Abstract:
In recent years, new theories that define a learning organization (Senge, 1990) have been proposed (Senge, 1990 & 2000; Martin, 2001; Tierney, 1999; Aubrey & Scott, 2000) as an organizational model for evolutionary change and in response to crisis in universities. However, no models of the university as a learning organization were found. The purpose of this study was two-fold: 1) to develop a conceptual model of the university as a learning organization and 2) to conduct a case study of a university to refine and validate the relevancy of the conceptual model.

A conceptual model was developed using Senge’s (1990) five disciplines of a learning organization: Personal Mastery, Shared Vision, Team Learning, Mental Models, and Systems Thinking. Each of the disciplines was defined by four levels of institutional involvement: 1) essence or value (state of being or mastery of a discipline) as the core; 2) principles or policies (guiding ideas or insights); 3) practices (“what is done”); and, 4) outcomes (expected results if a university was a learning organization).

Twenty-five University and State leaders were purposively chosen to represent various levels of the University’s governance structure. Interviews were conducted using an interview protocol developed to explore the existence and relevance of the components of the conceptual model. An audit of the study’s data collection processes and interpretations confirmed the “reasonableness” of the findings.

Findings of the study included: 1) Components of the conceptual model were present in the University and valued by the interviewees; 2) Reflection was added as a sixth discipline to the model; 3) Lack of clarity about the connection between organizational health and organizational/individual outcomes; and, 4) Perception of faculty isolation and lack of involvement with the organization. The last two issues should be validated through future research as their existence would have implications for further refinement of the model.
THE UNIVERSITY AS A LEARNING ORGANIZATION:

DEVELOPING A CONCEPTUAL MODEL

by

Becky Hampton Smith

A dissertation submitted in partial fulfillment of the requirements for the degree of

Doctor of Education in Education

MONTANA STATE UNIVERSITY
Bozeman, Montana

July 2003
APPROVAL

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This dissertation has been read by each member of the dissertation committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style, and consistency, and is ready for submission to the College of Graduate Studies.

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ABSTRACT

In recent years, new theories that define a learning organization (Senge, 1990) have been proposed (Senge, 1990 & 2000; Martin, 2001; Tierney, 1999; Aubrey & Scott, 2000) as an organizational model for evolutionary change and in response to crisis in universities. However, no models of the university as a learning organization were found. The purpose of this study was two-fold: 1) to develop a conceptual model of the university as a learning organization and 2) to conduct a case study of a university to refine and validate the relevancy of the conceptual model.

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Findings of the study included: 1) Components of the conceptual model were present in the University and valued by the interviewees; 2) Reflection was added as a sixth discipline to the model; 3) Lack of clarity about the connection between organizational health and organizational/individual outcomes; and, 4) Perception of faculty isolation and lack of involvement with the organization. The last two issues should be validated through future research as their existence would have implications for further refinement of the model.
CHAPTER 1

INTRODUCTION

Background

While many leading organizations are using these integrative approaches to becoming learning organizations, our “organizations of learning,” academic institutions, seem to be more resistant to becoming learning organizations themselves (Scott, 2000, p. 17).

As we let go of the machine models of work, we begin to step back and see ourselves in new ways, to appreciate our wholeness and to design organizations that honor and make use of the totality of who we are (Wheatley, quoted by Scott, Spring 2000, p. 8).

How are organizations designed that honor and make use of the totality of its members? Applying Senge’s (1990) learning organization principles to an organization offers individuals the opportunity to create work environments that maximize individual and organizational potential and performance. The focus, however, has been on building individual capacity, not organizational design, a stumbling block for many organizations. Universities, or “organizations of learning” (Scott, 2000, p. 17), would seem to be the organization mostly likely to epitomize what it means to be a learning organization—a place where its members maximize their own learning, creativity, potential, and organizational performance. Yet, as noted, universities, while creating learning opportunities for students, have not been able to create an environment for its own
members that embraces or maximizes the potential within its own organizational system (Senge, 1994).

Senge (1990) presented a model of a learning organization in which he articulated a set of processes that create the capacity for maximizing individual potential within organizations. He outlined a set of disciplines that organizations could put into place to build individual and organizational capacity for becoming a learning organization. Definitions of the five disciplines from Senge’s most recent book, *Schools that Learn* (2000), include:

1. **Personal Mastery** - Discipline that requires an awareness of one’s personal vision and current reality and practices that support movement towards creating and enacting results based on that vision (p. 59).

2. **Shared Vision** - Commitment by members of the organization to a vision of what the group wants to create for the future incorporating individual aspirations (p. 72).

3. **Mental Models** - The images, assumptions, and stories carried around in one’s head about the way the world or environment is viewed. They are usually tacit and invisible unless brought to the surface (p. 67).

4. **Team Learning** - The ability of the members of an organization to see and respect other members, their purpose, and current reality, and “establish some common mental models about reality” (p. 74).

5. **Systems Thinking** - The capacity to recognize the connections, linkages, structures, and behaviors inherent in a particular system (p. 78). For a more
detailed description of a continuum of system thinking practices and "views of the nature of a ‘system’" (p. 73), see the literature review in Chapter 2.

Senge acknowledges that building the capacity of individuals, rather than organizational design, has been a major focus of the learning organization movement (phone message, 2002 via Jean McDonald). Tierney's (1999) contention is that the learning organization framework is a good fit for the postsecondary organizations that need a "change-oriented structure that focuses on responsiveness" (p. 3). Building an individual's capacity can enhance the capability of individuals and organizations to respond more effectively to internal and external changes and achieve the results desired by the individual and organization, which is at the heart of becoming a learning organization (Senge, 1990, pp. 139, 141).

In Tierney's description of the university as a learning organization, there is an assumption that, "when leaders pay attention to process and create the conditions under which people are able to perform better, a twofold payoff occurs; the organization is more likely to reach its goals and people are more likely to feel good about themselves and the organization" (1999, p. 56). The learning organization theory challenges the 17th century Newtonian view (studying the parts leads to understanding the whole) of the organization and offers a new set of metaphors for our public and private organizations. During a lecture at Yale (1998), Senge described the educational system as a living organization defined by relationship and connection rather than by parts and things as in the Newtonian 17th century machine model (p. 54). For too long, educators have allowed this 17th century machine model (Wheatley, 1999) to drive the processes of educating and
being educated. This has manifested itself into a focus on parts separate from the whole, fragmentation, boundaries, control, and dehumanization of the individual within educational organizations. The use of new metaphors can serve as the foundation for developing new organizational models (Senge, 1998). Wheatley underscores the concept of relationship by stating:

> When we view systems from this perspective (attention given to relationships within those networks), we enter an entirely new landscape of connections, of phenomena that cannot be reduced to simple cause and effect, or explained by studying the parts as isolated contributors. We move into a land where it becomes critical to sense the constant workings of dynamic processes, and then to notice how these processes materialize as visible behaviors and forms (1999, pp. 10-11).

This supports what Senge has emphasized in the collaborative development of the learning organization. He says it is important to ask tough questions such as, “Why is this system like this, and why do people behave the way they do? What are the underlying assumptions that drive human behavior? What is most telling in watching how the system works and noticing what people do?” (p. 54).

How would a university begin to address Senge’s (1998) questions? Wheatley suggests a roving conversation with members of entire campuses about who they are, who they serve, what is possible with the present resources, and who they can be. Organizational structures emphasizing relationship, connection, and creativity are emerging as self-organized systems that better support individuals and the collective learning community (Katz, 1997). Wheatley says that making sure the organization knows itself is one of the most critical roles for leaders in higher education (p. 1).
Scholars such as Duke (1999), Martin (1999), and Senge (2000) are calling for change in universities using the learning organization principles and, while it may resonate emotionally, it has been difficult to conceptualize how a leader might actually “design” such an organization capitalizing on what is and what can be for both the individual and the organization. There does not appear to be a conceptual model for universities as learning organizations in the literature. Howard says it well when he states, “having a conceptual model allows us to look at the ‘completeness’ of our professional knowledge and to reflect on what we know and what we do not know” (McLaughlin & Others, 1998, p. vi).

Problem Statement

The problem addressed in this study was that there did not appear to be a conceptual model of a university as a learning organization. A conceptual model was needed to create a visual representation of the university as a learning organization for further study.

Purpose Statement

The purpose of this study was twofold. First, a conceptual model of a university as a learning organization was developed and described by the researcher according to the literature. Part two was to conduct a case study of Montana State University’s leaders’ perceptions of MSU-Bozeman using the learning organization theory and to compare the findings to the conceptual model. The conceptual model was then refined based on those
findings of the study.

Significance of the Research

Four themes emerged in literature supporting the need to create this conceptual model and conduct a case study. Briefly, they are: 1) the proponents of learning organization theory are suggesting that universities become learning organizations; 2) the traditional university is being challenged from critics inside and outside the organization; 3) trends such as technology, globalization, etc., are putting demands on universities to change; and 4) since our mental models are usually tacit but shape our behavior and performance, making those mental models explicit may provide insight about the university system and how it impacts its members.

First, Awbrey (1998) defends the need for universities to consider becoming learning organizations for the following reasons:

the need to engage in consideration of fundamental questions of organizational change, the times demand it, for our students and our employers, for an energized, committed faculty, staff, and administration, to manage change, for improvement, for the long range (p. 8).

While those proposing that universities become a learning organization, a conceptual model of a university as a learning organization does not exist in the literature.

Other scholars supporting the notion that universities need to become learning organizations with new metaphors and meanings include Duke (1999), an Australian scholar, and Martin (1999). Martin wrote a book about the "learning university" and uses the learning organization literature as a guide for improvement, and as a lens for weighing
the competing demands. While he discusses processes and ways of implementation, a conceptual model was not developed or used for testing the actual process of “becoming a learning organization” or contrasted to the existing structure of a university.

Proponents of universities becoming learning organizations have come from within academia as well. For example, at Wheaton College the attempt to become a learning organization began by discussing personal mastery as it related to one’s work. Questions that a core group were asked to address included:

1. In what ways have you grown/changed/developed over the last several years (e.g., new perspectives, more openness, greater self awareness, etc.)?

2. How has that shift affected the way you approach your work at X? In positive ways? In negative ways?

3. Apply the same questions but change the frame of reference from you to your department.

4. What growth opportunities are available in the foreseeable future for you, your department?

5. How might these affect your work, our work together? (Braun, e-mail message, 1/15/99).

While the implementation of part of this process had value, it did not provide a conceptual model of the university as a learning organization incorporating all five disciplines and a true systems perspective (Senge, 1990).

Second, scholars called for new ways of thinking about the traditional university. For example, in the section “On the Path to a Different University,” Scharmer and Kaufer
(2000) present seven theses that challenge the traditional university by asking 12 universities world-wide, “what does society need universities for?” (pp. 1-3). Duke (1999) saw the emergence of lifelong learning and learning societies as major challenges and opportunities for traditional universities. While the learning organization framework offers the opportunity for universities to develop the members' capacity to create the organization of their choice to maximize their potential, there have been no models or studies conducted to test whether this approach is desirable or feasible for universities. The findings of this study will be utilized to refine the conceptual model of a university as a learning organization for further testing. This is a model representing the diverse and multifaceted views of what the university is compared to the conceptual model of the university as a learning organization. This could lead to further studies and dialogue about how universities embrace or resist change as a system and how the system might better serve its own members.

Third, universities are challenged to meet a changing society and student population often driven by trends in technology, globalization, the diversity of students, expectations of the students, and expectations/needs of employers (Martin, 1999). A conceptual model of the university as a learning organization provides an opportunity to look at the learning organization framework compared to leaders' current mental models of a university and may offer insight about how the university as a whole responds to trends and demands.

As an example, employers want people who know how to learn, have self-awareness, communicate effectively, and can adapt to change (Brew, 1995). This is a
challenge not only for universities as the producers of employees but for members of the institution itself. Information technology, the diversity of the student population, international influences, new ideas about knowledge, decreasing salaries and worsening work conditions all contribute to the urgency of developing organizational members equipped to deal with these challenges (Brew, 1995). It is also felt that individuals need to take more responsibility for their own development and that the process itself needs to balance the needs of the individual and the organization (Brew, 1995). The learning organization framework addresses the individual and organization, but without a conceptual model or comparison to a university’s current view of itself by its leaders, it is difficult to assess the efficacy or approach to creating or designing a desired future for the organization and its members.

Fourth, conducting a study that compares a conceptual model of the university as a learning organization to leaders’ current mental models of that university system may provide valuable information for all stakeholders of that system. In Schools that Learn, Senge notes that uncovering the diverse mental models represented throughout a system by its members can be a first step to understanding a system and the human behavior expressed in response to that system. A compelling argument for identifying university leaders’ mental models as they compare to a learning organization model states that, “because mental models are usually tacit, existing below the level of awareness, they are often untested and unexamined. They are generally invisible to us—until we look for them” (Senge, 2000, p. 67).
This can become one of the learning organization tools that Scott (2000) talks about in combating fragmentation, compartmentalization, and "isolation in life, learning, and in the workplace" (pp. 2-3). Making mental models explicit as compared to the conceptual model can aid in understanding complex issues that impact the university, like diverse and demanding stakeholders, critics inside and outside the academy, crises that cause painful disconnections throughout the system, and the need to communicate the agenda and values across disciplines and to society (Scott, 2000).

This case study and subsequent development of a refined conceptual model of the university as a learning organization can become a guide for university system members desiring more knowledge and understanding about the system in which they function. A university's lack of clarity about itself has been criticized as a barrier to communicating effectively with its stakeholders and members. Oakley (1997) says it best with the following quote, "...among the obligations we do have to the larger public 'beyond the boundaries of the academy' is that of explaining ourselves, of conveying on this matter an accurate picture of the way in which we ourselves allocate our time, energies, and resources, as well as the reasons underlying the particular balance struck in the allocation between teaching and research. But in order to do that, we ourselves have to be clear about the issue. And I am not sure that we are" (p. 56). In The Kept University, Press and Washburn (2000) concur with Oakley by suggesting that universities could do a better job of preserving public support for higher education without succumbing to privately funded research agendas by private funding sources.
In summary, conducting this study first added to the body of literature on learning organizations by looking at the university as a learning organization and provided information toward the creation of a conceptual model for further testing by proponents and critics. Second, the findings of this study suggested how the conceptual model compares to the current reality of a university system, and create further opportunities for dialogue and study in response to demands for change. Third, this study provided an opportunity to look at a conceptual model of the university as a learning organization compared to leaders' current mental models of the university system and may offer insight about how different levels of a university respond to trends and demands. Fourth, a system-wide study can provide valuable feedback about leaders' invisible, or tacit, mental models of the university system as compared to a conceptual model of the university as a learning organization. This can be informative for the stakeholders of that system as well as for the members of the university system itself, which could lead to further study or new directions in research. The conceptual model of the university as a learning organization for the purposes of this study is outlined below.

**Conceptual Model of the University as a Learning Organization**

The conceptual model for this study was developed from the literature on learning organizations. It is specifically based on Senge's five disciplines in *The Fifth Discipline* (1990), the visual representation in Appendix A, and *The Fifth Discipline Fieldbook* (1994). Lucas, in “Mapping Mental Models,” states that by mapping mental models, the graphic representation accomplishes the following: it unleashes the possibilities, the
knowledge one has and didn’t know it; and it provides a basis for analyzing the
similarities and differences between varying mental models (Senge, 2000).

In Beer’s *Brain of the Firm* (1994), the autonomic nervous system is outlined in
detail to describe the natural way that a living system communicates. Building on that
metaphor, Beer builds a simulated model of the organization based on the same biological
principles. In describing the behavior of a viable system, Beer states that he had a
revelation that would not have occurred “until I had the model” (p. 233).

Roberts, Ross, and Kleiner (Senge, 1994) describe behaviors that the researcher
has evolved into a model, which was modified as the participants in this study measured
themselves against this standard, as the foundation for designing a workable model in
higher education. Quoting directly, “In a learning organization...

a. People feel they’re doing something that matters— to them personally and to the
larger world.
b. Every individual in the organization is somehow stretching, growing, or
enhancing his capacity to create.
c. People are more intelligent together than they are apart. If you want something
really creative done, you ask a team to do it—instead of sending one person off to
do it on his or her own.
d. The organization continually becomes more aware of its underlying knowledge
base—particularly the store of tacit, unarticulated knowledge in the hearts and
minds of employees.
e. Visions of the direction of the enterprise emerge from all levels. The
responsibility of top management is to manage the process whereby new emerging
visions become shared visions.
f. Employees are invited to learn what is going on at every level of the organization,
so they can understand how their actions influence others.
g. People feel free to inquire about each others’ (and their own) assumptions and
biases. There are few (if any) sacred cows or undiscussable subjects.
h. People treat each other as colleagues. There’s a mutual respect and trust in the
way they talk to each other, and work together, no matter what their positions may
be.
People feel free to try experiments, take risks, and openly assess the results. No one is killed for making a mistake (Senge, 1994, p 51).

The conceptual model is the ideal model of a learning organization or representation of what could be if an organizational member could create a great or quality organization of choice (Senge, 1994). The model served as the focal point for the interviews with the participants from the different levels of MSU-Bozeman. The schematic representation of the “Conceptual Model of the University as a Learning Organization” follows (Figure 1). (The detailed model presented can be found in Chapter 3).

Research Question

How does a conceptual model of a university as a learning organization compare to Montana State University-Bozeman? How do the core values, policies, practices, and outcomes manifested in MSU-Bozeman compare to those that one would expect to find in a learning organization as outlined in the conceptual model of the university as a learning organization? What do the case study findings suggest for refinement of the conceptual model?

Definition of Terms

The definitions for the purposes of this study are listed below. Other terms and concepts are further defined in the literature review.
Learning Organization: “Where people create the capacity to achieve the results they truly desire, where new ways of thinking are nurtured, where collective aspirations are set free, and where people are continually learning how to learn” (Senge, 1990, p.3).

Fifth Discipline Learning Organization Model: Senge’s definition of a learning organization was used, which is a place or environment that creates the opportunity for learning by individuals who have potential to create learning for the organization by practicing the five disciplines: 1) Personal Mastery, 2) Mental Models, 3) Building Shared Vision, 4) Team Learning, and 5) Systems Thinking. Senge recommends that organizations commit to the integration of all five disciplines to realize the full impact and potential (Senge, 1990, pp. 5-13).

Organizational Learning: Organizational learning is about the processes involved for the individual, the group, and the organization in creating, acquiring, and transferring knowledge for the improvement of the organization (Argyris, 1999).

System: A system is a set of processes that are made visible in structures that are temporary. Systems influence individuals and vice versa, “individuals call forth systems” (Wheatley, 1999).

Leader: DePree’s (1989) definition of the art of leading is “liberating people to do what is required of them in the most effective and humane way possible and is the ‘servant’ of his followers in that he removes the obstacles that prevent them from doing their jobs...the true leader enables his or her followers to realize their full potential” (p. xx).
A CONCEPTUAL MODEL OF THE UNIVERSITY AS A LEARNING ORGANIZATION

The Five Disciplines of a Learning Organization
1. Systems Thinking
2. Personal Mastery
3. Shared Vision
4. Team Learning
5. Mental Models
Model: A visual representation, usually simplified or miniature, of a complex concept or theory that operates as a standard for comparison (Vinton, 2002, paraphrase).

Metaphor: Wheatley (1999) says it is, “a hypothetical description of how to think of a reality we can never know” (p. 15).

The Researcher

The researcher graduated from Baylor University in 1976 with a B.S. degree. In 1993, a Master’s in Public Administration with a Minor in Business Management was completed at Montana State University. Professional experience and graduate studies have focused on organizational change and design since 1986. As a participant of Dr. Fraser’s (1996, Austin, Texas) year-long strategic planning course, The Fifth Discipline (Senge, 1990) was on the required reading list. The researcher conducted an independent study with Dr. Karen Vinton contrasting Senge’s work with classic organization development literature. In that process, the researcher met Dr. Senge and was invited to join his international organization, “Society of Organizational Learning (SoL)” by submitting written work and filling out an application. Acceptance into the organization has led to annual and biannual meetings and courses with researchers, corporations, and consultants world-wide in the field of organizational learning and learning organizations since 1997.
The Study

The case study was conducted in fall 2002 and spring 2003. Leaders of the MSU System including the President, Vice Presidents, several members of the Board of Regents, select legislators, deans, department heads, Faculty Council, and Professional Council were interviewed. A “Conceptual Model” was developed and then used as a prototype to compare the MSU system to a learning organization and served as a guide for the interview protocol. In Chapter 2 addresses the literature on learning organizations, organizational learning, and university organizational structure as discussed.

Summary

In this chapter, an attempt has been made to address the problem of studying a university as a learning organization. At the onset of the study, a conceptual model of a university as a learning organization did not exist which attempts have been made to study universities as learning organizations using the learning organization principles in isolation or in part by studying behavior, but no study was found in which the university was examined from a system perspective as addressed in the learning organizational theories.

As such, the purpose of this study was to develop a conceptual model of a university as a learning organization. Development of the model occurred in two steps. The first was creating the model using Senge’s theoretical framework of a learning organization. The second step was to “test” the applicability of the conceptual model
through a case study of MSU-Bozeman. The second step resulted in information that led to refinement in the original model.
CHAPTER 2

LITERATURE REVIEW

Criteria for Selecting the Literature

The criteria for selecting the literature in the chapter was two-fold: 1) following bibliographic and reference strands to key sources, and 2) expert referrals. The literature was selected over the last several years based on research according to topics which included learning organizations, organizational learning, learning, organizations and organizational theory, university structure, organizational culture, and university culture. Databases and electronic indexes from the university library included Academic Universe (now called LexisNexis Academic), Expanded Academic ASAP/ERIC, MT Code Annotated, PsycInfo, WorldCat, and Dissertation Abstracts (MSU Library Website, 1999-2002). Feedback was sought via e-mail from the Directors of Research for SoL, Karen Ayas from Erasmus University in Rotterdam (Ayas, 1/7/99 and 1/20/99), and John Carroll from MIT (Carroll, 9/29/99) regarding the most current resource list for learning organizations and organizational learning.

John Carroll led the researcher to Barry Sugarman who had conducted an analysis of the field and posted his article on the SoL website (Carroll, 1999). In “Notes Toward a Closer Collaboration Between Organization Theory, Learning Organizations and Organizational Learning in the Search for a New Paradigm,” his review contrasted and
compared the most critical research and scholarly work done in the area (Sugarman, 1999). Further discussion took place at SoL meetings with these researchers and others to continue the accumulation of key resources in this field.

Informal contacts were also made with Amabile, author of the study on creativity (spring 1998 and January, 1999), Brown, author of “On Becoming a Learning Organization” for universities (July, 1999), Kanter (fall, 1999), Aubrey, Coordinator for the Learning Organization Initiative for Universities (January, 1999), and Braun, Coordinator for the Boston Consortium (January, 1999). Committee members Howard (current chair) and Vinton also provided articles, leads, and suggestions for the literature review.

**Learning Organizations**

**Senge’s Model**

The theoretical basis for this study comes from Senge’s model of learning organizations first published in *The Fifth Discipline* (1990). Senge and many colleagues had been studying change in organizations for over two decades. Collaborative research has been conducted over the years in the Center for Organizational Learning at MIT.

Senge was influenced by theorists Bohm, Forrester (Senge, 1990) and Argyris (p. 186). His approach emphasizes generativity of the organization as opposed to adaptiveness. He believes that people ought to be able to create a future they truly desire within an organizational setting. A brief synopsis of the theoretical underpinnings of Senge’s (1990) book follows.
The first is provided by Dr. David Bohm, a physicist. His work focused on systems and communication dynamics. He developed theories on dialogue that intrigued Senge. The second came from Dr. Jay Forrester, a computer pioneer. He also focused on systemic issues of the organization and the art of conversation in learning (Senge, 1990, p. 186).

Third, Senge drew from Dr. Chris Argyris' work. He developed theories on single and double-loop learning. He is also known for developing what he calls theories in action. He postulates that everyone creates their own theories of action. The research has shown that while people may articulate certain theories about how they behave or operate (espoused theories), they often act incongruently with those theories, leading to what is termed “theories in use” or actual behavior (Senge, 1990, p. 186). This will be discussed further as the basis for one of the five disciplines.

The five disciplines of this model are:

1. Personal Mastery
2. Shared Vision
3. Mental Models
4. Team Learning

Senge’s goal, in creating the five disciplines, was to create enduring principles of the learning organization concept. The model was meant to be a framework for becoming a learning organization, not a canned program for implementation (Senge, conversation, June 2001). The learning organization will look different for different organizations
based on the process, definitions, context, and interpretation of individuals, groups, and organizations as a whole. They must be practiced together for full impact to be realized (Senge, 1990, p. 12).

**Sense’s Five Disciplines (Senge, 1990)**

**Personal Mastery.** The first discipline is personal mastery. This is where the individual must define for him or herself the purpose or reason for being. “Why are you here, and what is most important to you?” are key questions the individual must address (Senge, 1990, p. 148). It is important for the individual to create a vision and mission statement of what one wants to become based on deeply held values and beliefs. Fritz, a colleague of Sense’s, states that most people have a belief that they do not deserve to have what they really want (p. 156). Many people can define what they do not want, but have difficulty in visualizing or articulating what they truly desire. The process cannot be forced. It is recommended that leaders who hope to effect change model this discipline in order to maximize the potential for real change to occur. It becomes key to articulating and creating a shared vision. Essential for personal mastery and organizational change is the ability to define reality. Once a vision has been created, it is critical that reality be defined to identify the gap between reality and vision. Creative tension is necessary to move from reality to the vision. This process provides the impetus for developing a strategy to realize the vision (p. 150).

**Shared Vision.** The second discipline is shared vision. The shared vision emanates from the personal visions of the collective group. Senge likens it to a
hologram. Shared vision can reflect a number of differing visions. It is the job of the leader to listen and then, if necessary, to articulate an overall vision incorporating the individual personal visions. It is a process that takes time and collaboration but ultimately leads to stronger commitment and clarity for the entire organization. It also has the potential to resolve the dilemma and dichotomy of work and personal life.

**Mental Models.** The third discipline is mental models. There have been a number of studies on mental models, mental mapping, and assumptions, but it is this cognitive component that derails most change initiatives. Argyris' (Senge, 1990, p. 182) work has uncovered mental models as a major stumbling block to effective learning and changing. People have deeply held beliefs, assumptions, and what is termed mental models that affect the way people see things and behave. For many, these assumptions are unconscious. This leads to four interventions that address what Argyris calls single loop and double-loop learning. A discussion of the interventions follow. They are included because they demonstrate clearly how our mental models affect how we think and interact. Again, these theories of action are often unconscious. Bringing them out in the open can create awareness and clarify what one truly believes (Senge, 1990).

Before discussing the interventions, definitions are needed for single-loop and double-loop learning. First, single-loop learning can be compared to a thermostat. A thermostat is set at 70 degrees. The thermostat detects temperature above or below that and corrects the temperature as needed to maintain 70 degrees. This is single loop. Routines, procedures, and rules of organization usually produce single-loop learning and provides stability and efficiency. Double-loop learning involves asking questions about
why something is being done the way it is done. For example, why is the thermostat set at 70 degrees (Argyris, 1999)? Most of the learning organization literature deals with the single and double-loop. Raelin (2000), author of Work-Based Learning, introduces a third loop whereby one asks, is temperature even relevant?

The first intervention requires balancing inquiry and advocacy. Organizational cultures have typically encouraged advocacy—stating, persuading, and fighting for one’s point of view or position. Double-loop learning also requires a practice of inquiry which can lead to new insights and discoveries. Inquiry requires more listening and questioning (Senge, 1990).

The second intervention involves becoming aware of what one is thinking but not saying. For example, learners are asked to identify a recent conflict and to write down the conversation using two columns. This is called the left-hand column exercise. In the right column, write down the entire conversation as it took place. In the left column, write down everything you were thinking but did not say. In doing this, assumptions are brought to the surface and can also shed light on the behavior used during the conflict (Senge, 1990).

The third intervention involves leaps of abstraction. An example is where a manager is assumed to be uncaring, distant, and arrogant. Upon examination, the woman was found to be hearing-impaired. Learners in a learning organization environment are asked to question their assumptions and to test them. This exercise reveals how often people rely on assumptions as fact, which often leads to destructive dynamics in an organization.
The last exercise deals with identifying the difference between what is said versus what is done—espoused theories and theories-in-use. For example, a university may espouse certain values and practices that are not reflected in policy, performance, reward, or the way work actually gets done.

**Team Learning.** The fourth discipline is team learning. In order for learning to become organizational, individuals must exchange and utilize knowledge together, to impact thinking and behavior. Team learning has been in existence for a long time and in some ways is considered a buzz word. The premise of team learning is that a group can elevate its intelligence and problem solving skills by working collectively (Senge, 1990, p. 237). However, Schein (1980) and Martell (1999) state that this is not always the case, as group-think and individual factors can actually inhibit the productivity of a group. Senge sees two processes at work with team learning. Dialogue and discussion both serve a purpose, but dialogue has the most potential for enhancing learning and creativity. The purpose of dialogue is to discover the best argument. In this stage, assumptions are made explicit, inquiry is promoted, and the goal is to listen and learn. When it is time to make a decision, the group enters the discussion phase of pros and cons, and at that time persuasive means may be used (Senge, 1999).

**Systems Thinking—“The Fifth Discipline.”** The last discipline is systems thinking. The model is based on seeing the whole, not just snap-shots. A system is dynamic and behaviors emanate from visible and invisible structures, rules, and boundaries that exist in the system. Feedback loops are inherent in a system and provide positive and negative responses to dynamics and processes of that system. Feedback loops or a response to
changes or decisions in a university can be deceiving in that there are delays, and so cause and effect are not always obvious. Many leaders institute change, but never experience the consequences of those changes (Birnbaum, 1988). Developing the skills to see linkages, feedback loops, connections, and disabilities within the system lead to generative learning—creating better solutions and a future of choice.

Senge’s mental model of a learning organization is presented graphically in The Fifth Discipline (Senge, 1990, pp. 375-376) (see Appendix A). The five disciplines for learning can be experienced at three different levels. Very simply, practices are what you do, principles are the guiding ideas and insights, and essences are the state of being of those with high levels of mastery in the discipline.

Senge’s model of a learning organization is comprehensive and detailed, but has been criticized for not addressing actual process or implementation. He and his co-authors have since published three more books, The Learning Organization Fieldbook (1994), The Dance of Change (1999), and Schools That Learn (2000). Practice and application were addressed in the first two. The last book applies the learning organization principles to education. It is described in the title as “a fifth discipline fieldbook for educators, parents, and everyone who cares about education” (Senge, 2000).

In summary, the learning organization model reflects a new organizational paradigm, one that better serves both the individual and organization in creating a desired future (Sugarman, 1999). The five disciplines are tools for the organization and individuals to internalize and master in order to continually create a future of choice. The actual design and analysis of current reality is up to the organization and its members.
While technology, economics, and globalization are contributing factors for the impetus to change, humans need to define the direction and design. Bureaucratic models, while successful in the Industrial Age, are not serving the organizations of today (Schein, 1999). Schein’s criticism is that research has devoted too much time to organizational learning (OL) and organizational development and change (ODC) and not enough time to the deeper meaning underlying learning organization (LO).

Learning Organization/Organizational Learning

In “Organizational Learning: What Is New?” Schein (1999) addresses confusion in literature about “organizational development (OD),” “organization development and change (ODC),” “culture (CU),” “learning organization (LO),” and “organizational learning (OL).” In part, the confusion is due to the diversity in paradigms and methodologies (p. 1, SoL Document). For the purposes of this study, the terms LO and OL will be clarified as they are often interchanged. A learning organization is a place or environment that creates the opportunity for learning by individuals who have the potential to create learning for the organization. Organizational learning is more about the processes involved for the individual, the group, and the organization in creating, acquiring, and transferring knowledge for the improvement of the organization.

The term learning organization has evolved to encompass a set of practices that enable an organization to learn more effectively. In Chinese, learning means continuous study and practice (Senge, 1990). Senge himself recognizes that it is not a new term. He was influenced by Dr. Don Michael, formally of the University of Michigan, who wrote
the book, *Planning to Learn, Learning to Plan* (1987). Following are the most common definitions of a learning organization.

1. An organization where people create the capacity to achieve the results they truly desire, where new ways of thinking are nurtured, where collective aspirations are set free, and where people are continually learning how to learn (Senge, 1990, p.3).

2. An organization that has the capacity to learn, adapt, and change. Knowledge must be captured, created, and shared in order to work together to meet organizational challenges (Marsick & Watson in Watkins & Marsick, 1996, p. 4).

3. An organization that facilitates learning of all its members to transform itself to improve knowledge and understanding (Pedler, Burgoyne, & Boydell in Watkins, 1996, p. 9).

4. An organization that creates, acquires, and transfers knowledge for all of its members, which modifies behavior to accomplish its strategic goals. Five building blocks for the learning organization include systematic problem solving, experimentation, learning from oneself and others within the organization, learning from others outside the organization, and transferring the knowledge throughout the system (Garvin, 1994, p. 3).

5. An organization whose internal structure and processes foster organizational learning (Raelin, 2000, p. 6).

6. An organization that learns as a whole system (Schein, 1999, p.8).
Organizational learning is another term often used interchangeably with learning organization. In “Navigating Through the Organizational Learning Literature,” the authors point out that organizational learning has become an “important field of research” and is of great concern to organizations of all kinds. Interest has grown in academia, as well, attracting researchers from a number of disciplines. Learning is becoming recognized as a “key competence” in organizations (Antal, Dierkes, & Tsui-Auch, 1998).

Levitt and March (1988) cites Simon as the first to coin the term organizational learning (OL) in 1953. Fulmer (1999) credits Argyris and Schon with creating the term in the 1970’s. Schein, in a 1999 article on organizational learning, gave up on doing a literature review, because the field is all over the map and too confusing (p. 1). Again, most authors define the term according to their theoretical leaning and context of the discussion. Argyris, in his 1999 version of Organizational Learning, finds the term paradoxical in that organizations do not learn, individuals do (p. 7). For the sake of further discussion and the need for clarity, the most often used definitions of organizational learning are provided below:

1. Action based on improved knowledge and understanding (Fiol & Lyles in Garvin, 1994, p.15).

2. If an entity learns by processing information, its range of behaviors changes (Huber in Garvin, 1994, p.15).

3. The detection and correction of error. Any organizational learning definition must address the interaction between the organization and the individual (Argyris in Garvin, 1994, p.15).
Organizational learning must explain how knowledge gets transferred from living human beings to a nonentity, the organization (Kim in Argyris, p. 8).

Organizational learning is basically learning by individuals and groups within an organization (Schein, 1999).

Encoding inferences from the past into routines that guide behavior (Levitt & March, 1988, p. 320).

Organizational learning must reflect knowledge that is created or acquired, must be shared, received, and adopted. If adopted then it must be transmitted throughout the organization (Sugarman, 1999, p. 2).

Organizational learning is a set of activities that allows an organization to grow and learn in order to sustain or improve itself (Raelin, 2000, p. 6).

Organizational learning is a process whereby knowledge is created and disseminated to improve performance based on experience (Crossan, Lane, & White, 1999, 523).

Organizational learning is where knowledge and values are shared throughout an organization. Knowledge creation is not a specialized activity—it is a way of being (Nonaka & Takeuchi, 1995, p. 59).

In summary, a learning organization epitomizes the place or environmental conditions that provide the individuals of that organization the opportunity to create a learning environment. Organizational learning tends to focus more on the actual processes or how work is done incorporating creativity, learning, transfer of knowledge, and improving the organization for the individual, the group, and the organization.
Universities are organizations of learning, but are often not considered to be learning organizations (Scott & Awbrey, 1998 and 2000, phone conversations). Before launching into the literature about universities and learning organizations, it is important to understand the history of university organizational structure and legal mandates that impact governance of this type of “organization.” This may have bearing on current reality or the way the work gets done which may only be visible by observing members’ behavior, a representation of value, policy, and practice.

Organizational Structure of the University

Reality is often determined by organizational structure (Birnbaum, 1988). In How Colleges Work, he offers a succinct analysis of university systems and organizational structure (Birnbaum, 1988). The type of university structure determines style of leadership, the way decisions are made, and the relationship of the subsystems.

Birnbaum (1988) describes four types of organizational structures. They are collegial, bureaucratic, political, and anarchical. The goal of the collegial structure is consensus, the bureaucratic is rationality, political is peace, and the anarchical is sense-making. Very simplistically, the collegial college is a liberal arts college with shared leadership. The bureaucratic college is hierarchical—state schools and vocational schools. The political organization relies less on data and more on special interests or issues supported by coalitions. The anarchical college is focused on the elite forms of education—Princeton, Harvard, or Stanford, for example, where leadership is symbolic and supportive of the experts (p. 151).
In conclusion, Birnbaum (1988) integrates the four models and develops what he calls the cybernetic institution, one that is self-organizing and self-correcting. Mechanisms are built into the system that create a range of normalcy and that measure what is most important to that university. If the indicators fall below or above a defined range, the system reacts. For example, if enrollment numbers fluctuate below or above a predetermined number, administrators or deans are alerted. It is a system based on inputs rather than outcomes. The administrator’s role is to make sure that the indicators reflect what is most important. Leaders do not have to monitor everything. It allows universities to operate effectively with conflicting goals and responses. Each subunit can address its own goals and respond to crises as needed (p. 177).

Birnbaum (1988) does recognize the systemic nature of universities. Some are closed systems but most are open—meaning that the boundaries are not set. In a closed system, it is easier to recognize cause and effect and to predict what might happen given a set of circumstances. In an open system, it is more difficult and there are many variables. He also argues that subunits are tightly coupled (directly affected), or loosely coupled (action in one subunit may or may not have an impact elsewhere). For example, in a business, a manufacturing unit is directly affected by the sales unit. Universities tend to be more complex and the impact of subsystems is often more difficult to determine.

While leadership style is determined by structural type, it is also more complex due to legal mandates. Public universities are created by the state, are legal entities, and are governed by a non-academic board and legislature. The American Association of University Professors published one of the most influential statements on shared
governance of the university. The document, "Joint Statement on Government of Colleges and Universities" stated that faculty should have the "primary responsibility" for curriculum, teaching, faculty status, and academia as it relates to students. AAUP recognized the legal authority of the president and governing board, but articulated that judgments made by faculty as it related to the "primary responsibility" domain should be supported, unless there were compelling reasons to disagree. This created a system with shared leadership. Authority for administrators comes from control and coordination of activities. Authority for faculty comes from autonomy and knowledge. Over the course of time, administrators and faculty have lost control due to size and complexity of issues. This has led to a feeling of powerlessness by both administrators and faculty (Birnbaum, 1988, p. 8).

Tierney, in Building the Responsive Campus (1999), offers insight into university structure and the impact of bureaucratic demands on individual productivity. He states that the university of the twenty-first century needs to place less emphasis on structure and more emphasis on culture. In his book, Tierney suggests a "reengineering" of the university, developing practices that foster productivity based on learning organization theory to limit barriers created by complex, numerous, and external structures. He begins by sharing a story about asking university members how they would create a new institution. Creative ideas and possibilities flowed easily and often included eliminating external structures and boundaries that inhibit performance. When asked how they might accomplish these goals within their existing structure, most of the participants say it cannot be done and lapse into conversations about structures, boundaries, politics, or
This illustrates the power of members' mental models of organizational structure. There is a mismatch between what people say and what people actually believe or do. Brown and Deguid (2000), in the Harvard Business Review, describe the delicate balance between process, the way things are formally organized, and practice, “the way things actually get done” (p. 74). Many times these mental models are not explicit and have the potential to expose positively the incongruence between beliefs about structure, process, and action.

There are decades of research on organizational structure and culture. Tierney is not alone when he says that universities need to emphasize culture over structure. Schein (1999) and Brown (April, 1999, phone interview) suggest that too much research has been done on learning but not enough on the deeper dynamics of learning organizations and the role culture plays in those dynamics. Brown, author of “On Becoming a Learning Organization” got more specific and said, “you need to look at environmental conditions in universities needed to create learning organizations” (Brown, 1997, p. 9 and phone interview, 1999). Environmental conditions are created by organizational members and emanate from the invisible mental models of those who lead today’s universities. They may or may not conflict with the model of the university as a learning organization.

The University as a Learning Organization

...although academics in the field are willing to provide descriptions of the characteristics exhibited by learning organizations, few writers have apparently attempted to translate their definitions into appropriate, validated tools for measuring the process (Chaston et. al., 2001, p. 143).
It could be argued that universities are organizations of learning, but as noted above, proponents of learning organization theory recommend that universities become learning organizations for the benefit of their own members (Tierney, 1999). Birnbaum’s research and findings on university structural types emphasize the power of structure and external mechanisms for governance. This is illustrated in his comment that people develop different “kinds of loops and cause maps” according to the subsystem they belong to (1988, p. 55). Leaders internalize their cause maps, but may act according to the learning in a particular organizational setting. Since these mental models or “cause maps” impact the view of the university and the behavior of the individual, it is critical for leaders to “become aware of the elements and relationships that form our cause maps” and “permits us in new institutions to recognize the need to unlearn previous maps” (p. 55). While the mental models may be inaccurate, incomplete, specific to one organization, or faulty, being aware of these tacit pictures in one’s head can lead to new ways of thinking and acting (Senge, 2000).

Martin (1999) and the Astins (1999) have written about their studies conducted on university systems. Martin specifically focuses on “developing the learning university.” Astin and Astin address the gap between organizational expectations of faculty versus the reality of the way work actually gets done, focusing on the individual’s “sense of self, sense of mission, purpose in life, and the personal meaning that one makes out of one’s work” (p. 1).

Martin (1999) uses Senge’s (1990) model of the learning organization and contrasts academic staff views, leaders and nonleaders, and student learning literature in
analyzing university problems. She uses four case studies on real problems encountered in university settings. The need to attract new research grants and students, the redevelopment of an undergraduate course, the development of a performance management strategy, and the development of a quality assurance strategy for teaching, research, and service were the real issues posed for this study (p. 15).

Martin (1999) draws on case studies of how university staff have experienced changes in academic work in recent years. Data were taken from an international survey of 160 staff members from the United Kingdom and Australia in 1996-97. The staff were found to feel undervalued in teaching, their universities lacking in vision and direction, resentful of the demands of accountability, and the lack of acknowledgment of their value as professionals and individuals. They also felt discouraged by the lack of collegiality and collaboration. Martin provides one telling quote by a university lecturer to illustrate the despair of today’s faculty and is stated as such, “I gave to my work what I should have given to my family. I now have no family... and I soon may have no job” (p. 4). While universities promote themselves as more efficient and provide more accountability, many faculty are disillusioned and do not feel prepared to handle the new demands. The new values and practices of universities are often incongruent with reality and history of today’s faculty (p. 5).

Learning is essential for academia and yet difficult for academics themselves and not supported by the universities. They tend to obstruct learning rather than enhance it, and Martin points out that “contemporary staff” must take responsibility for “their own learning and development” (p. 5). Martin, an academic herself, admits that faculty have
been demoralized and have experienced painful realities and work conditions that give
cause for anger. She quotes Ghandi who said, “we must be the change we wish to see in
the world” (p. 5).

The participants were contacted via telephone or e-mail and were drawn from
three areas of the university—leadership, senior and mid-level, and non-leadership. The
dominant themes of concern from the participants were consultation issues,
accountability, vision, and valuing people including the lack or excess thereof. The lack
of vision and increased demands is taking its toll on the people themselves in the
excessive number of hours worked, broken families, and ill health.

Seventy-seven percent of leaders and 88% of non-leaders felt they were not
valued. They expressed despair, lack of empowerment and disbelief in the unrealistic
demands being made on the people in universities. The most troubling and most often
mentioned complaint was the growing lack of morale in most universities (Martin, 1999).
Martin’s contention is that the learning organization literature’s aim is to help people
work with rather than against the system.

Astin and Astin (1999) interviewed 200 faculty members in four colleges about
their productivity. Performance reviews rarely evaluate the work experience in its
entirety and in fact demonstrated a lack of a holistic understanding of system demands on
one level of that system. Work may include preparing lectures, maintaining office hours,
grading exams and papers, advising and mentoring students, writing letters of
recommendation for students, developing new courses, reading to stay current in one’s
field, writing grants, serving as an informal consultant, serving on committees, preparing
written reviews of other faculty members locally or nationally, reviewing manuscripts for peer-review journals, serving in various roles for professional associations, and miscellaneous administrative duties within one's own department or institution.

Astin and Astin (1999) make it clear that quality is being compromised due to the lack of understanding about the realities of academic life. It can be professional or personal and is supported by their recent study that found faculty members do not feel they have enough time to meet all of their professional and personal responsibilities.

The Astins' (1999) study implies a disturbing image of reality in the way academic work gets done. This is one critical component for becoming a learning organization—defining reality. Defining reality in reference to the way the work gets done can be used as creative tension to move individuals and an organization toward a mutually, created, and desired future based on vision. The learning organization process enhances personal development/mastery, the development of a collective organizational vision, the development of mechanisms for dialogue, discovery, and decision making, the team collaborative approach, and empowers members to create the organization and future of choice (Senge, 1990).

According to Astin and Astin (1999), there is little empirical evidence of what conditions and individual qualities are conducive to best performance and learning without compromising quality. In their study, participants comments were most telling: "... I feel like I'm doing a half-assed job of everything because I don't have enough time to do anything properly and I'm a perfectionist (p. 19), or "until this January I worked almost every night and every weekend. Last year I took three weekends that I did not
work on academic stuff the entire year. That's how it's been, and I just can't do it any more. Inside me I can't, I'm dried up. I'm exhausted... I think being a teacher shouldn't preclude having a life (pp. 18-19).

Amabile (telephone conversation, spring, 1998), a researcher at Harvard, indicated that her study on maximizing creativity in organizations had implications for universities attempting to improve their change processes and impact productivity. She saw a connection between her work on creativity and the learning organization/organization learning research. She created a comprehensive model identifying individual characteristics, organizational conditions, and the systemic dynamics that optimized individual creativity and, ultimately, successful organizational innovation. Her research on creativity (1988) broke new ground in focusing on the process of creativity from the individual and organizational perspective, also tacit in many cases. Her work contributed to collaborative efforts between the individual and organization in creating the most positive environment for creativity, having identified the essential components for creativity within an organizational system.

The three following dissertations demonstrate the attempt to study learning organization theory and application in universities (Chiu 2000, Greene 2000, and Stewart 1997). Although each of the studies contributes to the learning organization literature, the researcher did not find any that offered a conceptual model of the university as a learning organization or a study that presented leaders' mental models of the whole system from a systems perspective.
Greene (2000) did a comparative analysis of two schools to determine whether or not “organizations of learning” were operating as true “learning organizations” (2000, p. 7). A second purpose was to develop an instrument to evaluate an organization’s culture utilizing specific criteria that identified “the existence of dysfunctional, addictive or co-dependent behaviors which prevent the organization from truly operating as a learning organization” (p. 10). She describes the study as “causal-comparative” and stated that “possible cause-and-effect relationships were investigated through data collected after the events of interest had occurred” (p. 14).

Greene’s survey (2000) was developed to do two things, measure whether or not an organization of learning was in fact a learning organization by measuring the frequency of responses to the behavioral criteria (developed by Greene), and to measure the frequency of dysfunctional behaviors that inhibited the organization from becoming a learning organization. The sample size was 360 and included principals, vice principals, and teachers. A survey was administered to measure the existence of certain behaviors that enabled members of the schools to operate as a true learning organization and addictive or co-dependent behaviors that prevented the members from acting in accordance with behaviors exhibited in a learning organization (p. 49). The results were confusing and she recommended that “this study could support the literature about ‘Learning Organizations’ with the 70% criteria, but could not demonstrate the cultural aspects of organizations defined within the literature” (p. 111). Her final recommendation was for educators to create capacity to “truly assess ‘Education in a New Era’” by creating an environment for dialogue and reflective practice. While her
literature review analyzes the components of a learning organization, culture, and the impact of addictive behaviors in organizations, it left the reader confused about behaviors that demonstrate a learning organization and those that are considered addictive. She seemed to tie the two bodies of literature on learning organizations and addictive organizations together and make assumptions about the significance of criteria identified as supporting or inhibiting. An instrument was created, but without the mechanism for creating a model for testing.

Chiu (2000) conducted a case study of one college, Jen-Te. The purpose was to develop a template for change in preparation for 2010. One of the criterion for change was the “learning” climate and is described using Senge’s learning organization disciplines and philosophy. They found that today’s realities are forcing change to the traditional way of doing business. The participants mentioned restructuring, reinvesting, and reengineering strategies of change based on private sector and global influences. They put forth a mission to “deliver higher-quality service at less cost to better-satisfied stakeholders, amid conditions of stringency and change” (p. iii). Chiu considered this study beneficial for any institution world-wide seeking a template for change in the twenty-first century.

Stewart (1997) investigated future scenarios of higher education systems as learning organizations. Using organization theory, knowledge-based education, and technology support systems, she developed simulated computer models. The models were built from qualitative data and then adapted for quantitative measurement. Her contention was that new models of higher education systems need to be developed to look
at future possibilities of what she stated as, “what could be” (p. 11). The limitation was that it was a model and not one that was built using a real system.

In summary, issues around understanding system dynamics that enhance performance and, in Amabile’s case, creativity, or dynamics that created desperation and barriers to actualizing one’s potential have been identified. Martin (1999) makes a case for the ideal behaviors that would appear to be present in a learning organization, but fails to provide a clear picture of what that means for the system and its members. Astin and Astin’s study (1999) emphasizes the discrepancies between ideal and the actual way work gets done. First, the amount of work is subject to interpretation and measured on a limited basis, providing a “snapshot” of a certain type of performance, but leaving out the picture of the whole and the impact of the perceived system’s impact on the individual. Amabile (1988) provided support for the need to look at processes from a holistic perspective and as a dynamic connected process, not as components isolated and independent of one another. The individual and organization interact with one another in complex ways, and Amabile was able to create a multidimensional model that demonstrated the creative process for the individual, the organization, and the creativity process; and integrate them so that the environment enabled individuals to be their most creative.

Three dissertations discussed define learning organizations, take aspects of the learning organization principles, and attempt to study the theory by measuring behavior only (Greene, 2000), or by creating a template for change using learning as a criterion (Chiu, 2000), or by creating simulations for future scenarios using the learning
organization concepts (Stewart, 1997). Each of these individuals have contributed to understanding aspects of what it takes to create a learning organization environment or orientation, but did not provide a comprehensive, systems approach in looking at how a university might compare to a conceptual model of the university as a learning organization.

Senge (Senge, conversation, June 2001) was very adamant that the disciplines be practiced and developed as an ensemble as they impact one another and should not be treated as templates or gimmicks, and that the systems perspective was crucial to a shift in thinking about one’s self and world view. The ability to incorporate the five disciplines into one’s daily practice provides deeper understanding of complex, invisible patterns and connections, and sheds light on one’s own impact on creating the future of choice.

Model

The model of the university as a learning organization was developed from the literature using Senge’s five disciplines (1990), the three levels of each discipline represented graphically as pyramids, Vinton’s suggestion of a circular model, Carroll’s suggestion (June, 2001) of the need to address outcomes in the model, and from guiding definitions in The Fifth Discipline Fieldbook (1994) created by Roberts, Ross, and Kleiner. The process and instrument used in the book will be discussed in detail in Chapter 3. Briefly, typical behaviors or characteristics of people in a learning organization noted in their work with other organizations included the following:
1. People feel they're doing something that has meaning to them and the world.

2. Individuals are growing, building their capacity to create.

3. People tend to be more intelligent or creative when working as a team towards a shared vision of the future.

4. The organization provides mechanisms for becoming aware of the tacit knowledge of its employees.

5. Leaders capture the visions of the different subsystems and weave them into shared visions. Visions emanate from all levels of the organizational system.

6. Members of the organization are encouraged to learn about every level of the organization and to understand how they impact one another.

7. There is an openness and acceptance of checking out assumptions and biases. All subjects are discussable.

8. People treat each other with respect and as colleagues. Regardless of position, there is a mutual trust in talking and working together.

9. People feel free to innovate, create, and take risks. Evaluation and discussing the negative or positive outcomes is accepted and encouraged with an attitude of openness (Senge, 1994, p. 51).

In summary, the conceptual model evolved as a pie chart representing each of the disciplines on three levels: 1) essences or values, 2) principles or policies, and 3) practices (Senge, 1990). A fourth level was added to each discipline to represent outcomes one would expect if a university was a learning organization. See Chapter 3 for
the model and components.

**Methodology—The Qualitative Paradigm**

"Because mental models are usually tacit, existing below the level of awareness, they are often untested and unexamined. They are generally invisible to us—until we look for them" (Senge, 2000, p. 67).

A qualitative case study of MSU's system's leaders' mental models of the university system as it compared to a conceptual model of the university as a learning organization was conducted. University leaders or those members representative of each strata of MSU-Bozeman were interviewed using a set of questions based on the conceptual model of a university as a learning organization. Interviews were tape-recorded with permission and had a written component by the interviewee or the researcher in mapping out the model and connections—simple causal loops or linkages to capture the way the leader saw connections within the University.

The justification for studying leaders' mental models as they compare to a conceptual model of the university as a learning organization was guided by "Mental Models" in *Schools that Learn* (Senge, 2000). It is a temptation to begin with measuring outcomes, behaviors, or linkages that demonstrate "success" or "effectiveness" or "proof," but the researcher believed that a qualitative approach would provide critical information. This contention was based on theories about mental models, which led to the belief that the connections people make, the meanings that are assigned, the interpretations that are made, and the behaviors exhibited in work environments emanate from mental models which are often implicit and may not even be conscious to the leader.
It created the opportunity in this study of making the leaders' mental models explicit for analysis prior to measuring behaviors or outcomes. It had potential for dialogue, debate, and a role in creating system-wide policies and practices that work well for people in the university. For example, Chaston et al. criticize the fact that there is very little “empirical data in the academic literature to substantiate any claims about how and why organizational learning actually contributes towards enhancing organizational performance” (Senge, 2000). 

On a basic level, the problem, purpose, and question addressed in this dissertation were best studied using a qualitative design. Following Creswell's (1998) reasons for choosing qualitative methods, the researcher outlined the reasons for this choice:

1. The researcher asked individuals “what” questions to allow them to create the categories in response to the Senge’s exercise in “Defining Your Learning Organization,” which helps the participants analyze their own system and compare it to that of a learning organization.

2. Little has been done to explore comprehensively or from a systems perspective these issues from the inside out from the actual participants.

3. There needs to be a comprehensive, systems view of the Montana State University. Most people do not have time to study the system as a whole as the demands from their own job and level in the system are often overwhelming. The participants themselves need to tell the story. A closer look is needed from those within the system rather than from critics outside the system.
4. It is important to study this problem from a holistic perspective in a real setting.

5. The questions call for stories and experiences which lend richness and credibility to the findings that will emerge.

6. This type of study is possible in this setting to elicit extensive data to describe this system from an individual point of view, an overall systems perspective, and as a subsystem member.

7. World-wide there is interest and need to understand university systems as they experience the challenges and demands of diverse stakeholders.

8. Last is that the researcher became an active learner by listening and together interpreting the collective and individual responses to the posed problem from the participants/experts in the actual setting or context (p.17-18).

Lincoln and Guba (1985) devote a chapter each to establishing trustworthiness and the processing of qualitative data. In gauging whether a study is credible or to be trusted, the authors pose four questions that researchers should ask themselves. The first question deals with "truth value" and whether or not the findings reflect the truth contextually from the respondents. Second, applicability is evaluated. How do the findings apply to other contexts and respondents? Third, are the findings consistent, and could the study be replicated in similar circumstances and yield similar results? Fourth, has the researcher compensated for biases, motivations, interests, and personal perspectives to the degree that neutrality can be established in the final results (Lincoln & Guba, 1985).
Qualitative studies are appropriate when the question begs how or what. It makes sense when a topic needs to be explored and studied in more detail. It is important when studying individuals in their natural setting to understand the context as it relates to the problem. This problem was complex and was told in a literary style and also from the participants' point of view with the researcher in an active learner role Creswell (1998). These criteria make the qualitative approach a good fit for this study Creswell (1998).

In summary, the problem, purpose, and question for this study follow and were best studied using a qualitative approach. The problem was that there did not appear to be a conceptual model of a university as a learning organization and comparison to the current reality of a university. The purpose was to develop a conceptual model of a university as a learning organization using the literature and creating a refined model based on interviews with leaders of the Montana State University system that compared their mental models of current reality with the conceptual model. The question was how does a conceptual model of the university as a learning organization compare to the mental models university leaders have of the Montana State University system?
CHAPTER 3

DEVELOPMENT OF THE MODEL

The researcher developed the model over several years through analysis of the learning organization literature and in collaboration with Howard, Vinton, and Carroll’s constructive criticism (2000-2002). As stated in Chapter 2, the model of the university as a learning organization was developed from the literature using Senge’s five disciplines (1990), the three levels of each discipline represented graphically as pyramids, Vinton’s (fall 2002) suggestion of a circular model, Carroll’s (June, 2002) suggestion of the need to address outcomes in the model, and the guiding definitions in The Fifth Discipline Fieldbook (1994) created by Roberts, Ross, and Kleiner. The researcher created several prototypes and finally chose a pie chart model representing each of the disciplines and the three levels: 1) essences or values, 2) principles or policies, and 3) practices (Senge, 1990). A fourth level was added to each discipline to represent outcomes that could be expected if a university was a learning organization. The “pie” can be studied as a “whole” or by discipline or “segment of the pie” as a component that contributes to the whole process of being or becoming a learning organization (see Figure 2).
Figure 2

A CONCEPTUAL MODEL OF THE UNIVERSITY AS A LEARNING ORGANIZATION

The Five Disciplines of a Learning Organization
1. Systems Thinking
2. Personal Mastery
3. Shared Vision
4. Team Learning
5. Mental Models

- ESSENCE OR VALUE
- PRINCIPLE OR POLICIES
- PRACTICE
- OUTCOMES
Senge (1990) makes it clear that the disciplines are interrelated—one is not more important than another—and that they should be practiced as an ensemble for the full impact and true emergence of an “organization that learns.” Greene (2000) developed an instrument measuring attributes of schools that characterize a learning organization, but did not put forth a model that could be tested. This study provided a conceptual model of a university as a learning organization for testing and refinement.

Jay Forrester (Senge, 2000), Professor Emeritus at MIT, has studied systems dynamics since the 1950’s but did not focus on education and systems thinking until the 1980’s. He gives several excellent reasons for using systems models to foster understanding, change, and creativity:

1. Enhances effectiveness in understanding and interpreting complexities in our lives.
2. Makes explicit the assumptions and operating mental models of individuals within a collective community.
3. Assists the individual in unlearning mental models that are faulty, irrelevant, destructive, or erroneously based on past history.
4. Sheds light and may provide new insights based on visual representation of internal mental models.
5. Provides a model to be tested and designed on real observations and behavior.
6. Encourages clarity and consistency in articulating the assumptions and mental models to be critiqued or tested.
7. Develops tools for shaping one’s own future and analyzing other mental models put forth for public debate or inspection.

8. Creates potential for innovation and deeper analysis of problems and issues related to the individual and organization (Forrester, in Senge’s *Schools That Learn*, 2000, pp. 232-237).

In a telling quote, Beer (1994) says,

...everything we know in psychology about perception, pattern recognition, and ‘in general’ awareness of the state of affairs, says that we should try to reach our judgements in terms of the state of affairs, says that we should try to reach our judgements in terms of relative size and shape, relative colour, relative movement. When we draw graphs and histograms we pay attention to the first of these desiderata—but even then, having reached the judgement as a matter of fact, we hasten to make it look ‘respectable’ by quoting rows of digits. But our control centre would leave the handling of digits where this kind of work belongs: inside the computer. Managers would be trained to deal with other kinds of display, essentially graphic, but depending profoundly on relative movement—a mode of communication so very well understood in all biological spheres that it is well nigh incredible to find it not exploited in the sphere of human affairs (p.195).

Basically, using the brain and autonomic system as an analogy, he illustrates the usefulness of the visual model to analyze, study, compare patterns, responsiveness, connections, movement, and behavior of those within complex organizational systems.

Greene (2000) comes the closest to articulating an instrument, not a model, to measure the culture of two school districts and identifies behaviors that prevent a school from operating as a learning organization. She develops a survey based on Senge’s criteria for a learning organization along with criteria of addictive or dysfunctional behaviors. Her contention is that schools are held hostage by the community and nature
of education and that they are unable to have “learningful conversations” and create a future of choice, but rather are locked into dependency modes of behavior. Her purpose was to discover the extent to which schools or districts operated as learning organizations and to develop an instrument to identify behaviors that prevent them from operating as a learning organization. She chose a panel to analyze her survey before administering it based on the following criteria: 1) knowledge of learning organizations as defined by Senge, 2) knowledge of organizational culture as defined by Schein, 3) a practitioner of learning, and 4) a practitioner experienced in developing organizational surveys. While it did offer some insight into what characteristics a school as a learning organization might have or need to develop, it did not offer a conceptual model for testing.

The model developed for this study was created using the five disciplines, the pyramids with three levels for each discipline (Senge, 1990), and identification of behaviors that one would expect to see in a learning organization according to Ross, Roberts and Kleiner (Senge, 1994). The researcher, after having reviewed, journaled, reflected, and dialogued with Howard, Vinton, Carroll, and Dressler, created a circle with all five pyramids representing the disciplines and three levels. One more ring, “outcomes,” was added to the circle by the researcher and represents the mental model of the researcher on outcomes that would be expected if each discipline were valued, developed in principle or policy, and practiced.

The model can be utilized as a whole or studied collectively one component at a time. The circular model represents a pie. Each of the five disciplines serving as the criteria for the model and case study questionnaire can be viewed separately as a
component of the pie. Each component represents one of the learning organization disciplines, the three levels of that discipline, and outcomes one would expect if the discipline had been manifested in the organization. Senge describes each of the levels specifically. Level One at the center of the pie represents essence or value and means state of being or mastery of a discipline. Level Two represents principles or policies and means guiding ideas or insights. Level Three represents practices or “what you do” (Senge, 1990, pp. 373-375). Level Four represents outcomes or results one would expect if an organization was a learning organization. In this case, the university as an organization is being studied. What follows is an outline of each discipline and what one would expect to see in each of the levels if a university was a learning organization. The five disciplines and expectations for each level of manifestation in the organization, and in this case, a university, are listed in the following sections.

**Systems Thinking**

Essence or Value: System seen as a whole. Interconnectedness is recognized.

Principle or Policy: Structure and policy. Leverage is understood in dynamic complexity

Practice: System archetypes (patterns) are noted. System tools such as maps, causal loops, and simulations are used on a regular basis. The university system is mapped out showing the subsystems and perceived interconnections and linkages.

Outcomes: University members see the university as a system. University members can co-create the organization by using the learning organization tools to
understand the system complexity on a deeper level and can evolve recognizing short and long term impact.

**Personal Mastery**

Essence or Value: Generative. Connected to others.  

Principle or Policy: Personal vision is encouraged. Vision versus reality provides "creative tension," the gap between the two.  

Practice: Personal vision is articulated to oneself and/or others in writing and verbally. Creative tension is held between vision and reality. Choices reflect movement towards vision.  

Outcomes: University members are more productive in creating and sharing knowledge, which may include publications. Personal vision/shared vision is realized over time. Satisfaction and morale increase. Relationship and effectiveness with students increases. University members feel connected to each other and across boundaries between subsystems. Balance between personal and professional life evolves to a healthy balance.  

**Shared Vision**

Essence or Value: Commonality of purpose. Common direction/reason for being.  

Principle or Policy: Shared vision is developed system-wide, written and verbally communicated—hologram.  

Practice: Shared vision is written, visible, dynamic over time, and communicated
regularly. Shared vision is built upon the visions of many collectively and personally.

Outcomes: The shared vision is being realized and is re-evaluated and remains dynamic. The decisions, choices, and resources are evaluated and enacted according to the vision.

**Team Learning**

Essence or Value: Collective intelligence. Alignment.

Principle or Policy: Protocol is established for dialogue and discussion. Capacity is developed to recognize defensive routines.

Practice: Utilize the tools of dialogue versus discussion. Notice one’s own defensive routines. Suspend assumptions. Act as colleagues.

Outcomes: University members are open and forthcoming. Knowledge is shared and created not only individually, but collectively as well. Collaborative projects increase. Referrals and connections are enhanced between colleagues. Members co-create new ways of getting the work done in their particular area and are free to do so. Competitiveness, isolation, and control measures inherent in the system decrease over time. Students feel more connected and supported by the university and graduation rates increase.

**Mental Models**

Essence or Value: Seeks truth. Openness.
Practice: Practice making mental models explicit to oneself and/or others. Develop and use the tools of “left hand column,” leaps of abstraction, and questioning assumptions.

Outcomes: University members understand each other on a deeper level due to the practice of making mental models explicit. Problem solving and decisionmaking rely not only on data and crises but on visual maps, causal loop diagrams, simulations and understanding of the dynamic nature and impact of any decision (see Figures 3-7).

The five disciplines served as the criteria or basis for the interview questions and fall into the four levels—Senge’s three identified in the pyramid (1990) and the added outcome level. The five criteria reflect what one might find in a learning organization according to value or essence (desired state of being that emanates from the core of an individual and/or organization), policies or principles that reflect that value, manifestation of behaviors or practices in how the work gets done, and finally in outcomes or results. The questions based on the five disciplines were subdivided into two sets of questions. Set A was developed for the member of the organization who works inside the organization, such as a faculty member. Set B was developed for the member of the organization who works outside the organization, such as a Board of Regents member or legislator (Appendix C).
Figure 3

A CONCEPTUAL MODEL OF THE UNIVERSITY AS A LEARNING ORGANIZATION

The Five Disciplines of a Learning Organization

1. Systems Thinking
2. Personal Mastery
3. Shared Vision
4. Team Learning
5. Mental Models

- SYSTEMS THINKING

<table>
<thead>
<tr>
<th>Essence or Value</th>
<th>Principle or Policies</th>
<th>Practice</th>
<th>Outcomes</th>
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<tbody>
<tr>
<td>System seen as a whole.</td>
<td>Structure and policy.</td>
<td>System archetypes (patterns) are noted. System tools such as maps, casual loops, and simulations are used on a regular basis. The university system is mapped out showing the subsystems and perceived interconnections and linkages.</td>
<td>University members see the university as a system. University members can co-create the organization by using the LO tools to understand the system complexity on a deeper level and can evolve recognizing short and long term impact.</td>
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A CONCEPTUAL MODEL OF THE UNIVERSITY AS A LEARNING ORGANIZATION

The Five Disciplines of a Learning Organization

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- PERSONAL MASTERY

**Essence or Value**: Generative
- Connected to others

**Principle or Policies**: Personal vision is encouraged.
- Vision vs. reality provides “creative tension,” the gap between the two.

**Practice**: Personal vision is articulated to oneself and/or others in writing and verbally.

**Outcomes**: University members are more productive in creating and sharing knowledge, which may include publications. Personal vision/shared vision is realized over time. Satisfaction and morale increase. Relationship and effectiveness with students increases. University members feel connected to each other and across boundaries between subsystems. Balance between personal and professional life evolves to a healthy balance.
The Five Disciplines of a Learning Organization

1. Systems Thinking □ ESSENCE OR VALUE
2. Personal Mastery □ PRINCIPLE OR POLICIES
3. Shared Vision □ PRACTICE
4. Team Learning □ OUTCOMES
5. Mental Models

### SHARED VISION

**Essence or Value** □ Commonality of purpose.
- Common direction/reason for being.

**Principle or Policies** □ Shared vision is developed system-wide, written and verbally communicated - hologram.

**Practice** □ Shared vision is written, visible, dynamic over time, and communicated regularly. Shared vision is built upon the visions of many collectively and personally.

**Outcomes** □ The shared vision is being realized and is re-evaluated and remains dynamic.
- The decisions, choices, and resources are evaluated and enacted according to the vision.
Figure 6
A CONCEPTUAL MODEL OF THE UNIVERSITY AS A LEARNING ORGANIZATION

The Five Disciplines of a Learning Organization

<table>
<thead>
<tr>
<th></th>
<th>ESSENCE OR VALUE</th>
<th>PRINCIPLE OR POLICIES</th>
<th>PRACTICE</th>
<th>OUTCOMES</th>
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<tbody>
<tr>
<td>1.</td>
<td>Systems Thinking</td>
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<td>2.</td>
<td>Personal Mastery</td>
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<td>3.</td>
<td>Shared Vision</td>
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<td>4.</td>
<td>Team Learning</td>
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<td>5.</td>
<td>Mental Models</td>
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• TEAM LEARNING

Essence or Value
- Collective intelligence. Alignment

Principle or Policies
- Protocol is established for dialogue and discussion. Capacity is developed to recognize defensive routines.

Practice
- Utilize the tools of dialogue vs. discussion. Notice one's own defensive routines. Suspend assumptions. Act as colleagues.

Outcomes
- University members are open and forthcoming. Knowledge is shared and created not only individually but collectively as well. Collaborative projects increase. Referrals and connections are enhanced between colleagues. Members co-create new ways of getting work done in their particular area and are free to do so. Competitiveness, isolation, and control measures inherent in the system decrease over time. Students feel more connected and supported by the university and graduation rates increase.
The Five Disciplines of a Learning Organization

<table>
<thead>
<tr>
<th>Disciplines</th>
<th>Essence or Value</th>
<th>Principle or Policies</th>
<th>Practice</th>
<th>Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Systems Thinking</td>
<td>Seeks truth.</td>
<td>Protocol is established and systems tools developed in all members to recognize assumptions, leaps of abstraction, and the capacity to balance inquiry with advocacy.</td>
<td>Practice making mental models explicit to oneself and/or others. Develop and use the tools of “left hand column,” leaps of abstraction, and questioning assumptions.</td>
<td>University members understand each other on a deeper level due to the practice of making mental models explicit. Problem solving and decision making rely not only on data and crises but on visual maps, casual loop diagrams, simulations and understanding of the dynamic nature and impact of any decision.</td>
</tr>
</tbody>
</table>
The process of creating a learning organization is outlined below and is taken directly from The Fifth Discipline Fieldbook (1994) in its entirety:

“Defining Your Learning Organization” (Roberts, Ross, Kleiner)

Purpose: How do you know a learning organization when you run across it? And how do you measure your progress? You will get only limited usefulness from someone else’s definition of what you are trying to achieve. This exercise helps you create your own definition.

Step 1: ‘IF I HAD A LEARNING ORGANIZATION...’

Imagine that you are working in the learning organization you would like to build (or ‘quality,’ ‘ideal,’ or ‘great’ organization). Answer these questions:

a. What policies, events, or aspects of behavior in this new organization help it thrive and succeed?

b. How do people behave inside the organization? How do they interact with the outside world?

c. What are some of the differences between this ideal organization and the organization for which you work now?

Write brief answers in the present tense, as if you are in that organization now. (‘People eagerly come to work,’ not ‘People will come to work more eagerly.’) Be specific. Express the examples, images, possibilities, and details that cross your mind.

Step 2: Enhancing the Definition

You might like to know how other people have envisioned the learning organization. Take any definitions from this list that fit your image and add them (perhaps changing them in the process).

In a learning organization...

a. People feel they’re doing something that matters—to them personally and to the larger world.

b. Every individual in the organization is somehow stretching, growing, or enhancing his capacity to create.

c. People are more intelligent together than they are apart. If you want something really creative done, you ask a team to do it—instead of sending one person off to do it on his or her own.

d. The organization continually becomes more aware of its underlying knowledge base—particularly the store of tacit, unarticulated knowledge in
the hearts and minds of employees.

e. Visions of the direction of the enterprise emerge from all levels. The responsibility of top management is to manage the process whereby new emerging visions become shared visions.

f. Employees are invited to learn what is going on at every level of the organization, so they can understand how their actions influence others.

g. People feel free to inquire about each others’ (and their own) assumptions and biases. There are few (if any) sacred cows or undiscussable subjects.

h. People treat each other as colleagues. There’s a mutual respect and trust in the way they talk to each other, and work together, no matter what their positions may be.

i. People feel free to try experiments, take risks, and openly assess the results. No one is killed for making a mistake.

All together, between our list and your own, you may end up with a large list of characteristics. Make sure you have at least five. Number each of them so you can refer to them easily in the next step (this can be done by the researcher if done using the interview format or on a flip chart for the focus group format).

Step 3: ‘What would it bring me...?’ (Fifteen minutes or more)

One by one, consider each of your choices from Step 2: If my organization had these new features, what sort of things would happen as a result? What would it bring the organization? What would it bring you personally? As you answer this question, some elements will command your attention. Make note of these and spend most of your time with them.

Step 4: Picking and Refining the Top Five

Based on what happened in Step 3, choose the five characteristics which are the most compelling to you and your organization. Don’t worry about which characteristics seem plausible, or easy to achieve. (That comes later.) Try to include at least one or two elements that prompt you to think, “It feels right, but we could never do that here.”

Why five? The number is large enough to allow for a diverse image, but small enough that you can keep all the characteristics in mind. Take another look at your wording of each element. Rewrite or reword as necessary to make sure your phrasing fits the image as you see it.
Step 5: ‘What Stands in Our Way...’

Now what would you have to do to achieve each of these components of your vision? What barriers and obstacles would have to be overcome? For example, if you wrote: ‘People treat each other as colleagues,’ you may feel that, in your organization, the promotion system would have to be redesigned. What skills and new conceptions would you need to have to accomplish this? You may feel daunted by the difficulty of overcoming these barriers and obstacles. Nonetheless, write out a preliminary set of ideas. What stands in your way? Articulate each point here.

Step 6: ‘I'll Know We're Making Progress If...’

Now consider each of the five primary goals, and each of the obstacles you have described. Name one or more ‘indicators’ for each set. An indicator is a sign or symptom which, if it took place, would signal you that some progress had been made” (Senge, 1994, pp. 50-52).

The questions being addressed are how do the perceptions of the leaders of MSU-Bozeman compare to a conceptual model of a university as a learning organization? How do the values, policies, practices, and outcomes manifested in MSU-Bozeman compare to those identified in the conceptual model? Two sets of questions were developed. The two sets are similar, but are asked in different order depending on whether the interviewee is a member of this organization working inside the organization or a member working outside the organization. The interview protocol can be seen in its entirety in Chapter 4.

In conclusion, Carroll (2001) stated that studying a system cannot be done by focusing on individuals alone (phone conversation, October 2, 2001). It is imperative to analyze and describe the perceptions from many individuals representing the subsystems within the overall MSU campus system. While more studies are being conducted, the
researcher has not found a study that analyzes university systems using the learning organization theory and involving all levels of that system.
CHAPTER 4

METHODOLOGY

Current Understanding of the Problem

Colleges are at risk. States must finance health programs and other entitlements, and tend to treat higher-education appropriations as discretionary. "All of this adds up to a long-term structural problem" says Roger Benjamin, president of RAND's Council for Aid to Education (Healy, Chronicle of Higher Education, August, 1999, p. 1).

The researcher chose Montana State University (MSU) in Bozeman, Montana because it represents a public, land grant institution of higher education in transition due to external and internal forces and is accessible to this researcher.

The research design was a case study. The following features made the case study methodology appropriate for this study:

1. Montana State University-Bozeman qualifies as a bounded system (bound by time and place)—MSU was studied over a four- to six-month period and the place was confined to Montana State University (Bozeman). (The levels of the single campus system will be delineated further in Methodology.)

2. Data were collected using multiple sources to provide a detailed, in-depth description of the system according to different layers of the system—it created a whole picture of how the leaders of the university see the system in
68

comparison to a conceptual model of the university as a learning organization.

3. The context and details of the case will be described in full, first as a bounded system (confined to a set time period and place) and then according to the multiple data sources collected (the interviews, documents, and observations) (Creswell, 1998).

Analysis of the university was done by interviewing leaders from each strata of this system and included written policy documents. Interviews were conducted with selected Board of Regents members, legislators, the Commissioner of Higher Education, the University President, the Provost, Vice Provosts, deans, department heads, faculty, and staff.

The Problem

The problem addressed in this study is that it does not appear that a conceptual model of a university as a learning organization has been developed. A conceptual model developed for this study was refined using the case study of Montana State University-Bozeman leaders' perceptions of their system as compared to values, policies, practices, and outcomes one would expect in a university if it was a learning organization.

The Purpose

The purpose of this study was to develop a conceptual model of a university as a learning organization according to the literature and to conduct a case study of MSU-Bozeman leaders' perceptions of their system as it related to values, policies, practices,
and outcomes of the conceptual model of the university as a learning organization. The findings were then used to refine the conceptual model.

Site

Montana State University is not unlike other universities around the world facing new challenges and demands for change. The university was founded in 1893 as a land grant institution and called the Agricultural College of the State of Montana. Later “Mechanical Arts” was added to the name and became known as “MAC.” It became Montana State College in the 1920's and in 1965, “MSC” was renamed Montana State University by the 39th legislature (MSU Website, 2002).

There were 3,192 employees including graduate assistants in 2001. MSU employs 2,691 permanent faculty and staff, 501 graduate teaching assistants, and over 2,000 part-time students (MSU Website, 2002). Enrollment for fall 2001 was 11,745 students. Degrees awarded in 2000-2001 numbered 2,029; 1,672 bachelor’s degrees; 327 master’s; and 30 doctoral (MSU Website, 2002).

The “Vision Statement” published in March 2002 is as follows:

Montana State University will be the university of choice for those seeking a student-centered learning environment distinguished by innovation and discovery in a Rocky Mountain setting.

This section will give an overall perspective of the mission of the university, performance measurements, and general issues of concern to this university (MSU Website, 2002).
The “Mission Statement” follows:

1. To provide a challenging and richly diverse learning environment in which the entire university community is fully engaged in supporting student success.

2. To provide an environment that promotes exploration, discovery, and dissemination of new knowledge.

3. To provide a collegial environment for faculty and students in which discovery and learning are closely integrated and highly valued.

4. To serve the people and communities of Montana by sharing our expertise and collaborating with others to improve the lives and prosperity of Montanans.

Participants

The participants interviewed in this study included leaders from each of the subsystems of the MSU system. A case study was conducted in fall 2002 and spring 2003. Leaders of MSU (the President, Vice Presidents, Board of Regents, Montana legislators, deans, department heads, Faculty Council leadership, and Professional Council) were contacted for an interview. The “Conceptual Model” was used as a prototype to compare MSU to a learning organization.

Access and Participant Selection

The researcher contacted a cross-section of possible participants throughout this process on an informal basis (Smith journals, 2001, 2002). The researcher conducted a
small pilot study of faculty (Smith, 1999), interviewed four deans, a department head, and an administrator (Smith journals, 2001). Due to workload issues and time constraints, the researcher did one-on-one interviews with the Commissioner, the Regents, legislators, administrators, and faculty and staff. The preliminary interviews provided the researcher with avenues of access once the proposal was approved and the study began.

**Interview Protocol and Observations**

The interview protocol was taken from Creswell (1998, pp. 124-127). Six basic steps were outlined for conducting the interviews for this study. The first step involved identifying the sampling strategy to best answer the question or questions being addressed. Miles and Huberman in Creswell (1998) outline 16 purposeful sampling strategies (p. 123). Four of the 16 were by the researcher in selecting participants for the study. They were:

1. A stratified purposeful sample which illustrates the subgroups of a population and in this case, the subsystems of Montana State University.

2. Opportunities which allow for the unexpected and the flexibility to follow new leads when appropriate.

3. Combination or mixed sampling which adds to the triangulation of the study to verify the accuracy of perceptions, provides flexibility, and reflects the multiple perspectives and needs of complex groups or organizations.
4. Snowball sampling leaves open the possibility that connections during the interview process may lead to more in-depth and information-rich sources (pp. 119-120).

The second step was choosing the interview type. The one-on-one interview was chosen for the purposes of this study. Due to the complex nature of the topic, the conceptual model, and the need to capture individual leaders' perceptions of MSU-Bozeman compared to the conceptual model of a university as a learning organization, one-on-one interviews appeared to be the most useful approach. It also offered the researcher easier access and opportunity to interview leaders of the different subsystems which may or may not be located in the same geographical region (Creswell, 1998, p. 125). Third, the interview was taped by the researcher for accuracy. All interviews were transcribed by the researcher and confidentiality was maintained. Fourth, the location of the interviews was determined by the interviewee as many of them are spread throughout Montana. The researcher preferred to interview the participant privately in a natural setting that felt comfortable for the participant. Fifth, a consent to conduct the interview was signed by the participant prior to the interview and adhered to any regulations required by the Human Subjects Committee at Montana State University (see Appendix B). Sixth, the interview protocol was outlined in writing and utilized as a supplement to the taping of the interview. The interview protocol written form followed a summary of the steps required to develop the interview protocol.

In summary, four strategies were used for selecting the sample for the study. They were purposeful (selecting subgroups that best represent this system), opportunistic
(flexibility to follow new leads as deemed appropriate), mixed sampling adding to the triangulation of the study, and “snowball” sampling whereby connections lead the researcher to more in-depth and information-rich sources (Creswell, 1998).

The interviewee was contacted and was informed as follows: “I am studying the university as an organization and am trying to create a picture of how the different leaders’ perceptions compare on five different criteria. I have identified you as a leader and someone who could help me understand this organization. The areas of interest are: 1) personal development, 2) organizational or shared vision, 3) team work or collaboration, 4) how the organization is interrelated, and 5) a visual picture or mental map that will help me refine a model I have created based on one of the current organizational theories. I would like to tape the interview and would like you to sign an informed consent for your protection and our requirements to conduct research. Once this is completed, we will begin the interview by asking some demographic questions followed by five guiding questions in relation to the five criteria mentioned above. Do you have any questions before we start?” (See Appendix C for the survey instrument.)

Trustworthiness

The researcher taped all interviews, took notes, and had the tapes transcribed by a professional transcriptionist. The researcher listened to all of the tapes and compared them to the transcribed document. Once the document was complete, the participants were given a copy for review and corrections, defined as member checking (Creswell,
1998). Once this was done, the researcher reviewed the data for themes and began coding as documented in Data Analysis.

Triangulation is another way of verifying and ensuring trustworthiness. The researcher should always be asking, "do we have it right?" (Creswell, 1998, p. 213). The data provided by participants were confirmed by other sources, which included the investigator, theory, or methodologies. This confirmation by other sources, triangulation, verified that the researcher did "have it right."

An audit has been done on the completed study. See Appendix D for a Letter from the Auditor.

**Ethical Concerns**

The participants were asked to sign a Human Subjects Agreement required by the Human Subjects Committee headed by Mark Quinn at Montana State University. The study did not represent a threat or danger to the participants. The researcher offered references of credibility, honesty, and integrity and promised participants the utmost respect and confidentiality.

The researcher worked and studied in this setting, but did not feel that this would compromise any data collection due to two reasons. One, changes occurred over the past decade that include turnover and less familiarity with participants and the researcher was a student, not an administrator, faculty member, employee, or any representation of power or ability to use the findings in an unethical way.
Assumptions

Study, observations, and work in the university environment over the years has led to some assumptions about universities as an organization and as they impact their own members. They fall into three categories, perceptions about what it takes to succeed in an academic setting, organizational barriers, and individual barriers. One is that success in this environment requires “workaholic” type hours, personal sacrifice, and a lack of healthy balance in one’s life.

The second set of assumptions has to do with perceived organizational impact on the way the work gets done, on how change is managed, and on the individuals within the organization. First, it is assumed that the organizational structure, politics, and culture act as barriers to change. Second, the job description or contract rarely encompasses in reality all that is required to do one’s best job. Third, the rewards and incentives are often not congruent with the mission and written expectations. Fourth, faculty are often forced to compromise their standards, accept unhealthy performance demands, and sacrifice self esteem to survive in local departments with little choice but to leave. This seems to translate into a feeling of helplessness or powerlessness to change one’s work environment or to create one that maximizes the potential of its members.

The third set has to do with individual barriers or mental models that prevented members from proactively creating a work environment that enhances their own performance, satisfaction, or potential. Most people don’t believe they can have what they want in their work environment—creating a desired future is foreign to many and stems from personal belief systems (Senge, 1990, p. 156). Making these explicit allowed
the researcher to approach this environment with a clean slate and openness to learning from the participants without bias from the researcher’s assumptions.

Limitations/Delimitations

The limitations on this study include access and availability of key leaders in this system. The leaders of a large complex system are spread out geographically throughout Montana. The number of interviews were determined by the methodology, but were limited in number due to time constraints of the participants and the deadlines mandated by MSU Department of Graduate Studies.

The timeline was a delimitation. Ideally, it would be preferable to take several years to conduct the study, but was not reasonable for this student and the timely completion of the doctorate degree. The study took place in the spring semester, 2003. The nature of the study was a basic foundation to further study in this area. The results reflected the perceptions and reality of the participants only. Generalizations are not possible in qualitative research. The research described and analyzed based on the interpretation of the participants, but did not include any suggestion of causality or absolute assurance of relationship between any variables. That is beyond the scope of the study.

Data Analysis

Analysis began with a detailed description of the case and the setting. Four forms of data analyses were used for the case study method (categorical aggregation, direct interpretation, pattern identification, and naturalistic generalizations for the specific
population). Each interview was recorded in field notes by the researcher at the time of the interview, taped, and transcribed. All interviews were written up in two journals and each participant was given an identification number. The written up interview was then photocopied, divided into the five question categories and pasted in a journal for each of the five questions. The five journals were labeled as follows: 1) Systems Thinking, 2) Personal Mastery, 3) Organizational or Shared Vision, 4) Team Learning, and 5) Mental Models. Each journal was analyzed for themes and patterns in relation to each category. The findings were then compared to the conceptual model of the university as a learning organization. The model was then refined according to the case study findings. The results are reported in Chapter 5 and the refined model can be found in Chapter 6.
...human actions are also systems and, whether we intend or not, they are bound by the ‘invisible fabric’ of interrelated actions. Because we are part of the pattern ourselves, it is hard to step back and see the whole pattern. You can only understand the system of a rainstorm by contemplating the whole, not any individual part of the pattern (Senge, 1992, p. 6).

Introduction

A growing body of literature on organizations suggests the need for a more holistic approach for leadership and management of the university as an organization (Senge, 2000; Tierney, 1999; Wheatley, 1999; Palmer, 1997; Schein, 1999; Martin, 2001; Greene, 1999; Stewart, 1999; Scott, 2000; and Aubrey & Scott, 1998). One of the current theories being proposed by some scholars (Senge, 1990 & 2000; Martin, 2001; Tierney, 1999; and Aubrey & Scott, 2000) as an organizational model for evolutionary change and response to crisis is the learning organization model developed by Senge (1990). While the model of a learning organization exists in literature for organizations in general, there are no models of the university as a learning organization to test for relevance in higher education.

Therefore, the purpose of this study was two-fold: 1) to develop a testable conceptual model of a university as a learning organization based on the literature, and 2)
to conduct a case study of Montana State University as a learning organization and, based on the findings, refine the model. This case study was a vehicle to better understand the relevance of a conceptual model for universities and higher education in general.

The interview protocol focused on two main questions: 1) how does Montana State University-Bozeman as perceived by its leaders compare to a conceptual model of a university as a learning organization, and 2) how do the core values, policies, practices, and outcomes of MSU-Bozeman compare to those one would expect to find in a learning organization as outlined in the conceptual model of the university as a learning organization?

**Development of the Conceptual Model of a University as a Learning Organization**

Senge’s (1990) five disciplines served as the criteria for the model and case study interview protocol. A circular model was developed by the researcher as a tool to study the university as a learning organization. The five disciplines or “pie pieces” represent components of the whole and reflect four levels. Senge’s (1990) model included the first three levels: 1) essence or value (state of being or mastery of a discipline) as the core or center of the circle, 2) principles or policies (guiding ideas or insights), and 3) practices (“what you do”) (pp. 375-376). A fourth level, outcomes (results one would expect if an organization was a learning organization), was added to the model for the purposes of this study as a result of a conversation with Dr. John Carroll (SoL Annual Meeting, 2002), who suggested that any study done of a university as a learning organization should include expected outcomes. The five disciplines and four levels are described in detail in
Chapter 4.

The Case Study - MSU-Bozeman

“My desire is to create a healthier organization, an organization that has a healthy sense of itself” (February 2003, Participant).

Twenty-five leaders representing components of the Montana State University-Bozeman (MSU-B) campus were interviewed in January, February, and March 2003. The interviews lasted from 30 to 90 minutes, with most taking 50 to 60 minutes.

The MSU-Bozeman campus is located in the southwestern part of Montana in the Rocky Mountains. It is a land grant institution that was founded in 1893. MSU-Bozeman became one of two “umbrella universities” for the Montana University System when the Board of Regents restructured the State’s university system in 1994. MSU-Bozeman is the home campus for Montana State University. There are three affiliate campuses: 1) MSU-Billings, 2) MSU- Northern (Havre), and 3) MSU-Great Falls College of Technology. Chancellors of the three affiliate campuses report to the President of MSU-Bozeman (MSU-Bozeman Website, March 2003).

In 2000, there was a leadership change after the sudden death of then President Mike Malone. An interim President was appointed and the senior administration stepped up to the task of maintaining the operations of the university. During that time, a search began for a new President, and by December 2000, Dr. Geoff Gamble had been chosen to become MSU-Bozeman’s new President.

Dr. Gamble “started from scratch” the University Planning and Budgeting Analysis Committee (UPBAC). One participant said that UPBAC was “intended to be a
specific kind of protocol that would allow structure through which a lot of people could comment, not only on budgeting process, but also on the strategic planning process from which mission and vision statement and initiatives have come and that committee is large and broadly representative…” The purpose of this committee is to “guide and coordinate the University’s annual planning and budgeting process, and provide the President by the end of May each year a balanced budget plan and related proposals and reports for the upcoming fiscal year,” UPBAC meetings are open to the public (MSU-Bozeman Website, March 2003).

Two new performance review processes were implemented, one for senior administration and one for staff. The 360-review process, which allows constructive feedback from one’s colleagues or subordinates, was conducted for all administrators. The Montana Achievement Program (MAP) was instituted one year ago for staff and helped create a set of goals and a timeline for periodic reviews, with direct participation by the staff member.

Another change was that the Office of Planning and Analysis (OPA) (formerly known as Office of Institutional Research) was created in February 2002 and moved from the Provost’s office to the President’s office. The Executive Director became a member of the President’s Executive Committee with the President’s expectation that “The University will engage in an open, data-rich, budget development process that is directly linked to the maintenance of a long range plan, the identification of specific strategic priorities, and a detailed assessment of resource allocation outcomes” (MSU-Bozeman Website, March 9, 2003).
A new vision and mission statement was collaboratively created and written for the organization with the expectation that the members of the organization would use that as a guide to create unit visions in alignment with that of the organization. The Vision Statement and Mission Statement are featured on the MSU-Bozeman’s Website (March 2003) and are as follows:

**Vision Statement:**

Montana State University will be the University of Choice for those seeking a student-centered learning environment distinguished by innovation and discovery in a Rocky Mountain setting.

**Mission Statement:**

- To provide a challenging and richly diverse learning environment in which the entire university community is fully engaged in supporting student success.
- To provide an environment that promotes the exploration, discovery, and dissemination of new knowledge.
- To provide a collegial environment for faculty and students in which discovery and learning are closely integrated and highly valued.
- To serve the people and communities of Montana by sharing our expertise and collaborating with others to improve the lives and prosperity of Montanans.

In accomplishing our mission, we remain committed to the wise stewardship of resources through meaningful assessment and public accountability (MSU-Bozeman Website, March 9, 2003).

MSU-Bozeman has been accredited since 1932 by the Northwest Accreditation Association of Colleges and Schools, and offers undergraduate degrees in 51 different fields. Master’s degrees can be obtained in 40 fields while doctorates are offered in 14 fields. Education also offers the “specialist degree.” Enrollment for Fall 2002 was 11,934 students (MSU-Bozeman Website, March 9, 2003). MSU-Bozeman employs 2,815 permanent faculty and staff according to statistics reported in Fall 2002 (MSU-Bozeman Website, March 9, 2003).
MSU Bozeman’s Organizational Structure

MSU-Bozeman’s organizational structure and governance is set forth in the state’s constitution. In Article X, Section 9 of the Constitution of Montana, it reads:

Board of Regents

(2)(a) The government and control of the Montana University System is vested in a board of regents of higher education which shall have full power, responsibility, and authority to supervise, coordinate, manage and control the Montana University System and shall supervise and coordinate other public educational institutions assigned by law.

The board consists of seven members appointed by the governor, and confirmed by the senate, to overlapping terms, as provided by law. The governor and superintendent of public instruction are ex-officio non-voting members of the board.

The board shall appoint a commissioner of higher education and prescribe his term and duties.

The appropriations under the control of the board of regents are subject to the same audit provisions as are all other state funds” (Article X, Section 9 Reprint, no date).

In May 2002, the Montana Board of Regents adopted a “Resolution Regarding the Respective Role of the Board of Regents and University System Managers” (Attachment 1, Board of Regents Meeting, May 22, 2002). The Montana Board of Regents adopted ten management statements and principles, which reflected the current operating philosophy. The fifth statement included a section in bold and read as:

Academic governance in the United States is built on the principle that governing boards exercise their functions with and through the chief executive and his or her management team (Attachment 1, May 22, 2002).
The Participants

The participants were purposively chosen to represent the levels of MSU-Bozeman governance and management. They were represented by the following: Governor’s office - 1, Board of Regents - 2, Legislators - 1, Office of the Commissioner on Higher Education - 1, President - 1, Vice Presidents - 4, Deans - 8, Executive Directors - 2, Directors - 1, Department Heads - 1, Faculty - 2, and Staff/Classified Personnel - 1. The distribution was based on broad-based representation of as many levels of the University as possible.

There were 25 participants between the ages of 36 and 67. Twenty-one of the participants were male, and four of the participants were female. The participants’ involvement with MSU-Bozeman ranged from less than a year to over 30 years. Many of the participants had experience in a number of positions throughout higher education in Montana or prior to coming to MSU-Bozeman.

All participants were contacted by phone initially to secure their permission to set up an interview. The participants were sent a compressed e-mail version of the questionnaire, which included a description of the study upon request. After the first interview, the interviewee suggested that the researcher send the preview of the questions prior to the interview for every participant. The researcher made this adjustment to the interview process.
Interview Procedure

Each interview was conducted one-on-one in the location chosen by the participant. In most cases, they were done in the individual offices of each leader. Five requested that the interviews be done over the phone due to time constraints. The 20 face-to-face interviews were tape-recorded.

Analysis

All 25 interviews were handwritten in two journals labeled “Interview Write-Ups.” A professional transcriptionist transcribed the interview tapes. She provided hard copies for the participants and researcher, an electronic copy for the researcher, and returned all tapes to the researcher. The transcripts were sent to each participant for review. Notes taken during the phone interviews were recorded in journals by the researcher, typed, and sent to those participants for their review. Field notes, transcriptions, and write-ups were assigned a designated number and stored in labeled binders. Each interview was photocopied, disaggregated according to the five disciplines and pasted into journals labeled: 1) Systems Thinking, 2) Personal Mastery, 3) Organizational Vision, 4) Team Learning, and 5) Mental Models.

The Findings

Systems Thinking

…it’s primarily because I am an employee of the institution — that would be the primary connection (Participant, 2003).
The study provided support for the systems thinking discipline on all four levels in the conceptual model. A summary of the comparison of the findings and the conceptual model are shown in Table 1 below. In the sections following the table, data that supports these findings are presented.

**Table 1**

**Conceptual Model - Systems Thinking**

<table>
<thead>
<tr>
<th><strong>Essence or Value</strong></th>
<th><strong>Case Study Findings</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>System seen as a whole. Interconnectedness is recognized.</td>
<td>The participants all mentioned connection as critical to their jobs, “driving point of the work” or “all about connection.” The majority acknowledged the system as a whole as demonstrated in their graphic or metaphorical descriptions of the organization from the individual participant’s point of reference.</td>
</tr>
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<thead>
<tr>
<th><strong>Principle or Policy</strong></th>
<th><strong>Case Study Findings</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Structure and policy. Leverage is understood in dynamic complexity.</td>
<td>Organizational charts, committees, informal connections, and communication patterns were recognized by the participants as structures or policies in place reflecting the systems thinking value.</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th><strong>Practice</strong></th>
<th><strong>Case Study Findings</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>System archetypes (patterns) are noted. System tools such as maps, causal loops, and simulations are used on a regular basis. The university system is mapped out showing the subsystems and perceived interconnections and linkages.</td>
<td>It depended on the position, use of data, and capacity to reflect. The interconnections, formal and informal, were acknowledged and demonstrated in the majority of the graphic or metaphorical descriptions of the organization. The use of system tools was demonstrated by 11 out of 24 participants mostly related to discipline or field such as physics or engineering.</td>
</tr>
</tbody>
</table>
Outcomes
University members see the university as a system. University members can co-create the organization by using the learning organization tools to understand the system complexity on a deeper level and can evolve recognizing short- and long-term impact.

The questionnaire itself served as a tool of self and organizational analysis. Twenty out of 24 of the participants had tacit understanding of the organizational system and its complexity and the perceived ability to enact the organizational vision and get desired results.

Essence or Value. Two themes in the data supported the existence of the essence or value of systems thinking in this organization. The first one was that the majority of participants felt connected to the organization through their position. In one Dean’s words, “University Dean reports directly to the Provost and is a part of the organization chart just as plain and simple as you could possibly imagine. It’s just a straight line reporting responsibility.” Some participants defined their connection in terms of roles, such as “ambassador, advocate, problem solver, bank, decisionmaker, or supporter.” In other cases, it was a commitment to the new vision for the university as illustrated in this comment, “...more specifically, the way I see myself directly connected to MSU-Bozeman is that my commitment to serving in this President’s cabinet and fulfilling his vision, and the vision for the university and his organizational style.”

Second, the pictures, metaphors, and words used to describe the organization reflected a systems thinking perspective—the capacity to see the whole in addition to the parts. The connection to the organization was described using images of circles, spider webs, organizational charts, metaphors, and ideologies. These patterns or images generally represented three types of organizational structure: 1) the traditional organizational structure of a hierarchical organizational chart, 2) relationship-oriented
networks reflecting the dynamic processes of the organization, or 3) a coexistence of both the traditional and relational organizational structures.

**Principles or Policies.** The presidential leadership change and committee structures were the most often mentioned principles or policies in place, impacting not only systems thinking, but all five disciplines. Both of these were reflected in one participant’s comments, “...this is specific to Geoff Gamble and Dave Dooley, the founding of the University Budget and Planning Committee was intended to be a specific kind of protocol that would allow a structure through which a lot of people could comment, not only on the budgeting process, but also on the strategic planning process from which mission and vision initiatives have come, and that committee is large and broadly representative, it meets regularly, it developed over the last three years a pretty good system of filtering information...”

The leadership change, in particular, was perceived to have impact on organizational culture and individuals’ feeling of empowerment. This is demonstrated in the comments of one participant, “Geoff is revolutionizing a culture change, spends time talking with...all levels—value given to each person no matter the role or position—an attempt or appearance of a flatter organization—is making and spending time with different parts of campus bringing them into the larger circles.” Providing empowerment to individuals was acknowledged to be more prevalent or “much more so than in the previous administration,” which in one participant’s words gave people “a lot of freedom to do creative kinds of things.”
Practices. Practice of this discipline was primarily demonstrated through the roles the participants assumed via their position and enacted in the committee structure. Many participants viewed their role as “primarily a facilitator.” One participant said, “I often, glibly, tell people I spend most of my day ‘P’ing, dealing with philosophy, physical plant, philanthropy, politics, personnel, planning, all those ‘P’ words.”

The University Planning and Budgeting Analysis Committee (UPBAC) and Strategic Planning Committee were mentioned most often as the most representative and influential in terms of creating and enacting the organizational vision supported by data based decisions and the budget. These committees provided an interface with the Dean’s Council, the Faculty Council, the Classified Employee Personnel Advisory Committee (CEPAC), the Executive Council, and other segments of the university via subcommittees, one-on-one dialogues, and through reporting relationships. As an example for one faculty member, “but it’s not just by communication, it’s also been enacted because he (President) meets with Faculty Council.”

UPBAC was perceived by some to be the “most powerful on the campus” due to the fact that “they control the money.” More importantly, it was suggested that this committee was instrumental to the new leadership style and participatory governance, which fostered inclusiveness and broader organizational representation. This was illustrated in the following comments: “we extended the application of what you would call participatory governance to a much broader range of decisionmaking activities throughout campus than we ever had before. It first started with UPBAC—that is probably what made me feel like staying here—was going to work for me” and simply, “...in terms
of a representative body, UPBAC is it. It's a nice structure, quite frankly. It's one that is pretty inclusive and it's forcing the campus to do right.”

**Outcomes.** Outcomes demonstrating a systems thinking perspective were: 1) the participative governance strategies being enacted to create a new organizational culture, 2) the use of data and feedback to “close the loops” and improve individual and organizational performance, and 3) tangible and intangible results as perceived by the participants. In regard to the culture change, one participant said it best, “I think it’s critical that a college and an institution have that kind of faith in the inclusive kind of planning process, inclusive beyond the borders of the institution, that establishes a base to determine who you are, what you are, and what you want to be in the future...the kind of process you select, and that is molding a culture. A culture that encourages the college to deal with its own issues, and to do it in an inclusive and participative fashion...the process that you select to conduct the strategic planning really influences the culture that you’re trying to put in place for a college.”

Second, the use of data and feedback processes are being utilized for improvement of individuals and the organization. According to one participant, “All the decisions we are making right now, at Dr. Gamble’s request, are based on data. We don’t want it based on guesses or our gut feelings, we want to know what shows in the data. So I’m spending more time than probably I would have even three, well two years ago, I’m spending time with the folks in Institutional Research getting the data they have...”

In terms of feedback, one participant said it best, “...the one thing we haven’t talked about is closing the loop, feedback...Since we’re looking for information, we’re
looking for data, so you can go to the departments and ask them to give them data, but when you bring it back in, the first thing you need to do is look at it and make use of it. Then, after you make use of it, how do you get some feedback to the departments about making, closing the loop, making things better?” This person went on to explain how feedback was being used for individuals in the following comment, “is to identify in your leadership capabilities, are there areas, and there will undoubtedly be areas for all of us, where we could do things differently and maybe make things better.”

Outcomes were described as tangible and intangible. For example, “For the first time ever, and this is one of our major accomplishments, faculty get raises when they get promoted.” Other tangible results included hiring new faculty or employees, meeting enrollment targets, grant or private funding maintenance and/or awards, providing greater access to technology and data, and increased numbers of programs, and graduate numbers. Intangible included statements about feeling energized by the new leadership and vision, improved morale and a greater sense of empowerment.

Evidence that Did Not Support the Systems Thinking Discipline. There were three themes that emerged to suggest barriers to a systems thinking discipline in the university. The first one was the fact that initially, many of the participants discussed student success in terms of function separate from the connection to the organizational culture and climate for members of the university. The second one appeared to be a lack of capacity of some levels to see the whole organization and the interconnections. The third theme suggested indirectly that faculty were not socialized or educated to understand the university as an organization or to see connections outside their college.
“Student success” was often discussed in isolation or as independent of the success of organizational members or processes. This was illustrated in the interviews when many of the participants responded to the questions in relation to the student or learner. A clarifying statement was usually necessary to remind the participants that the focus of the study was on the university as an organization and its members. This was illustrated in the words of one participant, “…it’s somewhat of a ‘chicken and egg’ in my mind, in that we hire faculty, staff, professional people…to perform a mission and that mission has become more student-centered. In fact, the whole emphasis now is on student success.”

The connection was not always easily made. In a clarifying dialogue, one participant responded to the idea that the organizational environment created for the members is perceived by some scholars to have direct impact on student outcomes, by saying, “…we are organized to do a mission, to do the job, and how we define the job, depends on how we’re organized. So, then, how we’re organized gets to your issue.”

Recognizing that the “key element at any university is the academic element,” one participant acknowledged that the mission of creating an environment that makes for student success was “one of the biggest challenges.” The focus, however, was on how to support this operationally in “almost a seamless way,” which may have implications for personal or professional development, the topic of the next section.

Second, some views failed to recognize the organization as a whole and the focus was on a perceived failing or numeric indicator. For example, one participant shared one limited view as follows, “To the legislature the structure is all nuts because we have two
different systems instead of viewing the whole thing as one big system. Senator X is very vocal saying ‘you guys are very bloated and wasteful and that you don’t need all that’ and he would just as soon that provosts run each campus, for instance, and have one system President.”

Other examples illustrating the focus on numeric indicators or worth are found in the following comments: “are we getting our money’s worth? (asked by the legislature). Well the only question to me is what would you get if you didn’t have this...are we worth as much to the state as the prison system? There is no way in the world you can ever answer that.” The economic impact of 34,000 students on the state’s economy is often missed or minimized. One participant underscored this by noting that out-of-state students, unlike tourists, come for a whole year, might marry here, get a job here, and may stay longer than a tourist who comes for a week’s vacation.

This same theme was expressed in terms of political philosophy, which appeared to show the university as fragments representing special interests. One participant said it best, “Montana is probably as close as you are going to get today to a state that is still dominated by a populace philosophy. And the four bastions in populism are anti-big business, anti-government, anti-intellectualism, and anti-elitism. If you take those to heart, when we walk in the door of the legislature, we’re screwed the moment we step across the stone because you can stick all those labels on us.” Like the legislature, the governor’s office (with a political agenda) was perceived by one participant as deliberately trying to dismantle the university system and described it as a metaphor of a comic strip with the word, “KABOOM!”
Third, many participants felt that faculty views would not support the systems thinking discipline. It was suggested in the interviews that they are not prepared to become part of an organization or to participate in a process of development related to the organization. One participant highlighted this by saying that faculty are socialized to achieve as in the “Olympic Model” or compete as in the “Warrior Model.” Other existing models of faculty behavior patterns and organizational culture were the “family systems model” where faculty may compete as “siblings” vying for position or to maintain one’s share. The other model was one of scarcity and competition—the fixed pie, where if one receives more, then the others receive less. According to one participant, faculty members were considered “incredibly isolated from anything outside the university as a rule...but a normal faculty member is very ignorant about what is going on outside their college.”

This analysis through interview data suggests that the discipline of systems thinking exists at MSU-Bozeman compared to the conceptual model. The exceptions indicate a need for further study on 1) the impact of organizational health on desired organizational and individual outcomes, 2) the impact on the organization as a whole of allowing numeric indicators isolated from overall organizational health to drive decisions, and 3) the impact of faculty isolation and lack of organizational involvement on overall individual and organizational goals.
**Personal Mastery**

“Let every employee develop even though they may leave” (Participant, 2003).

The case study findings highlighted the relevance of the personal mastery discipline in the conceptual model. According to the interviews, it is a high priority for this university and an area of concern nationwide. The data supporting this discipline in the model and current understanding in the university setting will be discussed following the presentation of the findings compared to the conceptual model below.

**Table 2**

**Conceptual Model - Personal Development/Mastery**

<table>
<thead>
<tr>
<th>Essence or Value</th>
<th>Case Study Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generative. Connected to others.</td>
<td>Most participants acknowledged a feeling of connectedness and the capacity to be productive in their given role in the organization.</td>
</tr>
<tr>
<td>Principle or Policy</td>
<td>Personal vision is encouraged. Vision versus reality provides “creative tension,” the gap between the two.</td>
</tr>
<tr>
<td>Personal vision is encouraged. Vision versus reality provides “creative tension,” the gap between the two.</td>
<td>“Personal vision” was not overtly encouraged but the majority of participants acknowledged that they had a personal vision. The gap between reality and vision was not made explicit.</td>
</tr>
<tr>
<td>Practice</td>
<td>A majority had personal visions, but they were private, not shared or written. The visioning process two years ago did incorporate people’s private aspirations as part of the overall organizational vision.</td>
</tr>
</tbody>
</table>
Outcomes
University members are more productive in creating and sharing knowledge, which may include publications. Personal vision/shared vision is realized over time. Satisfaction and morale increase. Relationship and effectiveness with students increases. University members feel connected to each other and across boundaries between subsystems. Balance between personal and professional life evolves to a healthy balance.

The participants in this study all embraced some sort of vision, acknowledged that it was evolving and needed to be communicated more. There was a sense of connection not always across subsystems, but recognizable in the network, directly or indirectly. Balance in personal and professional life was dependent on the evolvement of the individual, the age, the position, the vision, the goals, and personality.

Essence or Value. The best leaders are those where “the people said they did it themselves” – Lao Tzu (Participant, 2003). The findings supported the fact that personal development is a value in this organization. One administrator’s vision was that “every employee would be empowered in his or her area.” Another participant said, “My impression from the President and Provost, they are very supportive of, in fact, virtually insist on the professional growth of their, in this case, administrators…” Other comments indicating the importance of personal development for this institution were, “the investment that we make in people in the organization, I mean, it’s a high priority…and try to develop people from top to bottom in the organization” or is viewed as “a virtual necessity.” This value was exhibited by the fact that the university provides “plenty of opportunities to grow in their professions.”

However, the findings also showed a diversity of definitions. The participants defined personal development as: 1) personal development according to individual interpretation, 2) development incorporating both professional and personal aspirations, 3) professional development eliminating the term “personal”, and 4) limited to individual
achievement as in the “Olympic Model” (Participant, 2003). This section in the interview protocol on personal development required clarification for some participants as shown in this comment, “This suite of questions... is a little confusing. This is mixing things together.”

Half of the participants responded without hesitation when asked what personal development meant to them within the organizational context. Those definitions included, “fulfillment of potential,” “finding a way to evolve and do what you do better... have more impact on people,” “growing a person over time,” and “build the person... every employee develops... highly motivated, inspired workforce.” Another general statement made by one participant was, “... start the educational process from kindergarten to life-long learning... challenging yourself... learn, learn, learn.”

In the second category, ten participants acknowledged development more holistically and included both personal and professional aspirations. This was demonstrated in the following definition of personal development, “web of connections between work, family, nature (‘spiritual spin’), and my growth in all of those.” More generically, to one person it meant, “to find a way to evolve— to do what you do better” or to an administrator, “both professional and personal.”

The third group of participants (one-fifth of the participants) clearly did not relate to the term “personal development.” One person, admitting difficulty with this question, said that the term, “professional development (anything that makes you more effective),” was what came to mind. Other definitions focused on development relating to one’s career as in, “the enhancement of knowledge, understanding, expertise, skills, and career
opportunities” or “growing into this job.”

The last view of personal development was seen from an individual achievement perspective, which seemed most prevalent at the faculty level. In one participant’s view, becoming a professor was a chosen path with built in expectations for success as demonstrated in this statement, “self-selective and actually, despite everything I said, anybody who gets into this area has a big ego and thinks what they do is important...you have gone through universities and proven to somebody your worth...and actually becoming a professor was very much so, actually for me, almost a eureka moment.” The role of the organization or university was irrelevant to the individual quest for scholarly achievement. This was demonstrated best by the following comment: “Does the university support you (personal development) in this stuff, basically, no, you do it yourself.” This was also underscored by one participant who felt that while some members of the university are asking themselves, “What abilities are needed to serve the needs of the organization–faculty may not understand that role.”

Stated in another way, one participant said that the organization gave “mixed signals.” He or she felt that “the organization has great respect for individual achievement in the Olympic sense.” Examples were given of faculty and research awards, which recognize individual achievement. While the research award rewarded the individual, this person acknowledged that “research usually involves many people.”

In summary, the findings supported the personal mastery discipline at the value level in spite of the diversity of definitions. How the value of personal mastery was enacted in the principles or policies of the university will be addressed in the following
Principle or Policy. One of the main components of this discipline at the principle or policy level is having a personal vision. Eighteen out of 24 of the participants acknowledged that they had a personal vision. One did not answer. It did not appear to be overtly encouraged by the organization per se, but it appeared to be a tacit process as a result of the culture and expectations for achievement. Some personal visions focused on the work environment such as, “creating a coherent and stable community,” or creating a vision of a place “where I would like to work.”

Some personal visions were shared or discussed in terms of underlying purpose. As an example, one person shared the following, “my own personal vision has to do with continued intellectual development, continued writing of, I’m actually currently working on a couple of books of poetry, and I’ve always wanted to be involved with organizations outside the university for which I haven’t had the appropriate time…” One participant said, “yes,” they had a vision, which was based on faith and calling. For another participant, there was less interest in building a resume to go further, but an emphasis on “trying to be an enabler so that, particularly, people within the organization can develop personally/professionally.”

Second, formal review processes tended to serve as mechanisms for establishing expectations and dialoguing about outcomes. This is demonstrated in the following two comments, “and the administrative review system…it’s fundamental to making the university work.” In another participant’s words, “I do annual reviews of all faculty personally. We get annual reports from them from their perspective of what they, how
they think they've accomplished their goals, which they have written goals that we work
together to articulate and when they do their annual report, they do it in respect to those
particular goals.” Promotion and tenure and the post-tenure review processes were
mentioned as very specific policies in place that promote faculty development.

Third, many participants mentioned the available opportunities open to them as
members of this organization. This was illustrated best in the following comments, “the
university provides counseling for staff if they are having emotional problems... We have
a wellness program where people try to keep their physical health, as well as their mental
health. There is a huge intellectual opportunity for people which I think is key for
personal development... can go back to school, you can go to lectures, there are noon
seminars... an absolute buffet of things... universities are a huge roaming banquet table,
it's a matter of how much you can take.”

In summary, personal mastery was supported in the conceptual model at the
principle or policy level. The fact that the majority of participants had personal visions,
the existence of focused review processes and development opportunities offered by
MSU-Bozeman were evidenced in the data as principles or policies.

Practice. “Part of what I do... to show members of the organization how their role
fits into the overall university vision” (Participant, 2003).

Practices of the personal mastery discipline from the data were demonstrated in
three general ways. First, member development at MSU-Bozeman was deemed important
but also recognized to be diverse and dependent on individual development needs.
Second, the data provided evidence that participants saw themselves as facilitators of
development, as recipients of development opportunities, or a combination of both. Third, many of the responses identified practices specific to faculty development.

Personal and professional development was deemed critical for "developing a highly motivated, inspired workforce," by one administrator, but he or she added, "one size does not fit all." This was demonstrated by another participant in the following comment, "growing through performance and responsibility...creating things that will help you do better." Similar sentiments were expressed at the Dean level, "professional development is anything that will help me be more effective in this position."

Many of the participants discussed personal or professional development in terms of being a facilitator, a recipient, or both. The facilitation role was best represented by the words of one Dean, "I really do see my function as a leader/servant and the leader part is to continue to challenge our units to be the best they can possibly be, to present new ideas, new thoughts for people to consider...part of the servant...caring and kind of watching after people to make sure they’re successful on personal and professional levels." For some administrators, moving into a facilitator’s role was a conscious decision as demonstrated in the following comments, "...had to make a choice, and my choice was to let go of my direct involvement in my field and move into saying, okay, this is the new hat I’m wearing, I’d better learn how to fill it out," or "...am in a position to help them (staff) be successful and that is my job, but it is also very self-serving, because if they are successful, ultimately, I’m successful."

Personal examples of development opportunities were given by a number of participants as represented in the comments that follow, such as, "I mentioned earlier the
Institute for Educational Management which was a Harvard experience for me, and it's designed for people who are moving into senior administrative levels and that was a huge professional development boost that this university allowed me to participate in.” One person addressed development opportunities over the course of his or her career, noted in this comment, “...I took three sabbaticals...there has been a great amount of support for me, like I said, to get involved in the national level to expand my horizons.” For another participant, a sabbatical in another country “was the greatest thing that ever happened to me.” In one person’s opinion, experience and involvement was credited with providing opportunities to grow and to be visible. As a result, he or she found that “you evolve, I think, in your thinking and potential.”

For some participants, personal or professional development was discussed from both perspectives, as a facilitator and as it applied to the participant as demonstrated in the next comment, “...I mean there is lots of professional development that takes care of me so I don’t need to find it. We have staff development committees in this division where we try to bring in speakers and help people’s careers...” From another perspective, one participant said, “...I have certainly had a number of opportunities at MSU to do that (referring to professional development)...we here, provide professional development for our staff...it could be a course that you might take, a conference you might go to, it could be a mentoring relationship that you might form.”

One-on-one meetings also had implications for development, personally or as facilitators. This is best illustrated by the following comment, “...but all of the Deans meet with the Provost, usually once a month...and it’s in those meetings that you get
some idea on a one-on-one basis between the Dean and the Provost about what he
expects, what his directions are... most of us get a chance about every three months
maybe, to have a direct interaction with the President and most of those are focused on
where we want to take the University.”

Many participants referenced specific development opportunities for faculty.
Examples were sabbaticals, summer opportunities such as an archeological dig in Israel,
going to France for research, or providing a program buyout to relieve a faculty member
to work on a book or finish research.

Practices, while diverse, impacted individual and organizational outcomes. As
will be seen in the next section, these are both tangible and intangible.

Outcomes. Outcomes, tangible and intangible, were revealed in the responses as a
by-product of the organization’s support of personal and professional development.
Tangible outcomes mentioned were “developed researcher orientation program, personnel
procedures, faculty review and teaching evaluation procedures, modernized the
curriculum, hired a lot of faculty…” One participant stated that “postdoctoral work” in
his or her field was the “epitome of how you would live life,” but doesn’t pay. This led to
the outcome of choosing tenure track, which now means research is done “through
others” and time is spent “mentoring students.” Achievement of a major goal, such as
creating a stable community (where there had been frequent turnover), was seen as one of
the career accomplishments of one participant.

The intangible results included: 1) comments about culture, 2) behavioral
expectations, and 3) attitude changes related to personal success, satisfaction, and morale.
For example, one participant articulated, “cultural change is coming...due to the use of
data.” An integral part of the participative process being implemented by the new
administration was for University members to become knowledgeable about the
institution by using data more effectively.

Some participants identified behavioral outcomes as part of or as a result of
personal/professional behavior. This is illustrated in the following comment: “I think that
is an important issue (caring), more of a humanistic function of a leader, but it’s not less
important than many of the other things we do. You really haven’t had a question that
deals with that. You have to be seen as caring, and if you’re not seen as caring, then
you’re not seen as valuing or being respectful of people. And those are part of those
values that are important to successful participatory governance.”

According to another participant, the participative governance process results in
the development of effective and knowledgeable decisionmakers and organizational
members who take responsibility for their own development in this area. Leaders can
enhance this process by explaining the parameters and by helping “people define the issue
by providing information... information about context in which the issue resides...could
be budgetary...could be structural...outside pressures, needs, regulations, whatever.”

The third category of intangible outcomes was related to attitudes and creating an
environment that supports individual/organizational success. For example, changes in
attitude were seen as positive outcomes of President Gamble’s including faculty in
decision making and “contributes overall to a feeling of personal optimism and personal
satisfaction...and it has an absolutely positive effect on morale.” Successful outcomes
were considered a measure of good leadership by one participant, demonstrated in this comment, “but your job is to enable the people who work under your leadership to be as successful as they can be. That is how you ought to be judged as a leader.” Creating an environment of choice was one participant’s way of providing leadership and conditions conducive to success. His or her approach was in “trying to create the kind of organization that I would like to work in, if I weren’t leading it.”

Evidence that Did Not Support Personal Mastery. “We don’t do a very good job of putting people in a position to succeed” (Participant, 2003).

Evidence in the data indicated a lack of support of the personal mastery discipline at MSU-Bozeman in two areas: 1) at the institutional level, and 2) on a personal level due to lack of awareness or opinion that “personal development” was not the institution’s responsibility. One participant highlighted the need for institutional commitment to personal development as a result of an organizational SWOT analysis (identifying strengths, weaknesses, opportunities, and threats), which was spearheaded by one of the university committees. In the analysis, one of the weaknesses articulated by the committee was, “the university needs to make it an institutional priority to invest in staff development and renewal.”

Implementation at the institutional level was considered “spotty” due to the lack of funding. The university was recognized for investments in development of its members but in one participant’s words, “they’re seriously inadequate” or due to the limited budget, “sabbaticals are turned into a competitive grant system.”
The interviews revealed that participants were not sure if there was an overall organizational commitment to personal/professional development. This is best illustrated in the following comments, “I don’t believe that there is a top-down commitment to the concept or the value of personal development for employees...but I’d say the development of faculty is a value” or “I don’t know that Bozeman has a view of it (referring to professional development). The individual vice presidents might, and the President might, but I don’t know if there’s a collective view there.” One participant felt that there were “no particular goals that the institution has for me for professional development beyond those that come up that are campus-wide like the media training....individually we can seek out opportunities.”

The perceived lack of institutional commitment to personal development appeared by default to shift the responsibility to unit leadership. In one participant’s words, “development of staff is a value that, the level of commitment to that varies widely from one department to another, and it’s pretty much determined entirely by the individual department head...some department heads are very liberal in allowing their employees to take time away from the work place to attend a class. Others are very restrictive and make it pretty difficult for employees to leave the office or the work place to take advantage of that.”

The second area impacting the support of this discipline had to do with personal awareness or interpretation as shown in the following comments, “I am not sure that I have thought much about my vision” or “…there is no training that goes with these jobs at MSU...so the personal development, I guess, in each case was a challenge of
determining what needed to be done, consulting with, typically, my method would be to consult with my colleagues.” For some, it was a matter of personal initiative as illustrated in this comment: “not a total vacuum, there are things available to assist you, but again, you have to be motivated or choose to take advantage of things if you need to or if you want to.” One participant denied having a personal vision and personal development was seen as “irrelevant to my work.”

In some cases, personal development was not seen as a responsibility of the organization. This was best illustrated by one participant who defined personal development as having “to do with your demeanor, your attitude, your emotional health, ability to find your center and be happy in your job...I’m not sure it’s up to your employer to provide those kinds of things. At least, I never felt is was up to MSU to help me develop as a person, I thought that was my job.”

The case study findings supported the personal mastery discipline in the conceptual model. The findings indicate the need to define what personal development means in the context of the university setting. The responses also indicated a need for the university to make the commitment to personal development an institutional priority. This is not unrelated to the next discipline in the model, the shared or organizational vision.

**Shared/Organizational Vision**

“There go my people. I must go with them for I am their leader—Gandhi” (Participant, 2003).
The shared/organizational vision discipline was fully supported as an important component of the conceptual model. Evidence was demonstrated in all four levels, which will be discussed in further detail after the presentation of the comparison of the case study findings to the conceptual model for this discipline. See Table 3 below.

Table 3

<table>
<thead>
<tr>
<th>Conceptual Model - Organizational or Shared Vision</th>
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<tbody>
<tr>
<td><strong>Essence or Value</strong></td>
</tr>
<tr>
<td>Commonality of purpose. Common direction/reason for being.</td>
</tr>
<tr>
<td><strong>Principle or Policy</strong></td>
</tr>
<tr>
<td>Shared vision is developed system-wide, written and verbally communicated – hologram</td>
</tr>
<tr>
<td><strong>Practice</strong></td>
</tr>
<tr>
<td>Shared vision is written, visible, dynamic over time, and communicated regularly. Shared vision is built upon the visions of many collectively and personally.</td>
</tr>
<tr>
<td><strong>Outcomes</strong></td>
</tr>
<tr>
<td>The shared vision is being realized and is re-evaluated and remains dynamic. The decisions, choices, and resources are evaluated and enacted according to the vision.</td>
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</tbody>
</table>
Essence or Value. The data provided evidence that most of the participants acknowledged that the organization had a vision. The majority of participants demonstrated a commitment to the value of a shared/organizational vision. This was expressed by praising Dr. Gamble on his behalf of the interviewees in his efforts to articulate a broad vision to initiate a participative process for the entire university to craft a vision that reflected the organizations’ members desires for the future of this university. A broad based committee of 50 people met after many months of dialogue and opportunity for individual input, to craft a shared vision statement. As it turned out, that process began on the day of September 11, 2001, the day of the terrorist attacks and Twin Towers destruction.

Principle or Policy. At the principle or policy level, the discipline was supported in two ways by 1) leadership and 2) as an interactive process with committees and councils. The President was credited for clearly communicating a vision as demonstrated by this comment: “Since Geoff Gamble has been here, since we’ve had a President who is able to articulate I don’t necessarily think a new vision for this place, but to articulate what we’re about, he’s done a very good job of...even better than that, he didn’t come and articulate it, he came and created a process so that vision could be articulated by the university committees.” A consensus was reached on the wording of the vision and essentially “boiled down to a sentence that MSU will be the institution of choice in the northern Rockies.”

The University Planning and Budgeting Analysis Committee (UPBAC) and the Strategic Planning Committee were the main committees responsible for communicating
the strategic priorities based on the vision. One Dean felt that UPBAC and the Strategic
Planning Committee were the committees working together to get an organizational
vision on paper and then “we can all see what the vision is.” One administrator
acknowledged, “it certainly is a guiding principle in budgeting and planning at the
university.” Formally, the vision and mission statements were posted on the MSU-
Bozeman Website and “catalogued everywhere you could possibly imagine, in the search
announcements, and job position announcements.”

Practice. “…but the more informal methods, I think, are the ability of the
President and Vice Presidents to live those vision and mission statements and to have the
leadership styles demonstrated as to what is in the vision statement (Participant, 2003).

In practice, the vision was instrumental in shaping the direction for units and
individuals of the university. For some units of the university, the organizational vision
served as a guide in developing their own vision. Comments that support this theme
were, “we relied heavily on what MSU has done to make sure we were fitting into the
broader vision for the university” or in the Dean’s Council, “we spend a lot of time
making sure we’re grounded in mission and vision.”

As a member of UPBAC and the Strategic Planning Committee, one member felt
that, “certainly my thinking is framed by that vision as a participant” or that “…those
committees can have a lot to do with how you shape the vision for your individual college
and where it’s going to go.”

One participant felt that vision was essential for credibility. According to this
participant, Geoff Gamble has articulated the vision…made sure “we know the vision”
and it absolutely impacts performance, and “without it credibility is eliminated.”

Participants felt that an organizational vision impacted performance on an individual level as demonstrated in the following comment, “impacts in a positive way... vision influences your vision... you know what direction to go in.” Making it personal was the role of one participant who said, “…I’ve tried to internalize that and then be able to communicate that back to our people here as I would see it. Because I think the vision statement is something that is pretty tough to get a hold of, pretty tough to begin to identify with... how you interpret it. What does it mean, so I’ve tried to open that discussion, share my insight of that with our administrative team and let them enrich it as they see it... their job, of course, is to take it to their faculty and do the same thing, interpret it, put it on the table and work it with faculty input.” This particular participant had the MSU-Bozeman Vision Statement from the Website, posted in full view on his or her bulletin board.

Outcomes. At the senior level, having a “solid, well-grounded sense of where the institution is headed,” is critical to helping it get there.

Descriptions of the impact of an organizational vision included impact on personal performance and organizational processes in four general areas. For many participants, the vision was a motivating factor and in one person’s words, a “useful reminder of what goals are every day, useful motivating factor, believe in it, helps me remain focused... energetic force with so many details, problem solving... connection helps analyze the details, vision gives meaning...” Another participant said, “…it allows you to begin to focus your activities and prioritize them so you deal with them in a more
Outcomes, as a result of dynamic processes of the university, included developing and adopting a budget each year that reflects the principles of the vision and mission statements. Second, outcome assessments were being built into strategic plans as stated by one participant, “...I think virtually everybody has become more sensitive to the fact that a plan is not worth much unless you have some sort of an assessment that goes with it...and I think we’re building that into our plans as we do our vision statements and our planning for specific projects, too.” Third, creating a “data rich environment” was cited by many participants as a desired outcome, based on the presidential vision of an environment where decisions are made based on data. Fourth, the participative governance process being implemented was also deemed responsible for changes in culture as demonstrated in this comment, “it’s a symbiotic relationship. I think my performance influences the culture that is developing. And the culture that is developing, of course, would influence my performance in the sense that I’m asking people to participate in making decisions.”

Outcomes were also considered as byproducts of dynamic and changing processes. One participant said it best in this comment, “...have people buy into something you can identify with, at least to some degree, and get excited about. I see that and I can make it my own and do this with it. So, I would say we’re in a dynamic process of doing that. It’s changing all the time.”

Evidence that Did Not Support Shared/Organizational Vision. There were hints in some of the comments that certain levels of the university were not aware of the vision,
should be aware of the vision, or were resistant to spending the time on developing a shared/organizational vision. One side comment was that in order for a shared vision to truly emerge, the university needed to be more inclusive outside its boundaries. Data supporting these two themes follow in the paragraphs below.

There was an undercurrent that faculty were probably not involved in creating an organizational vision and was reflected in the following comment: “The faculty themselves aren’t really involved all that much in preparation and revision. And, most of them probably don’t want to be, because I wouldn’t want to be. It’s not what I was trained to do.” A similar theme was illustrated in this comment, “I think the troops, if you will, if you were to interview someone just randomly on the faculty, they may or may not be able to tell you what the vision is. And that is not good…they’re the ones that talk to 12,000 students every day and, if they, some of them may not agree with the vision, but if it’s at least a part of the dialogue…we are one of the best kept secrets around…I think our faculty still don’t get that.”

The interviews revealed perceptions that not only were faculty not aware of the vision, but that some department heads might not be either. In response to a follow-up question about the impact of the organizational vision on different levels of the university, one participant said, “Most people at the department head level should certainly be able to, if they can’t recite the mission and vision to you, which I wouldn’t expect, should be able to put their hands on it pretty quickly…” “Another reference to the department head level was seen in this comment, “…most people at the department head levels should be periodically saying to themselves, do we fit into the statement and
are we still doing the kind of work that can be incorporated within this mission and vision statement?"

Participants acknowledged the existence of resistance, by some members, to spending time on developing a vision. One Dean’s comment illustrates this best, “…one of my board members who was assigned to work on the mission and vision statement said, ‘It’s just words, I hate this committee, they’re just words. When are we going to get to the deeds?’ Like this guy is saying what does this mean?”

There was a consensus in general that the university had an organizational vision but when asked if it incorporated members’ personal visions or was considered a “shared vision,” many thought that creating the collective vision was evolving. One participant went a little further and wanted the process to be more inclusive beyond the boundaries of this campus and felt that they were “not quite there yet,” but the inclusive, participative process “presents an opportunity to engage the public in the state of the university, and to help them understand what they do value and what the needs of the state are.”

**Team Learning**

Teamwork and collaboration are the “prime understructure of everything we do…every member has a say in where we are going…modicum of dialogue at every level…” (Participant, 2003).

The case study findings support the team learning discipline in the conceptual model for universities as learning organizations. The findings shown below will be compared to the conceptual model. Data supporting this discipline in the model will be discussed following Table 4.
## Table 4

Conceptual Model — Team Learning

<table>
<thead>
<tr>
<th>Essence or Value</th>
<th>Case Study Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collective intelligence. Alignment.</td>
<td>“Critical to success” or “part of the job.”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Principle or Policy</th>
<th>Case Study Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protocol is established for dialogue and discussion and testing assumptions. Capacity is developed to recognize defensive routines.</td>
<td>The new President and administration have implemented a participative governance process—creating a culture of openness and inclusiveness fosters personal development in this area and builds individual capacity, but according to many participants, takes time.</td>
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</table>

<table>
<thead>
<tr>
<th>Practice</th>
<th>Case Study Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utilize the tools of dialogue versus discussion. Notice one’s own defensive routines. Suspend assumptions. Act as colleagues.</td>
<td>In pockets and apparent in the Strategic Planning Committee and the University Planning and Budgeting Analysis Committee. The dialogues, the debates, the broad-based inclusiveness, and respect according to some participants are part of an environment where assumptions can be tested. Noticing one’s own defensive routines appeared dependent on the development and evolution of the individual leader.</td>
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</table>

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Case Study Findings</th>
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<tbody>
<tr>
<td>University members are open and forthcoming. Knowledge is shared and created not only individually but collectively as well. Collaborative projects increase. Referrals and connections are enhanced between colleagues. Members co-create new ways of getting the work done in their particular area and are free to do so. Competitiveness, isolation, and control measures inherent in the system decrease over time. Students feel more connected and supported by the university and graduation rates increase.</td>
<td>This is a culture that is emerging in this direction. In the last two years, there has been a shift in inclusiveness and openness, articulation of a collectively created vision, a commitment and increase in data usage and analysis, and a commitment to every student having a successful experience from entry to graduation. There is also a commitment to creating an undergraduate experience of excellence across campus.</td>
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</table>
Essence or Value. "It (presidential leadership) has certainly been the best I’ve encountered" (Participant, 2003).

Team work and collaboration were considered essential or critical in getting the work done by all of the participants. The value of team learning is demonstrated in the following comment, "there are certain values critical to faculty participative governance, and as mentioned openness, camaraderie, and respect are important... also important to be good listeners, very important to accept ideas that differ from your own. It's very important to respect that everyone is a part of the process, even though you may differ with them in terms of your strategy, your vision, whatever."

The importance of relationship in team learning was highlighted in one participant’s response, "...relationships, you know, the satisfaction that anybody feels at work is going to be tied to the relationships they have, whether or not those relationships are healthy, and a healthy relationship seems to me to be a very strong incentive to teamwork and collaboration."

Principle or Policy. In terms of protocols or policies for dialogue, discussion, or testing assumptions, over half of the respondents felt that the organization had protocols in place. One person gave the example of committees, which typically have protocols, and included protocols specific to faculty council issues, curriculum committee, post tenure review, those mentioned in the catalogue, and the Web. The budgeting process was also considered a team process and one that impacted principles and policies. As noted by one administrator, "the budget is just one level in terms of setting policy."
Characteristics of openness, camaraderie, and respect were considered by some participants as essential for a public funded university. One participant said it best, “I think there always is in an academic community (openness, camaraderie, respect). I mean an academic community is the most open, in my view of all communities. Much more open than the private sector is. We’re required to be. We don’t get to have closed meetings, every Dean’s Council meeting has a reporter in it... We’re spending public money and people have a right to know.” Another participant underscored this with this comment, “...within the academic community, again, anybody can comment on anything anytime, and with the availability of the Internet, public forums, and all kinds of debates and discussions, there are a lot of opportunities for people who would like to be involved.”

Practice. “We reorganized about ten years ago, went to a team-based organization, not departments. Departmentalization compartmentalizes” (Participant, 2003).

Practice of this discipline was exhibited in two main areas, the budget and in communication patterns. As an example, “one of the Strategic Planning Committee’s exhortations to the budget committee was start using as a planning assumption, a budget assumption, that state funding is going to be inadequate and it’s going to decrease considerably.” It had also become a more public, inclusive process as demonstrated in this comment, “...not much budgeting that is done is quiet at this point. It is more public.”
One of the best examples given was of a team approach to developing the athletic budget plan to address a shortfall under an interim director. A broad-based team was formed and dialogued over an eight- to nine-month period about all the possible alternatives. Reaching a consensus and acceptance by the group was attributed to the team approach, time for dialogue and exploration, and the capacity to bring issues to the table and “hash them out.”

Communication patterns were mentioned as a result of teamwork and collaboration. Most of the participants acknowledged the existence of openness, camaraderie, and respect in this culture. Nine participants mentioned the fact that this was an organization in transformation—a new culture was being created over time. Teamwork was considered essential and in the words of one participant, “I’d be dead in the water without it...so teamwork between them (department heads) has kept the college from going belly up, or kept me residing longer.”

One participant expanded this concept further, “…every attempt is made to involve as much as possible not only the campus, but even folks from downtown about where are we going to take this ship called the University?”

Several participants, responding to concerns about faculty time constraints, instituted a team communication process on the Internet to foster team connection as stated in this comment, “…so it’s a dynamic way of communicating (use of the Internet). And we encourage people to, they don’t have to ask permission, to talk to one another. All doors are open, unless they’re closed” or “like to do brainstorming on e-mail...not a rigid edict...ideas put out in e-mail for discussion.”
Outcomes. “Now, there is, (feeling of openness, camaraderie, and respect within the institution). Our faculty have access and conversations with the President every week” (Participant, 2003).

Outcomes were reflected in participants’ attitudes about the organization and in assessment measures. For one participant the environment was very different now compared to four or five years ago. In another participant’s words, “...you’ll find that spirit has caught on. And that’s attributable to Geoff Gamble. He really reenergized things...the incentive is MSU is a successful institution; you’re successful in your work. There is great pride here now. Four years ago, there wasn’t...” Several participants reported openness and respect as “hallmark of this unit or college.” An intrinsic incentive mentioned by one participant was, “an opportunity to have influence over your own future, your professional future, and the quality of your professional work life.”

There were usually strategic objectives with every strategic plan but there are less defined objectives like, “increasing the visibility of the college.” There were key performance indicators (KPI’s), not necessarily conclusions, which were reported by the participants as measures of progress on the less quantifiable goals.

Assessment of team progress or completion of goals included: 1) goals and objectives, 2) metrics or numbers, 3) dollar awards in the form of budget allocations, grants, or private sources, and 4) formal processes or evaluation forms such as the annual review, post tenure review, 360 reviews, and the Montana Achievement Program (MAP). Incentives for teamwork were mostly intrinsic. The external awards tended to be lunches, time off or trade-offs in workload, merit raises, promotion, or grant money.
Evidence that Did Not Support Team Learning. Teamwork and collaboration efforts were threatened by the lack of funding or unhealthy dependence on funding sources and team dynamic issues. Funding issues affecting team learning provided in the evidence indicated that team work might be compromised when there is competition for scarce dollars. Administrators may “circle the wagons” to protect their vested interest or area.

Partnering with government and private enterprises could be hazardous as mentioned by one participant, “...gifting: it’s a slippery slope if you rely too much on that because that’s market driven...partnering with others is that simply we could possibly sell our soul to those who provide money for whatever...we don’t want the next hour lecture on organic chemistry to ‘be brought to you by Pfizer’...the biggest threat to all of this...is academic freedom...we have a mandate to discover knowledge. And without academic freedom, you can’t truly investigate and pursue knowledge and truth without some degree of academic freedom.”

Team dynamics, including agreement on goals or direction and lack of incentives, were also seen as possible barriers to effective teamwork and collaboration. For one participant, the makeup of the group had changed dramatically with adding a reporter to every meeting, which interfered with the feeling of openness, and with the appointment of one particular member who had ruined the feeling of respect for each member and the capacity to dialogue openly about issues. Implementation of a team approach to decisionmaking can be thwarted or bogged down if it is not clear what “you want to accomplish and how you’re going to measure that or evaluate it.” In addition, there is
often a lack of incentives for team work. According to one person, extrinsic rewards “have been much less...it’s one of the missing pieces in really implementing good, sound, participatory governance and it is sort of overlooked.”

Mental Models

“Want to get there by letting others take me there” (Participant, 2003).

The interviews elicited 25 different mental models of the organization, MSU-Bozeman, shaped by the position, experience, past history, mentors, educational background, and culture of the organization. While the term mental models, models, or mental maps was not new, being asked to express them was new and challenging. To reiterate, mental models “are usually tacit, existing below the level of awareness, they are often untested and unexamined” (Senge, 2000, p. 67). Making mental models explicit at the time of the interview also produced diverse answers to how those models impacted the participants’ performance and achievement of potential. The data supports the relevance of this discipline in the conceptual model for universities. A comparison of the case study findings and the conceptual model is shown below. Data supporting this discipline will be presented following the table.

Table 5

<table>
<thead>
<tr>
<th>Conceptual Model - Mental Models</th>
<th>Case Study Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Essence or Value</strong></td>
<td>All participants were willing to share their perspective openly and honestly.</td>
</tr>
<tr>
<td><strong>Seeks truth, Openness.</strong></td>
<td></td>
</tr>
</tbody>
</table>
**Principle or Policy**

Protocol is established and system tools developed in all members to recognize assumptions, leaps of abstraction, and the capacity to balance inquiry with advocacy.

Not explicitly but the process of creating a different culture appeared to be building members’ capacity to explore one’s mental models.

**Practice**

Practice making mental models explicit to oneself and/or others. Develop and use the tools of “left hand column,” leaps of abstraction, and questioning assumptions (see Chapter 2).

Mental models of the participants generally remained tacit. Assumptions were readily challenged in committee settings.

**Outcomes**

University members understand each other on a deeper level due to the practice of making mental models explicit. Problem solving and decision making rely not only on data and crises but on visual maps, causal loop diagrams, simulations and understanding of the dynamic nature and impact of any decision.

There did not appear to be a mechanism to make mental models explicit on a regular basis—doesn’t mean it doesn’t happen in dialogues or debates, formally or informally. Some participants utilized visual maps, diagrams, and simulations.

**Essence or Value.** “MSU-Bozeman as a small town with MSU-Bozeman representing the heart of that town” with the underlying assumption that “one person could still make a difference” or the institution as “an organism, living, spirit, capability for change, can be wounded, can become better, grow and shrink, live, and has potential” (metaphors shared by two participants, 2003).

The ability to seek what is truthful for the organization and willingness to be open was demonstrated by all of the participants in responding to the interview protocol.

Participants were promised anonymity for the purposes of the study, but most of the participants stated they had no reservations about being open and honest. In one participant’s words, regarding the participative decisionmaking process, “there is not a decision that I make that I shouldn’t be able to go public with.”
Principle or Policy. The protocols for the mental model discipline appear to be emerging as a result of the new leadership and leadership style. The participative governance process being implemented across the organization seems to be altering members' attitudes and communication patterns. One participant admitted that their mental model of the university had evolved since the presidential leadership change, "...I looked at it two years ago when I thought about this organization. I thought about it in terms of an organizational chart, a pretty simple concept...over the past two years, my perception, my vision of the university as an organization has changed considerably, and I'm not sure that I've come to develop any sort of visual picture of it..."

Coexisting mental models emerged demonstrating a perception of current impact on principles or policies. In one case, the university was discussed in terms of function and later according to the hierarchical structure. Here are two examples, "Organizations are functions. They're just like athletic teams. They're functions of the players...I've never worked at an institution where the organizational chart represented what really occurred," or "academia is the closest thing to medieval hierarchy that is left, even more so than the military, I think."

Practice. "...my feeling is that the university is being forced, almost, into taking more and more of a look at its whole organization as if it were a business...where's the business plan or have you done due diligence" (Participant, 2003).

Making mental models explicit was a new experience for most of the participants. The responses tended to be broader in scope for mental models, but related to the descriptions of the participants' connection to the organization mentioned earlier in
systems thinking. In general, the metaphor or graphic representation in systems thinking was more focused on the personal connection to the organization and role according to position. In mental models, the participants tended to describe their view of the whole organization from their perspective.

Mental models were described in the interviews in one of three ways: 1) as a brand new metaphor or graphic representation distinctly different from their description in systems thinking, 2) as exactly the same as the description in systems thinking, or 3) as related to the systems thinking description but enhanced in mental models.

New images or metaphors of the organization were described for mental models. One participant’s personal connection to the organization was dependent on the national government, but when he or she described a mental model of the organization, their role as a facilitator for an “equal playing field” and units with an “entrepreneurial spirit” emerged. Another example is where a Dean clearly saw the organizational chart as the connection in systems thinking, but in mental models, “…a minimalist way of trying to deal with a very complex, multifaceted organization, and I think the picture will always be short…it doesn’t work for me because it is much broader than that, it’s much more meaningful than that, it doesn’t reduce itself very well as a series of structures.” For this person, vignettes or narratives (stories) worked best for “with every story, there is a person, there is a face, there is a name.”

In several instances, the same image emerged for systems thinking and mental models. Examples given were a baseball team, where “there is room for individual accomplishment…need the team to succeed,” a spider web, and a cone with all central
functions at the core with communication taking place up, down, and across.

In other interviews, there was a common theme between systems thinking and mental models, which became more enhanced in mental models. For example, one participant described an organizational chart as an image for both his and her connection in systems thinking and again for the larger organization in the mental models discipline. In both instances, this person recognized that the organizational chart was incomplete, more rigid, and most objective. When describing the image in systems thinking, two more models were elaborated to include a student-centered model surrounded by functional rings, faculty, department heads, deans, administration, and central administration and a “servant leadership” model with students on top, faculty in the middle, and administration on the bottom.

In mental models, this same person articulated three more models as coexisting, competitive models. The first one was like the National Football League (NFL) where all teams (departments) are trying to be the best in the league, but are not competing at the local level, but at the national level. The second existing model was of family systems where there is “sibling rivalry.” “Siblings” fight and “don’t want your crust taken away by big brother.” The third model was one of a pie with an underlying assumption that “if I get more, you get less.”

**Outcomes.** “I think the testing of assumptions is sometimes 90% of the advisory meetings. People just say, ‘do I understand correctly...why is that? It’s all about people being able to communicate” (the impact of mental model on performance) (Participant, 2003).
Outcomes for mental models (understanding the deeper dynamics and processes of the organization) seemed to be emerging due to the presidential change and new leadership style. The interviews provided evidence for changes in attitudes, the need for appropriate assessment of decisions and outcomes using data, and clues about how the public develops their mental model of higher education. First, changes due to the leadership change were best expressed by the following participant, “...but I view the organization, I view our campus as an organization which has strong, positive energy and momentum that has a very clear focus, that it’s moving toward and it is giving off to a certain extent some aura that, in fact, is affecting the perceptions and the relations that we’ve had with our community, with our leaders, our private leaders, with donors, with citizens, with legislatures, our students and our prospective students. It’s something that is pretty amazing, and it’s something that has gained momentum and is a pretty incredible force right now.”

In another participant’s words, the organization was, “someplace between a well-oiled machine and holding hands in the woods singing ‘Kum Ba Yah’...has the capability of producing quality work life for individuals at the institution. And quality experiences for the constituencies that are served by the institution.” The concern for quality, implying an awareness of the deeper impact of decisions affecting quality, was acknowledged by one participant in the following comment: “Whether they’re attractive to students or not depends on quality, and we’ve identified as Regents that quality is our primary objective.”
One participant described a more traditional view, "University does three things: it generates knowledge and ideas and it passes that knowledge on to students and the rest of society, and it trains the next generation of people who will discover new knowledge and pass it on. That is what a university does. Faculty is the group that does all three of those." Another participant offered a mental model of the university system, including MSU-Bozeman, as he or she would like it to be—one system where all campuses are known for their strengths, one uniform application...and one where financial resources follow quality and growth rather than by historical formula.

Second, assessment of organizational and individual outcomes was considered important, but challenging, in this organization. One participant, with many years under his or her belt, found it “awfully hard for a university to look at itself as a business because we’re not just simply producing widgets, we are producing people...and it’s hard to get in the mode where you simply say, gee whiz, I’m going to bring them in, I’m going to run them through X credits that is going to cost them so much, and they pop out on the other side, we put a stamp on their forehead saying they graduated...” The good outcome for this is that the business model is forcing us to look more carefully at our costs, expenses, and the quality that we are giving to these students, and it’s allowing us, perhaps, to make some changes that I think are going to be for the good.” Assessment is different according to one participant because of the structure, which is demonstrated in this comment, “Where have you ever heard anybody tell a coach how to coach a game? I haven’t. That is why a university is unique. When one talks about work force, are faculty really workers, or are they independent in the class of the university?”
Third, public perception or mental model of the university, a less tangible outcome, appeared to be shaped by the public interfaces with the university across the state. This emerged as one participant described in detail vignettes or stories that represented more accurately the complexity of the university as an organization and its connection with different constituents. The participant supported this by telling the story of a single mom in a rural town who needs to get a four-year nursing degree and can’t understand why MSU-Bozeman won’t bring its program to her town. For this person, “The university has failed big time and...not going to have anything good to say about it.”

Legislators want to know the economic impact of students getting jobs and contributing to the economic base of the state. On the other hand, if an educator is concerned about the value of learning the classics, then economic statistics will not “be impressive at all.”

According to this same participant, the public’s mental model of a university education as a public good seems to be shifting to a model where universities are considered “private opportunities for individuals” or a “private good.” This has implications for universities in that, “structurally, we may change very significantly. We may be much smaller, we may be much more aloof, and there will be a huge, blinding gap, sort of a class gap, between the educated and the non-educated.” Public perception of the university was a concern for a number of participants and reflected in this comment, “So all of us are concerned, particularly as a public institution supported by taxpayers’ dollars, we are all concerned that this is sort of a true vision of what the quality of this institution is, and what it can do for the state out there...very nervous when things happen to the detriment of our reputation because they’re so easy to exploit.”
Evidence that Did Not Support the Mental Model Discipline. One participant felt the question on mental models was too esoteric or “beyond me” and “not how I think.” He or she described MSU-Bozeman as “it’s own planet—alien culture” and described his or her role as a bridge between two cultures. The interview focused on the problems and the need to come to consensus about the problems the state faces and that MSU-Bozeman needed to be a partner with the state in solving these problems.

Findings that Support Changing the Model

There were 26 references in the 25 interviews to time as an issue across all five disciplines. One telling comment by a participant was, “...and time is our greatest enemy. I would say time is more restrictive for many of us than even resources.” One participant felt they were not able to maximize potential or results due to being “overworked, overloaded, and not treated as professionals.” The perceived lack of time, the examples of time constraints, and struggle with time management indicate a need for the organization and individuals to utilize the skills of reflection in maximizing the use of time and performance.

The apparent lack of time to reflect on the work and meaning of the work emerged in the interviews as a barrier to practicing the five disciplines. Another participant with over 20 years of experience said, “I’ve never actually thought about what I really thought I should be doing with my life.” As mentioned in personal mastery...“I am not sure that I have thought much about my vision...” Enacting and fine-tuning the vision for the organization or unit was a problem for one Dean in that, he or she spends so much of his
or her time “trying to backfill budget shortfalls” that he or she doesn’t “have time to worry about the vision.”

These and other comments suggest the need to refine the model to include a sixth discipline, reflection, which makes it possible to master the original five disciplines. This trend is reinforced in the literature. Reflection and inquiry are mentioned as essential for the mental model discipline, but it is also critical for the other disciplines as well. In The Fifth Discipline (1990), reflection is referenced four times. In The Fifth Discipline Fieldbook (1994), it is referenced 16 times, The Dance of Change (1999), 33 times, and Schools That Learn (2000), 20 times. It is clear that the need for the ability to reflect is becoming recognized as important for organizational and individual success.

A simple definition of reflection follows:

Reflecting: Becoming an observer of your own thinking and acting. This phase might start with a postmortem about a previous action: How well did it go? What were we thinking or feeling during the process? What underlying beliefs (what ‘theories in use’) seemed to affect the way we handled it? Do we see our goals differently now? Many organizational cultures influence people to skip this stage, partly because of assumptions about the way people spend their time. If someone is reflecting, it’s considered perfectly acceptable to interrupt them, because ‘they’re not doing anything’ (Senge, 1994, p. 60).

Reflection

A sixth discipline of reflection was added to the conceptual model and the findings from this study were used for comparison as the issue of time emerged as a major concern in the interviews of all five disciplines. Table 12 below shows the discipline of reflection for all four levels, essence or value, principle or policy, practice, and outcomes and then compares the case study findings to the new conceptual model.
<table>
<thead>
<tr>
<th><strong>Essence or Value</strong></th>
<th><strong>Findings That Support the Addition of the Sixth Discipline</strong></th>
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</thead>
<tbody>
<tr>
<td>Reflection is critical to discovering personal vision and purpose, developing personally and professionally, creating and enacting organizational vision, developing the capacity to see the system linkages and communication patterns, for self evaluation of behavioral impact and effectiveness of collective dynamics, and to make mental models explicit to oneself and others.</td>
<td>“…this is a terribly flat administrative structure and time is our greatest enemy.” One participant specifically mentioned this skill as critical to effective leadership. The value of taking the time to create a vision was seen as a positive in this new administration illustrated by the comment, “I was pleased that Geoff Gamble wants to spend some time on the vision statement.”</td>
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<tr>
<th><strong>Policy or Principle</strong></th>
<th><strong>Findings</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Human resource policies would incorporate the development and practice of reflection on institutional goals and individual performance appraisals.</td>
<td>This did not appear to be incorporated institutionally but was found in one unit where members were asked, “Are you going to be reflective about what you are asking?”</td>
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<tr>
<th><strong>Practice</strong></th>
<th><strong>Findings</strong></th>
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<tbody>
<tr>
<td>Reflection skills would be practiced at the individual and organizational level. Organizational level may include teams, departments, committees, and other collective groupings.</td>
<td>The practice of reflection was not apparent at the institutional level but was a practice found in pockets at the individual level—i.e. per one participant where taking time to “reflect a bit” made a difference in choice of leadership style different from his or her predecessor.</td>
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<th><strong>Outcome</strong></th>
<th><strong>Findings</strong></th>
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<tbody>
<tr>
<td>Participants would have a greater clarity about short and long term priorities, and awareness of mental models of oneself and others, and model a balanced, healthy life including physical, mental, psychological, and spiritual well being.</td>
<td>A number of participants mentioned a commitment to public education or to a calling in this field that addressed the short and long term vision and goals—while mental models typically were tacit, many of the participants were able to articulate their own as well as other existing mental models due to the interview protocol. Modeling a balanced, healthy life was exhibited by some of the participants as a result of one’s vision and calling and clarity about what constituted the most important priorities for the individual and organization.</td>
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</table>
with the sixth discipline. Sections following Table 6 provide more detailed data to support the need for adding this discipline.

**Essence or Value.** “When decisions affect people, they ought to be able to participate in some way or have to be involved in it in some way” (Participant, 2003).

Participation takes time, but more importantly, it requires the skill of reflection to effectively create, implement, and evaluate personal and organizational visions and strategic plans. Many participants recognized that fostering change for the organization and individuals was a time-consuming and long-term process. This was demonstrated by the following comment: “These things take time and all people may not have had these experiences. Over time, they become more skilled and more knowledgeable about how these processes work.” What is implied is that reflection—time to think, learn, and evaluate—is at the heart of taking time to create visions, work as a team, make mental models explicit, and perform

**Principle or Policy.** “I don’t see that leadership, on this campus, have well defined professional tracks” (Participant, 2003).

Reflection needs to be built into the human resource policies and professional development programs. Decision making in a flatter organization requires many skills, but the ability to reflect on the impact of organizational and individual decisions and to make adjustments is critical to developing successful decisionmakers at all levels of the organization. This is demonstrated by the perceived role of one administrator, “A participatory governance needs to be structured and my role moves from being the top-
down decision maker to being a facilitator in many cases... it’s aligning context, making sure that they’re knowledgeable decisionmakers, making sure that they have the resources to approach the decision, and to help them structure and organize themselves so that the decisionmaking is efficient.”

**Practice.** “Because, frankly, I struggle with time management because of the different pulls and the leadership part, I think, probably what I regret it seems to pull on the number of things that strategically I’d like to accomplish, but I can’t always just because of time commitments and the grind that comes along with daily administrative duties” (Participant, 2003).

Determining the priorities for each day in all aspects of one’s life requires reflection. While complaints abound about time and the stress that it causes, reflecting has the potential to give people the capacity to work and live intentionally. In terms of practice, comments about time ran the gamut from issues about how much time work takes across all levels, the impact of time on what administrators are able to accomplish, lack of interest in taking the time to reflect, the cost of time, time it takes to be participatory, maximizing potential compromised due to too much on platter or the lack of time to develop, and Deans who are “swamped all the time.” No level was left untouched by the perceived power and impact of time.

Administrators felt they were sandwiched between being overwhelmed and at the same time perceived as critical for impacting how and when organizational work gets done. This is represented in the following comment, “This place is significantly under-administered. There’s a visceral negative response to administrators, they’re non-
productive, we don’t need them. In this case, we do need them, because things don’t get
done right, they don’t get done on time, or they don’t get done at all… but the
administrators are so, in most cases, overwhelmed and we’re fortunate to have the quality
of people that we do, because from the top to bottom, from custodian to the President,
pay scales here are certainly below and, unfortunately, the higher you go, the more off the
average you are.”

Deans who were interviewed also experienced the pressure of having too much to
do and not enough time. This was illustrated best by one Dean who said, “The eight of us
who are Deans are swamped all the time and the time that we have available to take on
new collaborative efforts, no matter how valuable they may be, and they are valuable, is
limited sometimes.” It was also noted by one Dean that “participatory is time consuming,
very time consuming for me.”

At the department head and faculty level, one participant felt that there needed to
be an awareness by the department head of the amount of time working with graduate
students takes. This was recognized in comments of one participant, “The fact that those
Ph.D. students are going to cost that particular faculty member in time a considerable
increase in work load because it’s not easy to get a Ph.D. student graduated… and they
don’t get sufficient credit, recognition is a better way of putting it, for the time they spend
in working with graduate students… that’s a tremendous burden and I don’t think
sometimes it is as widely recognized as it should be.”

At the individual level, finding time for professional development opportunities
“is an absolute challenge.” How much time should be allotted for development was an
issue for one participant as well. In his or her words, “As a manager, I think about what I can afford to do and how much time it is possible for me to allow employees to do other than the job I pay them to do.” Another participant acknowledged that his or her potential was not being maximized but was too busy and did not “want too much on his or her platter—live in the moment.”

**Outcomes.** “Participants would have a greater clarity about short- and long-term priorities, and awareness of mental models of oneself and others, and model a balanced, healthy life including physical, mental, psychological, and spiritual well being” (Conceptual Model) (Participant, 2003).

Outcomes for reflection boiled down to two basic reasons in the data, greater commitment to the organization and more effective use of time in determining priorities. Taking the time for participative governance, which implies the discipline of Reflection (which may also be tacit), leads to greater commitment and ownership by members of an organization. This is supported by one participant’s comments, “Getting people together and having discussions and hashing through various options is a time-consuming process, but in the end, you have people who are a good deal more committed to it because they have ownership in it.”

Priorities are determined by the individual, but are often perceived as mandates from the organization. An outcome from practicing reflection can be the capacity to discern one’s true priorities. This issue was highlighted by one participant who mentioned that they will get complaints that people didn’t get to a meeting or didn’t know what was going on, or didn’t get a chance to give input on a plan but, “I pretty much
chalk it up to they didn’t take the time, so this just wasn’t a priority for you.”

Conclusion

The language we use to describe how we see things is a way that our 'subconscious organizes and structures the content it holds' (Senge, 2000, p. 366).

The five disciplines seemed to hold relevance in describing the university as a learning organization. In fact, it is clear from the data that the participants were able to describe the five disciplines in their daily work. The major findings in this study that the conceptual model of the university as a learning organization appeared relevant. Second, the issue of time and need for reflection emerged as an essential component for the successful practice of the five disciplines in the university setting and potentially as a stand-alone discipline. Since the practice of reflection appeared to be critical to the practice of the original conceptual model, it was added as a sixth discipline to the original model. In addition, two major issues emerged in the data. Those issues were: 1) lack of organizational and individual outcomes and 2) impact of the perceived isolation and lack of involvement of the faculty with the university as an organization. The major findings, implications for future research, and prescriptions for universities will be discussed in Chapter 6.
CHAPTER 6

CONCLUSIONS

'System sensing' can serve to remind us that perceiving a system is not merely an intellectual exercise; it involves giving validity to intuition, people's sense and instincts as well as to measurable data. A wide variety of systems whisper to us every day, requiring our keen sensitivity and attentiveness to their signals. Systems typically do not start screaming until they are in crisis—Chawla (Stewart, 1997, p. 54).

The major emphasis of this study was to contribute to the understanding of universities as learning organizations through the development of a new conceptual model. As was stated in the introduction, little research has been done in this area and there was a need for the development of a model before more extensive research could be conducted on universities as learning organizations. A conceptual model was developed from the work of Senge (1990) and validated through a case study of one university. The findings suggest that this model is an effective conceptualization of the university as a learning organization and has promise to guide learning organization efforts in these organizations.

The major findings of this study are summarized in Table 7 along with implications for future research and prescriptions for universities. These will be discussed more fully in the sections that follow.
Table 7

Findings, Implications, and Prescriptions

<table>
<thead>
<tr>
<th>Major Findings in This Study</th>
<th>Implications for Future Research</th>
<th>Prescriptions for Universities</th>
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<tbody>
<tr>
<td>1. Conceptual model components are present in a university and appear relevant.</td>
<td>-Apply model to other settings (small colleges, tech colleges, private, etc.)</td>
<td>-Describe model in language of higher education</td>
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<td></td>
<td>-Implications of making explicit the tacit mental models</td>
<td>-Make mental models explicit within university context</td>
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<td></td>
<td>-New definition of personal and professional development in the model</td>
<td>-Talk to university and staff about refined model in new employee orientation</td>
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<td></td>
<td>-Apply model to all levels of the organization and/or individually to better understand similarities and differences.</td>
<td>-Utilize model as a professional and leadership development tool for the individual and organization</td>
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<td>-Utilize model to record learning histories in units to foster sharing of tacit knowledge.</td>
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<tr>
<td>2. Need to add a sixth discipline, Reflection.</td>
<td>-Needs to be refined and tested</td>
<td>-Add to performance appraisals a self assessment reflection component.</td>
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<td></td>
<td>-Perhaps needs to be added to overall learning organization model too.</td>
<td>-Make this an institutional goal commitment</td>
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<td>-Organizations may pilot incorporation of reflection into practices and evaluate the impact on the individual and organization.</td>
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<td>3. Lack of clarity about the connection between organizational health and desired organizational outcomes such as student success.</td>
<td>-Conduct further research to validate this finding in higher education.</td>
<td>-Implement the learning organization process to include all six disciplines in the refined conceptual model.</td>
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<td>-If validated, investigate the impact of the finding on the refined conceptual model.</td>
<td>-Create a prototype of a healthy organization as developed above and create a checklist of healthy organization indicators.</td>
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<td>-The conceptual model of the learning university could be utilized to identify indicators of a healthy organization.</td>
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<td>-Further testing could be conducted on the impact of</td>
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organizational health on individual and organizational outcomes.

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<tr>
<th>4. Faculty are perceived as isolated or disconnected from the university as an organization.</th>
<th>Do further research on all faculty or comparative studies between faculty and other levels of the university.</th>
<th>Conduct pilot studies with faculty using conceptual model for refinement. Encourage department heads to develop themselves and departments using the refined conceptual model.</th>
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Finding #1: Conceptual Model for Universities as Learning Organizations Works

There is an assumption that becoming a learning organization “will produce dramatically improved results, compared to more traditional organizations” (Senge, 1994, p. 44). The assumption has not been substantiated empirically to show how and why learning in the organizational context is tied to improved organizational performance (Chaston, Badger, & Smith, 2001, p. 140).

One of the defining characteristics of learning is results (Senge, 1994, p. 44). Whether one is learning how to paint, make a product, compose a musical piece, write a book, or play hockey, the endeavor is judged by the outcome. Practitioners in many fields have questioned how becoming a learning organization would impact performance, innovation, and productivity (Senge, 1994, Tierney, 1999, Schein, 1999, Scott, 2000, Martin, 1999).

Creating a conceptual model of a university as a learning organization was a first step in attempting to analyze a higher education organization for evidence of relevancy as
a strategy in maximizing individual and organizational performance. The case study findings supported the relevancy of the learning organization model in higher education. It also provided insight about how the five disciplines were manifested in one organization, MSU-Bozeman, at all four levels: essence or value, principle or policy, practice, outcomes. In addition, evidence emerged from the data that time was an issue impacting all five disciplines, which led to the creation of a sixth discipline, reflection in the refined model. The following is a summary of how the data supports the model for each discipline in the refined model.

**Systems Thinking**

The systems thinking discipline in the conceptual model of the university as a learning organization was supported by the findings of the case study. At the essence or value level, participants reported feeling connected through their position in the organization. This was further demonstrated by the description in metaphors, graphics, or words of the organization. Connection was typically described as images of circles, spider webs, organizational charts, metaphors, and ideologies. These images represented three types of organizational structures: 1) hierarchical type with a traditional organizational chart, 2) networks connected by relationships and processes, and 3) flatter relationship-based organization with the more formal, political structure organizational chart.

The value was typically enacted in principle or policy through the leadership change and committee structures. Practice was observed through the roles of the
participants, a function of their position. Systems thinking also appeared to be practiced through committee structures of the university. Outcomes tended to be the implementation of participative governance strategies, which appeared to be “revolutionizing” the culture, the use of data and feedback to improve individual and organizational performance, and tangible and intangible outcomes. Evidence that did not support this discipline were the tendency of members to focus on student success as separate from organizational health, the analysis of the university being limited to isolated indicators or without an awareness of the whole organization; and the fact that at the faculty level there appeared to lack a systems thinking perspective of the organization.

In summary, the data provided evidence that this discipline exists in the organization at various levels and is relevant for the university as a learning organization. The evidence that did not support systems thinking suggested the need for further research on the impact of organizational health on desired outcomes, the use of numeric indicators without respect to systems thinking, and the impact of faculty involvement on organizational health and overall desired outcomes.

Personal Mastery

For simplification, the term personal development was substituted in the interview protocol for personal mastery. Personal development was supported as a value in this organization. Each participant was asked to define what the term meant in the organizational context of MSU-Bozeman. The responses indicated confusion about how personal development should be defined. Personal development was described in four
ways using the following terminology: 1) personal development, 2) personal and professional development, 3) professional development or 4) related to faculty development. The majority of participants had personal visions, most of which were tacit, and viewed the formal review processes and available educational opportunities as principles or policies in place. Practices of this discipline fell into three areas: that of individualized development opportunities or "anything that will help me be more effective..." to acting as a facilitator, recipient, or in both capacities. A third area was identified as activities that related to faculty development. Outcomes were identified as a result of personal or professional development that were tangible such as developing personnel procedures, or intangible such as changes in attitudes.

Two areas emerged in the data as evidence that did not support the personal mastery discipline and included the lack of institutional priority and lack of awareness or differing perceptions by individuals. The university had conducted an in-house analysis that identified the need for a formal commitment to personal/professional development by the institution. Many individuals were unaware of the organizational perspective on development and in some cases did not see it as a responsibility of the organization.

In summary, the personal mastery discipline was supported in the conceptual model. The evidence that did not support it indicated the need for the institution to make personal/professional development a priority and to communicate more effectively with individuals across all levels about what it means to the university and how it will be supported.
Organizational or Shared Vision

There was strong support at the value level for this discipline from the case study findings. The value of the vision was manifested in principles or policies in two ways: first through new leadership, and second committee processes. In practice, the organizational vision helped shaped the vision of individual units and individuals, thus influencing performance based on interpretation. Outcomes mentioned by the participants included the ability to focus and prioritize daily work, the capacity to make decisions based on the vision (i.e., the budget), the inclusion of outcome assessments in all strategic plans, the creation of a “data rich” environment, and an evolving new culture as a result of the participative governance process. Data that did not support this discipline were due to lack of awareness and involvement from faculty, indications that “departments are different” and may not share an organizational vision, and simply a resistance by some people to spend time on vision work.

In summary, the organizational or shared vision discipline was supported by the data findings of the case study. Data that did not support the discipline indicated a need by the institution to address faculty involvement, department head and faculty level awareness, and the need to build individual capacity of creating and enacting a shared vision.

Team Learning

All the participants supported the team learning discipline at the value level. Teamwork and collaboration were considered essential or critical to getting the work
done. In terms of protocols or policies for dialogue, discussion, or testing assumptions, a majority of the respondents felt that the organization had protocols. The most common vehicles for those protocols were committee structures, the budgeting process, and Website listings. The culture of openness, camaraderie, and respect existed for most of the participants and considered by some as inherent in a public-funded university. In practice this discipline appeared to be the most prominent in the budgeting processes and overall in the patterns of communication evolving due to the participative governance process. Outcomes were identified as a “sense of pride,” feeling of empowerment, and “an opportunity to have influence over your own future…” Measurement of team progress or completion of goals also included: 1) goals and objectives, 2) metrics or numbers, 3) dollar awards in the form of budget allocations, grants, or private sources, and 4) formal processes or evaluation forms such as the annual review, post-tenure review, 360 reviews, and the Montana Achievement Program (MAP). Incentives for teamwork were mostly intrinsic. The external awards tended to be lunches, time off or trade-offs in workload, merit raises, promotion, or grant money. Evidence that did not support the discipline of team learning included lack of funding and team dynamic issues.

In summary, the team learning discipline was favorably supported by the findings of the case study. Barriers to teamwork and collaboration indicated the need for clarity about funding issues and team goals in relation to the larger organization or local competitors. The institution and/or units may want to do an assessment of individual team member capacity to work effectively in groups towards a common goal, and build this into personal/professional development goals.
Mental Models

The value of seeking truth and exhibiting openness in the mental model discipline was supported by the participants' responses. The new leadership and participative governance process being implemented appeared to be changing attitudes and communication patterns. These changes were reflected in principle or policy in committee structures and in the broad-based communication process being encouraged throughout campus at all levels. Mental models typically existed in the participants' heads but when asked for the purposes of this study, they emerged as 1) a whole new picture different from systems thinking, 2) exactly the same as those given for the systems thinking discipline, or 3) images similar to those given in systems thinking but expanded or embellished. In some cases, several existing mental models emerged as coexisting and impacting the environment in different ways. Outcomes emerged in three general areas: 1) changes attributed to the new leadership and leadership style, 2) the enhanced data support to guide and assess decision making, and 3) evidence that direct interfaces (i.e. athletic booster, donor, parent, student) with the university may have an influence on the mental models of the public. One participant had difficulty relating to the idea of mental models and felt that it was “too esoteric.”

In summary, mental models in the conceptual model were supported in the data. The only negative response had to do with the model and came from one participant as “that's not how I think,” suggesting that the use of this model may require individual capacity building on the part of some individuals.
Finding #2: Need to Add Sixth Discipline to Model - Reflection

Reflection emerged as a critical component for the practice of the five disciplines. The data indicated that time was an issue across all five disciplines, and while the term reflection was mentioned in the interviews, most of the time it was implied in the participants’ responses. The time to think, create, learn, and evaluate emerged as a desired value. Adding reflection as a discipline makes it explicit as a priority for successful practice of the five original disciplines. At the principle or policy level, time to reflect could be built into the human resource policies, evaluations, and professional development programs. In practice, it needs to become a discipline practiced daily to gain clarity about daily priorities and to assess performance before, during, and after implementation of strategic plans and goals. Reflection can also enhance the professional development process through analysis of behaviors and skills needed to achieve a member’s full potential. Outcomes gleaned from the data led to two basic conclusions: 1) the participative governance process requires more time to think, create, learn, and analyze on an individual and collective level, strengthening the commitment to the organization, and 2) time to reflect enhances people’s ability to manage their time more effectively and to determine which priorities are most important.

The model was refined by adding a sixth discipline—Reflection. At the essence or value level, one would acknowledge that reflection is critical to understanding who or what he or she is meant to be. The second level of principles or policies would include Reflection in human resource polices and professional development programs. The third
level of the discipline would result in the practice of reflection by university members. The fourth level, outcomes, should be reflected in greater clarity about priorities, awareness of mental models of oneself and others, and successful achievement of a balanced life, personally and professionally. See Figure 8 for the added discipline, Reflection. See Figure 9 for the new refined model with all six disciplines.

Finding #3: The lack of Clarity About the Connection Between Organizational Health and Organizational Outcomes Such as Student Success

The role of organizational health was acknowledged by one participant as critical to individual development and overall organizational performance. What emerged in the interviews was a paradoxical theme of becoming “the institution of choice in the Rockies” with a shared vision of helping every student succeed without naming explicitly the commitment to organizational health and personal/professional development to achieve this goal.

The refined model of a university as a learning organization could be utilized to map out the deeper connections and perceived impact of organizational health by naming assumptions of organizational behaviors needed for desired outcomes. For example, what processes and behaviors at all levels of the university are needed for student success? Are those processes and behaviors in place and working for the organization, its members, and the students?

Finally, the university could develop a checklist for review of key organizational processes and diagram the flow patterns using systems thinking tools such as balancing loops, reinforcing loops, stock and flow diagrams.
The Six Disciplines of a Learning Organization

1. Systems Thinking
2. Personal Mastery
3. Shared Vision
4. Team Learning
5. Mental Models
6. Reflection

- **REFLECTION**

**Essence or Value**
- Essence or value level, one would acknowledge that reflection is important and necessary to create and become what one is meant to be.

**Principle or Policies**
- Principles or policies would include reflection in personal or professional development and would offer capacity building workshops or resources for skill development.

**Practice**
- The third level of discipline would be practice of reflection in private, publicly, or in meetings using the reflection tools learned in capacity building. Questions about why things are done the way they are, left hand column exercise, and developing insight about new ways of thinking or doing things will be a few of those tools practiced regularly.

**Outcomes**
- Outcomes. The practice of reflection should manifest itself in clarity about priorities, accomplishment of goals will be more focused and less scattered, more time is taken to understand assumptions and mental models of oneself and others, reflection in action will lead to quicker course corrections and adaptability, balance in life and health, and a sense of well being.
A REFINED CONCEPTUAL MODEL OF THE UNIVERSITY AS A LEARNING ORGANIZATION

The Six Disciplines of a Learning Organization
1. Systems Thinking
2. Personal Mastery
3. Shared Vision
4. Team Learning
5. Mental Models
6. Reflection
Finding #4: Faculty Are Perceived as Isolated and Disconnected from the University as an Organization

It appears that further research needs to be conducted on faculty using the refined conceptual model and interview protocol. The findings across all five disciplines suggest that faculty are not socialized or developed to be involved or vested in the university as an organization. How does the lack of involvement impact organizational members, student success, or other desired organizational outcomes?

First, the refined model could be utilized with faculty in small pilot groups to refine and to make relevant for faculty in the organizational context. Second, the refined conceptual model could be utilized by department heads to create environments of choice collaboratively and to enhance faculty connection with the organization and performance.

Implications for Further Research

...if we want better working lives, then we must help ourselves. We cannot wait for great leaders to come and give us direction and support. The great, as always, are in short supply. Each of us must look to ourselves and expect that our own contribution, combined with that of others, will be enough to make a difference (Martin, 1999, p. 5).

There are eight recommendations for further research. First, the refined conceptual model should be validated in other higher education institutions. While it appeared relevant for one university, further research should be conducted to determine relevancy in other higher education institutions.

Second, one of the challenges of this study was how to do research on mental models, which are basically tacit. What are the implications of making the tacit mental models explicit? The researcher initially had the advantage of viewing the collective
responses as a whole comparing their similarities, their differences, and their uniqueness based on experience, education, personality, and position. The mental models also impacted participants' performance in equally diverse ways. It would be a learning opportunity for collective groups within universities to learn more about each other's views and perspectives and to clarify for themselves and others their own mental models.

Third, the definition of personal and/or professional development needs to be developed more fully and clearly for the university across all levels. Defining what personal/professional development means in the university context is critical to how it is addressed. Definitions varied in the interviews, which have implications for how the organization and members create and implement a successful development process or program. The learning organization disciplines offer a comprehensive, systemic approach to the whole person. The individual and organization share the responsibility for vision, development, communication, and performance.

Fourth, the refined conceptual model and interview protocol should be tested on different levels of the organization and the results compared. The comparison may offer insights into how the university is perceived by "all deans" as compared to faculty, for example. Would there be diversity due to discipline, college, experience, personality or would "being a dean" homogenize the responses across all colleges?

Fifth, the refined conceptual model should be tested for its applicability to leadership development in universities. Further research should be done on whether the overt use of models impacts leadership, performance, creativity, and individual achievement. The whole notion of systems thinking is to see the "structures' that underlie complex situations, and for discerning high from low leverage change" (Senge,
Sixth, the refined conceptual model with the sixth discipline needs to be tested and possibly further refined. Adding the sixth discipline may have implications for the learning organizational model in other contexts. The first step would be for the organization and individuals to develop reflection skills needed to successfully master this discipline. The second step would be to choose a pilot group to develop the necessary skills to utilize reflection in practice and performance in the organization. The third step would be to evaluate the impact and effectiveness of regular practice of reflection on the individual and organization. The pros and cons could be identified and based on experience, the practice could be continued, adapted, or discontinued.

Seventh, further research should be done to validate whether or not the lack of clarity about the connection between organizational health and desired outcomes (for both individuals and the organization) has impact on the refined conceptual model. Further research should be done on what constitutes a healthy organization in the university context utilizing the refined conceptual model. Universities should implement the refined conceptual model to discover information about their own organizational health in relation to the refined conceptual model of the university as a learning organization.

Eighth, further research should be conducted to validate the finding of perceived isolation and lack of involvement of the faculty within the university as an organization. If validated, what impact does this finding have on the refined conceptual model of universities as learning organizations?
In summary, the researcher has made eight recommendations for further study.

The refined conceptual model and interview protocol could be used for further study in the following eight areas:

1. Test and apply the refined model to other institutions of higher education.
2. Identify possible implications of making the tacit mental models explicit.
3. Test the model for use as a personal/professional development tool and to further define the terms in the context of the university.
4. Test the model on different levels of the university for comparison and understanding to study and understand a particular unit, a level, or subsystem and their differences.
5. The refined conceptual model should be tested for applicability to leadership development in universities and to study whether the overt use of mental models impacts leadership.
6. The refined conceptual model with the sixth discipline needs to be refined and tested. Adding the sixth discipline may have implications for the learning organizational model in other contexts.
7. The refined conceptual model should be used to study the impact of organizational health on organizational members, student success, or other desired outcomes.
8. The refined conceptual model should be used to test for relevancy at the faculty level and to further study the impact of faculty involvement in the organization on organizational health, individual and organizational outcomes.
These recommendations offer the opportunity to add to the literature on learning organizations and organizational learning. They may also add to the literature on leadership and professional development within the university, the applicability of learning organization theory and appropriateness for universities, and the use of models as a proactive rather than a reactive tool.

Prescriptions for Organizations of Higher Education

Based on the findings and implications for further research, the following six prescriptions were developed for universities. Developing a conceptual model of a university as a learning organization initially presented a challenge of interpretation in the context of higher education. Through dialogue and pilot testing, terminology was chosen for maximum understanding of the learning organization disciplines within the university context, without compromising the meaning and depth of the learning organization principles.

1. Universities that choose to use this model for self-analysis or renewal may want to study the descriptions and interpret them in language that organization members can understand. This does not, however, mean that lack of understanding warrants compromising or simplifying the disciplines at the risk of missing the true import of each discipline.

2. Since universities are complex organizations and have many stakeholders with diverse interests, making mental models explicit on a routine basis may encourage deeper analysis and understanding of conflicting mental models. University members may want to do this collectively in small or large
groups or as individuals representing different levels of the university.

3. Universities may want to incorporate this learning organization model into new employee orientation programs. The refined model for universities could be introduced to all new employees and serve as a checkup for experienced employees. It could also be built into performance reviews and professional development programs which could include leadership development.

4. Learning histories for analyzing organizational health or telling stories, could be captured to record tacit knowledge within the university by using the refined model of a university as a learning organization as assessment and dialogue tools. The questions relating to systems thinking, personal mastery, organizational vision, team learning, mental models, and reflection, would become the "health history" for how university members are doing in these areas, individually and organizationally. The new reflection discipline puts into words and practice the tools of reflecting on why things are done the way they are, what is working versus what is not working, who do people need to be talking to, what assumptions are operating, how is morale, how is personal life, are the connections in place and how well are they working, is performance what it could be and what would enhance it for each individual? The "learning organization check up" could become part of a university’s annual review processes.

A secondary purpose of the learning history is to capture the stories and tacit knowledge of its members. The university is an organization
of fascinating, colorful, artistic, imaginative, and intelligent people. Is the organization capitalizing on the full potential, the expertise and history of its own members? What if every organization or unit could write its own children’s story..."once upon a time, there was this physics department and it...” What stories would emerge? What tacit knowledge might be revealed?

5. Universities could choose to make organizational health a top priority using the refined model of a university as a learning organization. Creating a learning organization collaboratively provides the institution and individuals the opportunity to identify indicators for what collectively is considered a “healthy organization.”

6. Universities may want to conduct a pilot study of faculty using the refined model to compare to other levels of the university and to refine for relevancy at the faculty level.

Implications of the Refined Model for the Field of Learning Organizations/Organizational Learning

This study contributes in three ways to our understanding to the field of learning organizations/organizational learning. The first contribution was to create a model graphically representing the underpinnings of a university as a learning organization. This provided tools from which a study was structured to validate the applicability of the model as a learning organization in higher education.

Second, by creating this model, universities can develop the capacity to understand themselves as a whole while focusing on specific disciplines. This is critical
to understanding the impact of organizational health on organizational members, the organization, and students.

Third, this study provided evidence that clearly supports the addition of the sixth discipline to Senge’s model. This sixth discipline defines a capacity for reflection, both at the individual and organizational levels. While presented as a sixth unique discipline, it is clear that it is an overarching discipline that impacts success of each of the other five disciplines. Work environments are overloaded with technology demands, people demands, the work itself, conflicts, competition with personal life, and challenges to daily demands for learning, with or without help. Reflection may be the discipline that brings things into balance, provides insight about priorities, health, human boundaries, and realistic commitments.

**Closing Remarks**

“We should be about creating an environment for student success. The key element at any university is the academic element. We have to support that and to support it, we may have different ways...” (Participant, 2003).

Two of the major contributions of this study are the conceptual model of the university as a learning organization and the refined model with the added sixth discipline, reflection. In addition, two issues emerged as challenges for higher education: 1) the lack of clarity about the impact of organizational health on desired outcomes for organizational members, the organization, and ultimately students, and 2) faculty appear isolated or disconnected from the university as an organization. Can institutions of higher education create healthy organizations for their own members, perhaps using the refined conceptual model created in this study? How can individual and organizational
goals be accomplished without linking organizational health and "organizational member success?" Does the quality of the educational process from the point of entry all the way to graduation vary with the health of the organization? What impact does individual, departmental, organizational dysfunction have on desired organizational outcomes, individually and collectively? What is the impact of the lack of involvement of faculty with the organization as a whole on students, the organization, and organizational members? Can the refined conceptual model be validated in higher education institutions if organizational health is not perceived as connected to the success of individual and organizational outcomes? The same question can be asked for higher education institutions where faculty are perceived as separate or disconnected from the organization.

The learning organization model for universities provides a tool for assessment and dialogue on many levels for the individual and organization to create the best it can be for all involved. The learning organization process generates an avenue of participation and opportunity to co-create an environment that works for individuals and unleashes possibilities and movement towards a desired vision. Powerlessness is an energy drain and often creates a negative feedback loop which may perpetuate unhealthy behaviors and undesired results. Individuals and organizations have responsibility for creating a healthy organizational environment that maximizes human and organizational potential, which have direct impact on student outcomes. The systems thinking tools, ranging from simple to complex, offer individuals and organizations concrete ways of mapping inflows and outflows, balancing and reinforcing loops, to understand outcomes on deeper levels and from a more holistic perspective. It also creates opportunities to
create possible scenarios by introducing different variables using a real issue relevant for individuals at any level in the university. Most important, it becomes an impetus for making tacit mental models explicit to oneself and to others regarding large scale organizational issues or small individual issues.

Universities represent a microcosm of the world in diversity, globalism, and technology. Higher education has always been the beacon of hope to individuals, society, and nations that look to these institutions of education, academic freedom, research, and innovation to solve the world’s complex problems. Universities have opportunities as organizations to lead and show the rest of the world how to work, learn, and grow together. Universities are at a turning point in history, this author believes, in that the knowledge, the creativity, the entrepreneurial spirit, and intellectual capital can revolutionize the way the world lives and learns together.

These gifts and the human capacity to deal with complexity (Senge, 1990, p. 365) make universities candidates for becoming a learning organization. The conceptual model and subsequent refined model of a university as a learning organization developed in this study puts forth a set of disciplines that can revolutionize the capacity of organizational members to create the life they truly desire and “honor the totality of who they are” within the university context. As learning organization pioneers, university members would become the role models for other organizations in creating cultures that enhance human authenticity and potential.

Finally, this model and opportunity to study universities as organizations of great impact on members within and without the organization, in the researcher’s mind, carries with it responsibility represented in the adage, “to whom much is given, much is
expected.” If universities cannot create organizations that capitalize on the diversity, greatness, individuality, the collective consciousness, and richness of human intellect and creativity, who can?
REFERENCES
REFERENCES


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APPENDICES
APPENDIX A
SENGE’S PYRAMIDS
The Learning Disciplines

Systems Thinking

Personal Mastery

Mental Models

Building Shared Vision

Team Learning
APPENDIX B

HUMAN SUBJECTS CONSENT FORM
SUBJECT CONSENT FORM FOR PARTICIPATION IN HUMAN RESEARCH
AT MONTANA STATE UNIVERSITY

Title: How Does One University Compare to a Learning Organization?

You are being asked to participate in a doctoral study about MSU-Bozeman as an organization. I am studying the university as an organization and am trying to create a picture of how the different leaders’ perceptions compare on five different criteria. I have identified you as a leader and someone who could help me understand this organization. The areas of interest are (1) personal development, (2) organizational or shared vision, (3) team work or collaboration, (4) how the organization is interrelated, and (5) a visual picture or mental map that will help me refine a model I have created based on one of the current organizational theories.

I would like to tape the interview and would like you to sign an informed consent for your protection and our requirements to conduct research. Once this is completed, we will begin the interview by asking some demographic questions followed by questions in related to the five criteria mentioned above. The interview will take about one hour. Do you have any questions before we start?

There does not appear to be any risk involved in this case study other than the possibility that the questions in themselves could evoke an emotional response. The study is totally voluntary and you may discontinue your participation at any time.

Benefits to you would be to have access to the finished document, which may be of value in providing information on the five criteria from all levels of the organization. The graphic representation of different leaders’ views of MSU-Bozeman may provide insight to all participants dedicated to creating a system that addresses the educational needs for Montana’s future.

There is no cost to the participant. The costs involved include those that will be incurred by the researcher for transcription, editing, and reproduction.

All interviews, tapes, field notes, and transcripts are considered confidential. All documents pertaining to this interview will be stored in a locked file cabinet in the researcher’s professional home office. The tapes will be destroyed at the completion of this study.

If you have any questions or concerns during any part of this process, feel free to contact:
Becky H. Smith at (406)587-1091 or (406)586-5094.

Additional questions about the rights of human subjects can be answered by the Chairman of the Human Subjects Committee, Mark Quinn, (406) 994-5721.

"AUTHORIZATION: I have read the above and understand the discomforts, inconvenience and risk of this study. I, ____________________________ (name of subject), agree to participate in this research. I understand that I may later refuse to participate, and that I may withdraw from the study at any time. I have received a copy of this consent form for my own records.
Signed: ______________________________________
Witness: ______________________________________
Investigator: ____________________________________
Date: ________________________________________"
Interview Format & Script

'I am studying the university as an organizational and am trying to create a picture of how the different leaders' perceptions compare on five different criteria. I have identified you as a leader and someone who could help me understand this organization. The areas of interest are 1) personal development, 2) organizational or shared vision, 3) team work or collaboration, 4) how the organization is interrelated, and 5) a visual picture or mental map that will help me refine a model I have created based on one of the current organizational theories.'

'I would like to tape the interview and would like you to sign an informed consent for your protection and our requirements to conduct research. Once this is completed, we will begin the interview by asking some demographic questions followed by five guiding questions in relation to the five criteria mentioned above. Do you have any questions before we start?'

The Title: How Does One University Compare to a Learning Organization?

Date and Time

Name of Interviewer

Name of the Participant

Title

Mailing Address

E-mail Address

Phone

Age

Gender

Background (to include education and experience)

Number of years in this system

Number of positions in this system

Positions prior to joining MSU-Bozeman

Question format - A (member of the system working inside the system) or B (member of the system working outside the system)

6) Brief description of the study - I am studying the university as an organizational and am trying to create a picture of how the different leaders' perceptions compare on five different criteria. In review, they are 1) personal development, 2) organizational or shared vision, 3) team work or collaboration, 4) how the organization is interrelated,
a visual picture or mental map that will help me refine a model that I have created based on one of the current organizational theories.

I would like to ask you five questions:
(A - For system members working inside the system)
1. What comes to mind when I say personal development? What does that mean to you?

Do you have a personal vision? ___yes ___no
How is personal development viewed in this organization, MSU-Bozeman?

What do you base your perception on? E.g. personal experience, observation, policies, role models, assumptions, unspoken messages...

Would you say that you are living the life you truly desire and are maximizing your potential in this organization

2. Does the organization have a shared vision? ___yes ___no
How is this vision communicated and/or enacted?

How do you participate in this vision?
Does this incorporate people’s personal visions? __yes __no
If yes, how?

How does this impact your performance or achievement of your full potential? (Yes or No, please explain)

3. How does team work and collaboration work for you and this organizations?

Is there a feeling of openness, comradery, and respect? Please explain.

Is there a protocol for dialogue and discussion and for testing assumptions? Please explain.

In regard to team efforts, how do you know when you have accomplished your goals and are moving toward the vision?

Are there outcome objectives or incentives for team work or collaborative efforts?

4. How do you see yourself connected to MSU-Bozeman?
Do you see yourself impacting this organization?

How does your connection or nonconnection impact your work, performance, or results?

If you were to draw a picture or use words to help me see your view of this organization and your connections, what would it be?

5. If I were to capture your picture of this organization using a diagram or words to describe what I have heard, it might look like this...(Values, Principles) (Pictures, words, connections, embracing the five areas or manifesting them in specific ways - whatever comes to mind and then will show the leader and have he or she help me fine tune the picture)
How does this view or picture impact your work, performance, or results?

(B - For system members working outside the system)
1. How do you see yourself connected to MSU-Bozeman?

Do you see yourself impacting this organization?

How does your connection or nonconnection impact your work, performance, or results?

If you were to draw a picture or use words to help me see your view of this organization and your connections, what would it be?
2. What comes to mind when I say personal development? What does that mean to you?

Do you have a personal vision? ___yes___ no

What is your perception of personal development at MSU-Bozeman?

What do you base your perception on? E.g. personal experience, observation, policies, role models, assumptions, unspoken messages...

Would you say that you are living the life you truly desire and are maximizing your potential in this organization?

3. Does the organization have a shared vision? ___yes___ no

How is this vision communicated and/or enacted?
How do you participate in this vision?

Does this incorporate people's personal visions? ___yes ___no
If yes, how?

How does this impact your performance or achievement of your full potential? (Yes or No, please explain)

4. How does team work and collaboration work for you and this organizations?

Is there a feeling of openness, comradery, and respect? Please explain.
Is there a protocol for dialogue and discussion and for testing assumptions? Please explain.

In regard to team work, how do you know when you have accomplished your goals and are moving toward the vision?

Are there outcome objectives or incentives for team work or collaborative efforts?

5. If I were to capture your picture of this organization using a diagram or words to describe what I have heard, it might look like this...(Values, Principles) (Pictures, words, connections, embracing the five areas or manifesting them in specific ways - whatever comes to mind and then will show the leader and have he or she help me fine tune the picture)

How does this view or picture impact your work, performance, or results?
Is there anything else you would like to add?

Would you like to add anything to the graphic representation of how you see this system?

Thank you for participating in this study. I will be sending the transcript to your for any corrections or additions to make sure I have your response as accurate as possible. May I call you or e-mail you if I need any clarification? ___yes ___no
APPENDIX D

LETTER FROM THE AUDITOR
July 14, 2003

To Whom It May Concern:

I am writing to give my evaluation of the research process, methods, and results of the doctoral dissertation of Becky Smith at Montana State University. In my role as Auditor, I examined her proposal, her interview and questionnaire materials, samples of interview transcriptions and notes, notebooks of analytical categories and themes, and drafts of the dissertation up to the final draft. I believe that I understand what she did and how she drew insights from her data.

Overall, Becky did an excellent job, given that she had to invent many of the questions and analytical approaches that she used. The thesis moved back and forth between inductive discovery and “testing” of concepts in the MSU “case.” The interview transcripts demonstrate that Becky is a careful and thoughtful interviewer. She was respectful, listened attentively to the interviewees, and used a natural and personal conversational style while maintaining focus on the questions and the data she needed. The transcriptions and notes seem to be of high quality, and Becky’s thematic notebooks are a useful way to assemble and analyze the interview data.

During the analysis process, I expressed my concern to Becky that the process may be somewhat confirmatory. Questions were sorted into preexisting themes, making it more difficult that new and unexpected themes would emerge. To her credit, Becky responded by adding sections about disconfirming evidence, i.e., looking deliberately for things that did not fit expectations. This resulted in both deepening the analysis and demonstrating a higher level of skilled inquiry.

Given the novel and mostly unstructured nature of the topic (what is a “learning organization”?), it was natural for the analysis and writing to be an arduous process. Becky responded well to questions and comments from her readers and the analysis deepened with time. This is natural in qualitative research. The important thing is that the final results are a useful and provocative addition to the research literature on a theoretical level (for example, the structured analytical approach and addition of a temporal dimension) and in terms of the lessons learned for universities and MSU in particular.

In summary, Becky did a very good job under difficult circumstances. She got cooperation from a wide range of people, candid responses (on the whole), and drew valid and useful insights from her data. I expect this work to result in several publications to varied audiences including organizational learning scholars and educational administrators.

Sincerely yours,

John S. Carroll