A QUANTITATIVE APPROACH TO CAPTURE MANAGERS’ PERCEPTIONS OF ORGANIZATIONAL LEARNING AND ORGANIZATIONAL INNOVATIVENESS IN A PRIVATE HIGHER EDUCATION INSTITUTION

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**Abstract**

The goal of this quantitative research study was to examine correlation between organizational learning and organizational innovativeness according to managers’ perceptions in a private higher education institution. The study used Schwandt’s (1997) Organizational Learning Systems Model (OLSM) theoretical framework to guide studying and understanding the organization as a dynamic social system that changes and responds to its internal and external environment. The significance of this research for scholar-practitioners was the empirical evidence it offered to examine dynamic links between the learning systems and organizational innovativeness dimensions using different organizational configurations and patterns.

Data has been collected for this study from a private higher education institution. This study used a quantitative explanatory design with a comprehensive sampling of managers from key functional areas representing different levels of management across the organization. Four hypotheses were used to determine if each of the four Organizational Learning subsystems were correlated to each of the five Organizational Innovativeness dimensions (behavioral, market, process, product, and strategic). A correlation analysis using Pearson Product Moment Correlations revealed that Organizational Learning subsystems were found to be moderately to highly correlated to Organizational Innovativeness dimensions with the exception of Strategic Innovativeness. Furthermore, a multiple regression analysis found that Organizational Learning subsystems accounted for between 2.3% and 53.6% of the variance in Organizational Innovativeness dimensions.

*Keywords*: organizational learning, organizational innovativeness, higher education.
# Table of Contents

**Chapter I: Introduction**
- Statement of the Problem ................................................................. 6
- Research Problem .............................................................................. 6
- Justification for the Research Problem ............................................. 7
- Deficiencies in the Evidence ............................................................ 8
- Relating Discussion to the Audience ................................................ 8
- Significance of the Research Problem .............................................. 9
- Positionality Statement .................................................................... 10
- Research Question and Hypotheses ............................................... 11
- Theoretical Framework ................................................................... 13
- Definition of Key Terms .................................................................. 21

**Chapter II: Literature Review** .......................................................... 25
- Organizational Learning .................................................................... 25
- Organizational Innovativeness .......................................................... 40
- Organizational Learning and Organizational Innovativeness ............. 55
- Summary ......................................................................................... 57

**Chapter III: Methodology** ............................................................... 59
- Research Question ........................................................................... 59
- Research Design ............................................................................. 60
- Population and Sampling ................................................................. 62
- Instruments .................................................................................... 62
- Data Collection ................................................................................ 67
- Validity and reliability ..................................................................... 67
- Data Storage Methods ..................................................................... 69
- Data Analysis .................................................................................. 70
- Validity, Reliability, and Generalizability ....................................... 70
- Protection of Human Subjects ......................................................... 71
- Summary ....................................................................................... 72
- Overview of Data Collection ......................................................... 74
- Demographics Frequencies ............................................................ 74
- Descriptive Statistics ...................................................................... 77
Chapter I: Introduction

Statement of the Problem

Changes in economic environment caused by globalization and rapid technology advances (Schwandt & Marquardt, 2000) forced organizations to change. Even good companies known for their abilities to innovate and execute fail (Christensen, 2011). Higher education institutions are no exception.

Despite a growing interest in organizational learning research, the field of higher education lacks sufficient empirical research on organizational learning in colleges and universities (Dee & Leišytė, 2016). The changing climate of higher education calls for innovative ways to help institutions overcome major challenges and meet student expectations. Organizational learning provides higher education institutions with a framework to help them learn better and faster from their experiences through continuous innovations (Schwandt & Marquardt, 2000).

Research Problem

U.S. universities have been challenged in many ways in recent decades to accommodate student needs during a nearly-continuous changing environment. Issues such as education affordability, student success, institutional effectiveness and performance, to name but a few, have posed a greater need for dynamic mechanisms to improve organizational performance and results in an increasingly complex environment. Thus, there is a “tremendous need for future research and writing in this area” (Kezar, 2005, p. 14). While organizational learning research in corporate settings can inform practices in colleges and universities, scholar practitioners in higher education need studies empirically grounded in the unique system of colleges and universities (Dee & Leišytė, 2016).
**Justification for the Research Problem**

As students continue to push for new institutional performance standards in quality, variety, customization, convenience, time and innovation (Schwandt & Marquardt, 2000), higher education institutions are more than ever required to adapt and change if they wish to survive in this new environment. In his seminal work “Reengineering the University”, William Massy (2016) states that “[T]he academic business model as currently exercised by traditional universities harbors some fundamental flaws and indeed is no longer sustainable” (p.41). Moreover, the 2016 Inside Higher Ed Survey of College and University Business Officers, conducted by Gallup, reported that nearly 63% of chief business officers felt that media reports accurately reflect that the higher education landscape is in the midst of a financial crisis (Seltzer, 2016). Online education, on the other hand, is facing a retention problem; and despite all best efforts to call attention to the importance of retention, colleges and universities struggle to form methodologies, strategies and best practices to improve institutional performance (Sandbox Research, 2016).

Mountains of evidence point to the complexity confronting higher educational leaders. Complexity as a concept “is closely related to the failure of the rational worldview model to completely describe the environments that organizations face in a global economy” (Schwandt & Marquardt, 2000, p. 27). To alleviate and overcome the increasing state of uncertainty and complexity facing higher education, organizational learning theory provides organizations with a worldview model grounded in theory and practice to equip them with the mindset and structures (Kiernan, 1993) they need in order to sustain a competitive advantage through learning and knowledge creation and thus survive.
Deficiencies in the Evidence

In his now classical article “Building a Learning Organization”, David Garvin (1993) argued that new ideas by themselves don’t create a learning organization “without accompanying changes in the way that work gets done” (p.80). Surprisingly, according to Garvin, this stringent test rules out many universities as they have been less successful in applying new knowledge to their own activities. Extant literature on organizational learning in higher education have primarily been focused on examining institutional attributes of colleges and universities to match the characteristics of a theoretical model of a learning organization (Portfelt, 2006; Örtenblad & Koris, 2014; Dill, 1999). Other studies such as Bauman (2005) observed and documented the learning process with regard to a particular problem of practice (e.g., equity in education outcomes). Moreover, the limited set of organizational learning studies and publications in higher education is weighted heavily toward the functionalist paradigm and lacks the use of alternative paradigms such as social constructionism (interpretive theory) and critical theory (Dee & Leišytė, 2016). Apparently, there is a dearth of empirical studies on organizational learning in colleges and universities (Dee & Leišytė 2016; Bauman, 2005). There is thus a need for empirical studies that employ a quantitative - qualitative approach to close an existing gap in extant literature and help examine and delineate the dynamic nature of organizational learning process (Schwandt, 1997) and its relation to the organizational innovativeness process in colleges and universities.

Relating Discussion to the Audience

This study aims to analyze and explore employees’ perceptions of organizational learning and organizational innovativeness in a private university in order to better understand how organizational learning construct can be a strategic tool for driving the innovation agenda of
higher education to achieve continuous improvement. The research questions this study seeks to answer are relevant to practitioner groups working in colleges and universities, administrators, and higher education leaders, who are faced in their practice with the challenge of sustaining existing business models, increased skill shortages, and overwhelming breakthroughs of disruptive technologies to help them transform their organizations into learning ones and become places where individuals and groups continuously engage in new learning processes (Schwandt & Marquardt, 2000).

**Significance of the Research Problem**

Higher education institutions represent the backbone of any ecosystem. Designing a highly productive education system is a function of the institution’s ability to create new knowledge and use this knowledge in leveraging performance and end economic value for a sustainable competitive advantage. Cota et al. (2011) examined the education and management practices of eight colleges with productivity levels up to 60 percent greater than average (measured by cost per degree). They found that the eight colleges shared organizational characteristics that promoted higher productivity. These features included smooth –running operational and managerial systems, a policy framework that encourages ongoing improvement, and leadership dedicated to best practices. Adopting these strategies by other colleges and universities can help boost productivity and increase efficiency through learning and continuous improvement.

In a 2012 brief produced by Bain Consulting in partnership with Sterling Partners, “The Financially Sustainable University”, the report described leading change in higher education as “markedly difficult”. In addition to surviving, this change will allow institutions to thrive with a sustainably focused strategy and financial base. Among the key actions suggested by the report
to help higher education leaders achieve the desired degree of change, strategic investment in innovative models plays a crucial role (Denneen & Dretler, 2012). This was emphasized in the 2013 report issued by U.S. Department of Commerce in consultation with National Advisory Council on Innovation and Entrepreneurship. The report described that as global competition continues to grow, it is important that innovative institutions improve their ability to develop products and services with “market relevance and economic value” (p.9). This is achieved by promoting student and faculty innovation and entrepreneurship and actively supporting technology transfer and university-industry collaboration. As such, innovation is anticipated to become a greater force in economic growth where “U.S. universities and colleges will be the vanguard in discovering that innovation and in nurturing the entrepreneurs that can create products, services, economic value, and high-quality jobs” (p.41).

Nurturing innovation in higher education institutions is contingent on meeting certain metrics; of the most prominent ones are fostering an adaptive, change-oriented organizational culture that is conductive to learning (Garvin, 1993) and developing and implementing strategies and processes aimed at enhancing institutional effectiveness (Dee & Leišytė, 2016). The significance of this study thus stems from the need to examine how the application of organizational learning concepts could help higher education institutions improve to have the capacity to drive and stimulate innovative thinking capable of obtaining and sustaining a competitive advantage in an ever-changing and complex environment (Örtenblad & Koris, 2014).

**Positionality Statement**

As an international doctoral student and professional worker living in the United States, my identity is always evolving; it is always in the making (Nganga, 2011). Short & Shindell’s
definition of scholar practitioners emphasizes the role the latter play in their fields by connecting theory to practice. Scholar practitioners “contribute to theory through research, publish in both refereed and nonrefereed journals, are involved in scholarly conferences, and have a goal of further development of the field” (p. 473). They are catalysts for change. They create knowledge that enables future generations to address social inequities and injustices and encourage them to use this knowledge to challenge the status quo (Jenlink, 2005).

As an emerging scholar practitioner, my role is to nudge my interest toward inquiry that connects practice to theory. This becomes possible by developing a dual identity of a scholar and a practitioner that requires a “critical reflection of what I am passionate about” (Nganga, 2011). My passion for knowledge and learning has led me to choose to study the topic of organizational learning. This passion stems from my firm belief in the critical importance of learning for the well-being of individuals and organizations for the opportunities it provides for personal, professional and economic growth.

As an emerging scholar practitioner, I have learned to use my life experience to inform my intellectual work (Mills, 1959). My journey as an adult learner has transformed who I am as an individual thus I believe that learning in organizations is capable of the same impact and influence if sought properly. Accordingly, I want to find out how learning works in organizations and whether continuous learning is capable of achieving a competitive edge through innovation.

**Research Question and Hypotheses**

The objective of this quantitative methodology study is to analyze and explore employees’ perceptions of two organizational phenomena: organizational learning and organizational innovativeness in a private higher education institution. In particular, the study aims to explore the relationship between each of the four organizational learning subsystems
(Schwandt & Marquardt, 2000) and each of the five organizational innovativeness dimensions (Wang & Ahmed, 2004). The following overarching research question will guide this study: Is there a significant relationship between each of the four organizational learning subsystems and each of the five organizational innovativeness dimensions?

The following hypotheses predict the strength and direction of this relationship as proposed in a similar study conducted at a global healthcare firm (Mauchet, 2011).

**Hₐ₁.** There is a significant positive relationship between the environmental interface subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

**Hₒ₁.** There is no significant positive relationship between the environmental interface subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

**Hₐ₂.** There is a significant positive relationship between the action-reflection subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

**Hₒ₂.** There is no significant positive relationship between the action-reflection subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

**Hₐ₃.** There is a significant positive relationship between the structuring subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

**Hₒ₃.** There is no significant positive relationship between the structuring subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

**Hₐ₄.** There is a significant positive relationship between the meaning and memory
subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

H$_{04}$. There is no significant positive relationship between the meaning and memory subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

Theoretical Framework

The Organizational Learning Systems Model (Schwandt, 1997) was selected as it provides a framework for studying and understanding an organization as a dynamic social system that changes and responds to its internal and external environment. Analyzing organizational learning as a system of actions, actors, symbols, and processes requires an understanding of Parson’s General Theory of Action, which integrates several theories and incorporates biological, psychological, cultural and sociological concepts associated with human actions (Parsons, 1964; Schwandt & Marquardt, 2000).

Parson’s theory of action. The foundational theory of the Organizational Learning Systems Model is grounded in Talcott Parsons’ social action system theory derived from the works of Pareto, Durkheim, Weber and Comte – founded on the functionalist paradigm (Schwandt & Marquardt, 2000). Concerned with providing explanations of several phenomena such as the status quo, social order, consensus, social integration, solidarity, need satisfaction and actuality, the functionalist paradigm approaches these sociological concerns from a realist, positivist, determinist, and nomothetic standpoint (Burrell & Morgan, 1979). Despite the functional approach these theorists maintained, they were not necessarily positivist (Schwandt & Marquardt, 2000). From an intellectual tradition point of view, the social action theory combines aspects of German idealism and Anglo-French sociological positivism (Burrell & Morgan, 1979)
and acknowledges subjective nature of human condition (Schwandt & Marquardt, 2000) – as such it can be regarded as the “most subjectivist boundary of the paradigm” (Burrell & Morgan, 1979, p. 48).

The Organizational Learning Systems Model is rooted in the Parsonian theory of social action that postulates both performance and learning processes are required to change the equilibrium in the organizational situation relationship. However, changes in the social system itself occurs through the learning process as related to the basic underlying assumptions of the organization’s culture (Schwandt, 1994; Schwandt & Marquardt, 2000).

Durkheim’s definition of “social facts” sets the stage for studying social behavior as collective representation. He suggests that a “social fact is to be recognized by the power of external coercion which it exercises or is capable of exercising over individuals, and the presence of this power may be recognized in its turn either by the existence of some specific sanction or by the resistance offered against every individual effort that tends to violate it” (Durkheim, et al., 1964, p.10). Accordingly, the study of social behavior in organizations as collective representations recognizes the “added value” of the collective and influence of potential actions and systems of actions (Schwandt & Marquardt, 2000).

According to Parsons, the environment of the organizational learning system is essential to further evolution of organizational development (Parsons, 1964; Schwandt & Marquardt, 2000; Schwandt, 1994). As such, he considers the learning system environment an “evolutional universal” for which he defines as “a complex of structures and associated processes the development of which so increases the long-run adaptive capacity of living systems in a given class that only systems that develop the complex can attain certain higher levels of general adaptive capacity” (Parsons, 1964, p. 340).
Parson’s integrative work discusses the social system’s adaptive capacity as a function of behavioral, psychological, sociological, and cultural actions. Its main focus is the establishment of a systematic relationship between the actions of the members of the social system and the collective overall capacity to adapt to internal and external environments. These actions form subsystems – each of which carries out one of four prerequisite functions imperative for the collective survival (Schwandt, 1997). These four functional prerequisites are (illustrated in Figure 1):

Adaptation is the complex of actions that establish relations between the system and its external environment and consists of exchange mechanisms needed to import resources and export the system output that help shape the environment for the system.

Goal-attainment is the complex of actions that define the system’s goals and manage recourses to achieve these goals.

Integration is the complex of actions that serve to establish control and maintain the system integration and coordination between parts.

Pattern-maintenance is the complex of actions that ensures alignment of the system of actions with the cultural universe (Rocher, 1975).
Parsons’ subsystems of actions interact through a process of mutual exchange he defines as “medium of interchange”. The purpose of this function is to ensure the continual nonlinear dynamic circulation within the action system of what Parsons calls “resources” (Schwandt, 1997; Schwandt & Marquardt, 2000).

**Organizational learning systems model.** The organizational learning model developed by David Schwandt focuses on the learning aspect of an organization as a social system (Schwandt, 1994). The model focuses on the system’s capacity to adapt to its environment through performance and learning that influence the collective’s cultural values (Schwandt, 1994).

This learning system is defined as “a system of actions, actors, symbols and processes that enables an organization to transform information into valued knowledge which in turn increases its long-run adaptive capacity” (Schwandt, 1994, p. 58; Schwandt & Marquardt, 2000, p.61). The organizational learning systems model is comprised of four learning subsystems that

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*Figure 1. Parsons’ Four Functional Prerequisites adapted by the researcher from Parsons, et al. (1953).*
function interdependently (Schwandt, 1997). The interdependent relationships among the four subsystems are maintained through interchange media; the products of which represent invisible networks within which patterns of action take place. These interchange media are named new information, goal-referenced knowledge, structuration, and sense-making (Schwandt, 1994).

Parallel to the general system of actions put forth by Talcott Parson, the organizational learning system carries out four functional prerequisites that ensure the learning capacity of the collective is constantly maintained. The following is a description of the four learning subsystems, their prerequisite functions, and respective interchange media (Schwandt, 1997; Schwandt & Marquardt, 2000) (Depicted in Figure 2.):

1. The Environmental Interface subsystem – the primary purpose of this subsystem is to function as the information portal for the organizational learning system. New information is the interchange media output of the environmental interface subsystem of actions. This subsystem carries out the prerequisite function of adaptation

2. The Action-Reflection subsystem – this subsystem represents a set of activities and actions the organization uses to accomplish the goals of the organizational learning system, that is, to create knowledge. Goal-referenced knowledge is the interchange media output of this subsystem. This subsystem carries out the prerequisite function of goal attainment.

3. The Structuring (Dissemination and Diffusion) subsystem – the purpose of this subsystem is to coordinate the elements of the learning system through matching information and knowledge transfer actions with the requirements of the other subsystems. Integration represents the functional prerequisite of the structuring
subsystem. Structuration is the symbolic interchange media product of the structuring subsystem.

Figure 2. Learning System and Interchange Media adapted by the researcher from Schwandt (1997).

4. The Meaning and Memory subsystem – this subsystem focuses on sustaining, storing and creating the cultural beliefs, values and assumptions. The interchange media output of this subsystem is sense-making. The meaning and memory subsystem represents the functional prerequisite of pattern maintenance.

The dynamic nature of the organizational learning model is manifested in the nonlinear interdependent relationships that link the four subsystems and their respective functions. The environmental interface subsystem responds to the demand of new information from internal and external environments. The structuring subsystem serves to coordinate elements of the learning system via structuring mechanism to attain harmony and integration. The action/reflection
subsystem acts as the knowledge creation center for the organization’s effective operation. Knowledge is transmitted to the collective through diffusion and dissemination mechanisms. The meaning and memory subsystem exerts control over the function of the collective by helping organizational members make sense of new information, their actions and those of the organization (Schwandt & Marquardt, 2000).

**Organizational innovativeness.** The second construct that constitutes the theoretical framework for this study is organizational innovativeness drawn upon the work of Wang and Ahmed (2004). The authors developed a scale of organizational innovativeness that measures the “organization’s overall innovative capability, i.e. the propensity or likelihood that an organization produces innovative outcomes” (p.303). The reason this construct was selected given that Wang & Ahmed (2004) were able to identify component factors and key variables for the scale through an extensive literature review. Confirmatory factor analysis was performed to verify the model fitness.

Wang and Ahmed (2004) identifies five main areas that determine an organization’s innovative capability (innovativeness). These areas are product innovativeness, market innovativeness, process innovativeness, behavioral innovativeness, and strategic innovativeness.

Product innovativeness is defined as the “novelty and meaningfulness of new products introduced to the market at a timely fashion” (p.304).

Market innovativeness is defined as “the newness of approaches that companies adopt to enter and exploit the targeted market” (p. 305). It is “the novelty of market-oriented approaches” (p.305).

Process innovativeness “captures the introduction of new production methods, new management approaches, and new technology that can be used to improve production and

Behavioral innovativeness is a “synergy based on group dynamics” (p.305). It is demonstrated through the formation of an innovative-based culture catalyst of innovations and receptive to new ideas (Wang & Ahmed, 2004).

Strategic innovativeness measures “an organization’s ability to manage ambitious organizational objectives, and identify a mismatch of these ambitions and existing resources in order to stretch or leverage limited recourses creatively” (p. 305-306).

These five innovativeness aspects are inter-linked and depict an organization’s overall innovativeness. On one end, both product and market innovativeness are externally-focused and market bases, whereas behavior and process innovativeness are internally-focused (Wang & Ahmed, 2004). Strategic innovativeness, on the other end, represents an organization’s ability to identify and match external opportunities with internal capabilities and recourses (Wang & Ahmed, 2004).
Testing the relationship between organizational innovativeness and organizational learning is the goal of this study. The conceptual framework of this relationship is illustrated in Figure 3.

**Definition of Key Terms**

Action/Reflection – The Action/Reflection learning subsystem “describes the organization’s actions and examines those actions that enable it to assign meaning to new information and in doing so creates Goal Reference Knowledge” (Schwandt & Marquardt, 2000,
By reflecting on new information, the Action/Reflection subsystem enables the organization to create valued knowledge (Schwandt & Marquardt, 2000; Schwandt, 1994). An example of a process used by this subsystem is the evaluation of an organizational production process – the evaluation constitutes the collective’s reflection on the production process (action) (Schwandt & Marquardt, 2000).

Dissemination/Diffusion – This is the learning subsystem of actions that enables the organization to “move, transfer, retrieve, and capture information and knowledge” (Schwandt & Marquardt, 2000, p. 155) and thus provides integration of the learning system (Schwandt, 1994; Schwandt & Marquardt, 2000). Dissemination actions are governed by formal policies and procedures, whereas diffusion actions are manifested in informal communication methods such as rumors (Schwandt & Marquardt, 2000). Examples of actions associated with this system are electronic data transfer via audio-visual means (Schwandt & Marquardt, 2000).

Environmental Interface – The environmental interface subsystem represents a “collection of interdependent activities and actions that respond to signals from both inside and outside the organization determining the information it seeks and disperses” (Schwandt & Marquardt, 2000, p.87). The learning subsystem that imports energy to the organization to survive (Schwandt & Marquardt, 2000). Examples of processes used by this learning subsystem to seek, scan and screen information are market surveys, customer feedback, employee focus groups and economic and governmental regulations imposed on the organization from the outside environment (Schwandt & Marquardt, 2000).

Goal-referenced Knowledge – Goal reference knowledge is the interchange media product of the Action/Reflection subsystem. An example of goal reference knowledge is the results of an organization production process (Schwandt & Marquardt, 2000).
Meaning and Memory – Meaning and Memory is the learning subsystem of actions that provides guidance and control for the other three subsystems. It enables the organization to make sense of events and remember the knowledge that is imperative for organizational survival (Schwandt & Marquardt, 2000). Actions associated with this subsystem are aimed at creating and sustaining the various components that comprise the organization’s culture, that is – beliefs, values, assumptions and artifacts (Schwandt, 1994).

New Information – This is the interchange media of the Environmental Interface subsystem. New information differs from data because it has order, and it differs from knowledge in that it has not been valued by the organization (Schwandt, 1997) and thus it has no meaning attached to it.

Organizational Learning – The learning system is defined as “a system of actions, actors, symbols and processes that enables an organization to transform information into valued knowledge which in turn increases its long-run adaptive capacity” (Schwandt, 1994, p. 58; Schwandt & Marquardt, 2000, p. 61).

Organizational Innovativeness – Wang & Ahmed (2004) define organizational innovativeness as “an organization’s overall innovative capability of introducing new products to the market, or opening up new markets, through combining strategic orientation with innovative behaviour and process” (p. 304).

Sensemaking – Sensemaking the interchange medium output of the Meaning and Memory subsystem. Through this medium the learning system classifies goal referenced knowledge into stored memory; and through which the Dissemination and Diffusion subsystem generates structuring and integration of the learning system (Schwandt & Marquardt, 2000).
Structuring – This is the interchange medium output of the Dissemination – Diffusion subsystem of actions. This media enables the organization to integrate the other three learning subsystems. Structuring “symbolizes connection and order that facilitate the learning of the organization” (Schwandt & Marquardt, 2000, p. 156).
Chapter II: Literature Review

The purpose of this research study is to explore the relationship between organizational learning and organizational innovativeness in a private higher education institution. The social action theory informs this study, with Schwandt’s Organizational Learning Systems Model serving as the theoretical foundation for this study. Firms are viewed as social systems comprised of subsystems of action dynamically interacting and engaging in learning and performing actions. Thus, the study is based on the premise that learning is a collective process and is a prerequisite for innovation.

This chapter is organized into the following sections: (a) organizational learning; (b) the organizational learning systems model (OLSM); (c) organizational learning in higher education; (d) organizational innovativeness; (e) organizational learning and organizational innovativeness; (f) measurement of organizational learning and organizational innovativeness; (g) summary.

Organizational Learning

**Historical overview of organizational learning.** Merriam-Webster dictionary defines learning as “the act or experience of one that learns”; “knowledge or skill acquired by instruction or study”; or “modification of a behavioral tendency by experience (such as exposure to conditioning”. These definitions reveal the variables of which learning as an individual phenomenon comprises.

Scholarly interest in the study of organizational learning has seen exponential growth during the 1990s (184 articles were published) comparing to the 50 articles during the 1980s and 19 articles during the 1970s (Crossan & Guatto, 1996). To begin with, interest in learning and learning theories during the 1950s emerged from exploring theories of decision making and behavioral science. Herbert Simon (1959) offered a comprehensive overview of theories of
decision-making in economics and behavioral science. In his attempt to sort out recent explorations in decision-making theories in an effort to explain the behavior of the “economic man” in the face of environment complexity, Simon (1959) incorporates the processes and mechanisms through which the individual adapts. By adaptation, he means learning or “gradually and on the basis of experience responding more frequently with the choice that, in the past, has been more frequently rewarded” (p.271). Faced with an environment that generates millions of bits of new information each second, an individual is inclined to form and test hypotheses about systematic patterns in it bounded by experience, choice, and rationality (Simon, 1959). As such, Simon describes, the individual “is not only a learning animal; he [sic] is a pattern-finding and concept forming animal” (p. 272). Cangelosi and Dill (1965) build up on Simon’s classical work to analyze learning processes in a complex management environment based on observations drawn from a simulation exercise as part of a graduate program in administration. Cangelosi and Dill (1965) postulated that organizational learning represents a series of interactions between individual/subgroup adaptation and organizational adaptation. Adaptation stimulates individual/subgroup and collective learning. Individual/subgroup adaptation occurs as a result of discomfort (complexity and uncertainty) and performance (outcome) stress (Cangelosi & Dill, 1965, p. 200). On the other hand, organizational adaptation occurs as a result of disjunctive stress – stimulated by individual/subgroup conflict beyond collective tolerance. Furthermore, the authors proposed that organizational learning is sporadic rather than continuous. This view of organizational learning stemmed from a premise that organizational learning occurs as a result of individual/subgroup adaptation. In other words, learning at the individual or subgroup level stimulates and encourages learning at the organizational level.
March and Olsen (1975) posit that organizational intelligence is based on two fundamental processes: rational decision making and learning from experience. When faced with choice situations, organizations and individuals attempt to make sense of their experiences and modify and adapt their beliefs and behaviors accordingly. However, there is a number of situations in which this experiential learning cycle may be broken. The authors identify four distinct situations. The first situation is role-constrained experiential learning in which individual learning has little to no impact on individual behavior. The second situation is superstitious experiential learning in which the individual action is modified to suit environmental response and thus organizational behavior influenced by this action. The third situation is audience experiential learning in which individual learning no longer causes adaption in organizational behavior and action. The final incomplete learning cycle is learning under ambiguity. In this situation, it is rather difficult to identify causal connections among events as a result of individual action (March & Olsen, 1975).

In their classical work Organizational Learning: A Theory of Action Perspective, Argyris and Schön (1978) raise the paradoxical nature of the phenomena of organizational learning and individual learning. Although organizational learning is more than the collection of individual learning, organizations learn only through the experience and actions of individuals. In this sense, the authors differentiated between espoused theory and theory-in-use. The two theories differ in that the theory-in-use governs the individual’s actions and accounts for her/his behavior, whereas the espoused theory is how a person would behave under certain circumstances if asked (Argyris & Schön, 1978, p.11; Schön, 1975, p.6; Argyris, 1975, p. 30). According to Argyris & Schön, (1978), organizational learning occurs as a result of continual construction of organizational theory-in-use through individual inquiry. The organizational theory-in-use is
manifested in private images (individual image of an organization) and in public maps (shared descriptions of organization to guide one’s inquiry). As individual members act on their images and their shared maps with expectations of patterned outcomes (confirmed/disconfirmed through previous experience), a mismatch (error) of outcome may happen. This will prompt individual members to modify their images or maps to bring expectations and outcomes to line again. This form of “error detection” represents the fundamental learning loop in which individual members act from organizational theory-in-use, which (mis)match expectations with outcomes, and hence a confirmation or disconfirmation of organizational theory-in-use (Argyris & Schön, 1978).

Accordingly, the authors define three forms of an organizational learning loop: single-loop learning (correcting errors to maintain organizational theory-in-use), double-loop learning (organizational inquiry that resolves incongruent organizational norms), and deutero-loop learning (individual inquiry about previous contexts for learning) (Argyris, 1977; Argyris & Schön, 1978).

In an attempt to make the implementation of management information systems (MIS) more effective in organizations, Argyris (1982) presented an organizational learning system (found in all studied organizations), which inhibits an organization’s ability to question underlying assumptions of error-producing conditions (depicted in Figure 4.). Individual interaction with incoming information generates a “primary inhibiting loop” for learning in which the consequences of the interaction between columns 1 and 3 in Figure 4. represent a tendency to maintain and reinforce original conditions that produce error. Individual use of Model I theories-in-use result in four consequences (column 5), which in turn create secondary inhibiting loops. The secondary inhibiting loops reinforce primary inhibiting loops and preceding conditions led to errors. There two kinds of these errors: (1) correctable (column 7), and (2)
Figure 4. Learning systems that inhibit error detection and correction adapted by the researcher from Argyris (1977).

Uncorrectable errors (see bottom of column 7) in which individuals are unable to question underlying assumptions because they violate organizational norms. Accordingly, a reinforcement of previous conditions continues to arise out of interaction with primary and secondary inhibiting
loops. This state of reinforcement creates a system incapable of learning when dealing with correctable errors. Consequently, members of the organization experience double binds, and are unable to learn much since they can’t question underlying objectives and policies that generated these problems (Argyris, 1982, p. 8-9).

Duncan (1974) presented a preliminary model of organizational learning in a step to dissect the components of this process. In doing so, the following overarching research question guided his empirical research: “How do organizations learn to adapt to the environment by using different structures for decision making?” (p. 720). In order for organizational learning to occur, the unit members must be aware of the components that comprise their internal and external environment, they must be aware of the state of their environment, and they must be aware of the sources of uncertainty in their environment (Duncan, 1978, p. 721). Furthermore, there are two levels that comprise Duncan’s preliminary model of organizational learning: (1) behavioral-level learning in which the social unit is more likely to respond to perceived uncertainty or change in its environment when the response is followed by effective adaptation, and (2) strategy-level learning, which characterizes the unit’s ability to develop rules governing the implementation of different decision structures as a result of various levels of perceived uncertainty in the environment (Duncan, 1978). As such, both levels are imperative for the social system’s adaptation to its environment. By adapting to their environment, organizations “learn” to survive (and perhaps influence their environment) overtime (Duncan, 1978).

Shrivastava (1983) defined a set of concepts related to organizational learning in an attempt to develop a typology of organizational learning. He defines learning systems as mechanisms through which organizations perpetuate and institutionalize learning. Accordingly, Shrivastava (1983) conceptualizes organizational learning under four distinct perspectives as
found in literature: (1) as a function of adaptation and experience, (2) organizational learning as a function of sharing of assumptions, memory retention and sense-making among organizational members, (3) organizational learning as developing knowledge of action-outcome relationships, and (4) organizational learning as institutionalized experience.

Fiol and Lyles (1985) define organizational learning as “the process of improving actions through better knowledge and understanding” (p.803). Learning will probably occur if four contextual factors exist: a corporate culture that is attentive to learning, flexible organizational strategy, innovative organizational structure, and an environment that is not too much turbulent nor stable (Fiol & Lyles, 1985). Furthermore, Fiol and Lyles (1985) argued that learning occurs at a lower-level if it involves adjustments to organizational behavior within a given set of rules and norms (i.e. single loop learning). In the same token, learning occurs at a higher-level if it involves adjusting overall rules and norms rather than specific activities or behaviors (Fiol and Lyles, 1985).

Individual learning in social organizations occur as a result of direct experience and diffusion of experience (Herriott, Levinthal and March, 1985). According to the authors, diffusion of experience (i.e. copying others) increases the amount of the experience from which an individual draw, while decreases the linkage between the person’s situation and the experience base of action. This is sort of adaptive system can be viewed as a standard to deal with ambiguity (Herriott, Levinthal and March, 1985).

In their seminal work ‘Organizational Learning’, Levitt and March (1988) view organizational learning as “routine-based, history-dependent, and target-oriented” and organizations as “learning by encoding inferences from history into routines that guide behavior” (p.319). Organizational learning occurs through trial-and-error experimentation, adopting
routines with favorable outcomes and through learning from the experiences of other organizations. Capturing the experiences of other organizations occur through diffusion of experience and routines within a community of organizations in the form of technologies, codes and routine-based procedures. Accordingly, organizations develop interpretive frames of reference through which pasts events are understood. The recording, conservation and retrieval of experiences are done through organizational mechanisms that preserve these experiences in the collective memory of an organizations to make them accessible by organizational members (Levitt and March, 1988).

In their simulation methodology to explore the effectiveness of several entrepreneurship strategies in established firms while facing major restructuring of their environment, Lant and Mezias (1990) propose a learning model comprised of three fundamental components. First, learning organizations compare their actual performance to a target level of performance to determine whether they have performed above or below their aspiration level. Second, performing above or below the target level of performance affects organizational perception of success or failure, and thus, the likelihood of organizational change as a result of this perception. Third, acquisition and processing of information about alternatives is mostly costly. As a result, content of change depends on the outcomes of organizational search process (Lant & Mezias, 1990).

In their study on ‘Learning Curves in Manufacturing’, Argote & Epple (1990) differentiate between individual learning as a result of gained experience with a task, and organizational learning, which focuses on the performance of an entire organization or organizational subunits. The authors argue that organizations vary in the rates at which they learn due to several reasons including organizational ‘forgetting’ (e.g., increased unit cost after
production interruption due to a strike), employee turnover, transfer of knowledge and economies of scale (control variable). These factors cause variation in learning rates across organizations.

March, Sproull & Tamuz (1991) examined how organizations expand their comprehension of history through (1) discovering more aspects of experience, (2) more interpretations, (3) more preferences by which to evaluate experience, and (4) simulating near-events histories. Aspects of experience the authors deem critical are its place in the course of history (e.g., inventing of the printing press), its role in changing beliefs about the world, and its power in evoking meaning and interest for organizational members. The authors then argue that organizational perception of success or failure depends on the relation between the outcome and aspiration level for what the organization hoped to learn from any particular experience. Using samples of historical events help the organization constructs theories about events and then simulate hypotheses of interpretive significance comparable to the actual experienced history. The effectiveness of these learning experiences, however, should be assessed in terms of two criteria: reliability and viability. A learning process is reliable when an organization develops public, common and share interpretations of experiences. A valid learning process enables the organization to predict and control its environment (March, Sproull and Tmauz, 1991). Thus, a meaningful learning process is one in which an organization is able to construct and share meanings and predictions about historical events to draw lessons for the future.

Drawing lessons from past events, however, depends on the organization’s ability to retain and recall these events, that is, organizational memory. In their discussion of organizational memory, Walsh & Ungson (1991) builds the discussion on three fundamental assumptions. First, functionally speaking, organizations resemble information-processing
systems that transforms information from the environment. Second, organizations are depicted as interpretive systems that develop mechanisms to scan, interpret and diagnose environmental events. Third, an organization is a network of intersubjectively shared meanings about daily social interactions. Accordingly, some information about decision ‘stimulus’ or ‘ecological change’ comprises the core of an organization’s memory. This information is stored and retained in five internal ‘storage bins’ or ‘retention facilities’ and one external location that collectively compose the structure of organizational memory: Individuals, culture, transformations, structures, ecology, and external archives such as former employees and competitors (Walsh & Ungson, 1991).

Huber (1991) characterizes organizational learning in terms of its attributes: Existence, Breadth, Elaborateness, and Thoroughness. Organizational learning ‘exists’ when organizational units acquire knowledge that is potentially useful for the organization, organizational learning is ‘broad’ when more organizational components acquire potentially useful knowledge, organizational learning elaborates when more varied interpretations emerge, and organizational learning is thorough when more organizational units develop shared understanding of the various interpretations (Huber, 1991).

Further, Huber (1991) differentiate between four constructs related to organizational learning: (1) knowledge acquisition is the process by which an organizational obtains knowledge, (2) information distribution is the process by which information acquired from various sources is disseminated to organizational units, (3) information interpretation is the process by which shared understandings of new information are developed, and (4) organizational memory is the means by which knowledge is retained for future use. Related processes (i.e. grafting, cognitive maps and framing, etc.) and sub-processes (scanning,
experience-based learning curves, etc.) enable the organization to perform these functions in order to acquire, share, interpret and retain knowledge (Huber, 1991).

In his article titled ‘Bounded Rationality and Organizational Learning’, Simon (1991) attempt to show how concepts borrowed from cognitive psychology for describing human learning and problem solving can be applied to the analysis of organizational learning. Simon (1991) posits that organizational learning only occurs by the learning of members or by ingesting new members who have new knowledge. Learning, and thus innovation, in organizations is facilitated through various mechanism such as turnover, ingesting new members from without, and acquiring new problem representations. These mechanisms enable an organization to deviate from the culture within which it is embedded (Simon, 1991).

Dodgson (1993) defines organizational learning as “the ways firms build, supplement and organize knowledge and routines around their activities and within their cultures, and adapt and develop organizational efficiency by improving the use of the broad skills of their workforce” (p. 377). His definition builds upon a number of fundamental assumptions: (1) despite its negative outcomes, learning generally has positive consequences, (2) organizations learn ‘in toto’, and (3) learning takes place throughout all organizational activities at different speeds and levels. Following these assumptions, Dodgson (1993) scans literature on organizational learning to examine and analyze goals “why do firms learn?” and processes “how do firms learn?” of organizational learning. Dodgson (1993) finds that much of literature analysis of learning is limited to its outcomes and ignores problems and complexities in the processes of learning.

Kim (1993) present a framework that provides a link between individual learning and organizational learning. He defines organizational learning as “increasing an organization’s capacity to take effective action” (p.43). This definition reflects an integrated model of
organizational learning in which an organization can only learn through its members, but it is not
dependent on any individual member. Further, the model identifies a transfer mechanism through
which individual learning becomes embedded in the organization’s memory and structure. Kim
(1993) posits that it is only the active parts of an organization’s memory that play a crucial role
in organizational learning. This active memory represented in individual and shared mental
models have the capacity to influence the way an organization and its members view the world
and take action (Kim, 1993).

Nonaka (1994), on the other side, argues that while knowledge creation and learning are
developed by individuals, organizations play a crucial role in “articulating and amplifying that
knowledge” (p.14). Nonaka proposes a paradigm for managing the dynamic aspects of
organizational knowledge creation through a continuous dialogue between tacit and explicit
knowledge. This dialogue forms four patterns of interaction between tacit and explicit
knowledge through which existing knowledge is converted into knew knowledge. First, the mode
of knowledge that enables the organization to convert tacit knowledge through individual
socialization. Second, the mode of knowledge that involves creating an explicit knowledge from
existing explicit knowledge. This social process is called combination. The third and fourth
modes of knowledge creation involves converting tacit knowledge into explicit knowledge
“externalization” or vice versa “internalization” (rooted in organizational learning theory).
Accordingly, organizational knowledge creation occurs when the aforementioned modes of
knowledge creation are ‘organizationally’ managed to enable the mobilization of tacit knowledge
through a dynamic process of knowledge conversion (Nonaka, 1994).

Marquardt (1995) defines a learning organization as one that transforms data into valued
knowledge through systematic, accelerated learning performed by the collective rather than the
learning of its individual members. Following an extensive research of over 200 global organizations examined over three years, he notes 19 common attributes to most of these organizations divided into three spheres, namely: 1) Inner sphere - individual learning; group learning; 2) Middle sphere - streamlined structure; corporate learning culture; empowerment; environmental scanning; knowledge creation and transfer; learning technology; quality learning strategy; supportive atmosphere; teamwork and networking vision; 3) Outer sphere - acculturization; borders; globalization; language; leadership; and workforce diversity. In addition to identifying 14 possible steps which an organization might consider in building itself into a global learning organization (i.e. encourage experimentation; mechanisms to disseminate learning; develop the discipline of systems thinking), Marquardt (1995) posits that organization should develop a structure and learning style that suit its own people, history, mission and culture. Developing a knowledge structure, however, could limit decision makers’ abilities to understand their information environments (Walsh, 1995). A knowledge structure in this context creates a mental template that enables individuals to order an information environment to give it substance and meaning (Walsh, 1995).

Miller (1996) discusses two paradigmatic dimensions that bring about distinctions in the way organizations learn. Accordingly, he proposes three kinds of methodical learning and three kinds of emergent learning, each distinguished by constraints on thought and action (voluntarism vs. determinism). The learning typologies (in descending order of voluntarism) are: analytical learning distinguished by systematic analysis of environmental information; experimental learning in which managers’ “latitude for dramatic action is limited” (p. 488); structural learning, which is driven by routine-based systems for standardized behavior (most restrictive form of methodical learning); synthesis learning in which managers follow their intuition to identify
patterns to generate global insights about issues facing organizations; interactive learning that is limited by social and political interactions among organizational members; institutional learning in which action and behavior are limited by institutional forces governing organizational thinking (most restrictive form of emergent learning). In this context, Millers (1996) defines organizational learning as “the acquisition of new knowledge by actors who are able and willing to apply that knowledge in making decisions or influencing others in the organization” (p. 486).

Conceptualization of organizational learning has been influenced by the disciplinary perspectives trying to provide conceptions of pertinent problems. Attempts were made to create a single framework for understanding the construct of organizational learning. However, Easterby-Smith (1997) argues against that since each discipline provides its own distinct contribution (i.e. ontology and methodology) and thus it is rather beneficial to address organizational learning from each discipline separately. Easterby-Smith (1997) also distinguishes between the concept of organizational learning and the learning organization – a multidisciplinary concept that emphasizes action and creation of an “ideal” organization. This ideal organization, according to Nonaka (1991), is capable of creating a new knowledge, disseminate it to organizational members, and embody it in new technologies and products or services. It is one “whose sole business is continuous innovation” (p. 96).

In his quest to understand what makes up an organizational learning, Senge (1990) combines five distinct components which form the foundation of the learning organization: systems thing, personal mastery, mental models, team learning, and building shared vision. Systems thinking is what Senge calls the “fifth discipline” which integrates the disciplines into a coherent body of theory and practice. Personal mastery involves continual clarification of personal vision through lifelong learning. Mental models represent deeply ingrained assumptions
that influence our understanding of the world around us and thus inform our action. Team learning grants members of a team the capacity to maximize collective thinking through suspending assumptions and recognizing patterns of interaction that undermine learning. Building shared vision is the process through which leadership vision shapes the future an organization seeks to create and inspire among its members.

The Organizational learning systems model (OLSM). For the purpose of study, Schwandt (1991) Organizational Learning Systems Model is used. A complete understanding of the theoretical underpinning of this model warrants an understanding of the roots of open system theory. In particular, Talcott Parsons’ structural functionalism. Parson’s writings moved away from sociological theories of a closed system to an open, functional society viewed as a system integrated by a common set of values. This open system comprises of subsystems contribute to these values and are influenced by them (Katz & Kahn, 1978, p.6).

Organizational learning in higher education. According to (Katz & Kahn, 1978), most universities failed to develop specialized adaptive mechanisms in anticipation of foreseeable changes in their external environment (p.88). This lack of adaptiveness was due to inability to gather information utilize resources to meet changing demands (Katz & Kahn, 1978). Viewing a higher education institution as a subsystem of the large system, Katz and Kahn (1978) characterize universities as adaptive structures, in which knowledge is developed, tested and applied to solve existing problems (p.145).

Boyce (2003) argues that establishing conditions for continued organizational learning is integral for a sustaining successful organizational change in a college or university. Boyce contends that a successful change in higher education is “about learning enough collectively” (p.133) to change institutional outcomes and inquiry. Sustaining change in higher education,
Boyce (2003) adds, depends on developing a sustainable model of learning at the institution level.

Kezar (2005) suggests that higher education needs to embrace the concept of organizational learning to face challenges and better serve students. The author points that the need for organizational learning becomes more pressing as organizations become more diverse and multicultural, as limited views of learning will likely inhibit colleges and universities from capturing the collective intelligence of their culturally diverse individuals.

Baley (2012) examined the impact of faculty members’ perceptions of learning organization to the organizational commitment between private and public university. Baley found that faculty members working in private university have a higher level of organizational learning perceptions and higher level of commitment to the university that those working at a public university.

**Organizational Innovativeness**

Conceptualization of innovation and creativity by individuals and organizations has been the focus of many theorists for a long time. Innovation has been viewed as the driver of economic and organizational development and thus has a great influence on the bottom line. However, it is important to not confuse innovation with invention. An invention is a new idea that has proven feasible in the laboratory. An innovation, on the other hand, is when the idea “can be replicated reliably on a meaningful scale at practical costs” (Senge, 1990. p. 5). Further, it is also beneficial to point out another distinction made by Christensen (2011) between what he calls “Sustaining” vs. “disruptive” innovations. Sustaining innovations improve the performance of established products or industries along the dimensions of performance that mainstream customers have historically valued. Disruptive innovations, on the other hand, bring to customers
a very different value proposition (i.e. cheaper, smaller, and more convenient to use) that had been available previously (Christensen, 2011).

For the purpose of this study, innovation is viewed as a value-based outcome, whereas innovativeness is viewed as the process by which new ideas are generated in organizations. Innovativeness provides the means through which individuals and organizations are able to produce breakthrough, innovative concepts, ideas, or methods that can create and (temporarily) maintain a competitive advantage for the enterprise in the market.

Next, the paper will provide historical overview of innovation followed by a discussion of innovativeness in the higher education sector. Last, the discussion will conclude by a survey of the extant literature on innovation’s determinants in organizations.

**Historical background.** Numerous studies tackled the concept of innovation and the economic impact of the innovational process on individuals and organizations. A large number of these studies were primarily concerned with what makes an innovative idea and what defines the innovation process (i.e. innovativeness) in organizations. In his seminal work *The Theory of Economic Development*, Schumpeter (1934) describes three salient characteristics of economic development: it comes from within the economic system rather than mere adaption to changes in the extant environment; it brings revolutions and create new conditions; it occurs discontinuously, rather than smoothly. Schumpeter (1934) contends that innovation constitutes the strategic stimulus to economic development as it revolutionizes the economic structure from within and replaces old means of capital production with new ones. In this essence, he defines innovation as the commercial or industrial application of something new – a new product, process, or a method or production. Cheng & Dinopoulous (1992) build up on Schumpeter’s
mechanism of economic growth by distinguishing between technological breakthroughs in which major discoveries are introduced, and improvements that follow a major breakthrough.

Like Schumpeter, Rogers (1962) defines innovation as “an idea, practice, or object that is perceived as new by an individual or other unit of adoption” (p.11). Rogers (1962) uses the word “innovation” and “technology” interchangeably. He, however, defines innovativeness as the individual’s inclination or readiness to adopt new ideas relatively earlier than other members of a system. The adoption rate is thus influenced by the individual’s perception of “newness” in an innovation and the system within which the individual socializes her or his ideas. Accordingly, Rogers (1962) identifies five distinct characteristics that potentially increase the rate of adoption of an innovation as perceived by individuals: Relative advantage which is the degree to which an innovation is perceived as better than an idea it supersedes; Compatibility which is the degree to which an innovation is perceived as being compatible with the values and needs of potential adopters; Complexity which is the degree to which an innovation is perceived as difficult to decipher; Trialability which is the degree to which an innovation may be experimented on a smaller, limited scale; Observability which describes the degree to which the results of an innovation are visible. Thus, innovations that lack one or more of the aforementioned characteristics are less likely to be adopted by individuals.

In a note on innovation in medical schools, Carrol (1967) discusses innovation as a social process rather than a scientific discovery in an attempt to identify major change in the school’s structure or procedures as an indication of innovation. To qualify as an innovating school, a medical school had to initiate unprecedented revision of its curriculum between 1959 and 1964. The study found that doctors who enter into an employment relationship may constitute a group closely akin to a subculture, which will serve as a source of new ideas or of
ideas brought from other cultures (Carroll, 1967). Innovation is thus often introduced to an organization by new members. However, Knight (1967) suggests that an individual must have the capacity either within him/herself or available within those who support the new idea to carry out the change. Knight (1967) defines innovation as “the adoption of a change which is new to an organization and to the relevant environment”. The adoption aspect of an innovation in Knight’s definition is consistent with Senge’s (1990) distinction mentioned above. To go beyond the conception of a new idea, an innovation should be applied by the organization. Knight (1967) classifies innovation into four major categories: product or service innovations, process innovations, organizational-structure innovation, and people innovations.

Kaluzny, Veney and Gentry (1974) examined contributing factors affecting organizational innovation in hospitals and health departments. Empirically, the authors found that organizational context, organizational structure and function, organizational composition (i.e. cosmopolitan local nature of staff and degree of training), and traits of the administrator as well as organizational size and type of the program were relatively and to different degrees contributing factors affecting innovation in hospitals and health departments. Their findings, however, called for more attention to explore innovation as a process (namely, innovativeness) and predicting factors of innovation that are external to an organization such as competition and rules and regulations.

Roles of employees and managers in the process of organizational innovation has long been examined over the past decades. Jervis (1975) posits that roles played by individuals in organizations affect success rates of innovation process in organizations. That is, in addition to diversity of experience characterizes managers of successful innovation projects, leadership commitment and support appears to be vital to the success of innovation. Further, individual
commitment alone does not result in success if not accompanied by possessing diverse experience and sufficient status and authority within the organization (Jervis, 1975). Similarly, Daft (1978) examined the role of administrators and technical employees in the process leading to innovation adoption by surveying a sample of 13 suburban high school districts in 1972 to learn which innovations had been adopted during the previous several years. The adoption of innovation was thus explained as a function of two organizational core -- a technical core and an administrative core. The relative innovation balance between the two cores (loosely or tightly coupled) and importance of innovation type were found to have an impact on the decision to adopt innovations.

Garnering buy-in is essential for which innovators often fail to take into account. Brewer (1980) argues that ignoring the simple matter of quid pro quo may result in disaster for the innovator and his or her idea. Effectively adopting and implementing an innovation or a social change requires having a precise knowledge of the subject or setting under change, and continuous and comprehensive evaluation of the innovation process in order to readily learn from and to accommodate reality (Brewer, 1980). The thought of innovation of someone’s is ordinarily another’s destruction is routinely overlooked by innovators. The view of innovations as destructions or disruptions to existing practices and arrangements allows one to appreciate difficulties encountered by innovators (Brewer, 1980).

Teece (1980) outlines three major differences of diffusion patterns between administrative and technological innovations. First, administrative innovations based on superior organization methods are difficult if not impossible to patent. Secondly, administrative innovations are often costly and involve significant disruption to existing organizational functions. Third, an incremental approach to administrative innovation may not be feasible.
Nonetheless, Teece’s (1980) study of a sample of large industrial firms in two classes (petroleum industry and principal firms in 17 industries) revealed that administrative innovations are subject to a diffusion process similar to that of a technological innovation. However, administrative innovations diffused much more slowly than did technological innovations. The innovation process does not always follow a sequential order. In a study conducted on three urban innovations, Pelz (1983) found that original or highly adapted innovations were most disorderly, with much overlap among innovation functions. On the other hand, simple, less complex innovations that are borrowed with little change are most likely to have a moderately clear succession of stages with less overlap among innovation functions.

Innovation in organizations is often triggered by challenges posed by environmental changes. In a sample of Canadian financial firms, Miller and Friesen (1983) empirically found that increased environmental dynamism appears to increase the need for more innovation. Likewise, organizations dealing with diverse market segments will most likely benefit from that by seeking out different niches and innovating within them by developing differentiated products, technologies or services which would ultimately provide the opportunity for innovator profits (Miller & Friesen, 1983).

Damanpour and Evan (1984) view innovations as “a means of creating changes to ensure adaptive behavior” (p.405). In their study of six public libraries to measure the impact of the adoption of two types of innovation (i.e. technical and administrative) on organizational performance, Damanpour and Evan (1984) found that a balanced implementation of administrative and technical innovations would help maintain the equilibrium between the social and technical systems, which in turn would lead to high performance. Environmental changes trigger changes in strategy and/or structure. Changes in strategy/structure urge organizations to
introduce administrative innovations to the organization’s climate, policies, and human systems and thus provide new opportunities for the conception and adoption of technical innovations (Damanour & Evan, 1984). On a similar note, Damanpour (1987) proposed and empirically tested the influence of six organizational factors (functional differentiation, specialization, professionalism, administrative intensity, organizational size, and organizational slack) on the adoption of three types of innovations (administrative, technological, and ancillary). The results showed that organizational variables are better predictors of technological innovations than administrative, whereas the impact on ancillary innovations was not statistically significant. Accordingly, the distinction between types of innovations and the stages of adoption process are both imperative to identify organizational characteristics that facilitate or hinder adoption of innovation (Damanpour, 1987). Furthermore, Damanpour (1988) conceptually suggests that innovation studies should recognize the types of organizations operating in different environmental settings while examining the impact of the aforementioned organizational factors on the adoption of innovations along three dimensions: innovation type, innovation radicalness, and stages of innovation adoption.

Van de Ven (1986) postulates a conceptual framework for systematic examination of the innovation process, problems and outcomes in organizations. He defines innovation as “the development and implementation of new ideas by people who over time engage in transactions with others within an institutional order” (p.604). The definition suggests four basic factors associated with four central problems in the management of innovation. The four factors are: ideas, people, transactions, and context. The four problems are: developing ideas into good currency, managing attention, part-whole relationships, and institutional leadership. A new idea does not become an innovation until it gains good currency and becomes embedded in the
ingrained assumptions and thought structure of organizational practice. Transforming innovative ideas into reality requires individual involvement in specific parts of the innovation without losing sight of the whole innovation effort. Creating a macro context for innovations, further, requires buy-in from leadership to develop an infrastructure that is conductive to innovation and organizational learning (Van de Ven, 1986).

Dewar and Dutton (1986) proposed and empirically tested whether the correlates of adoption of radical vs. incremental innovations are different. To accomplish that, Dewar and Dutton included three variables thought to be associated with innovation adoption: distribution of knowledge, attitudes of the organization’s management towards change, and dimensions of organizational structure (i.e. firm complexity and structure decentralization). The study found that depth of knowledge resources was an important predictor of the adoption of radical and incremental innovations, whereas organizational size was an important factor in the adoption of radical innovation adoption only.

Based on the innovation and technological diffusion literature, Cooper and Zmud (1990) empirically examined the impact of the interaction of managerial tasks with the information technology on the adoption and infusion of material requirements planning (MRP) system. Using a random sample of manufacturing firms across the U.S., the authors found that this interaction does affect the adoption of MRP, but not its infusion. In other words, task-technology compatibility is a major factor in explaining MRP adoption behaviors in manufacturing firms. Furthermore, adoption of MRP is more likely to occur when the manufacturing firm’s environment follows certain characteristics the lack of which may reduce the systematic adoption of MRP (Cooper & Zmud, 1990).
According to Henderson and Clark (1990), the mere distinction between incremental and radical innovations is not sufficient to account for minor improvements in technological products with great competitive consequences. The authors define this kind of innovation as “architectural”, which changes the reconfiguration of an established system by linking together its existing components in a new way (Henderson & Clark, 1990). The effect of an architectural innovation depends on the nature of organizational learning and may require a different kind of organization and people skills. An organization that is structured to learn quickly and effectively about new technology may be ineffective in learning about changes in product architecture (Henderson & Clark, 1990).

In their attempt to investigate the number of months it takes a new organization from conception to ship its first product to the market, Bird, Eisenhardt, and Lyman (1990) distinguish between two innovations: innovation achieved through the creation of new knowledge, and innovation created based on knowledge synthesis. The authors found that new organizations seeking to rapidly introduce their first product should adopt less technically ambitious projects (Bird, Eisenhardt, and Lyman, 1990). Spending more time looking for new ways to synthesize existing knowledge or innovating new technology products thus may preclude the organization from reaping early revenue.

A market-driven organization is one that is driven by market requirements and anticipated changes in market conditions. This organization is expected to maintain a long-run competitive advantage and superior performance (Day, 1994). This market-orientation perspective is reliant on developing a market sensing capability, which enables the organization to continuously detect new opportunities and sense changes in its market in order to better respond to market actions (Day, 1994). Achieving and sustaining a market orientation is thus
dependent to a large degree on the organization’s tendency to innovate “innovativeness” in order to be better equipped to respond to changes in customer needs. Lumpkin & Dess (1996) define innovativeness as “a firms’ tendency to engage in and support new ideas, novelty, experimentation, and creative processes that may result in new products, services, or technological processes” (p. 142). Accordingly, Lumpkin & Dess posit that innovativeness as one of five dimensions that characterize entrepreneurial orientation of a firm. That is, it reflects an important means by which an organization pursues new opportunities (Lumpkin & Dess, 1996).

In their review of innovation research from the perspectives of economists, organizational sociologists, and technology management theorists, Gopalakrishnan & Damanpour (1997) found no one commonly accepted definition of innovation despite the not so completely independent conceptualization of innovation across these disciplines. The authors view innovation as both a “response mechanism” and “organizational resource” that can guide and inspire the two aspects of managerial choice of innovation: timing of adoption and magnitude of adoption (Gopalakrishnan & Damanpour, 1997, p. 22).

Other studies examined the correlation between the CEO’s demographic and physiological traits on innovation adoption rate. Kitchell (1997) studied the impact of CEO characteristics on. Technological innovations in the Canadian context. Contrary to how an innovative CEO is often presented in the literature, Kitchell (1997) found that the innovative CEP is seasoned, flexible, and persevering as well as a long-term member of the organization’s community. However, such studies building upon the upper echelons theory appear to reduce the critical impact of other organizational factors on innovation strategy. Markides (1998) defines strategic innovation as “a fundamental reconceptualization of what the business is all about that,
in turn, leads to a dramatically different way of playing the game in an existing business” (p. 32). Achieving this fundamental reconceptualization requires organizations to develop the culture, mindset and underlying environment to continually question the status quo while promoting continual experimentation (Markides, 1998).

Adoption of innovation at the firm level depends to a certain degree on the overall perception of the firm’s innovativeness. The New product development (NPD) represents an integral element of innovativeness (Hovgaard & Hansen, 2004). The dynamics that govern the adoption of new product and process development have been examined in several studies (Schmidt and Calantone, 1998; Damanpour and Gopalakrishnan, 2001; Danneels and Kleinschmidt; 2001). Damanpour and Gopalakrishnan (2001), for example, found that service-based organizations emphasize the adoption of product innovations over process innovations given the perceived relative advantage of product innovations. This perceived perception of product innovativeness was also reported in the responses of some participants of Hovgaard’s & Hansen’s (2004) qualitative study of small forest products firms. This inflated perception of product innovativeness could cause managers to become more psychologically committed to these products even situations when stopping NPD projects would be more financially feasible (Schmidt & Calantone, 1998).

The interplay between organizational-level market orientation and innovativeness has been examined to study their impact on organizational performance. Menguc and Auh (2006) provided an empirical evidence of the competitive value of market orientation through innovativeness. The authors found that the dynamic capability-generating capacity of market orientation is enhanced when it is adequately complemented with innovativeness. This finding was supported by Zhang’s and Duan’s (2010) research of 227 manufacturing firms in China. The
authors found that taking a proactive market orientation approach improves product performance primarily through innovativeness. This approach, Zhang & Duan (2010) argue, reflects an exploratory learning behavior seeking new and diverse knowledge that takes the firm beyond the scope of its current experience.

Organizational innovativeness in higher education. Powel, Olivier, and Yuan (2015) demonstrated how Higher Education Institutions (HEIs) best recognize and respond to a disruptive innovation. Using Bower and Christensen’s (1995) theory of disruptive innovation, Powel et al. (2015) examined two case studies that each employed the same innovation model, while the “work-focused learning” was completed differently. Given how complex the business of higher education is, Powel et al. (2015) recommend that the theory of disruptive innovation should be used thoughtfully to initiate or respond to potentially disruptive innovations.

Hariri and Roberts (2015) discussed the need for improvement and innovation in universities so they can effectively serve their students. The authors used a unified model developed by Venkatesh et al. (2003) called UTAUT (see Figure 5). The model was originally created as a tool for managers to assess the likelihood of success for new technology introductions and to help them understand what potential motivators of new inventions among populations of users that may be less inclined to adopt new systems. Hariri & Roberts (2015) employed the model in the context of higher education to validate important constructs that influence innovation adoption within universities. New constructs such as students’ requirements, expectation and learning were found valid and reliable to innovation adoption as existing constructs.
Organizational characteristics. Numerous studies were found discussing antecedents to and determinants of innovation in organizations. Damanpour (1988) argues that identifying organizational characteristics that facilitate or hinder the initiation and implementation of innovations requires considering the type of organization and the environment of which it operates (e.g., dynamic vs. stable environment). This will enable the organization to conceive of organizational consequences as a result of adoption of innovations (Damanpour, 1988).

Rosner (1968) suggested the influence of organizational slack (i.e. affordability of innovation) and economic orientation on hospitals’ innovativeness to try new drugs. The author found that economic factors should have a greater influence in organizations that are more economically and financially oriented such capital good manufacturers. Drawing data from 93 local public health organizations, Mohr (1969) found that the extent of innovation is a negative function of obstacles (i.e. community and organizational preparedness and acceptance of new practices) and a positive function of the motivation to innovate and availability of resources. The
author also found organizational size represents a powerful predictor of innovation albeit not theoretically complete. This finding was supported by other studies such as Baldrige and Burnham (1975) who have suggested that structural characteristics of an organization such as size and complexity strongly influence the organization’s innovative behaviors, and Kimberly and Evanisko (1981) who found that only size was a significant predictor of technological and administrative innovations in the health sector. Damanpour’s (1992) review of 36 correlations derived from 20 published studies found that size is positively related to innovation—strongly related to the implementation phase than to initiation. However, this relationship was found stronger in manufacturing and profit-making organizations than in service or non-profit-making organizations.

Shepard (1967) differentiate between innovation-resisting and innovation-producing organizations. The author suggests an unusual combination of qualities to increase adoption and implementation rates of innovation in innovation-resisting organizations. Qualities such as pragmatic imagination, psychological security, sense of timing, are among others that would enable the innovator to attain his or her innovation. On the other hand, Shepard (1967) posits that movement toward innovation-producing organization requires processes of personal and interpersonal education in order to develop independence and interdependence capacity. Aiken and Hage (1971) empirically explored variables that characterize organic organization to test associations with varying rates of innovation. The authors found several factors related to innovation such as intensity of scheduled and unscheduled communication, decentralization of decision-making, slack resources, and occupation specialties. Their findings also support the notion that innovation organizations are those which have mechanisms to infuse and simulate
new ideas on a continuing basis such as involving their staff in various activities of their professional societies.

Several studies explored antecedents to innovativeness in organizations. Avlonitis et al. (1994) identified different economic and organizational factors which influence dimensions of innovativeness of organizations. These factors include size, strategic planning, utilization of manpower as a source of new ideas, formality and organizational structure, scientific orientation, attitude to risk, cosmopoliteness, EDP resources, and investment appraisal methods. These factors were found influence organizational innovativeness in varying degrees. On the same token, Hult et al. (2004) addressed the influence of market orientation, learning orientation, and entrepreneurial orientation on organizational innovativeness in an empirically verified model. The authors found that: market orientation appears to strongly influence innovativeness under high market turbulence, learning orientation significantly influences innovativeness, and entrepreneurial orientation plays an integral role in the development and maintenance of innovativeness.

Other studies examined organizational culture’s influence on innovation and creativity within organizations. Ahmed (1998) argued that the most innovative companies of the future are those who simply focus their efforts on creating a work environment that stimulates innovation through the creation of appropriate cultures. Amabile et al. (1996) have modeled a quantitative construct that quantitatively assess the work environment perceptions that influence the level of creative behavior exhibited in the early development of new products and processes. The authors found these five work environment dimensions may play an important role in influence creative behavior in organizations: challenge, organizational encouragement, work group supports, supervisory encouragement, and organizational impediments. Martins and Terblanche (2003)
reviewed literature of innovation and creativity in organizations. The authors found the following factors key to creating an organizational culture that stimulates creativity and innovation: an innovative strategy that promotes creativity, organizational structure and speed rate of decision-making processes, support mechanisms, behavior that encourages innovation, and open and transparent communication. On the same token, McLean (2005) has reviewed literature for factors related to organizational culture and climate that supports and impedes organizational creativity and innovation. Building on the work of Amabile et al. (1996), McLean (2005) found organizational encouragement, supervisory encouragement, work group encouragement, freedom/autonomy, and resources to stimulate innovation, whereas control such as control in decision making or control of information flow inhibit innovation and creativity.

Dobni (2008) developed an empirically-based instrument for measuring an organization’s innovation culture. Dobni has argued that an innovative culture may be best represented through a structure comprised of seven essential factors: innovation propensity, organizational consistency, organizational learning, creativity and empowerment, market orientation, value orientation, and implementation context.

Organizational Learning and Organizational Innovativeness

**Historical context.** Several studies tested the relationship between learning and innovation in organizations. The studies found a positive, influential role of organizational learning on organizations’ innovative capacities. Cohen and Levinthal (1990) have argued that an organization’s absorptive capacity is essential to its innovative capabilities. They refer to absorptive capacity to describe the acquisition, assimilation and exploitation of information and prior knowledge by the organization. Their empirical analysis of an R&D investment model suggests that R&D both generates innovation and facilitates learning. Thus, absorptive capacity
appears to be part of firm’s decision to allocate resources for innovative activity. Bouwen and Fry (1991) have built up on Argyris’ theory of organizational learning and argued a confrontational/learning model of action strategy to obtain long-term, lasting organizational learning effects from innovation. The distinctive nature of this model or pattern of actions lies in the coownership of interaction task and shared influence on outcomes through sharing a common sense about the innovation effort.

Mazias and Eisner (1997) developed a theoretical framework to examine the effects of competition and imitation on the levels of innovation and refinement in a group of firms that produce/render substantially similar products or services using an organizational learning approach to account for the effects of history. Accordingly, Mazias and Eisner posit that change in organizations will not occur unless an organization believes it has found a technology improves the status quo. Based on this perception, the organization will decide whether to maintain or refine current technology, adopt new technology, that is innovation, or imitate existing one of another firm.

Hurley and Hult (1998) present a conceptual framework tested among a sample of 4648 employees from 56 organizations in a large agency of the U.S. federal government. The authors found that high level of innovativeness in the firms’ culture are associated with greater capacity for adaptation and innovation, and with cultures that are learning-oriented and encourage participative approach to decision-making.

Attewell (1992), on the other hand, emphasized the role of know-how and organizational learning as potential barriers to innovation adoption in organizations. This notion stems from the delay firms experience for in-house adoption of complex technology until they have obtained adequate know-how to implement and operate it successfully.
Thus, a firm’s decision to adopt new innovations relies to a high degree on its perception of existing knowledge and learning capabilities and cost-benefit analysis to determine whether it should adopt or delay adoption until it is ready to undertake the new innovative project.

**Higher education context.** Few studies were found investigating the dynamic relationship between organizational learning and innovation in higher education institutions. All studies reviewed were found affirmative in regard to the positive influence of organizational learning on driving innovation in higher education institutions. Hao and Yunlong (2014) examined Chinese university spin-offs survey data to identify the influence process from institutional innovation and organizational learning to synergistic effect of organization. The authors found that organizational learning has promoted and played an intermediary role in the process of institutional innovation. Aminbeidokhti et al. (2016) empirically studied the relationships between the total quality management (TQM), organizational innovation and organizational learning in the higher education sector in Iran. The research findings showed that organizational learning has a significant impact on organizational innovation and that the former can reinforce and increase the latter. The authors have suggested that organizations seeking the maximum use of TQM should pay attention to their organizational learning given the intermediary role it plays between TQM and innovation. Similarly, Sutanto’s (2017) statistical research findings found that organizational learning capability has a substantial influence on organizational innovation of universities in East Java, Indonesia.

**Summary**

This comprehensive review of the literature attempts to examine the relationships among organizational culture, organizational learning and organizational innovativeness in a holistic perspective. Few studies were found investigating the relationship between organizational
learning and organizational innovativeness in the context of higher education. Furthermore, there were no studies that explored organizational innovativeness using Wang and Ahmed’s (2004) comprehensive construct of organizational innovativeness through the lens of social action theory as conceptualized by Schwandt’s (1997) organizational learning model. This study explores the complex relationship between organizational learning and organizational innovativeness in higher education and offers explanatory insights into the role of organizational learning in sustaining competitive advantage in higher education through innovation.
Chapter III: Methodology

The following chapter presents the research question, research design, and methodology employed for this quantitative study. Furthermore, data collection methods, data analysis methods, as well as threats to validity, generalizability and reliability, and ethical considerations are outlined.

Research Question

The following research question and hypotheses guided this study: Is there a significant relationship between each of the four organizational learning subsystems and each of the five organizational innovativeness dimensions?

H$_{a1}$. There is a significant positive relationship between the environmental interface subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

H$_{o1}$. There is no significant positive relationship between the environmental interface subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

H$_{a2}$. There is a significant positive relationship between the action-reflection subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

H$_{o2}$. There is no significant positive relationship between the action-reflection subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

H$_{a3}$. There is a significant positive relationship between the structuring subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

H$_{o3}$. There is no significant positive relationship between the structuring subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.
H\textsubscript{o3}. There is no significant positive relationship between the structuring subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

H\textsubscript{a4}. There is a significant positive relationship between the meaning and memory subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

H\textsubscript{o4}. There is no significant positive relationship between the meaning and memory subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

**Research Design**

The purpose of this study is to examine managers’ perceptions of the relationship between two organizational constructs: Organizational Learning and Organizational Innovativeness in a private higher education institution. In particular, the study aimed to explore the extent to which there is a correlation between organizational learning actions as represented by the Organizational Learning Systems Model (OLSM) (Schwandt, 1991) and the five dimensions of Organizational Innovativeness Assessment (OIA) (Wang & Ahmed, 2004). A correlational explanatory design was used to determine the extent to which leaders’ perceptions of organizational learning actions are attributed to organizational innovativeness. The purpose of the research design was to identify the extent to which organizational learning actions and organizational innovativeness co-vary (Creswell, 2015).

**Research tradition.** The objective of this correlational study is to explore the extent to which there is a significant relationship between Organizational Learning and Organizational Innovativeness as measured by managers’ perceptions (Fraenkel et al., 2012). The correlational design was guided by the research question and hypotheses that predicted the degree of
association (Creswell, 2015) between each of the four organizational learning subsystems and each of the organizational innovativeness dimensions.

**Methodology.** To seek a more complete understanding of the degree of correlation between Organizational Learning and Organizational Innovativeness, an explanatory correlational method design was employed. Quantitative data collection and analysis were carried out to examine whether there is a significant relationship between each of the Organizational Learning subsystems and each of the five dimensions of Organizational Innovativeness (Fraenkel et al., 2012; Ivankova et al., 2006).

In quantitative research studies, the researcher identifies a research question to obtain measurable and observable data on the study’s variables using an instrument to measure the variables (Creswell, 2015). The relationship among two or more variables are studied without any attempt to influence them (Fraenkel et al., 2012).

**Limitations.** The limitation within this research design can be attributed to that correlations by themselves don’t necessarily indicate cause-effect relations; they only tell you whether variables are associated with each other. Findings obtained through this study cannot be generalized to other organizations since participants within the designated group of study were invited to participate. Moreover, the researcher had no control over the independent variable. Furthermore, the survey was sent out to the study’s participants one month prior to rolling out the institution’s five-year strategic plan. Additionally, given that the researcher worked at the target institution there was a chance that participant coworkers may have responded in a way that would provide a better image of the organization and their leadership actions.
**Quantitative data collection and analysis.** This study used a survey tool that sought to identify if there is a significant relationship between each of the organizational learning subsystems and each of the organizational innovativeness dimensions. The Organizational Action Survey (OAS) and the Organizational Innovativeness Assessment informed the design and analysis of this study.

**Population and Sampling**

A comprehensive sampling procedure was used in this study since the researcher had access to all leaders within the selected organization. The sample included leaders representing different organizational levels of multiple functional departments across the organization’s four locations. Leadership levels at each location represents middle management within the entire organization whose role requires making decisions, and thus constantly aspires to remain innovative through learning.

**Instruments**

**The Organizational Action Survey.** This study used the Organizational Action Survey (OAS), which was developed by the George Washington University Center for the Study of Learning. The OAS is theoretically grounded in Schwandt’s (1997) dynamic social action learning model – an extension of Talcott Parson’s theory of social action systems, which postulates that change is a result of two process: performance and learning (Johnson, 2000). This instrument was based on the premise that organizational learning provides the means through which an organization survives in its changing environments (Johnson, 2000). The OAS was developed based on the theoretical belief that the domains of organizational learning and performing are social actions that are related but differentiable (Johnson & Bailey, 2010). The
OAS thus enables organizations to understand the impact of organizational performing actions and organizational learning actions on organizational performance (Johnson & Bailey, 2010).

The OAS includes 32 questions in three sections. The first section consists of questions to evaluate the degree to which the organization carries out its functional requirements represented in daily processes, practices and procedures. The second section evaluates organizational actions with respect to learning or performance as theorized in Schwandt’s (1997) organizational action system theory (Mauchet, 2011) (See Table 3.1).

Table 3.1

*Organizational Action Survey Functions*

<table>
<thead>
<tr>
<th>OAS functions</th>
<th>Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adapt to the environment</td>
<td>Learning</td>
</tr>
<tr>
<td></td>
<td>Performance</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Seeking out information to meet unanticipated customer needs or emerging markets.</td>
</tr>
<tr>
<td>2.</td>
<td>Responding to intense industry competition or technological changes.</td>
</tr>
<tr>
<td>Attain organizational goals</td>
<td>Learning</td>
</tr>
<tr>
<td></td>
<td>Performance</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Reflecting on priorities and goal-oriented actions, critically examining criteria for success, and focusing on new knowledge and innovation.</td>
</tr>
<tr>
<td>4.</td>
<td>Establishing clear performance goals and consistently achieving them.</td>
</tr>
<tr>
<td>Integrate and coordinate within the organization</td>
<td>Learning</td>
</tr>
<tr>
<td></td>
<td>Performance</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Taking opportunities for developing knowledge, skills and abilities, sharing new insights, and collaborating.</td>
</tr>
<tr>
<td>6.</td>
<td>Implementing changes to make people more effective, holding leaders accountable for decision making; ensuring equitable allocation of resources and</td>
</tr>
<tr>
<td>Maintain and reinforce organizational culture</td>
<td>Learning</td>
</tr>
<tr>
<td>Performance</td>
<td>8. Rewarding performance and ensuring consistent values to guide daily activity</td>
</tr>
</tbody>
</table>

Table 3.2

Organizational Learning Items

Adaptation Learning (Environment Interface)
- To what extent do members of your organization share external information?
- To what extent does your organization predict the changes occurring in the industry?
- To what extent does your organization continuously track how your competitors improve their products, services, and operation?
- To what extent does your organization deliberately reflect upon and evaluate external information?

Goal Learning (Action/Reflection)
- To what extent does your organization have set goals for researching and developing new products and/or services?
- To what extent do members of your organization effectively use organizational structures (e.g., chain of command, personal networks) when sharing ideas and innovations?
- In my experience this organization has clear goals for individual and organizational development.

Integration Learning (Dissemination and Diffusion)
- To what extent does your organization provide opportunities for employees to develop their knowledge, skills, and capabilities?
- To what extent do your organization's leaders support quick and accurate communication among all employees?
- In my experience there are systems in place to share new operational processes and procedures throughout the organization.
- In my experience this organization has established work groups, networks, and other collaborative arrangements to help the organization adapt to change.

Latency Learning (Meaning and Memory)
- To what extent does your organization use ideas and suggestions from its employees?
In my experience this organization believes that continuous change is necessary.
In my experience this organization has a strong culture of shared values, beliefs, and norms that support individual and organizational development.
In my experience people in this organization believe that evaluating what customers say is critical to reaching organizational goals.

Table 3.3

Organizational Performance Items

<table>
<thead>
<tr>
<th>Adaptive Performing (Acquisition of Resources)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• To what extent is there intense competition among organizations within your industry?</td>
</tr>
<tr>
<td>• To what extent does your organization effectively use organizational resources?</td>
</tr>
<tr>
<td>• In my experience this organization effectively identifies and acquires external resources required to meet its goals.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Goal Performing (Production-Service)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• To what extent does your organization hold work groups accountable for achieving established goals?</td>
</tr>
<tr>
<td>• To what extent are your organization’s leaders effective at achieving organizational goals?</td>
</tr>
<tr>
<td>• In my experience this organization has clear performance goals.</td>
</tr>
<tr>
<td>• In my experience this organization has established an achievable organizational mission.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Integrative Performing (Management and Control)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• To what extent are people in your organization held responsible for the decisions they make?</td>
</tr>
<tr>
<td>• To what extent does your organization implement changes to help employees be more effective in doing their jobs?</td>
</tr>
<tr>
<td>• In my experience the managers and leaders of the organization have the skills needed to guide organizational change.</td>
</tr>
<tr>
<td>• In my experience the end products of work groups in this organization are of much higher quality than any one of us could have produced alone.</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Latency Performing (Reinforcement)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• To what extent does your organization use stories and references to its history to let people know they should perform their jobs?</td>
</tr>
<tr>
<td>• To what extent does your organization publicly acknowledge employees for outstanding performance (e.g., featuring them on intranet communications, plaques, etc.)?</td>
</tr>
<tr>
<td>• To what extent does your organization believe it needs to continuously improve customer service?</td>
</tr>
<tr>
<td>• In my experience this organization has a strong culture of shared values, beliefs, and norms that guide the daily work activities.</td>
</tr>
</tbody>
</table>

**The Organizational Innovativeness Assessment.** Wang and Ahmed (2004) developed the Organizational Innovativeness Assessment tool, which captures the key elements of innovativeness, or innovative capability, and incorporates the organization’s strategic orientation
as a prime factor of innovation. The measurement tool consists of 20 items assessing five
dimensions of innovativeness on a 5-point Likert scale: behavioral innovativeness, product
innovativeness, process innovativeness, market innovativeness, and strategic innovativeness (See
Table 3.4).

Table 3.4

Innovativeness Dimensions

<table>
<thead>
<tr>
<th>Organizational innovativeness Items</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Behavioral</strong></td>
</tr>
<tr>
<td>Behavioral innovativeness demonstrates the formation of an innovative culture, the overall internal receptivity to new ideas and innovation</td>
</tr>
<tr>
<td>➢ We get a lot of support from managers if we want to try new ways of doing things.</td>
</tr>
<tr>
<td>➢ In our organization, we tolerate individuals who do things in a different way.</td>
</tr>
<tr>
<td>➢ We are willing to try new ways of doing things and seek unusual, novel solutions.</td>
</tr>
<tr>
<td>➢ We encourage employees to think and behave in original and novel ways.</td>
</tr>
<tr>
<td><strong>Product</strong></td>
</tr>
<tr>
<td>Product innovativeness represents the novelty and meaningfulness of new products introduced to the market at a timely fashion.</td>
</tr>
<tr>
<td>➢ We are constantly improving our business processes.</td>
</tr>
<tr>
<td>➢ Our organization changes production methods at a great speed in comparison with our competitors.</td>
</tr>
<tr>
<td>➢ During the past 5 years, our organization has developed many new management approaches.</td>
</tr>
<tr>
<td>➢ When we cannot solve a problem using conventional methods, we improvise on new methods.</td>
</tr>
<tr>
<td><strong>Process</strong></td>
</tr>
<tr>
<td>Process innovativeness captures the introduction of new production methods, new management approaches, and new technology that can be used to improve production and management processes</td>
</tr>
<tr>
<td>➢ In new product and service introductions, our organization is often first-to-market.</td>
</tr>
<tr>
<td>➢ Our new products and services are often perceived as very novel by customers.</td>
</tr>
<tr>
<td>➢ In comparison to our competitors, our organization has introduced more innovative products and services during the past 5 years.</td>
</tr>
<tr>
<td>➢ In comparison to our competitors, our organization has a lower success rate in products and services</td>
</tr>
<tr>
<td><strong>Market</strong></td>
</tr>
<tr>
<td>Market innovativeness emphasizes the novelty of market-oriented approaches</td>
</tr>
<tr>
<td>➢ Our recent new products and services are only minor changes from our previous products and services.</td>
</tr>
<tr>
<td>➢ New products and services in our organization often take us up against new competitors.</td>
</tr>
<tr>
<td>➢ In comparison to our competitors to our competitors our products most recent marketing program is revolutionary in the market.</td>
</tr>
</tbody>
</table>
In new product and service introductions, our organization is often at the cutting edge of technology.

<table>
<thead>
<tr>
<th>Strategic Innovativeness</th>
<th>Data Collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measures an organization’s ability to manage ambitious organizational objectives, and identify a mismatch of these ambitions and existing resources in order to stretch or leverage limited resources creatively.</td>
<td>The survey data collection used a Web-based survey tool, Qualtrics. Participants received an invitation via e-mail with a link to the Web-based survey and the Informed Consent Form, which explained the purpose of this study and the procedures for completing the survey. Consent to the study was required before proceeding to the survey. A “thank you” e-mail was sent to participants to express gratitude for completing the survey. The data set was then prepared into an Excel file and screened for any incomplete data set. Incomplete data set was excluded from the study. After cleaning up data and labeling all variables, data set was then imported into IBM’s Statistical Package for Social Science software (SPSS).</td>
</tr>
<tr>
<td>Our firm's R&amp;D and/or product development resources are not adequate to handle the development needs of new products and services.</td>
<td>Validity and reliability</td>
</tr>
<tr>
<td>Key executives of the organization are willing to take risks to seize and explore &quot;chancy&quot; growth opportunities.</td>
<td>Instrument validity ensures that the instrument measures what it is designed to measure. It is thus considered probably the single most important aspect of the design of any measurement instrument (Muijs, 2004). The Organizational Action Survey was developed to measure the theoretical work of Parsons and Schwandt (Johnson, 2000). Johnson applied a three-step approach to increase face validity of the OAS:</td>
</tr>
<tr>
<td>Senior executives constantly seek unusual, novel solutions to problems via the use of “idea associates.” When we see new ways of doings, we last at adopting them.</td>
<td></td>
</tr>
</tbody>
</table>

Validity and reliability

Instrument validity ensures that the instrument measures what it is designed to measure. It is thus considered probably the single most important aspect of the design of any measurement instrument (Muijs, 2004). The Organizational Action Survey was developed to measure the theoretical work of Parsons and Schwandt (Johnson, 2000). Johnson applied a three-step approach to increase face validity of the OAS:
1. Two hundred items were reviewed by an expert panel to ensure that the instrument looked OK to them (Muijs, 2004).

2. A pilot study was run with three sub-groups from two different organizations (N=26, 48 and 30) to evaluate the individual survey items for readability, applicability, ease of understanding, and whether or not prescribed organizational actions reflect possible action the organization would or would not take. A total of 24 items were reworded to improve clarity.

3. The revised version of the 144-question survey instrument was then pilot tested in a similar organization. The sample included 774 employees, of which 236 participated in the pilot study resulting in a response rate of 30 percent. The study data were used to complete the construction of the final survey.

In addition to testing face validity of the OAS, Johnson (2000) tested construct validity concerned with the internal structure of the OAS and the concept it is measuring (Muijs, 2003). Furthermore, Johnson (2000) validated the theoretical model of Organizational Learning and Performing Action Systems through confirmatory factor analysis. The confirmatory factor analysis told the researcher whether each item of the survey instrument (i.e. organizational learning and organizational performance) measures the subscale it is intended to measure and not any other (Muijs, 2004).

Wang and Ahmed (2004) sampled 1500 companies with at least 50 employees within England, Wales, and Scotland region. A total of 231 questionnaires were completed resulting in a 15.4 per cent response rate. The researchers employed confirmatory factor analysis the hypothesized factor structure. A second order confirmatory factor analysis was performed with the final items (20 items) in the assessment model. The researchers found a slight different
between the first order and the second order estimations due to slightly different degrees of freedom executing first order and second order measurement models. Furthermore, Wang & Ahmed (2004) found that all 20 items fall into a single organizational innovativeness construct divided into five component factors: behavioral innovativeness, product innovativeness, process innovativeness, market innovativeness, and strategic innovativeness. Each of the 20 items loaded onto only one of the aforementioned factors without any cross loading.

Instrument reliability represents the quality of the measurement tools. It refers to the extent to which an instrument is able measure the same thing at different times (i.e. repeated measurement) and how well the items that make up the instrument measure to a single construct (Muijs, 2004).

Wang and Ahmed (2004) reported the following reliability coefficients: Behavioral Innovativeness (0.59), Product Innovativeness (0.68), Process Innovativeness (0.71), Market Innovativeness (0.80), and Strategic Innovativeness (0.79) (p. 310). On the other hand, Johnson (2000) reported the following reliability coefficients for the learning and performance constructs: Environmental Interface (0.78), Action-Reflection (0.64), Dissemination/Diffusion (0.81), Meaning and Memory (0.74), Acquisition of Resources (0.62), Production/Service (0.76), Management and Control (0.76), and Reinforcement (0.71) (p. 87).

Data Storage Methods

The privacy of the participants’ identity as defined by the Northeastern University’s IRB guidelines was of a vital importance to the researcher. The Excel and SPSS files were saved onto password and encrypted external hard drives, which were kept in a private cabinet in the researcher’s private residence. The researcher was the only individual who had access to the data records.
Data Analysis

This study followed a quantitative-method explanatory design to collect and analyze the numeric data using a web-based survey tool (Ivankova, Crewell, and Stick, 2006; Creswell, 2005).

Creswell (2005) outlines the procedures to analyze quantitative data as follows:

1. Use descriptive statistics to identify general tendencies in the data (mean, median, and median), the spread of scores (variance, standard deviation, and range), or a comparison of scores using z scores.

2. Use inferential statistics to analyze data from a sample to draw conclusions, and to relate two or more variables.


4. Use Stepwise Multiple Regression Analysis to examine significance of effect of each of the independent variables in relation to other variables.

Validity, Reliability, and Generalizability

Validity. Internal validity means that any observed relationship between two or more variables are not due to “something else” (Fraenkel, Wallen, & Hyun, 2012, p. 167). Fraenkel, Wallen, & Hyun (2012) posited that subject characteristics, location, instrument decay, data collection, and testing as the only possible threats to internal validity of correlational studies. To control for “get rid of” subject characteristics such as cultural background differences, Fraenkel, Wallen, & Hyun (2012) recommend the use of partial correlation. To control for participants’ misinterpretation of instructions, the researcher made sure to provide clear and straightforward
instructions as well provide participants with the researcher’s contact information in case of any questions. In order to control for testing, the researcher ensured confidentiality to avoid perception inflation. Testing could present an issue since the experience to the Organizational Learning Action instrument might influence subject responses to the Organizational Innovativeness Assessment instrument.

**Reliability.** Convenience sampling is considered an acceptable sampling method and one of the most common methods in education studies given their cost effectiveness and convenience (Mujis, 2004). The main risks to this method reliability included the sample not being accurately representative of the population (Mujis, 2004), as well as willingness of subjects to participate.

**Generalizability.** The use of convenience sampling method put the study at risk of limited generalizability since participants at the research site may not have been representative of the population (Mujis, 2004). In addition, using a larger sample enhances the generalizability of the study. Furthermore, since the sample consisted of a limited number of managers, there was a limitation with generalizability given the limited sample size. However, the researcher believed the data was useful to validate research findings obtained from through different research settings and methods.

**Protection of Human Subjects**

The National Institutes of Health (NIH) Office of Extramural Research certifies that the researcher successfully completed the NIH Web-based training course “Protecting Human Research Participants” (Certification Number: 1927843) in November 2015.

All research was completed in compliance with the Northeastern University’s Human Subject Research Protection (HSRP) manual and did not begin until after a formal approval of Internal Review Board (IRB) is granted. Research participants were asked for an informed
consent in an effort to comply with Northeastern University and human subject protections including HHS regulation 45 CRF 46.111.

The participants of this study were accurately informed of the purpose and methods of the study being conducted by the researcher for the purpose of completing a doctoral dissertation research at Northeastern University’s College of Professional Studies – Doctor of Education Program. Participants were notified that they were being asked to participate in the study given their personal experiences at the research institution, which would help the researcher (and the institution/organization) understand how managers’ participants perceive the relationship between learning at the organizational level and organizational innovativeness. Participants were informed about what was learned from the research after their participation ended. Participants were also given the choice to withdraw from the study at any time with no penalty.

**Ethical considerations.** The Institutional Review Board (IRB) from Northeastern University and that from the research site approved the study for use of human participants in the study. Confidentiality of the participants’ identities is and will be maintained. No individual names are listed in the dissertation manuscript. None of the participants’ names appear in in the data material. Accordingly, there were minimal risks involved in participating in this study.

**Summary**

Through the lens of Schwandt (1991) theory of Organizational Learning Systems Model, the study’s quantitative approach was utilized to explore managers’ perceptions of two organizational phenomena: organizational learning and organizational innovativeness. This Methodology chapter described the research question and research hypotheses, research design, data collection and data analysis, threats to validity and generalizability, and measures and procedures to protect human subjects.
Chapter IV: Data Analysis

This chapter presents the results of the analysis from the survey data submitted by the study participants. Inferential data was used to test doctoral thesis’ hypotheses. Descriptive data provided the personal demographics of the respondents.

The objective of this doctoral thesis was to analyze and explore employees’ perceptions of two organizational phenomena: organizational learning and organizational innovativeness in a private higher education institution. In particular, the study aims to explore the relationship between each of the four organizational learning subsystems (Schwandt & Marquardt, 2000) and each of the five organizational innovativeness dimensions (Wang & Ahmed, 2004).

Four hypotheses were adopted in conjunction with the doctoral thesis to predict the strength and direction of this relationship (Mauchet, 2011):

H<sub>a1</sub>. There is a significant positive relationship between the environmental interface subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

H<sub>o1</sub>. There is no significant positive relationship between the environmental interface subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

H<sub>a2</sub>. There is a significant positive relationship between the action-reflection subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

H<sub>o2</sub>. There is no significant positive relationship between the action-reflection subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.
Ha3. There is a significant positive relationship between the structuring subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

Ho3. There is no significant positive relationship between the structuring subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

Ha4. There is a significant positive relationship between the meaning and memory subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

Ho4. There is no significant positive relationship between the meaning and memory subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

Overview of Data Collection

The online survey instrument was sent to a total of 500 possible respondents and available for data collection. One reminder announcement was sent out before the close of the survey to encourage participation in the study. Of the 500 possible respondents, one respondent did not consent to participate, 33 respondents consented to take the survey and either partially completed the survey (five respondents) or did not proceed to complete the study, and 77 participants completed the survey instrument resulting in a response rate of 16.4 percent. Some submissions contained missing data as responders opted out of answering some demographics questions.

Demographics Frequencies

Gender and tenure. Responses to the gender section revealed that females (38 participants) accounted for 63.3 percent of the total responses to this question. Males comprised 36.6 percent of the responses (22 participants). In regard to tenure, there were six options in
which the participants could select from. Table 4.1 provides information regarding the length of time participants had been employed with the organization involved in the study. Most of participants (28 participants, 36.36%) had 3-5 years of service, whereas 33.76% (26 participants) reported tenure of 5-10 years, 11.68% (9 participants) had over 10 years of service, and 13% (10 participants) had between 1-3 years of service. One participant (1.3%) had less than six months of service.

Table 4.1

*Distribution of Participant Tenure*

<table>
<thead>
<tr>
<th>Tenure</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 6 months</td>
<td>1</td>
<td>1.30</td>
</tr>
<tr>
<td>6 months – 1 year</td>
<td>3</td>
<td>3.90</td>
</tr>
<tr>
<td>1-3 years</td>
<td>10</td>
<td>13.0</td>
</tr>
<tr>
<td>3-5 years</td>
<td>28</td>
<td>36.4</td>
</tr>
<tr>
<td>5-10 years</td>
<td>26</td>
<td>33.8</td>
</tr>
<tr>
<td>10+ years</td>
<td>9</td>
<td>11.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>77</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

**Degree and rank.** As noted in Table 4.2 below, most participants (45, 58.44%) held a master’s degree. Nine participants (11.7%) held a doctorate degree. 13 percent of participants indicated that they had completed some graduate studies (10 participants). 11.7 percent of participants held a bachelor’s degree (9 participants). Only one participant held a high school diploma or equivalent (1.3%), and three participants indicated they had completed some college studies (3.9%).
Table 4.3 shows distribution of participant management responsibility at the organization involved in the study. Most participants (45, 58.44%) indicated that they held a position that supervised other individuals. Nine participants (11.7%) held a senior leadership position. 24.7 percent of participants held a position that supervised other managers (19 participants). Four participants (5.2%) held a senior professional or manager position with no direct reports.

Table 4.2

*Distribution of Participant Education*

<table>
<thead>
<tr>
<th>Degree</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>High school of equivalent</td>
<td>1</td>
<td>1.3</td>
</tr>
<tr>
<td>Some college</td>
<td>3</td>
<td>3.9</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>9</td>
<td>11.7</td>
</tr>
<tr>
<td>Some graduate</td>
<td>10</td>
<td>13</td>
</tr>
<tr>
<td>Master’s degree</td>
<td>45</td>
<td>58.44</td>
</tr>
<tr>
<td>Doctorate</td>
<td>9</td>
<td>11.7</td>
</tr>
<tr>
<td>Total</td>
<td>77</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 4.3

*Distribution of Participant Management Responsibility*

<table>
<thead>
<tr>
<th>Management Responsibility</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senior Leadership</td>
<td>9</td>
<td>11.7</td>
</tr>
<tr>
<td>Manager of other people managers</td>
<td>19</td>
<td>24.7</td>
</tr>
<tr>
<td>Manager of individuals</td>
<td>45</td>
<td>58.4</td>
</tr>
</tbody>
</table>
Organizational function. Participants were asked about their organizational function within the organization. Most participants (41, 53.24%) who responded to the question were working in a University Service department. 14 participants (18.18%) indicated affiliation with an Academic department. Equally represented, 11 participants (14.3%) said they worked at Admissions/Marketing or Advising/Student Support.

Table 4.4

Distribution of Participant Management Responsibility

<table>
<thead>
<tr>
<th>Organizational Function</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic</td>
<td>14</td>
<td>18.2</td>
</tr>
<tr>
<td>Admissions/Marketing</td>
<td>11</td>
<td>14.3</td>
</tr>
<tr>
<td>Advising/Student Support</td>
<td>11</td>
<td>14.3</td>
</tr>
<tr>
<td>University Services</td>
<td>41</td>
<td>53.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>77</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Descriptive Statistics

Descriptive statistics were used to report general tendencies in the collected data. The following findings represent means and standard deviations for each organizational learning subsystem and each organizational innovativeness dimension.

Organizational learning. Table 4.5 below shows results for all four organizational learning subscales. Results indicated higher scores for Adaptation Learning and Latency
Learning ($\bar{X} = 4.34$ and $\bar{X} = 4.227$, respectively). This finding indicates that the organization had higher focus on means than ends.

Table 4.5

*Descriptive Statistics for Organizational Learning*

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Means</th>
<th>Ends</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>External Focus</strong></td>
<td><strong>Environmental Interface</strong></td>
<td><strong>Action/Reflection</strong></td>
</tr>
<tr>
<td></td>
<td>Adaptation Learning</td>
<td>Goal learning</td>
</tr>
<tr>
<td>Mean</td>
<td>4.227</td>
<td>4.023</td>
</tr>
<tr>
<td>SD</td>
<td>1.0335</td>
<td>.9866</td>
</tr>
<tr>
<td>N</td>
<td>82</td>
<td>82</td>
</tr>
<tr>
<td><strong>Internal Focus</strong></td>
<td><strong>Meaning &amp; Memory</strong></td>
<td><strong>Dissemination &amp; Diffusion</strong></td>
</tr>
<tr>
<td></td>
<td>Latency Learning</td>
<td>Integration Learning</td>
</tr>
<tr>
<td>Mean</td>
<td>4.34</td>
<td>3.84</td>
</tr>
<tr>
<td>SD</td>
<td>.8935</td>
<td>1.1015</td>
</tr>
<tr>
<td>N</td>
<td>81</td>
<td>82</td>
</tr>
</tbody>
</table>

**Organizational performance.** Findings for organizational performance subscales indicated significant differences (Table 4.6). The highest mean scores were found for production-service ($\bar{X} = 4.30$) and reinforcement ($\bar{X} = 4.14$). These scores indicate that the organization had higher focus on ends than means.
Table 4.6

Descriptive Statistics for Organizational Performance

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Means</th>
<th>Ends</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition of Resources</td>
<td>Mean = 3.90</td>
<td>Mean = 4.30</td>
</tr>
<tr>
<td>Adaptation Performing</td>
<td>SD = 1.045</td>
<td>SD = .8897</td>
</tr>
<tr>
<td>N = 82</td>
<td></td>
<td>N = 82</td>
</tr>
<tr>
<td>Goal Performing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integration Performing</td>
<td>Mean = 4.14</td>
<td>Mean = 3.95</td>
</tr>
<tr>
<td>Latency Performing</td>
<td>SD = .9697</td>
<td>SD = .9495</td>
</tr>
<tr>
<td>N = 82</td>
<td></td>
<td>N = 81</td>
</tr>
</tbody>
</table>

**Organizational learning and performance results.** Means scores for Organizational Learning and Organizational Performance subscales were compared to determine whether the organization was more learning or performance driven (See Table 4.7). On the one hand, findings showed that in two of the four areas the mean scores for performance subscales (Goal $\bar{X} = 4.30$, Integrative $\bar{X} = 3.95$) were significantly higher than the mean scores for learning subscales (Goal $\bar{X} = 4.023$, Integration $\bar{X} = 3.84$). On the other hand, findings revealed that the mean scores for adaptation and latency learning subscales ($\bar{X} = 4.227$ and $\bar{X} = 4.34$, respectively) were significantly higher than the mean scores for adaptation and latency performance subscales ($\bar{X} = 3.90$ and $\bar{X} = 4.14$, respectively). Results thus indicated that the organization was goal performance-driven while actively searching for and gathering new information. Additional details on the implications of results are provided in the next chapter.
Table 4.7

**Mean Scores for Organizational Learning and Performance**

<table>
<thead>
<tr>
<th></th>
<th>Learning Mean</th>
<th>Performance Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Interface Adaptation Learning</td>
<td>4.227</td>
<td>Acquisition of Resources Adaptation Performance</td>
</tr>
<tr>
<td>Action/Reflection Goal Learning</td>
<td>4.023</td>
<td>Production-Service Goal Performance</td>
</tr>
<tr>
<td>Dissemination &amp; Diffusion Integration Learning</td>
<td>3.84</td>
<td>Management &amp; Control Integrative Performance</td>
</tr>
<tr>
<td>Meaning &amp; Memory Latency Learning</td>
<td>4.34</td>
<td>Reinforcement Latency Performance</td>
</tr>
</tbody>
</table>

**Organizational innovativeness.** Table 4.8 below shows the mean scores for each of the organizational innovativeness dimensions. Mean scores were highest for process and behavioral innovativeness (\( \bar{X} = 4.89 \) and \( \bar{X} = 4.675 \), respectively). The mean scores for product, market, and strategic innovativeness dimensions fell below average (\( \bar{X} = 4.195, \bar{X} = 4.15, \bar{X} = 3.755, \) respectively). Some respondents chose not to answer questions pertaining to process and strategic innovativeness. This could be attributed to their lack of knowledge in these areas.

Table 4.8

**Descriptive Statistics for Organizational Innovativeness**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>SD</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behavioral innovativeness</td>
<td>4.68</td>
<td>1.28</td>
<td>77</td>
</tr>
<tr>
<td>Process innovativeness</td>
<td>4.89</td>
<td>1.02</td>
<td>76</td>
</tr>
<tr>
<td>Product innovativeness</td>
<td>4.19</td>
<td>1.21</td>
<td>77</td>
</tr>
<tr>
<td>Market innovativeness</td>
<td>4.15</td>
<td>1.31</td>
<td>77</td>
</tr>
<tr>
<td>Strategic innovativeness</td>
<td>3.76</td>
<td>1.36</td>
<td>76</td>
</tr>
</tbody>
</table>
**Correlational Analysis and Results**

The purpose of this study was to examine the relationship between organizational learning and organizational innovativeness. The following four hypotheses were used to test the relationships:

**H\(_{a1}\).** There is a significant positive relationship between the environmental interface subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

**H\(_{o1}\).** There is no significant positive relationship between the environmental interface subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

**H\(_{a2}\).** There is a significant positive relationship between the action-reflection subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

**H\(_{o2}\).** There is no significant positive relationship between the action-reflection subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

**H\(_{a3}\).** There is a significant positive relationship between the structuring subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

**H\(_{o3}\).** There is no significant positive relationship between the structuring subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

**H\(_{a4}\).** There is a significant positive relationship between the meaning and memory subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.
H04. There is no significant positive relationship between the meaning and memory subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

A correlational analysis using a Pearson Product Moment Correlation (r) was used to determine if relationships among variables existed. According to (Mujis, 2004), Pearson’s r gives us information about the direction and strength of the relationship between two continuous variables (in this case, organizational learning subsystems and organizational innovativeness dimensions). A positive/negative sign indicates a positive/negative direction and the closer the coefficient to 1 (+ or -) the stronger the relationship.

Based on the aforementioned criteria and the findings revealed in Table 4.9, the analysis results indicated positive correlations between majority of organizational learning subsystems and organizational innovativeness dimensions. In other words, higher perceived levels of organizational learning within the organization were associated with higher perceived levels of organizational innovativeness.

Table 4.9

*Correlation Matrix for Organizational Learning and Organization Innovativeness*

<table>
<thead>
<tr>
<th>Scale</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Adaptation Learning (EI)</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Goal Learning (A/R)</td>
<td>.453**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Latency Learning (M&amp;M)</td>
<td>.603**</td>
<td>.637**</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Hypothesis 1: Environmental interface. The correlational analysis indicated that Environmental Interface was positively and strongly correlated to behavioral innovativeness ($r = .531$, $p < .05$), positively and moderately correlated to process innovativeness ($r = .451$, $p < .05$), product innovativeness ($r = .366$, $p < .05$), and market innovativeness ($r = .357$, $p < .05$). However, the correlation between Environmental Interface and strategic innovativeness was found statistically insignificant ($r = .010$, $p > .05$).

Hypothesis 2: Action/reflection. The correlational analysis indicated that Action/Reflection subsystem was positively and strongly correlated to behavioral innovativeness ($r = .514$, $p < .05$), positively and moderately correlated to process innovativeness ($r = .433$, $p < .05$), product innovativeness ($r = .356$, $p < .05$), and market innovativeness ($r = .341$, $p < .05$). However, the correlation between Action/Reflection subsystem and strategic innovativeness was statistically insignificant ($r = -.012$, $p > .05$).

Hypothesis 3: Meaning and Memory. The correlational analysis indicated that Meaning and Memory subsystem was positively and strongly correlated to behavioral innovativeness ($r = .284$, $p < .05$), positively and moderately correlated to process innovativeness ($r = .222$, $p < .05$), product innovativeness ($r = .328$, $p < .05$), and market innovativeness ($r = .284$, $p < .05$). However, the correlation between Meaning and Memory subsystem and strategic innovativeness was statistically insignificant ($r = .046$, $p > .05$).
The correlation was positive and moderate to product innovativeness \( (r = 0.415, p < 0.05) \), and to market innovativeness \( (r = 0.422, p < 0.05) \). The correlation between Meaning and Memory and strategic innovativeness was statistically insignificant \( (r = 0.81, p > 0.05) \).

**Hypothesis 4: Dissemination and Diffusion.** The correlational analysis indicated that Dissemination and Diffusion subsystem was positively and strongly correlated to behavioral innovativeness \( (r = 0.562, p < 0.05) \), positively and moderately correlated to process innovativeness \( (r = 0.470, p < 0.05) \), and to market innovativeness \( (r = 0.380, p < 0.05) \). The correlation between Dissemination & Diffusion subsystem and product innovativeness was positive and weak \( (r = 0.237, p < 0.05) \). The correlation between Dissemination & Diffusion and strategic innovativeness was statistically insignificant \( (r = -0.39, p > 0.05) \).

Overall, the correlation analysis supported that there is a moderate to strong correlation between Organizational Learning subsystems and Organizational Innovativeness behavioral, process, product and market dimensions. However, results indicated there was not enough evidence to support the hypothesis that there is a relationship between each of the Organizational Learning subsystems and Organizational Innovativeness Strategic dimension.

**Multiple Regression Analysis and Results**

A Multiple Linear Regression analysis was used in this study to determine the extent to which Organizational Learning subsystems predicted variance in the five dimensions of organizational innovativeness. Multiple regression looks at the relationship between one dependent variable, and one or more predictors or independent variables (Mujis, 2004). Conducting multiple linear regression with confidence requires two important conditions: linearity and multicollinearity. The first assumption imposes that a linear relationship exists
between the dependent variable and the independent variable(s). If the relationship is non-linear, the model will not fit the data properly. One way to verify if the relationship is linear is by looking at how many large residuals (the observed value of the dependent variable minus the value predicted by the regression equation, for each case) there are. The higher the residual, the more non-linear the relationship is. The second assumption imposes that the independent variable must not be too strongly correlated with one another. Violating this major condition will result in serious problems in estimating the relationship between the dependent variable and the predictors because it becomes cumbersome to estimate the individual contribution of each variable (Mujis, 2004).

Five regression analyses were conducted using all four Organizational Learning subsystems as independent variables (IVs) and all five of the Organizational Innovativeness dimensions as dependent variables (DVs). The following section present the findings of these analyses.

**Organizational learning subsystems and behavioral innovativeness.** An overall model of four variables (Environmental Interface, Action/Reflection, Meaning & Memory, Dissemination & Diffusion) was found predictable of behavioral innovativeness: \( R^2 = .536, p < .01 \). The value of \( R^2 \) indicates that 53.6% of variance in behavioral innovativeness scores can be predicted by Environment Interface, Meaning & Memory, Action/Reflection, and Dissemination & Diffusion.

The prediction equation using unstandardized coefficients for behavioral innovativeness is as follows:

\[
\text{Behavioral Innovativeness} = -.821 - .10 \times \text{(AR)} + .190 \times \text{(EI)} + .274 \times \text{(DD)} + .841 \times \text{(MM)}
\]
Casewise diagnostics was run to check for linearity and outliers (Mujis, 2004). There was one case with a residual of -3.439. Additionally, collinearity diagnostics was run to measure the study’s independent variables tolerance. According to (Mujis, 2004), tolerance is the amount of variance in the individual variable not explained by other predictor variables. The tolerance value varies from 0 to 1. A value close to 1 means that the other predictors do not explain the variance in that variable. Accordingly, there were no serious problems were found as no tolerance values were close to 0.

**Organizational learning subsystems and process innovativeness.** An overall model of four variables (Environmental Interface, Action/Reflection, Meaning & Memory, Dissemination & Diffusion) was found predictable of process innovativeness: $R^2 = .332$, $p < .01$. The value of $R^2$ indicates that 33.2% of variance in process innovativeness scores can be predicted by Environment Interface, Meaning & Memory, Action/Reflection, and Dissemination & Diffusion.

The prediction equation using unstandardized coefficients for behavioral innovativeness is as follows:

$$\text{Process Innovativeness} = 1.796 + .048 (AR) + .196 (EI) + .177 (DD) + .318 (MM)$$

Casewise diagnostics was run to check for linearity and outliers. There were two cases with residuals of -3.280 and -3.093. The tolerance values for all independent variables ranged from .409 to .598.

**Organizational learning subsystems and product innovativeness.** An overall model of four variables (Environmental Interface, Action/Reflection, Meaning & Memory, Dissemination & Diffusion) was found predictable of product innovativeness: $R^2 = .214$, $p < .05$. The value of $R^2$ indicates that 21.4% of variance in product innovativeness scores can be predicted by Environment Interface, Meaning & Memory, Action/Reflection, and Dissemination & Diffusion.
The prediction equation using unstandardized coefficients for behavioral innovativeness is as follows:

Product Innovativeness = 8.153 + .746 (AR) + .653 (EI) - .543(DD) + 1.131(MM)

There were no cases found with residuals. The tolerance values for all independent variables ranged from .423 to .610.

**Organizational learning subsystems and market innovativeness.** An overall model of four variables (Environmental Interface, Action/Reflection, Meaning & Memory, Dissemination & Diffusion) was found predictable of market innovativeness: \(R^2 = .212, p < .05\). The value of \(R^2\) indicates that 21.2% of variance in market innovativeness scores can be predicted by Environment Interface, Meaning & Memory, Action/Reflection, and Dissemination & Diffusion.

The prediction equation using unstandardized coefficients for behavioral innovativeness is as follows:

Market Innovativeness = 2.027 + .020 (AR) + .132(EI) + .137(DD) + .218(MM)

Casewise diagnostics was run to check for linearity and outliers. There were no cases found with residuals. The tolerance values for all independent variables ranged from .423 to .610.

**Organizational learning subsystems and strategic innovativeness.** An overall model of four variables (Environmental Interface, Action/Reflection, Meaning & Memory, Dissemination & Diffusion) was not found predictable of strategic innovativeness: \(R^2 = .023, p > .05\). The value of \(R^2\) indicates that 2.3% of variance in strategic innovativeness scores can be predicted by Environment Interface, Meaning & Memory, Action/Reflection, and Dissemination & Diffusion. However, the p value (.795) indicates there was no enough evidence that all four predictor variables were predictable of strategic innovativeness.
The prediction equation using unstandardized coefficients for behavioral innovativeness is as follows:

\[
\text{Strategic Innovativeness} = 3.544 -.041 (AR) - .60(EI) - .125(DD) + .256(MM)
\]

Casewise diagnostics was run to check for linearity and outliners. There were no cases found with residuals. The tolerance values for all independent variables ranged from .411 to .598.

Overall, the multiple regression analysis results show that Meaning & Memory subsystem accounts for most of the variance in Behavioral, Process, Market and Strategic Innovativeness, whereas Dissemination & Diffusion and Action/Reflection learning subsystems account for the most variance in the Product Innovativeness.

**Summary of Findings**

The final subsection contains an overall summary of the data analysis findings and results from the quantitative data collections across the main research question and four hypotheses. The findings of this study were collected via an online survey that was sent out to 500 managers, of which 82 responded, thereby representing a response rate of 16.4%. Demographics indicated that majority of respondents represented the following areas:

- Female
- Service of 3-5 years
- Master’s degree holders
- Managers of individuals
- University Service unit

Comparison of Mean scores for organizational learning and organizational performances showed that overall the organization was goal performance-driven while actively searching for
and gathering new information. In addition, the correlation analysis results indicated statistically significant correlations between all organizational learning subsystems and organizational innovativeness dimensions with the exception of Strategic Innovativeness. Furthermore, the multiple regression analysis indicated that organizational learning subsystems overall predict behavioral, process, product, and market innovativeness, and that there was no enough evidence that the four organizational learning subsystems were predictable of strategic innovativeness.

In conclusion, the quantitative data analysis supports the existence of a relationship between organizational learning and organizational innovativeness. Chapter Five provides a broader vision about the research area of organizational learning and innovativeness according to managers’ perceptions in a higher education institution in terms of future research, theory implications, and implications for practice.
Chapter V: Discussion of the Research Findings

This study set out to explore the relationship between organizational learning and organizational innovativeness in a higher education institution using Schwandt’s (1997) organizational learning model. Correlational analysis as well as multiple regression analysis were used to examine whether there is a relationship between the independent variable (organizational learning subsystems) and each of Wang & Ahmed’s (2004) organizational innovativeness dimensions (dependent variable). The data were collected using Johnson and Schwandt’s (1998) Organizational Action Survey and Wang & Ahmed’s (2004) Organizational Innovativeness Assessment. IBM SPSS Statistics version 25 was used to provide descriptive and inferential statistics analyses of data at the organizational level.

This chapter will briefly analyze major findings of this quantitative method study in relation to the study’s theoretical framework and extant literature, as well as discuss implications of those findings, and provide recommendations for future research.

Summary of Major Findings

This study was conducted using one research question and four hypotheses to explore the relationship between organizational learning and organizational innovativeness using Pearson’s r Correlational analysis. The study findings supported all four hypotheses:

Ha1. There is a significant positive relationship between the environmental interface subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

- There was a positive and strong correlation between Environment Interface subsystem and Behavioral Innovativeness.
- There was a positive and moderate correlation between Environmental Interface and...
Process, Product, and Market Innovativeness.

- There was no statistically significant correlation between Environmental Interface and Strategic Innovativeness.

Hₐ₂. There is a significant positive relationship between the action-reflection subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

- There was a statistically significant and positive correlation between Action/Reflection subsystem and Behavioral Innovativeness.
- There was a moderate and positive correlation between Action/Reflection and Process, Product, and Market Innovativeness.
- Correlation between Action/Reflection and Strategic Innovativeness was not statistically significant.

Hₐ₃. There is a significant positive relationship between the structuring subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.

- There was a positive and strong correlation between Dissemination & Diffusion subsystem and Behavioral and Process Innovativeness.
- There was a positive and moderate correlation between Dissemination & Diffusion subsystem and Product and Market Innovativeness.
- The correlation between Dissemination & Diffusion subsystem and Strategic Innovativeness was not statistically significant.

Hₐ₄. There is a significant positive relationship between the meaning and memory subsystem of the organizational learning system and each of the five dimensions of organizational innovativeness.
• There was a statistically significant and positive correlation between Meaning and Memory subsystem and Behavioral Innovativeness.

• There was a positive and moderate correlation between Meaning and Memory subsystem Process and Market Innovativeness.

• There was a positive and slightly statistically significant correlation between Meaning and Memory and Product Innovativeness.

• The correlation between Meaning and Memory and Strategic Innovativeness was not statistically significant.

Overall results indicated that all four organizational learning systems were positively and significantly correlated to all Behavioral, Process, Product, and Market Innovativeness dimensions. Correlation to Strategic Innovativeness was found statistically insignificant.

**Relation between Environmental Interface and Organizational Innovativeness.** The first key finding revealed that Environmental Interface was moderately and positively correlated to Behavioral, Market, Process, and Product Innovativeness and slightly correlated to Strategic Innovativeness. The Environmental Interface Subsystem responds to internal and external signals helping the organization determine the information it should seek and disseminate. The subsystem’s primary functionality thus is to serve as the information portal for the organization learning system (Schwandt & Marquardt, 2000). It has an external focus given its role in relating the organization to its environment (Schwandt, 1997). This subsystem’s activities range from gathering information (e.g., employee surveys, market surveys, customer reports, etc.) to monitoring and receiving information such as economic indicators and regulations imposed on the organization from its external environment.
The external focus of this learning subsystem thus explains the moderate and significant correlations between Environmental Interface and Behavioral, Market, Process and Product Innovativeness. Product and market innovativeness are both externally-focused and market-based, whereas behavior and process innovativeness underline the need for product and market innovativeness (Wang & Ahmed, 2004). Adopting novelty approaches to enter and exploit the targeted market is thus sustained through gathering information from the external environment of the organization and from within itself. Strategic innovativeness, on the other hand, represents the organization’s ability to match external opportunities with internal capabilities to deliver innovative products and services (Wang & Ahmed, 2004). With its dual focus, the correlation between Environmental Interface and Strategic Innovativeness was not statistically significant. Nevertheless, product and market innovativeness (external focus) embodies the process, behavioral and strategic innovativeness (Wang & Ahmed, 2004).

**Relation between Action/Reflection and Organizational Innovativeness.** The second key finding revealed that Action/Reflection was strongly and positively correlated to Behavioral Innovativeness, moderately and significantly correlated to Market, Process, and Product Innovativeness, and negatively and slightly correlated to Strategic Innovativeness. The Action/Reflection subsystem enables an organization to create valued knowledge (i.e. Goal Referenced Knowledge) by reflecting on new information. In other words, the primary goal of this learning subsystem is to transform information into valued knowledge (Schwandt & Marquardt, 2000) that helps the organization to survive through learning and performance (Schwandt, 1997). The Action/Reflection subsystem consists of a set of actions and activities such as evaluation efforts, decision-making processes, conflicts, and other activities that enable the organization to create new knowledge.
The internal focus of Action/Reflection subsystem then explains the strong correlation to Behavioral Innovativeness (internal focus). Behavioral Innovativeness represents the overall internal receptivity of the organization to novelty approaches (Wang & Ahmed, 2004). It forms an innovative culture that enables the actions of Action/Reflection subsystem (such as focus groups, debates, decision-making process). The lack of this innovative culture acts as blocker of innovation due to the organization’s inability to create new knowledge.

The Action/Reflection subsystem was also found moderately and significantly correlated to Process (internal focus), and Market and Product (external focus) innovativeness. Action/Reflection subsystem enables the organization and its members to assign meaning to new information in order to create goal-referenced knowledge. Therefore, the social dynamics of the organization should encourage evaluation and validation of new information (Schwandt & Marquardt, 2000). New information can then help the organization decide whether to expand to new areas and launch products with cutting-edge technological content or sustain current products by adopting new marketing programs by using new management and technology approaches to improve business processes and efficiency (Wang & Ahmed, 2004).

The insignificant relation to Strategic Innovativeness perhaps can be attributed to uncertainty of change (Wang & Ahmed, 2004) or the timing of the study’s survey prior to rolling out the institution’s strategic plan. On the one hand, Strategic Innovativeness measures the organization’s ability to match internal resources with external opportunities. On the other hand, the primary goal of the Action/Reflection subsystem is to enable organizational survival through learning and performance. This goal is achieved through reflection on processes used in action and underlying assumptions and premises of the action (Schwandt, 1997). Assumptions concerning how a market will respond to new products and services could impede the
organization’s ability to embrace growth opportunities unless members of the organization are willing to challenge assumptions through evaluation and validation of novelty products and processes and testing of market responsiveness.

**Relation between Meaning and Memory and Organizational Innovativeness.** The third key finding revealed that Meaning and Memory learning subsystem was strongly and positively correlated to Behavioral Innovativeness, moderately and positively correlated to Market and Process Innovativeness, slightly correlated to Product Innovativeness, and positively and slightly correlated to Strategic Innovativeness. The Meaning and Memory subsystem provides the guidance and control upon which other learning subsystems rely to make sense of its actions in reflection (Schwandt, 1997; Schwandt & Marquardt, 2000). It provides the mechanisms to store, sustain, and create cultural beliefs, values, assumptions, and artifacts of the organization (Schwandt, 1997; Schwandt & Marquardt, 2000). Both Meaning and Memory and Behavioral Innovativeness are internally focused. Meaning and Memory subsystem relates to how the organization creates and sustains collective beliefs and assumptions that enable the formation of an innovative culture of the organization. Exploration of novel market-oriented approaches, and exploitation of organizational resources and capabilities require that the organization to make sense out of its past experiences accessible through cognitive structures and use new knowledge that is critical to organizational survival (Schwandt & Marquardt, 2000; Wang & Ahmed, 2004).

The insignificant relation between Meaning and Memory and Strategic Innovativeness can be interpreted in the context of perceived limited internal capabilities such as technologies and supporting infrastructure and external restrictions such as rules and regulations. The organization may be fully aware of the need for growth and change, but consequences of
previous organizational actions stored in its collective memory and assignment of meaning can hinder its strategic thinking processes. Additionally, sending out the survey prior to the institution rolling out its five-year strategic plan might have influenced managers’ perceptions of strategic direction given lack of information at the time they completed the survey.

**Relation between Dissemination and Diffusion and Organizational Innovativeness.**

The fourth key finding revealed that Dissemination and Diffusion learning subsystem was strongly and positively correlated to Behavioral and Process Innovativeness, moderately and positively correlated to Market and Product Innovativeness, and slightly correlated to Strategic Innovativeness. The Dissemination and Diffusion learning subsystem’s primary goal is to disperse, retrieve, and capture information and knowledge throughout the organization (Schwandt & Marquardt, 2000). The subsystem’s set of actions and activities consist of communication, roles, norms, networking, and management acts of coordination (Schwandt, 1997). Dissemination processes represent those governed by formal procedures and policies, whereas diffusion processes are demonstrated in informal processes and communications (Schwandt, 1997). The strong and significant correlation between Dissemination and Diffusion and Behavioral can be understood in the context of how the former provides a supportive set of norms and role behaviors that will enhance the movement of information and knowledge (Schwandt & Marquardt, 2000). The learning process can change social norms through challenging assumptions and status quo to enable a dynamic synergy where management and leadership are willing to change and have the commitment to encourage new ways of thinking and doing things (Wang & Ahmed, 2004; Schwandt & Marquardt, 2000).

The moderate correlation between Dissemination and Diffusion and Product and Market Innovativeness came as no surprise given the internal focus of Dissemination and Diffusion and
external focus of Market and Product Innovativeness. Market and Product Innovativeness are inevitably inter-twined as both dimensions focus on novelty of products and services and new market approaches (Wang & Ahmed, 2004). Creating an organization that is committed to thinking outside the box and creative ways of doing things requires building trust and empowerment by allowing employees to innovate solutions and challenge conventional processes. This empowerment can only be achieved by democratization of information and sharing power (Schwandt & Marquardt, 2000).

**Summary.** In this study, the researcher explored whether there is a relationship between organizational learning and organizational innovativeness at a private higher education institution. Using a quantitative methodology, the study revealed four key findings which support the study hypotheses finding that organizational learning subsystems and organizational innovativeness dimensions are strongly and positively correlated. This high correlation means that higher perceived levels of organizational learning within the organization were associated with higher perceived levels of organizational innovativeness. The dynamic nature of the organization’s learning system and the interdependence of its actions demonstrated in gathering information from the organization’s external environment and from within itself, the creation and storage of cultural norms and beliefs, and the democratization of new knowledge can enable the organization’s overall innovative capability of introducing new products to the market, or opening up new markets, through combining strategic orientation with innovative behavior and process.

**Research Findings in Relation to the Theoretical Framework**

This study’s theoretical framework has been based on Schwandt’s (1997) Organizational Learning Systems Model. The model focuses on the system’s capacity to adapt to its
environment through performance and learning that influence the collective’s cultural values (Schwandt, 1994). This learning system is defined as “a system of actions, actors, symbols and processes that enables an organization to transform information into valued knowledge which in turn increases its long-run adaptive capacity” (Schwandt, 1994, p. 58; Schwandt & Marquardt, 2000, p.61). The organizational learning systems model is comprised of four learning subsystems that function interdependently (Schwandt, 1997). The interdependent relationships among the four subsystems are maintained through interchange media; the products of which represent invisible networks within which patterns of action take place. A strong theme within the Organizational Learning Systems Model is the dynamic nature of the organizational learning system, which is manifested in the nonlinear interdependent relationships that link the four subsystems and their respective functions. The environmental interface subsystem responds to the demand of new information from internal and external environments. The structuring subsystem serves to coordinate elements of the learning system via structuring mechanism to attain harmony and integration. The action/reflection subsystem acts as the knowledge creation center for the organization’s effective operation. Knowledge is transmitted to the collective through diffusion and dissemination mechanisms. The meaning and memory subsystem exerts control over the function of the collective by helping organizational members make sense of new information, their actions and those of the organization (Schwandt & Marquardt, 2000).

Comparison of Mean scores for organizational learning and organizational performances of this study showed that the organization was more goal performance-driven while actively searching for and gathering new information. The organization thus seem to place equal values on factors associated with the learning and performance systems. Schwandt (1994) postulated
that the Organizational learning model should not be an alternate explanation to any performance model descriptions of the organization, rather, it should be complementary.

From the organization’s learning system standpoint, the organization seems to prioritize Adaptation Learning and Latency Learning (Mean scores were above average). This means that the organization recognizes the importance of securing (and influencing) data from its environment both internal and externally and ensuring this data become new information for the learning system to disperse, create meaning and test its memory, and to act-reflect on. Goal referenced knowledge created as a result of new information is then moved and classified into stored memory. Refocusing the meaning of customer service to student-focused care requires the organization to make new sense out of its services, structures, and roles (Schwandt & Marquardt, 2000).

From the organization’s performance system standpoint, the organization seems to place a higher value on Production-Service Goal Performance and Reinforcement Latency Performance. The Production subsystem provides the organization with the goal attainment function and it is this subsystem that has historically been the major focus of management efforts. It provides the organization with the functionality it needs to apply knowledge, skills, abilities to process service, marketing, sales, research and development, management, finance, planning, and quality assurance. The Reinforcement subsystem, on the other hand, provides the organization with the pattern maintenance function that contribute to the maintenance of organizational values and standards used to make judgements concerning performance. Actions associated with this subsystem are performance evaluations, compensation, feedback, mentoring and coaching (Schwandt & Marquardt, 2000).
In alignment with the theoretical framework informing this study, this study has found that the organization appears to place seemingly equal values on learning and performance. The search for new information and using stored goal-referenced knowledge seem to inform its management’s efforts to attain established goals and maintain organizational performance standards and values demonstrated in its culture.

**Research Findings in Relation to the Literature**

The findings of the research also align and are relevant to the literature reviewed on organizational learning and organizational innovativeness. As noted in Chapter II, Cohen and Levinthal (1990) posited that acquisition, assimilation and exploitation of information and prior knowledge by an organization is essential to its innovative capabilities. Their empirical analysis of an R&D investment model suggested that R&D both generates innovation and facilitates learning. Hurley and Hult (1998) found that high level of innovativeness in a large agency’s culture of the U.S. federal government were associated with greater capacity for adaptation, and learning-oriented cultures that encourage participative approach to decision-making. Mauchet (2011) who conducted a similar study in a healthcare organization using Schwandt’s (1997) framework found that moderate and significant relationships existed between organizational learning subsystems and organizational innovativeness dimensions, with the exception of a weak relationship between Environment Interface and Strategic innovativeness. Hao and Yunlong’s (2014) study of Chinese universities revealed that organizational learning promoted and played an intermediary role in the process of institutional innovation. Other studies conducted in the higher education sector also found that organizational learning had a strong impact on organizational innovation (Aminbeidokhti et al., 2016; Sutanto, 2017).
Accordingly, the findings of this research study are considerably in alignment with extant literature on organizational learning and organizational innovativeness in higher education and other sectors. Learning in organizations was found playing an integral role in defining and influencing overall innovative capability of introducing new innovations such as products and services, new processes, new marketing approaches, etc. or sustaining existing innovations. Organizations seeking to maximize its innovative performance should then place equal importance on factors associated with the learning system. Schwandt’s (1997) Organizational Learning Model suggests that change in organization is a factor of learning and performance. He posited that the organization’s ability to systematically integrate its social aspects with environmental objects and processes is highly dependent on its capacity to learn. This learning system is critical to the organization’s survival and must be considered an “evolutionary universal” (factors must be present for species to evolve) (Schwandt, 1994).

**Limitations**

Limitations exist within this study. First, the response rate of 16.4 percent (82 respondents) was very small. Although participants came from various departments and held different managerial roles within the organization, the small sample size made the quantitative findings not generalizable to other populations beyond the context of the study participants. A larger number of participants would have potentially increased reliability and generalizability of the quantitative results to larger staff populations.

Another limitation had to do with the limited validity of the quantitative results and the organizational learning model. Schwandt (1994) suggests that we must have deeper and more descriptions of the four leaning subsystems, which can be accomplished through using more
“organizational dynamic” variables to formulate data collection questions using a qualitative methodology.

Additionally, the research study instruments relied on participant self-report and perception of organizational learning and organizational innovativeness. Participants were not provided with a definition of what innovation or learning means thus questions were open to individual interpretations. Although self-reporting and capturing participants perceptions is valuable, direct evidence is considered more robust and rigorous.

Lastly, the timing of the study and the busy schedules of the study participants was another limitation with this study. The initial email invitation to the survey was sent out to participants in August. Several employees normally take their vacation during this time of the year. This could have reduced potentiality for a higher response rate. Likewise, the busy schedule of some managers higher up the chain-of-command and the amount of time needed to complete the study survey questions could have discouraged them from completing the survey.

**Implications for Practitioners**

The significance of this research for scholar-practitioners was the empirical evidence it offered to examine dynamic links between the learning systems and organizational innovativeness dimensions using different organizational configurations and patterns. Findings of this research study suggest that managers should begin to structure their strategic visioning and planning activities around a learning-performance framework, rather than a product/performance-only framework. The complexity of the social relationships of the social system indicate the need for a system of strategies that helps the organization understand organizational dynamics and enables its managers and executives to operationalize learning as a strategic development tool to influence overall organizational innovativeness to ensure
organizational survival. Neglecting the learning aspects of the organization can adversely impact its strategic capabilities (Schwandt, 1997).

**Future Research**

The goal of this quantitative-based study was to explore whether there was a relationship between each of the organizational learning subsystems and organizational innovativeness dimensions. This study was successful in measuring the extent to which organizational learning subsystems contributed to variations in organizational innovativeness activities in a private higher education institution.

Before this study, there was not a quantitative-based study in existence on the dynamic relationship between organizational learning constructs and organization innovativeness dimensions in the higher education context. Opening up possible research designs to include qualitative methods to advance this research and increase validity of the organizational learning model using more organizationally dynamic variables to form qualitative data collection questions. These studies would assist in closing an existing gap in the extant literature as identified in this study and increasing the generalizability of the study’s results by including larger sample sizes across a wider range of institutions in the higher education context.

Additionally, future studies would benefit from exploring organizational learning using qualitative methods to observe collective learning during social interactions such as meetings or focus groups including cross-functional personnel to ascertain how they see their organization fosters a culture of innovation.

**Conclusion**

The purpose of this study was to explore the relationship between organizational learning and organizational innovativeness according to managers’ perceptions in a private higher
education institution. Organizational learning model consisted of four learning subsystems: Environment Interface, Action/Reflection, Meaning and Memory, and Dissemination and Diffusion. Organizational Innovativeness consisted of the following dimensions: Behavioral, Product, Process, Market and Strategic dimensions. A correlational analysis using data collected through Organizational Action Survey and Organizational Innovativeness Assessment instruments showed that strong to moderate and significant relationships existed between organizational learning subsystems and organizational innovativeness dimensions, with the exception of weak relationships between each of the organizational learning subsystems and strategic innovativeness dimension. This study contributes to the extant literature on the dynamic relationship between organizational learning and organizational innovativeness and provides recommendations for leadership in the higher education sector regarding the importance of applying a balanced performance-learning framework and using organizational learning as a strategic development tool to influence organizational innovativeness and maintain effective performance to ensure organizational survival.
References


Effectiveness. Organizational Dynamics, 4(1), 2-16.


Appendix A

Unsigned Consent Document For Online Survey

Northeastern University, Doctor of Education

Name of Investigator(s): Principal Investigator: Dr. Chris Unger, Student Researcher: Mustafa Safiia

Title of Project: A Quantitative Approach to Capture Managers’ Perceptions of Organizational Learning and Organizational Innovativeness in A Private Higher Education Institution.

Request to Participate in Research
We would like to invite you to participate in a web-based online survey. The survey is part of a research study whose purpose is to determine if there is relationship between organizational learning and organizational innovativeness from a social systems perspective through the lens of the Organizational Learning Systems Model (OLSM). This survey should take about 30 minutes to complete. We are asking you to participate in this study because you have been identified as a ‘manager’ in the University HR system. You must be at least 18 years old to take this survey.

The decision to participate in this research project is voluntary. You do not have to participate, and you can refuse to answer any question. Even if you begin the web-based online survey, you can stop at any time.

There are no foreseeable risks or discomforts to you for taking part in this study. The only risk is the possible identification of participants who are exposing their unit to one that is not conducive to learning and innovation. To mitigate this risk, data will be coded, and only the researcher will have access to this information. All data will be kept in a locked file until the end of the study, at which point it will be destroyed. As a result, it is believed that the procedures of this study offer no risk to the participants.

There are no direct benefits to you from participating in this study. However, your responses may help the University (per request) learn more about enablers and constraints to achieving a balance between learning and performance necessary to sustain an innovative culture.

You will not be paid for your participation in this study.

Your part in this study is anonymous to the researcher. However, because of the nature of web-based surveys, it is possible that respondents could be identified by the IP address or other electronic record associated with the response. Neither the researcher nor anyone involved with this survey will be capturing those data. Any reports or publications based on this research will use only group data and will not identify you or any individual as being affiliated with this project.
Your part in this study will be handled in a confidential manner. Any reports or publications based on this research will use only group data and will not identify you or any individual as being affiliated with this project.

If you have any questions regarding electronic privacy, please feel free to contact Mark Nardone, NU’s Director of Information Security via phone at 617-373-7901, or via email at privacy@neu.edu.

If you have any questions about this study, please feel free to contact Mustafa Safiia, the person mainly responsible for the research, via email at safiia.m@husky.neu.edu or 603-512-3183. You can also contact Chris Unger, the Principal Investigator, at c.unger@northeastern.edu or 857-272-8941.

If you have any questions regarding your rights as a research participant, please contact Nan C. Regina, Director, Human Subject Research Protection, 960 Renaissance Park, Northeastern University, Boston, MA 02115. Tel: 617.373.4588, Email: n.regina@neu.edu. You may call anonymously if you wish.

By clicking on “I CONSENT” icon below you are indicating that you consent to participate in this study. Please print out a copy of this consent form for your records.
### Appendix B

**Organizational Action Survey**

<table>
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<tr>
<th>To what extent…</th>
<th>To a very little extent</th>
<th>To a little extent</th>
<th>To some extent</th>
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<tbody>
<tr>
<td>1...do members of your organization share external information?</td>
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<td>2...is there intense competition among organizations within your industry?</td>
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<td>3...are people in your organization held responsible for the decisions they make?</td>
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<td>4...does your organization predict the changes occurring in the industry?</td>
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<td>5...does your organization use stories and references to its history to let people know they should perform their jobs?</td>
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<td>6...does your organization continuously track how your competitors improve their products, services, and operation?</td>
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<td>7...does your organization hold work groups accountable for achieving established goals?</td>
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<td>8...does your organization implement changes to help employees be more effective in doing their jobs?</td>
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<td>9...does your organization deliberately reflect upon and evaluate external information?</td>
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<td>10...does your organization publicly acknowledge employees for outstanding performance (e.g., featuring them on intranet communications, plaques, etc.)?</td>
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<td>11...does your organization provide opportunities for employees to develop their knowledge, skills, and capabilities?</td>
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<td>12...does your organization believe it needs to continuously improve customer service?</td>
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<td>13...does your organization effectively use organizational resources?</td>
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<td>14...do your organization's leaders support quick and accurate communication among all employees?</td>
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<td>15...does your organization have set goals for researching and developing new products and/or services?</td>
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<td>16...do members of your organization effectively use organizational structures (e.g., chain of command, personal networks) when sharing ideas and innovations?</td>
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<td>17...are your organization's leaders effective at achieving organizational goals?</td>
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<td>18...does your organization use ideas and suggestions from its employees?</td>
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<td>19 &amp; 20. Organizational success can be achieved through a variety of organizational</td>
<td>Most important</td>
<td>Least important</td>
<td>Most prevalent</td>
<td>Least prevalent</td>
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</table>
actions. Please rank each action on its importance to your organization on a scale of 1 – 8 (1 = most important and 8 = least important) and its prevalence in your organization (1 = most prevalent and 8 = least prevalent).

A. Sharing of information and knowledge required for continuous organizational Improvement

B. Identifying resources required to meet organizational goals

C. Reflecting on organizational experiences to improve products and or services

D. Organizational structures that support effective production/customer service

E. Reinforcement of an open and flexible organizational culture

F. Producing products and services of the highest quality possible

G. Obtaining information concerning the changes in the organization's environment

H. Performance standards established by the organization

Please indicate the extent to which you agree or disagree with each of the statements as it currently applies to your organization using a scale from (1) strongly disagree to (5) strongly agree. Please mark the appropriate box.

In my experience…
<p>| | | | | |</p>
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<tbody>
<tr>
<td>21</td>
<td>this organization believes that continuous change is necessary.</td>
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<td>22</td>
<td>there are systems in place to share new operational processes and procedures throughout the organization</td>
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<td>23</td>
<td>this organization has clear performance goals.</td>
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<td>24</td>
<td>this organization effectively identifies and acquires external resources required to meet its goals.</td>
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<td>25</td>
<td>this organization has a strong culture of shared values, beliefs, and norms that guide the daily work activities.</td>
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<td>26</td>
<td>this organization has established work groups, networks, and other collaborative arrangements to help the organization adapt to change.</td>
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<td>27</td>
<td>the managers and leaders of the organization have the skills needed to guide organizational change.</td>
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<td>28</td>
<td>this organization has established an achievable organizational mission.</td>
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<td>29</td>
<td>the end products of work groups in this organization are of much higher quality than any one of us could have produced alone.</td>
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<td>30</td>
<td>this organization has a strong culture of shared values, beliefs, and norms that support individual and organizational development.</td>
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<td>31</td>
<td>people in this organization believe that</td>
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<td>evaluating what customers say is critical to reaching organizational goals.</td>
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<tr>
<td>32…this organization has clear goals for individual and organizational development.</td>
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### Organizational innovativeness Assessment

Please indicate the extent to which you agree or disagree with each of the statements as it currently applies to your organization using a scale from (1) strongly disagree to (5) strongly agree. Please mark the appropriate box.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neither agree or disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
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<tbody>
<tr>
<td>33. In new product and service introductions, our organization is often first-to-market.</td>
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<td>34. Our new products and services are often perceived as very novel by customers.</td>
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<td>35. Our recent new products and services are only minor changes from our previous products and services.</td>
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<td>36. New products and services in our organization often take us up against new competitors.</td>
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<td>37. In comparison to our competitors, our organization has introduced more innovative products and services during the past 5 years.</td>
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<td>38. In comparison to our competitors, our</td>
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<td>organization has a lower success rate in products and services.</td>
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<td>39. In comparison to our competitors, our products’ most recent marketing program is revolutionary in the market.</td>
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<td>40. In new product and service introductions, our organization is often at the cutting edge of technology.</td>
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<td>41. Our firm's R&amp;D and/or product development resources are not adequate to handle the development needs of new products and services.</td>
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<td>42. We are constantly improving our business processes.</td>
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<td>43. Our organization changes production methods at a great speed in comparison with our competitors</td>
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<td>44. During the past 5 years, our organization has developed many new management approaches.</td>
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<td>45. We get a lot of support from managers if we want to try new ways of doing things.</td>
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<td>46. Key executives of the organization are willing to take risks to seize and explore &quot;chancy&quot; growth opportunities.</td>
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<td>47. Senior executives constantly seek unusual, novel solutions to problems via the use of &quot;idea associates.&quot;</td>
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<td>48. In our organization, we tolerate individuals who do things in a different way.</td>
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<td>49. We are willing to try new ways of doing things and seek unusual, novel solutions.</td>
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<td>50. We encourage employees to think and behave in original and novel ways.</td>
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<td>51. When we see new ways of doing things, we are last at adopting them.</td>
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<td>52. When we cannot solve a problem using conventional methods, we improvise on new methods.</td>
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<td>Possible open-ended questions…</td>
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<td>53. Do you think your unit is innovative? If so, why?</td>
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<td>54. In your opinion, what is the one thing that is getting in the</td>
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way of your unit’s innovation?

55. The key factors contributing to better innovativeness are (list two to three factors):
Appendix D

Demographic Questions

56. In which organizational function do you work?
   a. Academic
   b. Admission/Marketing
   c. Advising/Student Support
   d. University Services

57. Which of the following describes your management responsibility?
   a. Senior Leadership
   b. Manager of other people managers
   c. Manager of individuals
   d. Senior professional or manager with no direct reports

58. Does your role enable innovation?
   a. Always
   b. Usually
   c. To some extent
   d. Occasionally
   e. Never

59. How long have been working at the organization?
   a. Less than 6 months
   b. 6 months – 1 year
   c. 1-3 years
   d. 3-5 years
   e. 5-10 years
   f. 10+ years

60. How long have been working in your current role?
   a. Less than 6 months
   b. 6 months – 1 year
   c. 1-3 years
   d. 3-5 years
   e. 5-10 years
   f. 10+ years

61. How long have you been working in higher education?
   a. Less than 6 months
   b. 6 months – 1 year
   c. 1-3 years
   d. 3-5 years
   e. 5-10 years
   f. 10+ years

62. Have you worked in any other industry?
   a. Yes
      i. If yes, ….  
   b. No

63. What is your highest level of education?
a. High school or equivalent
b. Some college
c. Bachelor’s degree
d. Some Graduate
e. Master’s degree
f. Doctorate

64. What is your gender? (optional)