture**	←	**External Environment**	0.811	0.880	0.065	13.627***
H4	**Leadership**	←	**Culture**	0.688	0.749	0.061	12.214***
H5	**Leadership**	←	**Mission & Strategy**	0.127	0.166	0.051	3.244**
H6	**Performance Outcomes**	←	**Culture**	0.630	0.470	0.062	7.523***
H7	**Performance Outcomes**	←	**Mission & Strategy**	0.232	0.209	0.037	5.726***
H8	**Performance Outcomes**	←	**Leadership**	0.088	0.060	0.055	1.107

Note: *** - $p < 0.0001$; ** - $p < 0.005$; * - $P < 0.05$

Hypothesis One (H1): The external environment significantly influences the mission and strategy of the study organization was supported.

H1 is supported with a significant relationship between the external environment and the organization's mission and strategy (H1, $\gamma = 0.716$, $p < 0.001$).

Hypothesis Two (H2): The external environment significantly influences the leadership within the study organization was supported.

H2 is supported as there is a significant relationship between the external environment and the leadership within the study organization. (H2, $\gamma = 0.168$, $p < 0.05$).

Hypothesis Three (H3): The external environment significantly influences the culture within the study organization was supported.

H3 is supported as there is a significant relationship between the external environment and the organization's culture (H3, $\gamma = 0.811$, $p < 0.001$).

Hypothesis Four (H4): Culture has a significant influence on leadership within the study organization was supported.

H4 is supported as there is a significant relationship between culture and leadership (H4, $\gamma = 0.688$, $p < 0.001$).

Hypothesis Five (H5): Mission and strategy has a significant influence on leadership within the study organization was supported.

H5 is supported as there is a significant relationship between mission and strategy and leadership (H5, $\gamma = 0.127$, $p < 0.005$).

Hypothesis Six (H6): Culture significantly influences performance outcomes within the study organization was supported.

H6 is supported as there is a significant relationship between the culture and performance outcomes (H6, $\gamma = 0.630$, $p < 0.001$).

Hypothesis Seven (H7): Mission and strategy significantly influences performance outcomes within the study organization was supported.

H7 is supported as there is a significant relationship between mission and strategy and performance outcomes (H7, $\gamma = 0.232$, $p < 0.001$).

Hypothesis Eight (H8): Leadership significantly influences performance outcomes in the study organization was not supported.

H8 is not supported as there is a non-significant relationship between leadership and performance outcomes (H8, $\gamma = 0.088$, $p > 0.05$).

Figure 10 illustrates the final results for the hypothesized conceptual model. A detailed SEM model including standardized estimates for all variables is included in Appendix F.

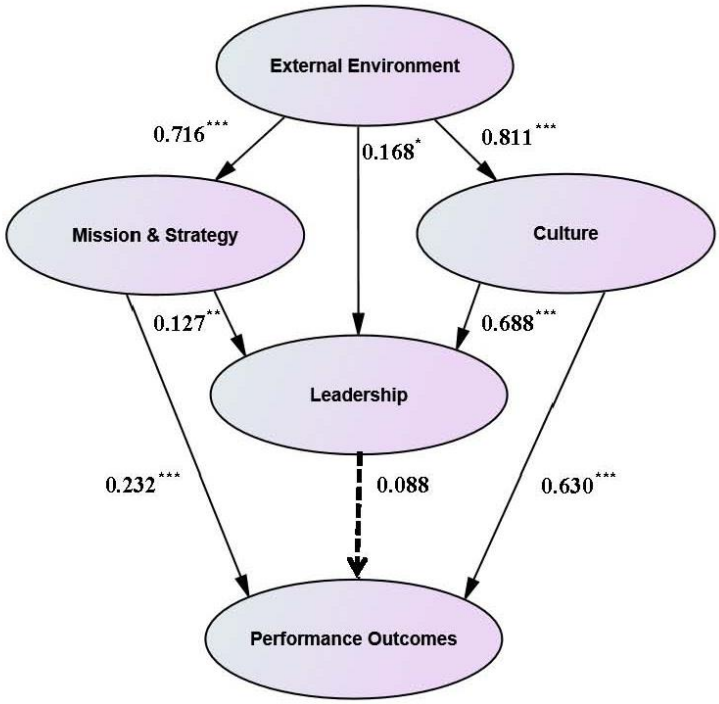

Figure 10. Final study model depicting standardized estimates for hypothesized relationships among transformational factors.

Direct, indirect, and total effects among factors. Direct, indirect, and total effects provide additional data to evaluate the relationships among variables. The results suggested a strong direct influence, greater than 0.80, between the external environment and culture. A strong direct effect, greater than 0.70, is also present between external environment and mission and strategy. Culture and mission and strategy also had a direct influence on leadership, with culture's direct effect greater than mission and strategy's direct effect. The external environment had a low direct effect on leadership, with a higher indirect effect. Results also indicated culture and mission and strategy had both direct and indirect influences on performance outcome. Table 13 includes standardized direct, indirect, and total effects among factors.

Table 13

Standardized Direct, Indirect, and Total Effects Among Factors

		External Environment	Culture	Mission & Strategy	Leadership
Culture	*Direct*	0.811			
	Indirect	0.000			
	Total	0.811			
Mission & Strategy	*Direct*	0.716			
	Indirect	0.000			
	Total	0.716			
Leadership	*Direct*	0.168	0.688	0.127	
	Indirect	0.649	0.000	0.000	
	Total	0..817	0.688	0.127	
Performance Outcomes	*Direct*	0.000	0.630	0.232	0.088
	Indirect	0.749	0.061	0.011	0.000
	Total	0.749	0.691	0.243	0.088

Post hoc hierarchical linear regression analyses. Although the SEM results indicated an acceptable fit between the proposed study model and the data set, additional questions emerged during the study. As noted in the limitations of this study, analyses did not account for control variables or potential differences between respondent groups. Two variables representing position with the organization and years with the organization were of particular interest. The need for research of organizational change based on position within an organization has been suggested by others (Gilley, et al., 2009b). The period of employment was perceived by the researcher as important, given the significance of change within the study organization, though existing research was not found to support this assertion.

However, research does suggest as tenure increases, so does resistance to change (Finkelstein & Hambrick, 1990). Respondents were asked to self-identify their position within five categories, including executive management, middle management/supervisor, faculty, administrative/clerical, and other. The *other* category was not further defined. Respondents were also asked to indicate whether they had been employed more than eight years, three to eight years, or less than three years. These time periods correspond to the planning and implementation of organizational change within the study organization.

Post hoc hierarchical linear regression analyses were performed to explore these potential differences. Table 14 presents the results of post hoc hierarchical linear regression analyses of these two control variables and the study factors. The results suggest there is no significant difference between respondents based on their position within the organization. However, there may be some significant differences between

respondents based on when they began employment with the study organization. Further examination of this potential was outside the scope of the study. However, it provides a basis for future recommended research relative to understanding individuals' perception of organizational change.

Table 14

Results of Hierarchical Linear Regression Analyses

	Model	β	R^2	Adjusted R^2	ΔR^2	F
I.	*Direct effects and interaction of work position and years with organization on external environment*					
	Position	-0.026				
	Length of employment	-0.110**				
	Position		0.001	-0.001	0.001	0.335
	Length of employment		0.014**	0.011**	0.014**	4.070*
II.	*Direct effects and interaction of work position and years with organization on mission and strategy*					
	Position	0.038				
	Length of employment	-0.070				
	Position		0.004	0.002	0.004	2.306
	Length of employment		0.009	0.006	0.005	2.596
III.	*Direct effects and interaction of work position and years with organization on leadership*					
	Position	-0.007				
	Length of employment	-0.214***				
	Position		0.000	-0.002	0.000	0.087
	Length of employment		0.023***	0.020***	0.023***	6.738**
IV.	*Direct effects and interaction of work position and years with organization on culture*					
	Position	0.005				
	Length of employment	-0.111**				
	Position		0.000	-0.001	0.000	0.244
	Length of employment		0.012**	0.009**	0.012**	3.543*
V.	*Direct effects and interaction of work position and years with organization on performance outcomes*					
	Position	0.027				
	Length of employment	-0.113*				
	Position		0.002	0.000	0.002	1.180
	Length of employment		0.012*	0.008*	0.010*	3.362*
VI.	*Direct effects and interaction of work position and years with organization on study variables as a group and performance outcomes as dependent variable*					
	Position	0.025				
	Length of employment	0.016				
	External environment	0.115**				
	Mission and strategy	0.119**				
	Leadership	0.262**				
	Culture	0.466**				
	Position		0.002	0.000	0.002	1.180
	Length of employment		0.012*	0.008*	0.010*	3.362*
	All variables		0.678***	0.674***	0.666***	195.859***

Note: N=566; ***, p < 0.001; **, p < 0.01; *, p < 0.05.

Summary

Chapter four includes results of the data analyses. The results provided new reliability and validity data for the Burke-Litwin OAS instrument. Specifically, the external environment factor has repeatedly demonstrated a low Cronbach's alpha as a measure of factor reliability in previous research studies (Di Pofi, 2002; Falletta, 1999; Stone, 2010, 2014). The results of this study supported the removal of one of the four indicators based on individual measurement validity. Factor reliability for external environment based on the remaining three indicators resulted in an acceptable Cronbach's alpha greater than 0.70 (Hair, et al., 2010). AVE analysis results indicated potential lack of discriminant validity in the measurement of culture and leadership constructs. While this finding will be discussed in chapter five in the context of all results, it suggests a need for future research and scale development of the Burke-Litwin OAS instrument.

The results supported an acceptable fit exists between the study data set and the conceptual study model. Significant and positive relationships between the external environment and each of the transformational factors posited in the Burke-Litwin OP&C model (1992) were supported by the study. Additionally, culture and mission and strategy had significant and positive influence on leadership within the study organization. While a positive and significant relationship was supported between culture and performance outcomes, as well as mission and strategy to performance outcomes, the relationship between leadership and performance outcomes was not supported. Examination of direct versus indirect effects among variables indicated indirect effects exist among the factors.

Chapter Five

Discussion and Conclusions

This chapter discusses study results relative to the research questions, as well as conclusions of this study. The Burke-Litwin Organizational Assessment Survey (OAS) (Burke, n.d.) reliability and validity are reviewed and recommendations are made based on the study results. Future research and implications of the study conclude this chapter.

Study Summary

The purpose of this study was to test the Burke-Litwin Organizational Performance and Change (OP&C) model (1992) within a statewide technical college system environment. The Burke-Litwin OP&C model has been developed and tested primarily in traditional business and industry workplace settings. However, the difference between the external environment in these settings and that of the study organization appeared to be substantial and worthy of further investigation. Specifically, this study sought to investigate whether these differences altered the relationships between transformational factors as posited by Burke and Litwin.

The study organization consisted of four geographically dispersed main campuses and satellite campuses, across a centrally located state within the United States of America. This college system has experienced transformational change over the last three years, as a result of implementing a legislatively mandated performance-based funding model. Beginning in September 2011, the state-funded technical college system agreed to a funding model whereby the system receives 100% of its state funding based

on students' employment and subsequent return to the state's economic base (Kelderman, 2013). This change in funding created externally-defined performance measurements, as well as the need for transformational change across the organization. This implementation of performance-based funding across the statewide technical college system provides the organizational change context in which the Burke-Litwin OP&C Model (1992) was tested. The results are discussed in the context of the three research questions posed for the study.

Research Question One

Is the Burke-Litwin Organizational Performance and Change (OP&C) model applicable to educational institutions given the externally defined mission and performance outcomes?

The primary difference between the study model and the Burke-Litwin OP&C model is the hypothesized direct relationship among the factors. The Burke-Litwin OP&C model contains reciprocal relationships between the model factors, which provide a realistic view of organizational complexity, according to Burke (2011). Reciprocity allows for variations of these relationships to exist, and remain consistent with the model. The study model represents a simplified portion of the Burke-Litwin OP&C model (1992) including only one-way relationships between mission and strategy, leadership, and culture, in response to external environment and achieving performance outcomes.

The study results provide support of the Burke-Litwin model applicability within the higher education institutional setting with some exceptions. The study findings support the extraordinary influence of external environment within the study organization. Burke (2011) has espoused external environment as a driver of

organizational change. However in this study, the influence of external environment appears to permeate through culture and mission and strategy. Whereas the Burke-Litwin OP&C model reflects a direct influence between external environment and leadership, the results of this study indicate an indirect relationship exists between these two factors. This is where the study results deviate from the Burke-Litwin OP&C model. This deviation provides support for future research and model development.

With the exception of one, all relationships hypothesized in the study model were supported. The relationships among study factors are discussed in response to research question two. Additionally, the confirmatory factor analysis suggests the Organizational Assessment Survey (OAS) is a reliable and valid instrument for assessing the study organization, with some exceptions. These exceptions are discussed following later in this chapter. The study results also provide new information about measurement indicators of factors important to future research and development of the Burke-Litwin OAS.

Research Question Two

What are the relationships between the external environment, transformational factors, and performance outcomes within a technical college system?

Study results indicate significant relationships exist among the organization's external environment and transformational factors. These study results are congruent with previous research indicating the influence of external environment on organizations in general (Andrews, et al., 2008; Burke, 1994), as well as external stakeholder influence on postsecondary institutions (Gumport, 2000; Kerr, 1984; Kezar, 2001; Tierney, 1988). However, the results extend this previous research with more definitive findings. Not

only were the relationships statistically significant, the results indicate a strong direct influence of external environment exerted on the organization's culture and mission and strategy factors. And the relationship between external environment and leadership, though statistically significant, explained much less variance, as compared to the relationships among the other transformational factors.

These results are interesting in the context of what is expected from leadership today. As discussed previously, leadership is often expected to choose a mission and strategy that meets the needs of both the organization and external environment, as well as manage organizational culture as a key factor in organizational performance. The study results begin to suggest leadership may be limited in its ability to influence the mission and strategy, as well as organizational culture. While this finding may begin to explain the unique struggle of transformational change within higher education, without additional SEM research of the Burke-Litwin OP&C model, study results should not be interpreted beyond the study organization.

In this study, the relationship between leadership and performance outcomes is not significant. However, the relationships between performance outcomes and mission and strategy, as well as culture, demonstrate strong practical significance in addition to statistical significance. These relationships are generally consistent with the Burke-Litwin OP&C model, and provide support for the importance of alignment between external environment and performance measurements in higher education. However, perhaps more importantly, the results suggest culture has a more significant influence on other transformational variables important to organizational change, than has previously been conjectured.

Research Question Three

Does the external environment influence change the role of leadership in achieving transformational change within a higher education setting?

According to Burke (2011), an organization's leadership responds to the external environment through the development of its mission, strategy, and culture. The Burke-Litwin OP&C model (1992) illustrates leadership as a mediator between the external environment and these factors. However, the Burke-Litwin model also indicates that mission and strategy and culture influence the leadership construct. The current study found that mission and strategy and culture strongly influence leadership in the host organization.

The present study results suggest when a strong direct external environment influence exists over the organization, there is a stronger impact on culture and mission and strategy. This leads to an indirect and less influential impact of external environment on leadership. The diminished influence of leadership, as compared to mission and strategy and culture factors on performance outcomes, suggests a constraint on organizational leaders within the study organization. Specifically, if higher education leadership has minimum influence on the development of mission, strategy, and culture, can leadership be transformational in the organization? Or is transformational leadership something different in higher education institutions, as compared with transformational leadership in other organizations?

The results of this study suggest that external constituents influence the institution's culture and mission and strategy, more than the actions of leadership. There was a significant and positive relationship between mission and strategy and performance

outcomes. However, the influence exerted by mission and strategy is much less than the relationship of culture on performance outcomes. Among the three transformational factors, culture represented a higher level of influence within the study model, followed by that of mission and strategy. The study results supported a significant and positive relationship between culture and performance outcomes. This relationship was consistent with previous research in higher education that found culture to be a mediating factor between the external environment and performance (Cruz, 2010; Chafee & Tierney, 1988; Kuh & Whitt, 1988; Smart, et al., 1997).

The relationship between leadership and performance outcomes was not significant. Burke (2011, p. 248) admits that while leaders make a difference in organizational change, "they do not account for all or even most of the variance in explaining organizational performance." The Burke-Litwin OP&C model includes seven additional factors between leadership and performance outcomes, which were not included in this study. The lack of significance between leadership and performance outcomes found in this study suggests that these seven factors may moderate the relationship. This is an area for future research.

Burke-Litwin Organizational Assessment Survey

The Burke-Litwin Organizational Assessment Survey (OAS) (Burke, n.d.) was designed to measure the Burke-Litwin OP&C model (1992) constructs. Reliability and validity tests of the survey instrument are consistent with prior research findings (Anderson-Rudolf, 1996; Di Pofi, 2002; Falletta, 1999; Stone, 2010, 2014) and provide support for its use in the study organization. Based on the literature review conducted, this study is one of the few studies to test model constructs using structural equation

modeling (SEM), including confirmatory factor analysis. The results of this analysis are valuable in demonstrating reliability and validity of the observed variables as measures of factors contained in the OP&C model, as well as validity of the OAS.

External environment factor measurement. The OAS measured the external environment construct based on four indicators. The study results were consistent with prior research and the Cronbach's alpha test (Anderson-Rudolf, 1996; Di Pofi, 2002; Falletta, 1999; Fox, 1990; Stone, 2010, 2014) indicating this factor was the least reliable among the model factors. However, confirmatory factor analysis (CFA) provided additional information that indicated the strength of each item as a measurement of the factors. Based on this information, the first question (*What is the rate of change your organization is currently experiencing?)* was found to be a non-significant indicator of external environment. The face validity of the question appeared weak, with an assumption that the change was a direct result of external environment. When this question was removed from the dataset, the reliability for the remaining three questions as a measurement of external environment as measured by Cronbach's alpha improved to an acceptable level ($\alpha > 0.70$). Based on this finding, and in response to previous recommendations that this element of the OAS be improved, the removal of this question from the OAS, or as a measurement of external environment, is recommended.

Mission and strategy factor measurement. The OAS measured mission and strategy with 11 indicators. Three sets of indicators were similar as indicated by a high level of covariance in the data and one question was recommended for removal based on its lack of discriminant measurement with other indicators. The removal of one indicator had minimum statistical effect on the reliability test results.

Culture factor measurement. The OAS measured culture with 12 indicators, with six questions posed as measurement of organizational culture, and six questions posed as measurements of an organization's capacity to change its culture. As a group these indicators showed a high level of reliability as measured by Cronbach's alpha for the measurement of culture. However, CFA results showed several indicators were indiscriminant, by influence or measurement of other factors. The second question in this section (*Do employees act in ways that support the mission and strategy?*) is an example of an indicator that could also measure another factor in the model (e.g. mission and strategy). A total of seven questions were removed for the purposes of testing the model fit.

CFA provides additional analysis of validity, including composite reliabilities, factor loadings, and average variance extracted (AVE). AVE analysis results indicate potential lack of discriminant validity in the measurement of culture and leadership constructs. This suggested the measurement scale for culture may also be measuring the leadership factor. This should be considered in future research involving the OAS instrument.

Performance outcomes factor measurement. The OAS measured performance outcomes with ten indicators. Two of these indicators were found to be non-discriminant and removed from the dataset for model testing. One of the questions removed (*To what extent does your organization earn recognition as a world class competitor in our industry?*) appears to lack face validity within the higher education environment. This finding may suggest a need for question modification, based on specific industry environments.

Limitations, Implications, and Future Research

There were several limitations noted in the introduction of this study. One of the limitations of this study was the lack of multi-group analyses, due to the small sample size for each campus. There are several populations within the study organization for which analyses could be conducted for comparison purposes. The organization includes four geographically dispersed campuses. Each of these campuses is led by a president and is characterized by its local community. Analysis of data by campus and further research of differences between campus leadership and campus' external environment would further inform the results of this study.

Respondents were asked to self-identify how long they had been employed with the organization. The three categories captured respondents according to implementation of organizational change (e.g., before the planning phase, during initial phase of implementation, or employed since the implementation of the new funding formula). Post hoc hierarchical regression analyses of the data based on this control variable revealed potential significance between respondents' perceptions of the study factors, except for the mission and strategy factor. This suggests a need for future research in the differences among respondents according to employment tenure and phases of organizational change.

The results of this study provided basis for further development of the Burke-Litwin OAS. Conducting confirmatory factor analysis (CFA) using structural equation modeling (SEM) on additional data sets would be beneficial in determining consistency of results. The OAS could be improved and further developed based on consistent factor

loadings for observed variables to factors, covariance analyses, and composite reliabilities.

The study results provide additional information of the relationships between organizational factors during transformational change. While this study was limited to organizational level factors, or the transformational factors posited by Burke and Litwin (1992), future research should expand to include other factors reflected in the model. Specifically, the results suggest the presence of additional factors, not included in this study, to further explain the relationship between leadership and performance outcomes. Studies designed with SEM as a methodology are needed to further investigate the applicability of the Burke-Litwin OP&C model and its relationships between factors within contextual settings.

The study results represent a single system of higher education and are limited in generalizability to other organizations or higher education as a whole. The minimal SEM testing of the Burke-Litwin OP&C model in other organizations further limits the conclusions of this study. Studies designed with SEM methodology and the conceptual model conducted in other industries or organizations will assist in confirming the study results and conclusions.

While the purpose of this study was not to research performance-based funding in higher education, the study results may have implications to this area of research. The findings suggest that if alignment exists between the mission and strategy, culture, and performance indicators, organizational change is more likely to be successful. For the host organization, its mission was to develop the workforce of the state. The performance indicator for funding was employment. And while a culture assessment was not part of

this study, answer to open-ended questions suggested some agreement with employment as a performance indicator. Performance based funding appears to be on a successful track within the host organization. If successful, the study results suggest one reason for that success is the congruency or alignment between the external environment, mission and strategy, culture, and performance outcomes.

This study was underpinned by open systems theory; consequently, considering the findings through the lens of multiple change theories can help explain nuances of organizational behavior (Van de Ven & Poole, 1995). Though open systems theory appears to provide a comprehensive foundation for understanding organizational change within an institution under significant external influence, cultural, social-cognition, and political change models may provide additional insight into change in higher education institutions (Kezar, 2001). The study organization's change initiative was in response to its external environment, which can also be understood through the lens of evolutionary change theory (Morgan, 1986). The high level of organizational culture influence also provides support for Bolman and Deal's (1991) characterization of institutional change as social movement. Research involving external environment influence on mission and culture relative to achieving performance outcomes based on other change models and/or theories will provide additional knowledge and understanding of these relationships.

Conclusion

This study serves as the *first* in two ways. This study was the first to test a model developed predominantly for business within a higher education institutional setting. And this study was the first to examine transformational constructs relative to achieving performance based funding in higher education.

The results provide valuable insight into the differences between business and institutional work environments. However, when research is seen as *blazing new trails*, the results often create more questions than answers. Restraint in broad interpretation of study results is also prudent without additional supporting research. Therefore, in conclusion, this study represents the first step in the quest for an institutional change model.

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Appendix A: Burke-Litwin Organizational Assessment Survey

ORGANIZATIONAL ASSESSMENT SURVEY

INSTRUCTIONS

This Organizational Assessment Survey (OAS) was developed by W.W. Burke and H.G. Litwin (1992). Permission to reprint and use the OAS was given by W.W. Burke to Gayle Wooten for the purpose of research.

Please note that while the results of this survey will be used for research, the results will also be valuable to you as your leaders use the information to make improvements across the organization.

The purpose of this questionnaire is to elicit your opinion of your organization and so your participation is very important. The questions cover many aspects of how work gets done and are intended to provide a broad assessment of important areas such as mission and strategy, leadership, managerial behavior, work group climate, employee satisfaction, and overall effectiveness. The questionnaire is also intended to establish a baseline measurement for gauging progress in these key areas of organizational performance.

Each question is rated on a 5-point scale, with "1" and "5" reflecting the ends of the continuum. Please consider the full range between 1 and 5 in making your response. Each question should be answered according to your own experience and opinion and should reflect your perception of current overall conditions. Resist responding in terms of how things were in the past or how they should be in the future, unless specifically asked to do so.

A summary of all of the responses collected will be prepared by Gayle B. Wooten, PMP. The information from this survey will be kept strictly confidential and without exception, your individual responses will not be released to anyone. Your responses to the write-in comments at the end of each section will be transcribed and grouped with others according to common themes as part of the survey results. You are therefore encouraged to represent your true feelings as honestly as possible.

If you have any questions regarding the completion of the survey, please contact Gayle B. Wooten at 903-918-7230 or by email at ghaecker@patriots.uttyler.edu.

Your participation is valuable and as such I have created a drawing among each location of respondents for a $100 Gift Card. You will be given the opportunity to participate in this drawing at the end of the completed survey. This is a separate step and there is no identifying connection made between your answers to the survey and your registration for the drawing.

To leave the survey, enter another internet address or close the browser or internet page. While you may return to the survey without the need to re-enter responses, no responses are stored and transfer until the survey is completed and the "Submit Responses" is pressed.

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ORGANIZATIONAL ASSESSMENT SURVEY

A special note from the researcher...

Thank you for agreeing to participant in this study. I feel some explanation is important so that you appreciate the value of your input and the information that is gained.

You will notice that many of the questions are written for a business type of organization. One of the purposes of this research is to determine differences between your organization and that of a traditional business setting. Because the survey instrument you are completing has been tested and validated, it is important to not change the questions or layout of the instrument. Therefore the questions have not been changed from the original instrument to preserve the survey's integrity and allow for comparison between other research results and those from your organization.

Please note: please define your EXTERNAL ENVIRONMENT in terms of the recent legislature's shift to *the new funding formula* for the system. This will help in the interpretation of the results.

This survey is a diagnostic instrument designed to inform leaders of the state of organizational development and change. In addition to testing of theory (using the collective answers across all locations), the results will be compiled by campus and evaluated to identify possible areas that could be improved for better organizational performance.

Please feel free to contact me to discuss or so that I may answer your questions regarding this survey or the research study.

Gayle

ORGANIZATIONAL ASSESSMENT SURVEY

BACKGROUND

1. What regional campus location are you primarily associated with?

- ◯ West
- ◯ East
- ◯ Central
- ◯ South

2. Is your office on the main campus, system office, or a satellite location?

- ◯ Campus
- ◯ System Office
- ◯ Satellite

3. What is your level of work in the organization?

- ◯ Executive Management
- ◯ Middle Management/Supervisor
- ◯ Faculty
- ◯ Administrative/Clerical
- ◯ Other

4. What is the number of years you have been with this organization?

- ◯ Less than 3 years
- ◯ 3 – 8 years
- ◯ More than 8 years

5. What is your primary work schedule?

- ◯ Full time
- ◯ Part time
- ◯ Adjunct faculty
- ◯ Full time faculty

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ORGANIZATIONAL ASSESSMENT SURVEY

6. What is your relationship to external customers, such as students or business and industry?

- ◯ Direct contact
- ◯ No direct contact

7. What is your primary job type?

- ◯ Accounting/Finance
- ◯ Customer Service
- ◯ Legal
- ◯ General Management
- ◯ Human Resources
- ◯ Faculty/Teaching
- ◯ Marketing
- ◯ Public Relations
- ◯ Quality Assurance
- ◯ Research and Development
- ◯ Sales

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ORGANIZATIONAL ASSESSMENT SURVEY

EXTERNAL ENVIRONMENT

External environment refers to the outside conditions or situations that influence performance of the organization (e.g., government policy, competition, customers).

For each item, select the number that best depicts your response.

8. What is the rate of change your organization is currently experiencing?

experience relative stability				experience very rapid change
○	○	○	○	○

9. Does pressure from your organization's environment affect the day-to-day lives of people who run the organization? i.e. how *insulated* are the people who run the organization from the environment?

managers highly insulated from environment				managers in daily contact with environment
○	○	○	○	○

10. How *responsive* do you think managers in your organization are to external factors, e.g., customers, competition, changes in technology, the economy, etc?

not responsive				highly responsive
○	○	○	○	○

11. *Customer refers to the immediate user of services or products provided. While there may be internal users, most often this will refer to an external customer-someone outside the organization.*

To what extent does your organization's culture value customers?

to a very small extent		to some extent		to a very great extent
○	○	○	○	○

12. What words would you use to describe the *primary pressures* from the outside world that you experience in your daily work (customer dissatisfaction, competitors, financial community, etc.)?

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ORGANIZATIONAL ASSESSMENT SURVEY

MISSION & STRATEGY

In this section, the mission is the overall purpose of the organization, what it wants to achieve. The strategy is the means by which the organization intends to achieve the mission.

13. To what extent:

	to a very small extent	-	to some extent	-	to a very great extent
Are employees clear about the organization's direction; i.e., its mission and strategy?	◯	◯	◯	◯	◯
Do employees know who their target customers and markets are?	◯	◯	◯	◯	◯
Can employees identify the primary products and/or services?	◯	◯	◯	◯	◯
Do employees know the organization's geographic domains?	◯	◯	◯	◯	◯
Can employees describe the organization's core technologies (i.e., how its products and/or services are produced)?	◯	◯	◯	◯	◯
Do employees understand the organization's plans regarding survival, growth, and target levels of profitability?	◯	◯	◯	◯	◯
Can employees articulate the organization's basic beliefs, values and aspirations (i.e., key elements of the organization's philosophy)?	◯	◯	◯	◯	◯
Can employees identify the organization's competitive strengths (i.e., how it differs from the competition)?	◯	◯	◯	◯	◯
Can employees articulate the organization's desired public image (i.e., how it wants to be perceived)?	◯	◯	◯	◯	◯

14. How widely shared is the organization's strategy among employees; i.e., how widely is it communicated?

narrowly communicated; only certain people know it				very widely communicated; everyone knows it
◯	◯	◯	◯	◯

15. How relevant do employees believe their day-to-day activities are to achieving the organization's strategy?

not at all relevant				highly relevant
◯	◯	◯	◯	◯

16. What words would you use to describe the *mission* of your organization?

17. What words would you use to describe the *strategy* for achieving the mission?

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ORGANIZATIONAL ASSESSMENT SURVEY

LEADERSHIP

Leadership refers to the most senior executives in your organization.

The questions in this section ask for your perceptions of leadership.

18. To what extent do employees trust the leadership of the organization?

to a very small extent				to a very great extent
○	○	○	○	○

19. To what extent do senior managers promote ethics and integrity in the organization, i.e., what the organization stands for, its purpose, its standing in the larger community?

to a very small extent				to a very great extent
○	○	○	○	○

20. Are the senior managers of the organization perceived as strongly and unequivocally *supporting* the mission and strategy?

substantial doubts about leadership's commitment				leadership is perceived as totally committed
○	○	○	○	○

21. To what extent do the senior managers of the organization make an effort to keep in personal touch with staff at your level?

to a very small extent				to a very great extent
○	○	○	○	○

22. Is excellent leadership valued in your organization?

there is little attention given to the value of excellent leadership				there is a high degree of attention given to the value of excellent leadership
○	○	○	○	○

23. Do the senior managers of the organization inspire people to achieve the mission?

leadership is not inspirational				leadership is very inspirational
○	○	○	○	○

24. To what extent does the *behavior* of senior managers *demonstrate* their beliefs in the values needed for success?

to a very small extent				to a very great extent
○	○	○	○	○

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ORGANIZATIONAL ASSESSMENT SURVEY

25. What are the *leadership* characteristics that will be *required* to achieve strategic success within the next five years; e.g., inspiring, autocratic, benevolent, participative, team-oriented, caring about people, profit driven, etc?

26. How would you characterize the *current leadership* of your organization (inspiring, autocratic, benevolent, participative, team oriented, caring about people, profit-driven, etc.)?

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ORGANIZATIONAL ASSESSMENT SURVEY

CULTURE

These questions refer to your organization's culture, that is, "the way things are done around here." This includes the values, beliefs, and norms that drive people's actions.

27. Are people in the organization *clear* about the *values* needed for success?

very unclear ○ ○ ○ ○ ○ very clear

28. Do employees act in ways that support the mission and strategy?

employees act in ways that do not support our mission and strategy ○ ○ ○ ○ ○ employees act in ways that do support our mission and strategy

29. To what extent does your organization's culture value employees?

to a very small extent ○ ○ ○ ○ ○ to a very great extent

(to some extent)

30. To what extent does your organization's culture value its owners (shareholders, members, taxpayers, etc.)?

to a very small extent ○ ○ ○ ○ ○ to a very great extent

(to some extent)

31. To what extent are employees treated fairly and equitably?

to a very small extent ○ ○ ○ ○ ○ to a very great extent

(to some extent)

32. Do employees feel comfortable bringing up their issues and concerns?

employees feel that cannot raise concerns for fear of negative consequences ○ ○ ○ ○ ○ employees feel they can air their concerns without negative consequences

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ORGANIZATIONAL ASSESSMENT SURVEY

The following questions concern the capacity of your organization to change its culture.

33. Are the beliefs and values employees hold well established and deeply rooted; i.e., *difficult to change*?

deeply rooted beliefs and values-difficult to change				not deeply rooted beliefs and values-susceptible to change
○	○	○	○	○

34. Do employees take action and make change happen?

employees are waiting for direction from management to act				employees are taking active steps to do things differently
○	○	○	○	○

35. Are employees attempting new approaches to doing their work?

employees rarely spend time thinking about new and better ways of doing their work				employees constantly monitor the quality of their performance and make needed changes
○	○	○	○	○

36. Do employees seek ways to improve their performance?

to a very small extent		to some extent		to a very great extent
○	○	○	○	○

37. To what extent do employees learn from past experiences so that history does not repeat itself?

to a very small extent		to some extent		to a very great extent
○	○	○	○	○

38. To what extent is new knowledge transferred throughout the organization quickly and efficiently?

to a very small extent		to some extent		to a very great extent
○	○	○	○	○

39. Does your organization have a distinct, readily identifiable *culture*? If so, what words would you use to describe the way people are expected to behave, the way things are expected to be done?

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ORGANIZATIONAL ASSESSMENT SURVEY

40. What aspects of the culture help performance?

41. What aspects of the culture hinder performance?

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ORGANIZATIONAL ASSESSMENT SURVEY

PERFORMANCE

Performance refers to the outcomes, results, and indicators of individual and organizational achievement.

Questions in this section refer to how performance is measured in your organization.

81. Are there clear standards for employee performance?

very unclear ○ ○ ○ ○ ○ very clear

82. Given existing resources and technology, is your organization currently achieving the highest level of performance of which it is capable?

achieving a very low level of performance ○ ○ ○ ○ ○ achieving a maximum level of performance

83. To what extent is your organization a good place to work compared with other organizations?

to a very small extent ○ ○ ○ ○ ○ to a very great extent

84. To what extent is your organization effective at eliminating waste and inefficiency throughout the organization?

to a very small extent ○ ○ ○ ○ ○ to a very great extent

85. To what extent does your organization achieve the following outcomes:

	to a very small extent	-	to somewhat extent	-	to a very great extent
... develop trusting relationships between management and employees?	○	○	○	○	○
... make effective use of talented people?	○	○	○	○	○
... make use of state of the art technology to increase efficiency of service?	○	○	○	○	○
... earn recognition as a world class competitor in our industry?	○	○	○	○	○
... provide high quality products and/or services to customers?	○	○	○	○	○
... consistently meet revenue objectives?	○	○	○	○	○

86. How is your performance measured in your organization – what is the yardstick?

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ORGANIZATIONAL ASSESSMENT SURVEY

ADDITIONAL COMMENTS

87. Overall, what would you say are the greatest strengths of your organization?

88. What areas are most in need of change and improvement?

89. To summarize, if you were in charge and could change one thing to improve your effectiveness and satisfaction at work, what would it be?

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Appendix B: Institutional Review Board Documents

The University of Texas at Tyler
Institutional Review Board

October 9, 2013

Dear Ms. Wooten,
Your request to conduct the study entitled: *"Testing the Relationships between Transformational Factors in a Postsecondary Environment* IRB #F2013-14 is approved by The University of Texas at Tyler Institutional Review Board expedited review. This approval includes a waiver of written informed consent and assurance of recruitment site setting permissions. In addition, ensure that any research assistants or co-investigators have completed human protection training, and have forwarded their certificates to the IRB office (G. Duke).
Please review the UT Tyler IRB Principal Investigator Responsibilities, and acknowledge your understanding of these responsibilities and the following through return of this email to the IRB Chair within one week after receipt of this approval letter:

- This approval is for one year, as of the date of the approval letter
- Request for Continuing Review must be completed for projects extending past one year
- Prompt reporting to the UT Tyler IRB of any proposed changes to this research activity
- ***Any adverse event or unanticipated event MUST be reported promptly to academic administration (chair/dean), and to the IRB.***
- Suspension or termination of approval may be done if there is evidence of any serious or continuing noncompliance with Federal Regulations or any aberrations in original proposal.
- Any change in proposal procedures must be promptly reported to the IRB prior to implementing any changes except when necessary to eliminate apparent immediate hazards to the subject.

Best of luck in your research, and do not hesitate to contact me if you need any further assistance.

Sincerely,

Gloria Duke, PhD, RN

Gloria Duke, PhD, RN
Chair, UT Tyler IRB

E-mail invitation sent to all employees by each campus president.

Dear <study organization> employee:

INSTRUCTIONS FOR PARTICIPATION:

I am requesting your participation in my research study that intends to examine the relationships between external environment, mission and strategy, leadership, organizational culture and performance outcomes under conditions of transformational change within a postsecondary system. **Participation in this survey is completely voluntary and confidential.** You are free to participate or stop participating at any time without any undue consequences. This study has been approved by the University of Texas at Tyler Institutional Review Board. This survey is estimated to take between 20-30 minutes and some physical discomfort may be experienced by the respondent due to the length of time spent in front of a computer while taking the online survey.

At the completion of the survey, you will be directed to a gift card registration page, accessible only with the submittal of survey results. You will be given instructions as to how to register your name for a $100 gift card drawing to be given away among respondents at each of the campus locations, as well as an additional drawing for the campus with the highest response rate. This information is collected separate from your individual responses to the OAS survey.

You may withdraw from the survey at any time before completion by closing the browser page or entering another web address. Partial responses or data from incomplete surveys will not be accessible to the researcher.

If you have any questions about this study, please contact Gayle B. Wooten at (903-918-7230) or email (ghaecker@patriots.uttyler.edu).

Participant's Statement of Understanding:

I have read and understood what involvement in this study means.

I understand that by accessing the survey link below that I agree to participate. If I do not want to participate, I will exit at this time, or at any time while completing the survey.

To participate in this study, please click here.

Thank you for your time and consideration.

Sincerely,

Gayle B. Wooten, PMP
Ph.D. Candidate, School of Business
Human Resource Development
Organizational Development and Change
The University of Texas at Tyler

Jerry W. Gilley, Ph.D.
Interim Dean
School of Business
Chair, Human Resource Development
The University of Texas at Tyler

Permission received from W. W. Burke to use the Burke-Litwin Organizational Assessment Survey for this study.

Burke-Litwin OAS

Burke, Warner < burke1@exchange.tc.columbia.edu> Mar 7, 2013 at 8:27 AM

To: Gayle Haecker-Wooten <ghaecker@patriots.uttyler.edu>

Dear Gayle,
You have my permission to use the B-L Model survey (see attachment) for your dissertation. As long as the survey is not used for any commercial purpose and exclusively for research, there is no problem. Good luck with your dissertation.
wwb
--
W. Warner Burke, PhD
Edward Lee Thorndike Professor of Psychology and Education
Chair, Department of Organization and Leadership
Coordinator, Graduate Programs in Social-Organizational Psychology
220 Zankel Hall
Box 24 Teachers College, Columbia University
525 West 120th Street
New York, NY 10027
(212) 678-3831

The Burke-Litwin Organizational Assessment Survey.pdf
7025K

Appendix C: Descriptive Statistics for Indicators

	N	Minimum	Maximum	Mean	Std. Deviation
Q8	568	1	5	3.39	1.104
Q9	568	1	5	3.25	1.252
Q10	568	1	5	3.40	1.223
Q11	568	1	5	4.10	1.010
Q13a	568	1	5	3.51	1.100
Q13b	568	1	5	3.94	.997
Q13c	568	1	5	3.99	.910
Q13d	568	1	5	3.69	1.006
Q13e	568	1	5	3.61	.995
Q13f	568	1	5	3.11	1.170
Q13g	568	1	5	3.39	1.096
Q13h	568	1	5	3.62	1.029
Q13i	568	1	5	3.61	1.056
Q14	568	1	5	3.17	1.221
Q15	568	1	5	3.40	1.164
Q18	568	1	5	3.05	1.300
Q19	568	1	5	3.44	1.247
Q20	568	1	5	3.51	1.257
Q21	568	1	5	2.94	1.379
Q22	568	1	5	3.30	1.330
Q23	568	1	5	3.10	1.290
Q24	568	1	5	3.25	1.308
Q27	568	1	5	3.39	1.108
Q28	568	1	5	3.39	1.005
Q29	568	1	5	3.16	1.250
Q30	568	1	5	3.65	1.090
Q31	568	1	5	3.04	1.264
Q32	568	1	5	2.63	1.322
Q33	568	1	5	2.80	1.087
Q34	568	1	5	2.93	1.190
Q35	568	1	5	3.29	1.157
Q36	568	1	5	3.41	1.075
Q37	568	1	5	3.31	1.065
Q38	568	1	5	2.91	1.149
Q81	568	1	5	3.44	1.229
Q82	568	1	5	3.27	1.114
Q83	568	1	5	3.67	1.133
Q84	568	1	5	3.00	1.246
Q85a	568	1	5	2.97	1.295
Q85b	568	1	5	3.24	1.229
Q85c	568	1	5	3.19	1.263
Q85d	568	1	5	3.32	1.190
Q85e	568	1	5	3.74	1.059
Q85f	568	1	5	3.28	1.115
Valid N (listwise)	568				

Appendix D: Factor Loadings for Indicators

Factor	Cronbach's Alpha	Factor items	Factor loadings	*t*-value
External Environment	0.598	What is the rate of change your organization is currently experience?	0.038	0.836
Note: $\alpha = 0.59$ Falletta, 1990		Does pressure from your organization's environment affect the day-to-day lives of people who run the organization?	0.561	13.580***
		How responsive do you think managers in your organization are to the external factors?	0.892	24.255***
		To what extent does your organization's culture value customers?	0.670	16.876***
Mission & Strategy	0.924	To what extent are employees clear about the organization's direction; i.e. its mission and strategy?	0.774	21.539***
Note: $\alpha = 0.86$ Falletta, 1990		To what extent do employees know who their target customers and markets are?	0.633	16.427***
		To what extent can employees identify the primary products and/or services?	0.637	16.542***
		To what extent do employees know the organization's geographic domains?	0.604	15.467***
		To what extent can employees describe the organization's core technologies?	0.663	17.406***
		To what extent do employees understand the organization's plans regarding survival, growth, and target levels of profitability?	0.804	22.785***
		To what extent can employees articulate the organization's desired public image; i.e. how it wants to be perceived?	0.814	23.221***

Appendix D (Continued)

Factor	Cronbach's Alpha	Factor items	Factor loadings	*t*-value
		To what extent can employees identify the organization's competitive strengths (i.e., how it differs from the competition)?	0.751	20.634***
		To what extent can employees articulate the organization's desired public image (i.e., how it wants to be perceived)?	0.762	21.035***
		How widely shared is the organization's strategy among employees; i.e., how widely is it communicated?	0.775	21.552***
		How relevant do employees believe their day-to-day activities are to achieving the organization's strategy?	0.733	19.917***
Leadership *Note:* $\alpha = 0.90$ Falletta, 1990	0.955	To what extent do employees trust the leadership of the organization?	0.855	25.337***
		To what extent do senior managers promote ethics and integrity in the organization; i.e. what the organization stands for, its purpose, its standing in the larger community?	0.866	25.876***
		Are the senior managers of the organization perceived as strongly and unequivocally supporting the mission and strategy?	0.866	25.876***
		To what extent do the senior managers of the organization make an effort to keep in personal touch with staff at your level?	0.788	22.368***
		Is excellent leadership valued in your organization?	0.857	25.426***
		Do the senior managers of the organization inspire people to achieve the mission?	0.93	29.188***
		To what extent does the behavior of senior managers demonstrate their beliefs in the values needed for success?	0.915	28.373***

Appendix D (Continued)

Factor	Cronbach's Alpha	Factor items	Factor loadings	*t*-value
Culture Note: $\alpha = 0.85$ Falletta, 1990	0.917	Are people in the organization clear about the values needed for success?	0.786	22.117***
		Do employees act in ways that support the mission and strategy?	0.713	19.257***
		To what extent does your organization's culture value employees?	0.818	23.494***
		To what extent does your organization's culture value its owners (shareholders, members, taxpayers, etc.)?	0.618	16.004***
		To what extent are employees treated fairly and equitably?	0.805	22.906***
		Do employees feel comfortable bringing up their issues and concerns?	0.763	21.167***
		Are the beliefs and values employees hold well established and deeply rooted?	0.481	11.879***
		Do employees take action and make change happen?	0.627	16.295***
		Are employees attempting new approaches to doing their work?	0.581	14.827***
		Do employees seek ways to improve their performance?	0.596	15.306***
		To what extent do employees learn from past experiences so that history does not repeat itself?	0.59	15.127***
		To what extent is new knowledge transferred throughout the organization quickly and efficiently?	0.761	21.085***

Appendix D (Continued)

Factor	Cronbach's Alpha	Factor items	Factor loadings	*t*-value
Performance outcomes	0.934	Are there clear standards for employee performance?	0.675	17.905***
Note: $\alpha = 0.87$ Falletta, 1990		Given existing resources and technology, is your organization currently achieving the highest level of performance of which it is capable?	0.786	22.124***
		To what extent is your organization a good place to work compared with other organizations?	0.761	21.114***
		To what extent is your organization effective at eliminating waste and inefficiency throughout the organization?	0.775	21.686***
		To what extent does your organization develop trusting relationships between management and employees?	0.828	23.943***
		To what extent does your organization make effective use of talented people?	0.836	24.318***
		To what extent does your organization make use of state of the art technology to increase efficiency of service?	0.792	22.375***
		To what extent does your organization earn recognition as a world class competitor in the industry?	0.755	20.872***
		To what extent does your organization provide high quality products and/or services to customers?	0.690	18.456***
		To what extent does your organization consistently meet revenue objectives?	0.755	20.889***

*** - $p < 0.001$

Note: Cronbach alpha values represented by Falletta, 1999 research are provided based on the first published research indicating the use of the Burke-Litwin OAS containing indicators of the external environment factor.

Appendix E: AMOS Assessment of Normality

Variable	Min	Max	Skew	CR	Kurtosis	CR
MS13a	1.000	5.000	-.490	-4.763	-.248	-1.206
MS13b	1.000	5.000	-.890	-8.656	.493	2.397
MS13d	1.000	5.000	-.512	-4.982	-.155	-.756
MS13e	1.000	5.000	-.415	-4.040	-.208	-1.011
MS13f	1.000	5.000	-.113	-1.100	-.707	-3.437
MS13g	1.000	5.000	-.501	-4.872	-.285	-1.388
MS13h	1.000	5.000	-.591	-5.752	.074	.359
MS13i	1.000	5.000	-.572	-5.561	-.089	-.432
MS14	1.000	5.000	-.262	-2.552	-.817	-3.973
MS15	1.000	5.000	-.282	-2.741	-.821	-3.994
L18	1.000	5.000	-.221	-2.155	-1.039	-5.055
L19	1.000	5.000	-.442	-4.299	-.749	-3.644
L20	1.000	5.000	-.497	-4.837	-.727	-3.539
L21	1.000	5.000	-.107	-1.037	-1.229	-5.979
L22	1.000	5.000	-.358	-3.485	-.989	-4.810
L23	1.000	5.000	-.159	-1.549	-1.055	-5.132
L24	1.000	5.000	-.315	-3.062	-.954	-4.640
EE10	1.000	5.000	-.262	-2.554	-.902	-4.387
EE9	1.000	5.000	-.178	-1.727	-.915	-4.451
PO81	1.000	5.000	-.444	-4.321	-.718	-3.494
PO82	1.000	5.000	-.376	-3.662	-.622	-3.028
PO83	1.000	5.000	-.632	-6.152	-.336	-1.634
PO84	1.000	5.000	-.144	-1.397	-.918	-4.467
PO85a	1.000	5.000	-.112	-1.089	-1.034	-5.028
PO85b	1.000	5.000	-.259	-2.520	-.828	-4.027
PO85c	1.000	5.000	-.321	-3.119	-.844	-4.107
PO85f	1.000	5.000	-.265	-2.582	-.424	-2.063
C29	1.000	5.000	-.246	-2.398	-.880	-4.280
C30	1.000	5.000	-.597	-5.812	-.172	-.835
C31	1.000	5.000	-.118	-1.149	-.952	-4.632
C32	1.000	5.000	.245	2.387	-1.138	-5.538
C33	1.000	5.000	.005	.049	-.565	-2.746
C38	1.000	5.000	-.068	-.666	-.760	-3.696
Multivariate					244.403	60.596

Appendix F: Detailed Structural Equation Model