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Elizabeth Ann Rivet
University of New Hampshire, Durham

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THE COLLEGE PRESIDENT AND THE TECHNOLOGY LEADER:
DEFINING A NEW ROLE IN CAMPUS PLANNING

by

ELIZABETH ANN RIVET
B.S., Marquette University, 1969
M.S., Marquette University, 1971

DISSERTATION

Submitted to the University of New Hampshire
in Partial Fulfillment of
the Requirements for the Degree of

Doctor of Philosophy

in

Education

May, 1997

UMI Number: 9730841
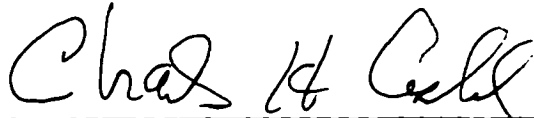
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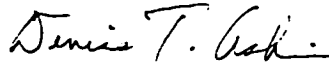
This dissertation has been examined and approved.

_Scott C. D_____

Dissertation Director: Todd A. Mitchell
Associate Professor of Education

_Chas H Celf_____

Charles H. Ashley
Associate Professor of Education

_Denise T. Ask_____

Denise A. Askin
Associate Professor of English, Saint Anselm College

_Richard M Barton_____

Richard M. Barton
Assistant Professor of Education

_Virginia E. Garland_____

Virginia E. Garland
Associate Professor of Education

_4-22-97_____
Date

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ABSTRACT

THE COLLEGE PRESIDENT AND THE TECHNOLOGY LEADER: DEFINING A NEW ROLE IN CAMPUS PLANNING

by

Elizabeth Ann Rivet
University of New Hampshire, May 1997

The research investigated the working relationship between the small college president and the campus technology leader and determined some aspects that might facilitate and strengthen their relationship. The cross-sectional study considered, as voiced by the small college president, the extent of influence in campus wide decision making activities viewed as appropriate for the campus technology leader.
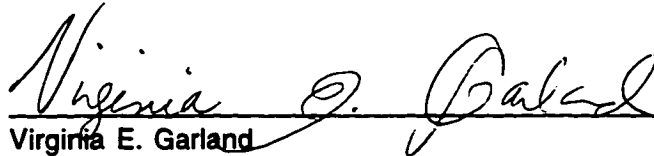
The research focused on presidents of small private and public accredited liberal arts schools in the United States, having between 500 and 3,000 full time students and offering (at least) baccalaureate degrees. The research instrument was a questionnaire containing thirty forced-choice questions which measured (1) the president's personal use of campus information technologies, (2) the administrative reporting levels separating the technology leader and the college president, (3) whether the college president actually appointed the technology leader, (4) the level of recognition given to information technology by the president, and (5) the participation of the technology leader in decision making activities.

A total of 213 responses revealed technology leaders' participation in decision making and the importance of the information technology infrastructure were not impacted by their college president's hands-on experience with campus technology. However, the administrative distance between the college president and technology leader and the president's personal view of the importance of campus technology were nearly

equally strong predictors of the technology leader's role in campus decision making.

This dissertation considered elements of a relatively new collegiate relationship - between the college president and the campus technology leader. Further research is warranted to assess other factors that contribute to the participation of the technology leader in campus decision making done at the highest levels of the administration.

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CHAPTER ONE

INTRODUCTION

Education - particularly higher education - has become a leading industry for America, and in that role it has strong social obligations (Fullan & Stiegelbauer, 1981; Ortega y Gasset, 1944; Sizer, 1992; Ashby, 1974). There is no doubt that college - whether privately funded or state funded - is a social institution tasked with the responsibility to proclaim and disseminate the culture in which it resides, a responsibility that may be considered as equally weighted with its teaching skills and knowledge (Fullan & Stiegelbauer, 1981). The realities and issues facing our information age culture cannot be ignored or divorced from what impacts the campus. At the same time, diminishing funding resources, the growing demands for accountability, and heightened consumer expectations (Ernst, Katz, & Sack, 1994) relentlessly challenge the college's culture and its chief administrators to rethink long term values and visions.

Critics are quick to complain, however, that higher educational institutions no longer appear to do their task of preserving the community's culture or preparing students for citizenship very well. Instead, higher education institutions are battered by accusations that they have not kept step with the fast-paced competitive society around them. The commercial sector is acknowledged as aggressively reinventing its visions and goals to align to the perspectives of a new global community, and in contrast, higher education often appears stymied, hesitant in attitude to acknowledge the need for change and unable to cope with it. Heterick and Sanders (1993) wrote:

> ...we see the fundamental restructuring of corporate America for
> global competitiveness. In manufacturing, technology is replacing
> labor at all levels, and most jobs lost have not moved offshore; they

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simply no longer exist. How well equipped is the education sector to meet this challenge? (p.22).

Of the college leaders who must deal with these pressures, the president is more than a figurehead. As the institutional leader, the president has the ability to influence every aspect of the institution, from curriculum and administrative structure to the quality of its student life. College presidents shoulder the responsibility to design a response to competing pressures on the college, the day to day issues where time and attention are largely prioritized by others (Cohen & March, 1974), and the demands to preserve the integrity of the institutional culture, history, and mission (Benezet, Katz, & Magnusson, 1981). And, in all of it, while avoiding sounding like "heads of automobile dealerships" in the marketplace (Bensimon, Neumann, & Birnbaum, 1989, p. 3), they are asked to sell the morale and ambiance of the campus to renew the spirit of the surrounding community (Benezet et al, 1981).

The President as Information Gatherer

The onus to change these attitudes requires that college presidents understand very well the cultures of their campuses and the contexts in which their institutions are viewed by the larger society. They must be active and energetic information gatherers. "The president may be the most broadly informed person in the entire institution" (Benezet et al, 1981, p. 15), and indeed, he/she should be. At issue, however, is the quality of their sources of their information.

Bolman and Deal (1991) and Cohen and March (1974) suggested that decision makers most often rely on themselves and their personal experience. As issues facing the institution grow in complexity and outcomes depend on more than the college president's ability to learn from past experience, however, Cohen and March (1974) offered an alarming analogy to what a college president

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who relies heavily upon his or her own wits might face:

> The result is that the president is a bit like the driver of a skidding automobile. The marginal judgments he makes, his skill, and his luck may possibly make some difference to the survival prospects for his riders. As a result, his responsibilities are heavy. But whether he is convicted of manslaughter or receives a medal for heroism is largely outside his control (Cohen & March, p. 203).

In recent years there has been an emphasis on the importance for the college president not to assume the risk of one-person leadership but rather to gather an inner-circle of trusted advisors and orchestrate decision making using their combined experience and talents (Bensimon & Neumann, 1993). When the institution faces major change, the need for a high level decision making team approach increases (Katzenbach & Smith, 1993), but the manner in which the college president uses an executive team is likely to underscore the president's own style in using information. In addition, each alternative results in different relationships between decision-maker and the information providers (Bensimon & Neumann, 1993).

The President and Information Technology

Bensimon and Neumann (1993) categorized the act of providing information as either educative or as a means of control. College presidents who prefer educative information sharing want the entire team to hear new information together as a group to establish a common ground for joint policy decision making. At the other end of the spectrum, presidents who view information sharing as a means of control prefer not to be surprised. They use their team to keep abreast of the news of the campus, but they do not engage the team in critical decision making and collective leadership (Bensimon & Neumann, 1993).

On the college campus, one of the most dramatic arenas for change is its information technology infrastructure. Most colleges have found that planning

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for future technology needs - particularly when such planning is deemed a strategic direction for the institution - requires executive level support and participation. Even though everyday technology issues are usually handled without presidential attention, the long term effects and burdening costs incurred from an infusion of new computers, a campus wide network topology, or multimedia technology, and problems generated by those issues, ripple throughout the institution. The level of presidential endorsement of technology initiatives is seen as a barometer of their success. Eventually, problems erupt and the college president - through a solo voice or in concert with the executive cabinet - will need to decide issues of acquisition, administration, funding and budgets, policies and services, access and location, and personnel regarding the computing and technology facilities of the institution (Caffrey & Mosmann, 1967).

Thus the creation of an information technology infrastructure on campus, as well as its continued sustenance, relies on the support of the most influential leaders of the institution (Caffrey & Mosmann, 1967). In return, the leaders who take active interest in technology tools tend to be most successful. Balash (1996) stated that leaders who are most successful have access to accurate and timely information, have the ability to process information to serve their institutions' needs, and have resources to help them communicate that information to their constituents. They are leaders who acknowledge the role of information technology in keeping them well informed. And, as chief executives become more familiar with their information technology infrastructures, there is a tendency to believe that these executives will better understand the significance of information technology to their business and its future and that deeper appreciation may result in a more trusting relationship with their chief information officers (Radosevich, 1997). Thus the relationship of the college president and the campus technology leader would have the potential to be a key

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alliance in coping with strategic change on the college campus.

The Role of the Chief Information Officer

An endorsement by the president can determine the stature of the technology leader and the information technology organization within the campus administration. Merely assigning a title of "chief information officer" (CIO) is not sufficient. Throughout higher education, no clear functional definition for the chief information officer role exists (Horgan, 1996). For some institutions, the CIO is an executive level administrator who is a member of the president's cabinet and who has institution-wide responsibilities for all information resources, including computing, networking, the library, telecommunications, multimedia, and printing. On other campuses, the CIO is the senior information technology leader, who oversees the technology resources and works in partnership with advisory groups and other information leaders such as the librarian in planning information technology investments for the college.

In either role on campus, the single, most critical responsibility for the CIO position is participation in planning how the campus can best use its technology assets (Horgan, 1996; Caffrey & Mosmann, 1967). This voice for technology in planning activities separates the chief information officer of today's college campus from older image of the stereotyped computer center director who kept everything in his head and had full control over administrative data and allocations to the faculty and students. Colleges no longer are willing to risk their technology future on the technology leader who has absolute authority over the technology infrastructure (Caffrey & Mosmann, 1967). Instead, higher education is moving to weave information technology, its assets and its capabilities, into the fabric of the entire campus organization and administration, to eliminate the single point of risk to operational failure.

Presidential endorsement of the function and role of information technology is recognized as a crucial factor in the CIO's success in carrying out

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the responsibilities of the job (Heterick & Sanders, 1993; Caffrey & Mosmann, 1967). To be viewed as resources to benefit the entire college community, the technology infrastructure and the CIO need to be seen as politically neutral. The CIO's responsibilities to oversee technology planning for the entire campus, either as a member of the president's cabinet or in conjunction with an advisory group, necessarily crosses constituent boundaries (Heterick & Sanders, 1993). If the information technology organization of a campus is administratively subordinate to either solely the academic or administrative arms of the administration, such as the CIO reporting to an academic dean or an administrative chief officer, there is risk that it will be seen as serving one constituency more than others. Questions regarding the benefits of the information technology are likely to be raised elsewhere in the college community (Caffrey & Mosmann, 1967).

Reporting through the office of the president not only gives the chief information officer a politically neutral posture on campus, it indicates to the CIO and others that the president can be and will be called to intervene as arbitrator when technology allocations are hotly disputed (Caffrey & Mosmann, 1967). Certainly, then, the alliance of the president's position on the campus with that of the organizational placement of the campus technology leader (i.e., the chief information officer) can be a critical element in the success of campus technology initiatives and the effectiveness of the chief information officer as a campus administrator. Likewise, the chief executive officer who prefers to be insulated from the chief information officer and technology issues, or who discounts complaints regarding the campus technology services, cannot adequately respond to any repercussions which may occur (Caffrey & Mosmann, 1967).

The chief information officer is not only the caretaker for institutional data and the machines and services which make that data accessible to the campus but

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also can be an influential advisor for the president. For the college president, a competent chief information officer provides assurance that expensive resources and assets are well planned and the data gleaned from them are reliable and useful. For the chief information officer, good rapport with the president and the president's cabinet assures a close link between institutional goals and priorities and a valuable ally when disputes over allocations occur (Ringle & Smallen, 1996).

The transition from the "computer czar" to the chief information officer role was provoked by a change of focus from what Ellul (1964) depicted as the technological society to what is now most often labeled as the information age. Instead of viewing computers and related technical capabilities as avenues to efficient processing of data, the means of information flow have become ends in themselves, according to Ellul. Our colleges and universities, as well as other institutions in our society, now, at least in part, measure the worth of technology assets by the value they provide to afford the institution higher levels of information services, a more appealing place to work and learn, and improved opportunities for funding (Balash, 1996).

Still, colleges have been slow to recognize the changes depicted by Ellul. The role of chief information officer and indeed, the entity of an organizational unit responsible for information technology, are relative newcomers to the organizational hierarchy of the college. In 1992, of the 311 responding four-year colleges and universities who are members of the Council of Independent Colleges, 119 members noted that their campuses had functions identifiable as Chief Information Officers. Even so, of those responding, only 35% reported that there is a person on campus recognized as the CIO and in many cases their actual job titles indicated that information technology was not necessarily their primary or only responsibility (Barboni, 1993).

On many campuses, information technology has only recently been

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recognized by college presidents and campus leaders as an essential ingredient of the college life. Further, the relationship between the college president and the chief information officer has only just begun to be established. This is apt time then to consider factors that contribute to the relationship between these two significant roles in the future of the small college.

Technology on the Small College Campus

Ringle and Smallen (1996) recognized that the perspective regarding technology issues and the role of the chief information officer is different for the small college than the larger university. Small colleges often lack the ability to make dramatic investments in their technical infrastructure. They generally emphasize teaching and learning over faculty research opportunities. Even where faculty are recognized with tenure based in part by scholarly research, the small college generally underscores quality teaching and learning experiences for their students, individual attention, and social development. Therefore, the deployment of the leading edge technology is rarely a top institutional priority.

Small colleges most frequently include the chief information officer, if they have one, as a key role in institutional planning. Goals for information technology tend to be linked more closely to institutional goals and, as a result, the college maximizes the resources available to the campus. Smaller campuses monitor information technology directions of larger universities but often find it more economical to purchase commercial, "ready-made" solutions than to deal with the complexities created by the multiplicity of demands facing the university's technology department. Outside consultants are more frequently employed. Small colleges tend to finance information technology differently than larger institutions. The smaller institutions usually are tuition-dependent, and thus when there is a need to develop new strategies for hardware and software, they are more eager than larger schools to turn to collaborative relationships with other institutions or a technology vendor (Ringle & Smallen, 1996).

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Purpose of the Research

The purpose of this research was to investigate the working relationship between the small college president and the campus's chief information officer as it is perceived by the college president. The relationship was studied from the perspective of the small college president. These working relationships between the college president and the campus technology leader were framed by the extent of influence in campus wide decision making that the college president saw as appropriate for the campus technology leader.

This research was important because knowledge of how the relationship between the college president and the campus technology leader exists at peer institutions may benefit strategic leaders who look to information technology to help answer challenges faced by the small college. At the same time, examination of factors influencing the working relationship between the small college chief executive and its chief information officer should help define an appropriate role for the campus's chief information officer. The functions designated to the chief information officer may then better reflect to the entire campus community the president's measure of the strategic importance of its information technology investments.

Decisions about campus technology issues themselves are not the only artifacts of the status of the relationship between president and chief information officer. Equally, if not more, important in the critical stages of decision making processes than the financial investment made in information technology, is who is called to speak for technology issues, and where the technology organization is placed within the college administration.

> ...who gets assigned to team opportunities and the promotion and compensation decisions those opportunities open up signal whether teams and team performance really matter to top management (Katzenbach & Smith, 1993, p. 140).

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This investigation sought to determine if college presidents who themselves make use of available campus technology will more likely have a closer reporting relationship with the campus technology leader than those who less frequently use technology. It considered whether such college presidents will more likely include the technology leader in campus decision making and whether these technology-savvy presidents will more likely consider and promote information technology as a strategic asset for the college. Further, the study attempted to determine whether three factors: (1) the extent to which college presidents use available campus information technology; (2) the president's attitude regarding the importance of information technology for the college; and (3) the reporting distance between the president and technology leader, could function as predictors of the role in which the technology leader will play in institution-wide policy decision making processes.

This dissertation considered elements of a relatively new functional area of the college and a relatively new collegiate relationship - between the college president (or the presidential team) and the chief information officer. A significant piece of the theoretical base, particularly in reference to how information technology issues was presented for policy decisions and who best speaks to the issues of those decisions, was extracted from the documented experience of practitioners, both in higher education and in industry.

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Research Questions

Certainly during decision making regarding technology issues, the designated technology leader should - and probably always does - participate in discussion, giving arguments and explaining concepts. The core issue for this dissertation was the extent of the technology leader's influence regarding issues that encompass more than only information technology concerns for the campus, and how the president's awareness of technology on campus and the organization of the college administration defined a role for the chief information officer within the culture of the campus policy decision makers. Specifically, the research sought to answer the following questions:

1. How often does the college president personally use the campus's information technology resources?

2. Is the college president able to identify the role of technology leader or chief information officer for the college?

3. What is the administrative proximity of the campus technology leader to the college president?

4. How does the college president see the technology leader's role in campus policy decision making?

5. How important does the college president perceive information technology for the college?

6. Can the college president's experience with campus information technology resources, the decision making proximity of the campus technology leader to the college president, and the college president's perception of the importance of information technology to the campus function as predictors of the extent of involvement of the technology leader in institution-wide policy decision making processes?

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Hypotheses

The study included as hypotheses:

1. College presidents who themselves make use of available campus technology will more likely have a close reporting relationship with the technology leader for the campus than those who less frequently use technology.

2. College presidents who themselves make use of available campus technology will more likely include the technology leader in campus decision making than those college presidents who less frequently use technology.

3. College presidents who themselves make use of available campus technology will be more likely to consider and promote information technology as important to the institution.

4. The extent to which college presidents use available campus information technology together with their own opinions of the importance of information technology for the college is a predictor of the role which the technology leader will play in campus policy decision making processes.

5. The distance in reporting structure that exists between the college president and the technology leader is a predictor of the role in which the technology leader will play in campus policy decision making processes.

This study sought to identify some of the factors that may contribute to the college president's confidence in the campus technology infrastructure and in the chief information officers who watch over those resources. It was anticipated that relationships existed between the technical savvy of the college president, the president's attitude toward the importance of technology for the college, the administrative reporting structure, and the influence of the chief information officer in campus decision making. The extent of such relationships was assumed to help determine an appropriate role for the CIO in campus wide planning activities. Finally, it was anticipated that knowledge of how these critical

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relationships exist at peer institutions might greatly benefit college presidents and others who look to technology to help answer the challenges of higher education.

The scope of this research was small private and public accredited liberal arts colleges in the United States, having between 500 and 3,000 full time students and offering (at least) baccalaureate degrees. Both single gender and coed institutions were included in the study. Two year colleges were not considered in this study.

The goal of this research was determine from the college president's perspective which of four factors noted in current research and literature facilitate the function of the chief information officer into strategic decision making processes. Those factors included (1) the president's own fluency with information technologies, (2) the organizational reporting distance between the president and the technology leader, (3) the president's influence in deciding who functions as that technology leader, and (4) the perception of the importance of technology to the campus community.

The study is organized into five chapters. The first chapter provides background information on the roles of the college president and chief information officer for small college campuses. It includes the purpose of the study, research questions, the study's significance, methodology and clarification of terms. Chapter two is a review of literature of issues and topics that relate to the purpose of the research. Chapter three describes the study's methodology. Chapter four presents the results and data derived from the study that directly relates to the research questions. Chapter five summarizes the findings as they relate to the study's hypotheses and notes further implications found in the research data. Chapter five also contains recommendations for future research directions and concluding remarks regarding the impact of the study for the researcher. The references and appendices follow this last chapter.

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CHAPTER TWO

LITERATURE REVIEW

Introduction

This dissertation research was aimed at finding out whether the college

president's own experience using computer and information technology

influences the role of the chief information officer in campus planning issues and

whether the college president views the chief information officer and the campus

information technology resources as strategic assets for the college. This chapter

first synthesizes research in organization theory which relates information

technology to decision making issues. That research has been most useful in

creating working definitions for key concepts in this study. The chapter then

explores campus issues that impact the decision making processes and the role of

information technology leadership in those processes for an institution. The

ways in which information technology is incorporated in directions determined

by strategic planning efforts and the the role of information technology in

shaping those strategic directions for the college campus are assumed artifacts of

the decision making process. They help identify who on the campus have the

greatest (or simply the loudest) voices in campus planning, who among the

decision makers speaks for technology, who are assumed by the college decision

makers to be most affected by campus technology decisions. As a third and final

task, a theoretical framework based on the work of Marshall, Mitchell, and Wirt

(1989) is then constructed for understanding decision making within the culture

of the campus's chief policy makers, and in particular, the role of the college

president in technology policy decision making.

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Organizational Theory and the College Campus

Bensimon, Neumann, and Birnbaum (1989) noted that colleges and universities are like other organizations in that they are shaped and influenced by their own routines, history, and participants. The development of an organization, and in particular, the evolution of a college as an institutional organization, depends on its posture toward change. Making change on an institutional scale requires earnest policy and decision making at the highest levels of the administration. Even at small colleges, to respond appropriately to pressures for change and resistance to those pressures within a college or university, the college leaders must incorporate the institution's mission, its past achievements in its decision making and leadership.

Seeing the Campus as an Organization

> The university is a mechanism for the inheritance of the
> Western style of civilization. It preserves, transmits,
> and enriches learning; and it evolves as animals and plants
> do. Therefore, one can say that the pattern of any particular
> university is a result of heredity and environment (Ashby,
> 1974, p. 2)

No single set of objective criteria has emerged to evaluate the success, quality, or durability of an organization or even to objectively compare organizations with each other. Instead, organizational theories tend to be based on individual first hand experience and bias drawn from the experiences of a member (or former member) of a particular type of organization. Theories of successful organizations are often heavily based on real life or case examples. Over time, techniques have been used to categorize major existing theoretical viewpoints into broader perspectives. Efforts such as that done by Scott (1992) and Bolman and Deal (1991) to identify multiple lenses of analysis have proved to be helpful in understanding the roles in which organizations function in society. More specifically, Bensimon and Neumann (1993) considered three

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lenses in which college presidents view and use their executive cabinet teams.

Scott (1992) considered organizations in three perspectives: (1) as rational systems, which view organizations as highly formalized structures designed for achieving a common goal; (2) as natural systems, which view organizations as a social group sharing a common interest and whose main purpose is to sustain its own existence; and (3) as open systems which appear as patch work of participants having different levels of commitment and periods of participation in organizational activities and concerns. When higher educational institutions are viewed as rational systems, the leadership role stresses decision making, getting results, and constructing stable management systems. In a natural system of higher education, leaders focus on meeting people's needs and building interpersonal relations. They compare organizational dynamics to family interactions. Open systems in colleges restrain leaders so that they tend to rely more on persuasion and consensus building to lead. Changes and improvements made by leaders occur in only subtle ways (Bensimon, Neumann & Birnbaum, 1989).

The small college as an organization can also be examined using the four "frames" established by Bolman and Deal (1991). Bolman and Deal stated that organizations can be viewed from four different vantage points: (1) the structural frame, emphasizing formal roles and relationships; (2) the human resource frame, speaking to the needs of its people; (3) the political frame, considering the conflict over scarce resources; and (4) the symbolic frame, which views organizations as cultures with shared and learned values. Bolman and Deal's frame perspectives suggested people sharing the same organizational experience, for instance the members of a college presidential cabinet, can and do view identical situations differently. Awareness of the multiple ways others interpret actions and situations can help the organizational leader better understand and hence manage a diverse working environment.

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Rather than portraying the field of organizational theory
as fragmented, we present it as pluralistic. Seen this way,
the field provides a rich palette of lenses for viewing
organizations. Each theoretical tradition is helpful. Each
also has its blind spots. The ability to shift from one conceptual
lens to another provides a way to redefine situations so that
they become manageable. The ability to reframe situations
is one of the most powerful capacities of great artists. It can
be equally powerful for managers (Bolman & Deal, 1991, p. 37).

The structural frame characterizes the organization by how its formal structure controls its functions. Those who view organizations through a structural frame worry about issues of control - over decision making, problem solving, performance evaluation, and the distribution of rewards. They see people as instruments employed by the organization to reach institutional goals. Status within the organization determines how and to what extent people deal with each other (Bensimon, Neumann & Birnbaum, 1989). The strong emphasis within structural frame mirrors the importance of procedural control seen in classic bureaucratic organizational theories of Weber and Mintzberg (Silverman, 1984). Because work is divided into specialized roles, such organizations tend to be rigid. Unanticipated change and uncertainty are difficult planning issues for such organizations because its structure is designed only to handle predictable situations (Bolman & Deal, 1991).

Organizational theorists and practitioners using the human resources frame look for opportunities for the organization to serve the needs of its people. Issues of achievement, creativity, and self control become central in the human resources frame as a means to build morale and hence increase productivity. The human resources frame is built around the assumption that there is a interdependency between the welfares of the individuals and the organization. The organization needs the talent and energy of its people for its survival and the individual needs the salary and work opportunities provided by the organization.

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When the relationship is healthy, both the organization entity and the individual

enjoy benefits, and when the fit is poor, both suffer (Bolman & Deal, 1991).

Mirroring the importance of this human resources frame, Barone (1996)

saw this relationship between an information technology department and the rest

of the college as similar to how adventurers choose their partners. She noted the

difficulty of communication that exists between the technology area and the rest

of the college.

> Adventurers choose their partners very carefully; they
> team up with people they trust. Good communication is vital
> to survival on a difficult river run and technical climb....
> Consider how we [in information technology] must truly
> terrify some of our campus partners. Our vocabulary is
> strange. They don't understand our skill sets. Consequently,
> they don't value them. Our methods of working frighten
> them (and vice versa, I might add) (Barone, 1996, p. 10).

The human resources frame used by Bolman and Deal reflects the

organizational theory supported by McGregor (1960). By extrapolating from

Maslow's theory of human needs, McGregor concluded that an individual who does

not find this innate satisfaction in work is apt to be less motivated and less

effective by any other incentives.

McGregor labeled diametric philosophies of organizational theory as

"Theory X" and "Theory Y." In Theory Y, McGregor linked motivation with

responsibility, collaboration and innovation. A Theory Y organization assumes

these attributes can be possessed by any of its employees and so resolves

problems in motivation by having the organization focus inward so that it placed

responsibility for improvement upon the individual's self control. In contrast,

his Theory X organizations view performance issues as defects in individual

character. Resolution to a lack of motivation then is fixed by replacing the

unmotivated employee with a "better" one (McGregor, 1960).

Bolman and Deal's third frame, the political frame, is characterized by

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decisions regarding the allocation of the organization's scarce resources

(Bensimon, Neumann & Birnbaum, 1989). Issues of special interests, power,

authority and negotiation are dealt within the political frame. People who see

organizations in the political frame focus on coalition building, compromise and

negotiation in order to achieve objectives. The political frame emphasizes that a

power base is needed to implement strategy. It is within the context of the

political frame that Bolman and Deal (1991) enumerated the sources of power an

individual can achieve within an organization: positional authority; expertise;

coercion; allies and personal power and noted that the administrators working in

the political frame can offer a very hardened view of organizational behavior:

> *Doing* a good job is not that critical, but *appearing* to do
> a good job is essential. Projects that aim to improve the
> quality of life in organizations are, at best, harmless vehicles
> for the expression of political agendas. At worse, they are
> manipulative nonsense (Bolman & Deal, 1991, p. 238).

The political frame is reminiscent of Machiavelli (1513/1992). In the

political frame, leaders continuously manipulate their position in decision

making processes and believe that others aspiring for leadership do the same.

> ...being thus constantly busied in planning and executing
> vast designs, he kept the minds of his subjects in suspense
> and admiration, and occupied with the results of his actions,
> which arose one out of another in such close succession as
> left neither time nor opportunity to oppose them (Machiavelli,
> 1513/1992, p. 59).

For information technology departments and the campus technology leader,

the political frame is the root of the importance of technology for the campus.

> ...building a relationship that allows the IT organization
> effectively to execute its enabling role in institutional
> transformation is the greatest challenge we [as technology
> leaders] and our partners [the campus] face. The problem
> is that neither we nor our partners have recognized or dealt
> with it as a mutual challenge (Barone, 1996, p. 11).

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The last of the four frames of Bolman and Deal is the symbolic frame. In the symbolic frame, the importance of events such as decision making is how the events are interpreted, not the results they bring - reminiscent of Ellul's (1964) emphasis on means rather than ends. The symbolic frame is of particular importance in understanding organizations with unclear goals and ambiguous processes which, very often, are characteristics of institutions such as small colleges (Bolman & Deal, 1991). In the symbolic frame, organizational structures and processes appear to created on an ad hoc basis - a bewildering situations for newcomers who are often treated as suspicious outsiders. Leaders who function in the symbolic frame view themselves as facilitators and keepers of the organization's symbols and stories.

The symbolic frame reflects Cohen and March's (1974) description of American colleges as "organized anarchies" which are characterized by: inconsistent and ill defined goals; trial-and-error procedures based on "accidents of past experiences, imitation, and the inventions born of necessity; and fluid participation from participants so that boundaries were uncertain and constantly changing" (Cohen & March, 1974, pp. 2-3). Such environments cause the college president to be faced with four levels of ambiguity: (1) ambiguity of purpose; (2) ambiguity of power; (3) ambiguity of experience; and (4) ambiguity of success (Cohen & March, 1974, p. 195). Decision making and problem solution in the college environment then is done by bringing together different members of the community for a specific purpose and then disbanding that group when the relevant choice is made. Cohen and March's organized anarchies depict how organizations in the symbolic frame are constructed and because of their loose structure, their processes are often labeled as "garbage-can decision making" (Bensimon, Neumann & Birnbaum, 1989, p. 32).

In summary, then, Bolman and Deal suggested the frame in which the organization is viewed determines to a great extent what leaders see as their role

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and how they fill that role. Leaders using the structure frame view themselves as the primary decision makers for their organization. They are the ones who decide what course of action is best for the organization and they commandeer its execution. In a human resource frame, leaders focus on meeting people's needs and helping others reach their potential. Leaders in the political frame view the organization as a collection of power blocks through which they need to negotiate to obtain and define their own sense of authority. Those in the symbolic frame view a fluid organization in which they most generally act as mediator and facilitator for loosely coupled goals (Bensimon, Neumann & Birnbaum, 1989). Likewise, Bensimon and Neumann (1993) noted three functions that are accomplished by the college president's executive cabinet: (1) a utilitarian function that coordinates the functional roles of the institution; (2) an expressive function which provides support and counsel for the college president; and (3) a cognitive function which uses dialogue to view problems and opportunities from multiple perspectives, enhancing creative decision making.

Two common directions posed by these three organizational theories are based on the recognition that the building blocks of organizations are not individuals but rather groups or teams of individuals. First, the existence of multiple lenses to view an organization or group weakens the possibility that the single leader, as the college president acting alone, is capable of providing an overall global perspective and strategic direction that benefits everyone. Secondly, the presence of multiple points of view, such as those that might be expressed by an empowered executive cabinet which includes both traditional and new functions of a college, strengthens its value to the chief executive and to the institution.

> ...to enlarge individual member's understandings of each
> other's view rather than insisting on a dominant but delimiting
> view, to encourage the expression of dissensus rather than
> emphasizing consensus, to bring out differences rather than

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looking mostly to similarities" (Bensimon & Neumann, 1993, p. 18).

Policy Decision Making and Making Change

Bolman and Deal (1991) noted that policies provide predictability and uniformity to decision making at all levels of the organization. Policy making, according to Herbert Simon's theory of administrative behavior (Scott, 1992), is created through a combination of factual premises - representing how decision makers view the the world and how it operates - and value premises which are the assumptions made about what is deemed sufficiently important to be included in the goals of the organization. Scott (1992) observed policy decision making at higher administrative levels depend heavily on the value premises of the organization whereas decisions made at lower levels of the administration depend more heavily on assumptions based on experience and expertise. Fullan (1993) described this link between the values premise of an educational institution (what Fullan called moral purpose) and the institution's ability to create change through administrative decisions as similar to the phenomena of strange attractors in chaos theory. Each counterpart not only impacts the other's effectiveness but also helps define a role for the other in change processes.

> Scientists talk about 'strange attractors' as forces that pull
> chaotic states into periodic patterns. Moral purpose is one
> of change processes' strange attractors because the pursuit
> and pull of meaning can help organize complex phenomena
> as they unfold. Strange attractors do not guide the process
> (because it is not guidable), they capitalize on it. Without
> moral purpose, aimlessness and fragmentation prevail.
> Without change agentry, moral purpose stagnates. The two
> are dynamically interrelated, not only because they need
> each other, but because they quite literally define (and
> redefine) each other as they interact (Fullan, 1993, p.18).

Viewed as a reflection of the values of an organization, Marshall, Mitchell, and Wirt (1989) saw the policy making process of an institution as an extension of the culture of the organization. Thus, the resulting policies of an institution

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are legitimately artifacts of the values of the institution that are leveraged with money, penalties, and other powerful inducements (Marshall, Mitchell, & Wirt, 1989).

As the policy making process begins, however, the values do not necessarily have to be completely articulated. The vision is not the beginning of the policy making process. Kouzes and Posner (1995) observed common values are developed through dialogue and "emerge *from a process* , not a pronouncement" (p. 216, italics in original). In fact, Fullan (1993) firmly insisted that to enter policy making with an intact vision is dead wrong.

> ...the old and dead wrong paradigm is still being promulgated,
> such as Beckhard and Pritchard's (1992) recommendations
> for vision-driven change. There are four key aspects:
> creating and setting the vision; communicating the vision;
> building commitment to the vision; and organizing people and
> what they do so that they are aligned to the vision (p. 25).
> Not! (Fullan, 1993, p. 29).

Thus, it is through the activity of policy making that strategy and vision materialize, and because of that reality, a reordering of the sequence of decision making steps to "ready, fire, aim" (Fullan,1993, p. 31) makes procedural sense in issues of policy and decision making. Policy decision making is an element of making an educational institution a learning organization - one which continues to grow and develop, contending with change and embracing it. As learning institutions, colleges need to look outward rather than inward and weigh changing values of the larger culture as well as internal changes in creating values for the institution (Fullan, 1993).

> Successful organizations have many antennae to tap into
> and to contribute to the demands of change which are
> constantly churning in the environment. They treat the
> internal and external milieu with equal respect. Seeing
> 'our connectedness to the world' and helping others to see it
> is a moral purpose and teaching/learning opportunity of the
> highest order (Fullan, 1993, p. 39).

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The desired end-point, according to Fullan, is not to create a tight-knit culture where values are shared but rather to create a decision making atmosphere which encourages questioning of existing values. The recognition of shifting values in a larger societal context is a driving force in using policy making to create institutional change (Fullan,1993; Clarke, 1994; and Marshall, Mitchell and Wirt,1989).

As the new directions unfold, the most natural reaction to change - particularly unexpected change - is resistance. Clarke (1994) talked about the life cycle of change including predictable emotional responses from those who are in it. The self esteem as the process begins is quickly replaced with depression, fear of failure, and a sense of being overwhelmed with the need for learning (or relearning) a job. Change is equated with a loss of control over the individual's choice and ownership. Since reasons for change are much less clear to those who are processed through change than they are to the decision makers, Clarke suggested that the top teams display a dramatic show of leadership :

> The clue for managing change is to give very visible
> leadership from the top, demonstrating the direction of
> change and the commitment of the top group. The top team
> should be first over the cliff and they should go on passionately
> selling their belief in a better future (Clarke, 1994, p. 87).

Clarke (1994) considered organizational change as a three step process, a process which will most likely make things worse before things get better. The first step is to unfreeze or destabilize the organization. Unfreezing is the recognition that the current ways of doing things are not the best possible ways. The need for change is brought to the forefront so that unless change happens there is a growing belief that the organization will fail to meet its own goals. Unfreezing removes the security and stability that group members come to expect from the organization, and by doing so, it not only creates momentum for change but also produces a great deal of anxiety. The transition or change state

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that follows is when opportunities to safely experiment with alternatives appear. It is a time of training and practice and also a time in which organization members receive large amounts of support and encouragement. The final stage is called refreezing, and within this state, the newly instituted changes become part of the organization's infrastructure so that there is no opportunity to regress to the original state. This is the time when supporting mechanisms such as rewards and appraisals become critical to maintain the new structure.

According to Bennis and Nanus (1985), change which literally transforms the social architecture of the organization only starts in the president's office and it cannot be manifested without the full support of the inner circle of top advisors. Behind the doors of the president's cabinet, policy planning sessions can, and should, become opportunities to reveal conflicts and to renegotiate and reaffirm vision and strategic directions. The benefits to planning, particularly at high levels within an institution, then, can include much more than simple decision making. They become processes to build coalitions between major campus powers, reaffirm common purposes, and reestablish shared symbolic meanings (Bolman & Deal, 1991). Diversity of experience and knowledge within the president's cabinet is important to the collaborative policy making processes.

> Collaboration is one of the most misunderstood concepts
> in the change business. It is not automatically a good thing;
> it does not mean consensus; it does not mean that major
> disagreements are verboten; it does not mean that the
> individual should go along with the crowd (Fullan, 1993,
> p. 82).

Openness to individual experience, intuition, and creativity is the means by which the group learns to view issues more creatively and learns to respect and integrate opposing viewpoints into their decision making. Put another way, the abilities to weigh alternatives and to learn through decision processing is an

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essential factor in policy making and a key capacity for leadership in today's world. Torbert (1991) referred to this in his description of the highest of his adult development strategies which he defined as the power of balance.

> The intellectual power of balance includes the executive
> capacity to think on one's feet in the midst of crisis. It
> includes the moral capacity to act with integrity and
> compassion in times of pressure, adversity, turbulence,
> and transformation. It includes the strategic capacity to
> weave all that reverberate positively on all time horizons.
> And it includes the visionary capacity to see what one does
> not see - the visionary capacity to challenge the assumptions
> of one's current way of seeing and thinking - the visionary
> capacity to see other perspectives and to see through
> transformations in one's own perspective (Torbert,1991, p.5).

Collaborative planning sessions cultivate the common strategic vision initiated by the college president. How well it grows and how well it bears fruit, however, are more dependent on the relationship of the cabinet, the president, and others who become part of the policy making process.

Team leadership

> Leadership is an affair of the heart, not of the head (Kouzes &
> Posner, 1995, p. 305).

Bensimon and Neumann (1993) noted a long tradition that links how collegiate leaders view their institution as organizations and the approach to leadership they used. When considering the college as a bureaucracy, its leaders are seen as making decisions using rational and logical means. They get expected results from an orderly and highly controllable world. When colleges are assumed to be collegiums, leaders appear to rely on consensus building for decision making. Their interpersonal skills and their inclination for consultation become key traits to help others meet needs and to realize their own goals. Working in political systems, leaders count on their negotiation and mediation skills. Power and influence are achieved through diplomacy and

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persuasion. In symbolic systems, such as organized anarchies, expectations of the impact of leaders are tempered by the complexities of decision making so that their achievements are only to marginally nudge the college in new directions (Bensimon & Neumann, 1993).

Most recent thinking regarding organizational leadership (Kouzes & Posner, 1995; Bensimon & Neumann, 1993; Bolman & Deal, 1991; Gardner, 1990) contrasts dramatically with the traditional notions that speak of leaders as persons with rare and special talent, to shape an institutional vision single handedly and to command others to it (Bennis & Nanus, 1985). The college president may still be identified as the institution's leader, but the responsibility for leadership is now often distributed among a group of key advisors who contribute multiple perspectives to problem solving.

> ...when presidents step out of the public view they rarely
> do their homework alone. They are often joined by team
> colleagues...who contribute as much, if not more, to
> institutional leadership as the president. It is high time
> that the myth of solo leadership, as applied to the presidency
> and to other leadership roles, be shattered. The presidency
> is lodged not in one person but in a team (Bensimon & Neumann,
> 1993, p. xv).

Bensimon and Neumann (1993) explored the cultural aspects of the teams used in college leadership, and in particular how college presidents use their teams in decision making. Since Bensimon and Neumann's work described in detail many of the aspects of presidential teams in which the current research is based, it is appropriate to consider their findings in some depth.

Leadership teams as described by Bensimon and Neumann (1993) provide the college president with support and reinforcement, as well as additional creativity in problem resolution. In nearly all instances, the college president has no peer on campus and thus the existence of a presidential team fills an important social and supportive role for the president. The ability to share

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information with trusted associates openly reduces the likelihood of hidden agendas. Executive team members act as advisors to the president and to one another to help resolve departmental level problems. They share experiences and challenges and help keep each other on track with projects. As a decision making entity, the team members depend on each other's progress in certain areas of investigation or implementation, and that mutual accountability helps to move executive policy making processes of the college more quickly than if only one person holds the reins of leadership.

Presidential teams can also become problematic, and at times, risky ventures. Good team interaction is dependent on who is chosen as a team member. The most important traits of a team member appear to be tolerance, acceptance, open-mindedness and a desire to learn new ways of thinking from others. Experts in certain content areas who are exclusively attached to a particular viewpoint and are unable to explore other's thinking tend only to disrupt decision making teams (Bensimon & Neumann, 1993). Thus the attribution of a singular dimension of campus technology inhibits technology leaders from being seen as contributors to broader campus planning efforts.

As the team evolves, it creates its own subculture and there may exist the risk that it separates from other subcultures on the campus. Kanter (1983) defined this possibility as suboptimization:

> A group can become *too much* [italics in original] in its
> own goals and activities and lose sight of the larger context
> in which it is operating. For example, the kinds of things
> that can help pull a group together - a retreat offsite to
> communicate better, a sense of specialness and unique
> purpose, private language and working arrangements - can
> also wall it off from everyone else....This is what
> management theorists call "suboptimization": a group
> optimizing its own subgoals but losing sight of the larger
> goals to which they are supposedly contributing (Kanter,
> 1983, pp. 267-268).

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Another criticism of teams is the risk of groupthink, the suppression of dissension within group decision making (Fullan, 1993). Bensimon and Neumann (1993) characterized groupthink as when "team members consciously or unconsciously avoid expressing rival viewpoints for fear of disturbing their team's harmony" (p. 10). The opposite of groupthink is team thinking (Bensimon & Neumann, 1993). In team thinking processes, members are not only expected to assert their views and experience, but other members are required be open to really hear divergent opinions. In sharing viewpoints, teams also risk that some members will be more assertive and dominating than others. Their ability to railroad decisions is sometimes countered by those less assertive withholding their support and cooperation.

Finally, team building and later teamwork can be extremely time consuming. "Doing it well requires a high level of commitment and a steep investment of time" (Bensimon & Neumann, 1993, p 12). Those who become members of the president's inner circle are likely to already be very busy people. Team building - like all aspects of leadership (Kouzes & Posner, 1995) - also is a never-ending process, and member turnover is unpredictable and stressful. As newcomers replace those that leave, the team again must be essentially rebuilt to avoid the assumption that the newcomer will automatically take the role of his or her predecessor (Bensimon & Neumann, 1993).

Culture in Decision Making

Theories in organizational structure, facts relating to the importance of information technology to the future of higher education, and the roles of leadership and administrative management help in understanding the relationship that is established on the college campus between key administrative chiefs of the campus and technology leaders. The extent of that relationship and the roles which are delegated in the relationship, however, are determined at least in part by the behavior of individuals as they operate within a social context. The

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working relationship between the campus chief executive and its chief information officer is dictated to some degree by the cultural patterns established by the decision makers and their policy system. Thus the culture of the college president's top team and the roles which the team members play are important aspects toward understanding decision making processes at the executive level of the institution.

The Team as a Culture

Rather than focus on team results, Bensimon and Neumann (1993) considered the culture of the team as a group dynamic in itself. They attempted to determine how team members interact with each other, how they distance themselves from their teammates, and how they use power and language in their joint decision making. The authors made an important distinction between viewing culture as something which the team has so that it becomes simply a management tool and culture as something which the team is.

> We do not conceive of teams as organizational objects with
> culturelike attributes. Such objects are not cultures at all;
> they are something different, even though they look or act
> like cultures. This mistranslation of the culture concept
> throws up right back to the conventional, functionalist view
> of the team as a managerial tool. Now the team, still a
> managerial tool to its core, simply dresses up like a culture!
> In taking the opposing position - that a team *is*, in fact, a
> culture to its core - we authentically revise our root metaphor,
> turning culture into our base lens for making sense out of life
> in teams (Bensimon & Neumann, 1993, p. 25).

This culture lens allowed the authors to consider the team as an entity in itself, "a reality that exists inside the head of each member - and, therefore, it is likely to differ, at least somewhat, from member to member"(Bensimon & Neumann, 1993, p. 30).

Executive level decision making teams are important resources for college presidents, they rank among the few resources in which presidents themselves

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have considerable influence. Presidents tend to think of their teams in terms of three separate functions: as a tool to keep the college running through its abilities to provide information, coordinate and plan, and make decisions; as a tool to provide mutual support and counsel to the office of the president; and as a means to view problems and situations from multiple perspectives with the intention that issues will be sufficiently argued and questioned to avoid outcomes that deviate from the course set by the office of the president (Bensimon & Neumann, 1993).

Presidential teams differ not only in their function but also in the power and influence they possess and wield on campus. They may play an influential and visible role in the leadership of the institution or they may merely be subordinate staff. The central characteristic of the team is the act of thinking together, as a single entity. Bensimon and Neumann (1993) found that presidents with real teams characterized by the functions listed above, viewed their teams as collectives and referred to the team as "we" and "us". They tended to use the team for more global concerns rather than limit their usefulness to the individual members' domains.

Bensimon and Neumann (1993) used past research of Anna Neumann to describe eight "thinking roles" that are played out in presidential team thinking processes for the purpose of initiating the particular process involved in the team environment. Thinking roles were designated totally separate from the roles in which members played within the larger culture. A person's thinking role may not have any relationship to the responsibilities that person held for the college. Of the eight roles that were listed, the first five (the definer, the analyst, the interpreter, the critic, and the synthesizer) were considered to represent the core processes needed in team thinking. The last three (the disparity monitor, the task monitor, and the emotional monitor) facilitated those processes. The definer creates the agenda for the team, and as such, the definer

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is the member who most reflects the "social majority of the team" (Bensimon & Neumann, 1993, p. 61). The inclusion of marginal voices within the team is usually done only when the team recognizes issues relating to the issues of that minority.

The analyst probes the issues raised by the definer in an effort to understand them better. The analyst does not question the legitimacy of an issue or provide alternatives, opting only to examine how an issue might appear from multiple perspectives and backgrounds. The interpreter also does not question the issue but rather translates the issue as it would be interpreted by various constituencies on the campus. This role investigates the alternatives of what the outcome of the issue might be and how the various alternatives might be interpreted by the community outside the team. The role of the interpreter is viewed as critical to avoid making what might be considered a big mistake:

> One of the biggest mistakes that administrators make is
> to believe that what they see and believe is shared exactly
> by others around them - in short, that all people see the
> same things and make the same sense out of what they see
> (Bensimon & Neumann, 1993, p. 64).

The role of the critic is to propose a fundamentally different point of discussion. This role would redefine the agenda for the team or essentially reinterpret the meaning of the issue under discussion. The critic encourages the team's consideration of alternative ideas, raising issues that others may overlook - a job that may at first appear unwelcomed by the rest of the group.

> The unspoken rule, when administrators are harried, is
> to refrain from digging too deeply - to avoid muddying what,
> on the surface, looks fairly straightforward. It is the person
> who assumes the role of Critic who is likely to break the
> imposed peace and to push the team into uncomfortable learning.
> Teams that value learning - however painful - will protect and
> value their Critic. But teams that purposefully evade uncertainty
> are likely to shun and discredit the Critic, and perhaps to drive
> this person away (Bensimon & Neumann, 1993, p. 143).

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The last of the core roles is that of the synthesizer. The synthesizer brings the team thinking process together, and integrates divergent understandings of the issue at hand.

The three remaining roles (the disparity monitor, the task monitor, and the emotional monitor) linked the team thinking process with the people outside the team. The disparity monitor gathers views from outside constituencies to determine how people outside the team interpret the team's actions. The task monitor is charged with removing obstacles to getting what needs to be done accomplished and to facilitate the processes of the team. The emotional monitor holds the team's culture together. The emotional monitor is often the person who reaches out to newcomers and helps them transition into the team by getting to know them and translating their views and concerns to the rest of the team (Bensimon & Neumann, 1993).

Bensimon and Neumann used the functional roles of the team thinking process to categorize teams as either complex or simple. Complex teams display all three team functions and included most if not all of the thinking roles. Simple teams reflected only one team function and demonstrate no thinking roles. By comparing complex and simple teams, the authors determined some significant differences in how individual members feel about their teams and how the team contributes to the larger culture. In studying the culture within the team, the authors found that members of complex teams - even members who served on the previous president's cabinet - were more likely to envision their benefit and contributions to the president resemble an orchestra than members of the simple team:

> Let us compare ... an instance of the president acting as
> Synthesizer within a complex team with the way the president
> acts within a simple team. While the president in the complex
> team plays a strong Synthesizer role, acting like an orchestra
> conductor who sequences individual musicians for their
> cumulative effect and assures that each instrument is heard as

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part of the whole, the president in the simple team disassembles
the orchestra to listen and work with just one or two instruments
at a time. The president in the simple team is less a conductor
than a regulator. While the resulting technique may be good,
the musicians make little real music together (Bensimon &
Neumann, 1993, pp. 89-90).

The college president's approach toward the executive cabinet, as a complex

or simple team, appears to be an indicator of how all executive campus

responsibilities may be handled by the chief executive. The issue then changes

from what the president's team could do for the campus to how the president's

orientation to leadership affects both the cabinet and the campus as a larger

culture (Bensimon & Neumann, 1993). The assertion follows that what changes

are made and how change is approached and handled in the president's cabinet is

more a sign rather than a cause for qualitative change happening on the campus.

In addition, the existence of the presidential cabinet functioning as a complex

team is viewed as an indication that the larger organization - the college itself -

is moving toward a philosophy of using complex team thinking in all decision

making.

But what is even more important is the finding that while
complex teams seem positioned to do good things for colleges
over the long haul, even if we can't see their effects right
away, they are also likely to serve as signs that the larger
organization is taking a turn toward complex thinking and
doing. Whatever leadership is being exerted to make the team
a team is likely being exerted to make the college a college in
the best sense of what that means: the members of the complex
team think, open each other's eyes to new sights, and forge
new understandings. In short, they learn. It is likely that in
becoming more complex, the organization, like its leadership
team, is also beginning to learn (Bensimon & Neumann, 1993,
pp. 101-102).

Torbert (1991) suggested a different division of team roles which he

labels as Chief, Warrior, Priest and Clown. The Chief is characterized by a deep

commitment to the mission of the organization. The Warrior acts as the "front

line operations man", handling the day-to-day business of the organization. The

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Priest holds a lessor role that underscores both of these two positions. For the

Warrior, the Priest represents the security and continuity of the group. To

support the Chief, the Priest also indicates that for overall well-being of the

team, nothing will be held as a "sacred cow." Torbert's fourth role of the Clown

represents ingenuity, spontaneity and a focus on execution and follow-through,

and it is the Clown who incites enthusiasm and encourages the others to make

decisions. The four roles compose what Torbert called a Continual Quality

Improvement Team, and their focus is all facets of the community. Together

their ability to maintain a good balance of power determines the strategic success

of the entire enterprise.

> The principal "trick" ...- and a high risk trick it is, even
> once learned - is to treat the *ongoing, top-to-bottom,*
> *day-to-day performance* of the organization and its
> members - not just the ultimate product or the immediate
> conditions of production - as the focus for continual quality
> improvement. This requires means of measuring and offering
> feedback and taking corrective action not just on products, but
> also on managerial actions as they are occurring. Moreover,
> it requires doing so in ways that recognize that actions reflect
> interpretations, and that the interpretive scheme of the actor
> may require challenge and adjustment (Torbert, 1991, p. 86).

The goal of this continual quality improvement is to create what Torbert called a

liberating structure - one which cultivates the developmental growth of all its

members. It is one that promotes self-discipline and empowerment at all levels

of the organization. Torbert talks about such shifts in behavior as the emergence

of self-correcting and self-destructing systems. Characteristic of these changes

is to take "whatever appeared to be a block or barrier to progress and redefine it

as a building block" (p. 197). Resulting decisions are grounded in the needs of

the entire organization, and are presented to the entire community as such. No

issue be assumed to be beyond scrutiny. This is what Torbert referred to as the

goal of action inquiry.

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No degree of skill and charisma in leadership and no degree
of subtlety and comprehensiveness in structures and systems
will prevent occasions from arising when an embracing
consciousness of the present and the courage to inquire into
it is necessary if justice is to be done, or effectiveness is to
be achieved, truth to be gained or grace realized. Moreover,
the very best leadership and the very best structures will
require and cultivate just such an embracing consciousness
of the present (Torbert, 1991, p. 220).

Torbert suggested the best methodology for understanding and documenting the use of the power of balance concept is through action inquiry and observant participation. In observant participation, the researcher is defined within the system studied, rather than as a social scientist. The methodology then examines the interplay between the researcher, the research, and the setting - as well as scrutinizes the researcher's views of the world. Since there is no separation between the researcher and the research setting, action inquiry leads to living inquiry - where one is capable of stepping out of "solving (one-dimensional) problems, whether at work, with family, or alone" and ponder "what is really asked of me in this situation, and who is asking" (Torbert, 1991, p. 269).

The college president's action to create a team, that is consistent with a personal style of leadership and management, is an important first step in how the resulting culture of the team will be defined. Bensimon and Neumann noted that the creation of complex presidential teams are the results of deliberate actions taken by the chief executive during the team making process rather than the results of a crisis situation that required immediate decision making. Although crises tend to bring people together and lay aside concerns about individual responsibilities and power, once crisis situations pass, presidents studied by Bensimon and Neumann were not able to sustain the collective action that is essential for complex team thinking.

A distinction is made between team-as-culture and team-as-athletic-group (Bensimon & Neumann, 1993). Viewed culturally, team building involves

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relationship building for the purpose of giving meaning to the team's achievements. This contrasts with team-as-athletic-group in which the team is viewed as a set of coordinated individual roles.

Educational institutions, according to Fullan (1993), are not only more keenly aware of the need to be "actively plugged into their environments (p. 39)", they see that connectedness as a moral obligation.

> But most fundamentally, learning organizations know that expectations and tensions in the environment contain the seeds of future development. There are far more ideas 'out there' than 'in here' ...Successful organizations have many antennae to tap into and to contribute to the demands of change which are constantly churning in the environment. They treat the internal and external milieu with equal respect. Seeing 'our connectedness to the world' and helping others to see it is a moral purpose and teaching/learning opportunity of the highest order (Fullan, 1993, p. 39).

Bensimon and Neumann concluded that the culture of team work and that of team building is grounded on convergence rooted in connectedness. The identification of simple teams had, in fact, less to do with lack of clarity in goals than with the lack of growth in relationship building and meaning making that occurs during team thinking processes and which are impossible to achieve on an individual basis. Instead of only identifying institutional dysfunctions and determining a fix for them, this new culture immediately moves to talking through the problem, looking to understand it from different perspectives, and considering how the context might be transformed rather than repaired. Policy decision making in this new culture then is done from the viewpoint of sensitivity and understanding rather than pragmatic actions to fix or restore the system.

Culture of Policy Making

A key issue of this study is how values regarding information technology are negotiated by the president's cabinet and how the policies that emerge from these values impact the relationship between the college president and the chief

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information officer.   Marshall, Mitchell, and Wirt (1989) approached a similar question for state level educational policy makers.   Their findings provide significant insights into how a group's culture impacts their policies.

Culture is "the organizational equivalent of the fingerprint" (Clarke, 1994, p. 40) and as such it uniquely identifies the institution in terms of its history, its values, and the assumptions that determine its behavior. Organizations with strong culture have top management who themselves believe and demonstrate institutional values and who create policies that clearly articulate those values (Clarke, 1994).   Executive management of organizations with unclear goals and ambiguous values have much less success in decision making (Bolman & Deal, 1991).

The cultural paradigm constructed by Marshall, Mitchell and Wirt (1989) was based on two essential assumptions: institutions are shaped by their culture; and the codes of behavior used in policy actions reflect the culture of the institution as it is understood by the policy makers.   The policy makers create a subculture within the culture of the institution with a unique set of understandings regarding how their power is distributed and how their influence guides policy actions.   It is this subculture that determines who among them is allowed to initiate policy action and who determine which ideas and activities would be deemed acceptable for the larger culture.   The artifacts used to identify the traits of this subculture are the outcomes of those actions - the policies they create and, through those policies, the values that are promoted.

> The cultural paradigm's emphasis on patterns, values, and
> rules of behavior and on understanding the role of power and
> influence points to a view of policy-making as the way cultural
> values are authorized and confirmed (Marshall, Mitchell &
> Wirt, 1989, p.6).

The rules of the subculture reflect what Marshall, Mitchell and Wirt referred to as the assumptive world of the policy makers.   They are the

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composite of the subjective understanding, values and perceptions of what the policy makers themselves believe to be possible and to be appropriate activities for members of the subculture. The substance of the policy makers' assumptive world is revealed in artifacts - the words and stories they share as a group that speak of the values and beliefs behind their actions. Bolman and Deal (1991) referred to the assumptive world as the "distinctive beliefs and patterns" a group develops over time using rituals and storytelling to socialize members into the clan, to provide order and meaning for stability, to deepen beliefs and eliminate ambiguity, and to convey messages regarding values and beliefs to outsiders.

The consequence of the assumptive world of the policy makers is twofold. When policy makers work within the domains of the assumptive worlds, their efforts lead to predictability and coalition building. The sense of predictability keeps the work of the group focused and limits the range of ideas and alternatives that need to be considered on an issue of discussion. In addition, a shared understanding of what is plausible and what is deemed worthy of their attention makes the group work efficiently and promotes its cohesion. "Dissonant ideas are not articulated, and policies that promote unfashionable values are not formulated" (Marshall, Mitchell & Wirt, 1989, p. 51). Upsets in assumptive worlds subsequently shake up the order of the political culture. The ranking among the members shifts and discussion becomes receptive to new ideas as shifts in values are noted within the political subculture.

The result is that policies are created that promote multiple core value sets for the larger organization. This in turn inhibits the emergence of a single unifying culture. The lack of a single overall culture and a well articulated single set of core values echoes the description of colleges made by Cohen and March (1974). They claimed college environments are by nature places of ambiguity, and indeed the authors labeled institutions of higher education as

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organized anarchies. In such environments, goals and visions are seldom fully articulated and decision making processes are rarely done in a straightforward manner. Decisions tend to receive only erratic attention from the community, and most often, the weight of those decisions is measured more by their symbolic significance than their strategic importance.

Marshall, Mitchell and Wirt (1989) claimed that members of the policy making subculture create a hierarchy among themselves. They consciously rank each other by the power and influence each amasses within the subculture. A member's ranking corresponds to the distance of influence the person is from the core decision making process. Those of high ranking have a leading voice in key policy making activities and are usually insulated from lesser issues of the larger culture. They spend their energy and ability to influence others within the subculture. The factors used to create and sustain alliances depend on the ability to control resources, the ability to connect other team members to the information they need, and the ability to provide support for others (Kouzes & Posner, 1995).

Marshall, Mitchell and Wirt (1989) noted that at the top of the hierarchy of power and influence are the Insiders. They are viewed as the most influential because of their deep understanding of the values of the culture. As leaders, their arguments carry the most weight and their approval is a determining factor in whether a particular action is approved and implemented. The Near Circle , who rank second in influence among the subculture, include persons who have long tenure, persons with relevant knowledge and expertise, and those who most benefit from the action of the subculture. The Far Circle are those who are recognized as influential but are not critical to policy making. Beyond the Far Circle are the Sometimes Players who are formally involved in policy decisions but are not considered influential. Outermost are the Often Forgotten Players whose involvement and legitimacy in policy making is uncertain.

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Rocheleau (1996) left unresolved the question of whether colleges and universities who develop technology plans and incorporate those plans into the strategic directions set by the president's team actually see more results than those that do not.

> ...many colleges and universities have spent a great deal of time developing technology plans that include strategic, telecommunications, networking, administrative, library, and academic components. Although plans may help to bring about enhanced effectiveness, there is skepticism about the utility of planning because many plans remain on shelves unused. Do institutions that construct formal plans ... have more successful results...than those who do not formally plan? Do plans that are updated annually or linked to the budget have more impact? (Rocheleau, 1996, p. 35)

The answer may at least in part be determined by the role played by the chief information officer in the hierarchy of the policy making subculture and the issue of whether that person reports directly to the college president without any intervening layers of administration may impact the effectiveness of information technology in the presidential planning processes.

Marshall, Mitchell and Wirt (1989) focused their research to uncover the assumptive worlds of educational policy makers in six states. From their research, they revealed a set of four "domains" that govern these assumptive worlds. The first domain establishes the ranking within the policy making subculture by determining who is allowed to initiate policy. The second domain establishes the boundaries of the prevailing values of the subculture by defining what policy ideas are deemed acceptable to the subculture. Those straying beyond the perimeter of acceptability and who offer and promote policy directions outside the assumptive world are ignored and most often lose power in doing so.

The third domain defined appropriate use of power in policy making. Appropriate behaviors carefully avoid turf issues. They rely heavily on building coalitions and thus they can stifle support to policies that are truly innovative in

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efforts to avoid upsetting others who are counted on for support. In fact, in research done by the Center for Creative Leadership, insensitivity to others and a lack of positive regard for individuals was cited as the primary reasons for executives to fail at their job (Kouzes & Posner, 1995). The fourth domain concerns the broader issues that affect policy making such as awareness of available resources and an appreciation of the attitudes of the larger culture toward the issue. That appreciation is gained through listening.

> Family and friends are the most important sources of
> believable information about everything from health care
> to restaurants, and leaders who listen are more likely to
> become accepted as members of the family than those who
> don't (Kouzes & Posner, 1995, p. 168).

In the organized anarchies of higher education, the decision making processes themselves are characterized by high inertia. The difficulty to get a decision made at all is matched by the extent of a coordinated effort that is needed to stop a decision process. The decision processes themselves tend to model a garbage can approach, so that the result is less dependent on context than on special interests that are raised during the process. Since too many issues tend to enter the problem solving process, there is little correlation between the outcomes of decisions and the formal process of decision making that is used. And as a result, information regarding relevant past decision making is often not retained or is difficult to retrieve (Cohen & March, 1974).

Just as Marshall, Mitchell, and Wirt (1989) found a wealth of facts regarding educational policy in their research efforts, volumes of statistics and budget figures relating to information technology collected from higher educational institutions are common in the literature. They report on numbers of computers, dollars spent on various technology products, and sizes and salaries of support staff. How and whether any of this information is incorporated into policy decision making on a college campus, however, seems

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more likely to be dependent on how aware the decision makers are that such numbers exist and how useful the numbers can be in supporting the values that are already part of the policy makers' culture.

Further, the responsibilities of presidential leadership in policy decision making are equally ambiguous and appear to be only defined by the culture of the college itself. Cohen and March (1974) viewed the college president's leadership as a precarious bridge, stretched between a larger culture that presumes purpose but has never actually required colleges to demonstrate clear objectives, and a campus community that views itself as having intrinsic purpose, thus preferring to avoid the articulation of any specific purpose. Bensimon, Neumann, and Birnbaum (1989) saw the extent of executive leadership in decision making as being defined by only what the culture of the institution was willing to relinquish to the president.

> ...leadership exists to the extent that people believe it does,
> and that belief depends in part on how participants, through
> their interactions, construct realities of organizational life
> and define the role of leaders within them (Bensimon, Neumann,
> & Birnbaum, 1989, p. 26).

Technology on the College Campus

Although each institutions's technology directions will be shaped by the mission and goals of the college, overall the priorities for all colleges and universities appear surprisingly consistent (Cotton, 1996).

> If not now, then in the near future most institutions will
> plan and optimize - to varying degrees - along the following
> operational priorities: Ubiquitous Access; World-Wide Reach;
> On-Line Transactions; Time & Place Independence; Life-Long
> Learning; Technology-Mediation and Network-Based Operation
> (Cotton, 1996, p. 2).

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Technology provides the base platform - the infrastructure - upon which

higher education will reframe itself in terms of both the delivery of instruction

and research and its own internal management practices. Dolence and Norris

(1995) stressed that institutions must develop infrastructure and support

mechanisms that can enable learners to become workers who can continually

self-correct and adapt to new directions. Their learning experience will be

lifelong, based more on acquired knowledge and demonstrated mastery rather than

grades and structured degree programs. Facilitating this change, according to

Massy and Zemsky (1995), can be a primary responsibility of the technology

leader and an important mission for building an information technology

infrastructure for the college.

The Role of Technology in Higher Education

Colleges appear to resemble corporations and other organizational entities

in their approach to information technology. In the past, American corporations

invested extensively in information technology as a means to increase efficiency

and productivity (Barboni, 1993) by reengineering business processes. While

gains were made in the automation of manufacturing processes, no significant

increases were seen in office workers. In fact, most corporations reported that

productivity declined with the introduction of technology in the workplace

(Barboni, 1993). As fundamental pressures to rethink higher education

scholarship in the next decades (Dolence & Norris, 1995; Massy & Zemsky,

1995) are emerging, the demands for technology-based teaching and learning

have similarly been touted as economical means to provide lifelong learning over

the next decade. Understandably, then, concerns regarding the role of

information technology in higher education linger. Those concerns reflect the

lackluster results of promises made to other parts of society by technology

supporters which have only recently been recognized by college administrators.

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The new economics are formidable. Shortening life cycles
will force fundamental changes in how institutions manage
[technology] assets; the increasing value of IT and the pressure
to spend more on it will make the financial crisis facing many
institutions worse; and the ability of new technologies to
transcend time and distance will intensify competition among
institutions. Information technology will represent the single
biggest opportunity to either enhance or damage an institution's
competitive standing. Academic, technology, and financial leaders
will have to come together as never before to address these issues
(Oberlin, 1996, p. 21)

Ellul (1964) understood the juxtaposition between the role of technology

in society and the expectations of the culture for technology. Ellul defined the

technological society according to the trends he saw in the modern world to

increasingly use standardized processes to gain predictable results. He discussed

the technological society in terms of Techniques which were phenomena that

infiltrated all aspects of society, even beyond the computers and technical

machines of the day .

From this point of view, it might be said that technique is
the translation into action of man's concern to master things
by means of reason, to account for what is subconscious, make
quantitative what is qualitative, make clear and precise the
outlines of nature, take hold of chaos and put order into it
(Ellul, 1964, p. 43).

The "Technical Man" of this society is committed to find a singular best

way to accomplish any goal. The processes to obtain results are redefined by the

technical man, so that the means to an objective overshadow the ends - the

objective itself. In the technological society, then, the only ends worth achieving

are those which become means to other ends. The ensuing culture then

deteriorates into a system in which spontaneity and creativity, as well as

individual craftsmanship, are ignored. Ellul saw this movement to the

technological society as irreversible and constantly expanding in its scope.

Although techniques have always existed in civilization, Ellul claimed their

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recent rapid growth seriously threatened the quality of human life.

> Human beings are, indeed, always necessary. But literally
> anyone can do the job, provided he is trained to do it. Henceforth,
> men will be able to act only in virtue of the commonest and
> lowest nature, and not in virtue of what they possess of
> superiority and individuality. The qualities which technique
> requires for its advance are precisely those characteristics
> of a technical order which do not represent individual
> intelligence (Ellul, 1964, pp. 92-93).

The technological society, Ellul warned, would stratify our culture. It would reduce the ability for people to communicate with each other because each group of technicians has specialized understandings and tend to create a jargon of their own. From this society, those who have access to truly understanding an objective become the architects of the processes - that is, the means - and others are employed mindlessly to accomplish the goal. The architects of the technological society form an aristocracy - an elite of the informed - on which the rest of society must depend. Ellul's prediction of the result of this dependency is portrayed in his vision of education in the year 2000 which he thought would be totally controlled by technology.

> Knowledge will be accumulated in "electronic banks" and
> transmitted directly to the human nervous system by means
> of coded electronic messages. There will no longer be any need
> of reading or learning mountains of useless information;
> everything will be received and registered according to the
> needs of the moment. There will be no need of attention or
> effort. What is needed will pass directly from the machine
> to the brain without going through consciousness (Ellul, 1964,
> p. 432).

Ellul's predictions have not entirely come true because the social and technical models upon which they are based have changed over time. Barboni (1993) in summarizing changes from hierarchical mindsets to distributed and dynamic models for organizations and information technologies, noted that there is growing evidence that the "work of learning" (Barboni, 1993, p. 3) has

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benefited from the changes, particularly when the transition has been planned and made as part of a larger strategic plan for the institution. Those benefits extend beyond individual productivity to increasing the capacity for faculty and students to more easily collaborate among themselves. Barboni notes that information technology has enhanced the sense of community within higher educational institutions in both the academic and administrative realms of college life.

Oblinger and Maruyama (1996) discussed an additional dynamic that has impacted pedagogy as well. Student demographics have placed new demands on institutions. Students, who are now older and need to balance education with other responsibilities, expect to have access to campus resources remotely at any time of day. They tend to use their "purchasing power" to select colleges which affordably offer curricula that enhances employment opportunities. New employment opportunities, according to Oblinger and Maruyama, require collaborative learning skills that are lacking in traditional classroom lecture environments. Instead of the traditional organization where the student learns by moving from classroom to laboratory and professor to instructor, Oblinger and Maruyama (1996) supported a distributed learning environment that is student-centered in which the instructor is no longer the gatekeeper of content, but rather collaborates with the student in joint learning activities. The new classroom is composed of a virtual community of learners linked by computer network technologies and satellite telecommunications, who learn according to their own schedules and educational goals.

Technology for higher education teaching and administration, however, has not been widely adopted even though there is evidence that it may improve productivity or reduce costs (Johnson, 1993). College and universities overall have done little to move from the traditional classroom environment on the single campus to share information with each other, to use their information technology

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resources to facilitate joint offerings of courses via distance learning and to

encourage collaborative research and learning that takes place between students,

scientists, and teachers at different institutions (Johnson, 1993). For higher

education to move away from lecture based learning, Oblinger and Maruyama

(1996) insisted the culture of higher education will need to be changed and the

vehicle of that change will be the propagation of information technologies on

college campuses.

However, for that to happen, on each college campus a ubiquitous and,

indeed, complex, technology infrastructure of networks, servers, and computer

systems, and baseline of technical knowledge needs to exist. New technology

learning environments where multiple learning opportunities are supported by a

common technological infrastructure require that higher educational institutions

rethink the administration of their technology resources. The full benefit of

modern information technologies is gained from crossing traditional

organizational boundaries, which most often require that technicians and support

staff from historically separate administrative units on campus now

continuously interact with each other and depend on each other's services and

expertise.

> Historically, organizations have revolved around a technology:
> books belong to the library; television-based programs belong
> to the AV department. This technology-specific approach is
> less viable in a [technology-based] learning environment, where
> many media are in digital format and user service is the dominant
> role. Organizational structures that do not facilitate a mixing of
> technologies will find it difficult to reach their full potential in
> this new learning environment (Oblinger & Maruyama, 1996,
> p. 13).

The task of bringing these technologies into a new whole and orchestrating its

administration is often delegated to a senior level position, and is responsible for

the institution's planning and management of its information technologies and the

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integrity of campus information resources. This position is often referred to as the Chief Information Officer (CIO).

The College President and the CIO

> ...the critical dependency for the CIO is the attitude and influence of the CEO. The CEO can help by inspiring a receptive and constructive climate for IT [Information Technology] across the organization. Alternatively, the CEO can, through a personal example of hostility or detachment, inhibit any worthwhile IT achievements. Ultimately, you get what you deserve from IT (Earl & Feeny, 1994, p. 12).

Green (1988) did a census of higher education and profiled the American college president and found the average president's tenure was seven years, and more than three quarters of all presidents held doctorate degrees, most often in the field of education. Most had previously served in as a high level administrator, usually a vice president, of a similar institution. In 1974, Cohen and March portrayed very similar characteristics for the college president, and they indicated that the average profile of the college president has remained consistent over as many as 70 years. In addition, the path to college presidency has not significantly changed as well. In contrast to the relatively stable career path to the college presidency, the job of the chief information officer is very new and has already experienced a significant evolution. Turnover rates for chief information officers in all businesses is very high. Some surveys indicated their average tenure for a chief information officer is two and a half years and many organizations have had as many as three CIOs in a five year period (Daily, 1995).

College presidents are at least in part chosen because they have appreciation for the culture of college life and understanding of issues faced by college administration. When a college seeks a new president, the search process tends to look for a close fit between the president and the institution. Search committees favor candidates who have experience as a senior officer from similar institutions as well as appropriate academic credentials. Most college

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presidents have had only administrative experience within higher education and have advanced their career through the ranks of faculty positions (Cohen & March, 1974). This process preserves the traditional profile of the college president (Green, 1988). In addition, the president's past experience conditions the president's behavior as the college leader (Cohen & March, 1974).

The selection process is very different for the campus chief information officer. Earl and Feeny (1994) found that value-adding CIOs are most likely to have a systems analysis background, where information technology specialists work closely with others, placing their experience and expertise in service to business functions. CIOs with only experience in non-technical, more traditional college job roles often lack this service-to-the-enterprise attitude (Earl & Feeny, 1994).

> It seems that a lengthy apprenticeship in the IS [information systems] function, particularly in systems analysis and development, is the appropriate background for a CIO. The CIO will then be accustomed to operating by consent from a function that is not a traditional power base, and he or she will have a mission to explain and focus on systemic business change (Earl & Feeny, 1994, p. 10).

The college president's attitudes toward the unique qualifications that are part of the selection of the campus chief information officer can be a major determinant regarding how technology and the technology leader are institutionalized on the campus. If the president views information technology as strategically important to the campus, it is likely that strongly focused technology efforts that add value to administrative functions and college missions will emerge as part of campus wide strategic planning. However, if information technology and its leader are seen by the president as liabilities, the technology infrastructure may be regarded as only a necessary service provided to facilitate individual functions used by other campus constituencies (Earl & Feeny, 1994).

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> The CEO's attitude toward and vision for IT may influence
> the organization's strategic orientation. A CEO who promotes
> the idea that IT is an enabler of business transformation is
> supporting a CIO's efforts to target IT investment. More
> diverse application portfolios (and more limited achievements)
> are found where the CEO and top management see IT as having
> an administrative or support role - or where executives have
> mixed views of the scope of IT's contribution. CIOs add value
> by working to achieve a shared and challenging vision of IT's
> role among the executive team, a common conception of the
> nature (not the specifics) of IT's potential contribution to
> the business (Earl & Feeny, 1994, p. 5).

Most chief information officers today have at least partial control over information technology within the institution, although very few have total authority over all the institution's information resources (Davenport, 1995). Increasingly, the CIO is responsible not only for overseeing the technology infrastructure, but also for stimulating the organization's use of information in efforts to improve performance of non-technical business processes (Davenport, 1995; Daily, 1995, Horgan, 1996). The scope of responsibilities for CIOs has expanded and their interaction with other administrators in planning activities has become an essential part of their responsibilities.

> Participants in the CIO constituent group...agreed that their
> greatest challenge comes from having their dream come true:
> the dream that technology would be accepted by colleges and
> universities as a powerful tool for instruction, learning,
> research, and administrative operations. It is no longer
> necessary to sell the benefits of information technology; now
> the issue is to keep up with demands and with the rapid pace of
> change. It is both an exciting and difficult time (Horgan, 1996,
> p.8).

The most successful CIOs derive satisfaction from knowing that they have influenced business directions in positive ways. They tend to be goal oriented but their goals are focused on the entire enterprise rather than merely the information systems which they manage. They are adept at working through others and constructing collaborations where colleagues help each other to

succeed. The key requirement in this facilitating role is the capability to communicate well so that technology capabilities are translated into the language of productivity used by their peers (Earl & Feeny, 1994).

> When you run a river or climb a mountain, you do not call
> the shots. Instead you have to read the river or the mountain
> and figure out how - or even *if* - it will allow you to make
> your journey. The river, with its challenging rapids,
> waterfalls, and whirlpools, often comes to my mind these
> days as I find myself pondering the role we in information
> technology organizations must play in the transformation of
> our institutions (Barone, 1996, p. 9)

In pushing for enterprise-wide business change, CIOs risk creating powerful enemies. This new strategic role for the chief information officer is often still questioned. As CIOs are asked to participate in business strategy rather than only manage the information technology infrastructure, other administrators are often wary of seeing the CIO as a change agent (Earl & Feeny, 1994; Horgan, 1996). While besieged with unrelenting hype regarding benefits of information technology, others in the organization may have only experienced multiple technology failures and witnessed rising technology costs. The resulting lack of confidence is exacerbated by an inability to evaluate the contributions of information technology to the organization and how to measure the job performance of the chief information officer (Earl & Feeny, 1994).

In a study of over sixty businesses (including higher educational institutions), Earl and Feeny (1994) interviewed CIOs and their CEOs to help determine factors that influence the relationships between them. Their research which explored attitudes, personal backgrounds, and experience, was supplemented by psychometric testing of the CIOs. Two major patterns emerged, which placed responsibility for the quality of their relationships on both persons. First, CEOs appeared to be polarized in their views of information technology between seeing technology as an investment, a strategic resource for

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the organization, and seeing information technology as only a cost, which rarely fulfilled its expectations. Indeed, in many organizations the CIO role now equates to what may be the "CITO" (Chief Information Technology Officer), a role that often is equated to a modern day version of the old computer czar (Davenport, 1995).

Their second conclusion was that the CIO's own role and actions determined whether information technology was considered a strategic strength of the organization. Earl and Feeny concluded that the CIO's ability to add value by contributing business thinking and change management capabilities is the biggest single factor in determining whether the organization views its information technology resources and its CIO as assets or liabilities. However, all the organizations studied found it difficult to assess the value received from their investment in information technology. The authors suggested that this difficulty to identify successes in information technology is less evident when information technology and the technology leader fully participate in planning issues for the organization.

> ..the CIO must take the enterprise view and maintain an institutional focus rather than a narrower technology perspective. Managing the information resources strategy is different from managing the information technology infrastructure, although in practice many CIOs do both..... CIOs must be influential; that is, their advice must be sought, and they, in turn, must seek opportunities for strategic planning involvement (Horgan, 1996, p. 8).

The benefits of such strong relationships include: renewed confidence in the CIO by the president and key administrators and the emergence of technology strategic directions simultaneously with other business directives so that they are immediately responsive to the organization. The absence of the CIO's participation in planning is likely to produce information technology plans that are no more than a synthesis of new requests and demands made by other business

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functions and are seen as only a portfolio of applications for specific circumstances within the institution. In that light, information technology directions have greater risk to become liabilities to the organization and to the administration (Earl & Feeny, 1994).

Thus, acknowledgement as a key member of enterprise wide planning is more critical to the office of the chief information officer than a direct reporting structure to the president. Chief information officers who have achieved excellent executive relationships are better able to focus on campus imperatives, achieve a shared vision for the role of technology at the college, and link that focus and vision to deliver better technology solutions. They are given the opportunity to contribute technology expertise to enhance the organizations' strategic plans, without allegiance to any particular power base within the administration. They understand that their only relevant performance criteria are the perceptions of the user community and that their projects will be judged against strategic criteria set by their peers (Earl & Feeny, 1994).

Information Technology as Capital Investment

> Some administrators view information technology as a
> "black hole," where long-term planning is an oxymoron
> and budgeting is a never ending stream of requests for
> "more" (Oberlin, 1994, p.22).

The most common technique used in investment decision making is cost-benefit analysis, with economic impact calculations such as return on investment, internal rate of return, and net present value, used to weigh the value or contribution of alternative investments (Parker, Benson & Trainor, 1989). These methods consistently work well in evaluating discrete projects that directly link to cost avoidance or cost displacements, such as non-technology investments in plant, equipment, and other operations of the college (Parker, Benson & Trainor, 1989). They don't work well for information technology

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decisions directed toward improving and enhancing the overall well-being of the institution. When such traditional techniques in decision making are applied to technology, the result is that information technology becomes the culprit that skews the entire planning process by introducing ambiguity to the bottom line.

Decisions that make strong use of information technology are usually expensive and are based largely on assessments of intangibles. They are often made quickly to take advantage of short-term windows of opportunity and enhance the college's responsiveness to changes in the larger culture. Arguments for technology projects tend to be less analytical and more intuitive. Their ingredients include vague, unmeasurable, and risky assessments of the economic impact of the decision, its overall advantage to the business, and its strategic value to the existing information technology infrastructure (Parker, Benson & Trainor, 1989). Technology decision making is hampered further by the socially ingrained biases of the institution. A lack of appreciation for the rapid and accelerating rate of change in the technology industry may lead to overestimating the life cycle of the technology or underestimating its capabilities to perform well (Oberlin, 1994).

Making technology investment decisions is complicated by the fact that some technologies projects are geared toward improving the overall campus infrastructure, while others investments focus on individual projects to satisfy particular needs and demands of departments of the institution (Parker, Benson & Trainor, 1989). The issues become more clouded between how information technology professionals present their goals and how the chief executive officers and their cabinets want to hear them. Technology professionals focus their arguments on the competitive value of information technology and on the value of the project to building and sustaining an infrastructure that maximizes reliability and durability. In contrast, decision makers want to know whether information technology projects will either improve performance or improve

the outlook for the institution (Parker, Benson & Trainor, 1989).

Ultimately, nearly always it is the bottom line, the financial argument, that determines the decision. The value of information technology must be quantified in means that are acceptable to those who worry about financial issues while simultaneously recognizing that information technology planning inherently contains many risks and uncertainties.

> In the end, the answer to "if" or "when" these sweeping
> technical advances will ever take place won't be found on
> the drawing board of some network engineer, computer
> scientist, futurist, or even a chief information officer.
> Instead, these answers will come from the strategic plans
> and business analyses of pan-university planners, senior
> business officers, college presidents, trustees, and legislators.
> This flows from the realization that there is no technical or
> pedagogical problem involved here as daunting as the bottom
> line. The technology revolution won't come cheap. Until the
> business case is quantified and verified, the promise of using
> information technologies to realize the anticipated benefits
> will remain just that - a promise (Oberlin, 1994, p. 22).

However, even after acknowledging all of the factors that create the business case for technology for the campus, a more important question is *how and who* develops the business case for information technology investment decisions (Oberlin, 1996). Those who are most skilled at developing successful business cases - the campus academic leaders and financial officers - tend to not be involved in doing so for technology decisions, partly because the information technology organization often operates outside of their influence. Thus the technology leader, who is often unschooled to do so, is often left on his or her own to develop the business case. The resulting arguments are usually crudely articulated. Technology investment decisions fail miserably to be seen as maximizing the net return of the investment, rather they are more likely to be only viewed expensive frills and gadgets (Oberlin, 1996).

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The business case for those technology investments needs to be fabricated from both the technical perspective of the chief information officer and the financial perspective of the bottom line. If the technology leader is chosen because of technical experience and expertise, it appears unlikely as well as inappropriate to expect that person to argue convincingly in business terms.

Summary

The review of the literature points to the fact that most of the research relating how information technology policy decisions are made by high ranking administrators on college campuses is descriptive rather than quantitative in nature. In many studies, the investigation of such experience has been secondary to other issues such as organizational structures of the campus and leadership dynamics. The literature underscores the importance of information technology within social culture as well as the pressures facing decision makers to enhance the technology infrastructure for the campus. In addition, quantitative research (Earl & Feeny, 1994) indicates that attitudes, experience, and opportunity to establish working relationships between the campus chief information officer and the executive decision makers can positively impact how and when issues of technology are evaluated and decided and the extent to which technology issues will be integrated into institutional strategic directions.

In both descriptive research and some quantitative studies, the literature does reveal that executive decision making process of the presidential cabinet determines a culture that reflects the values held by the larger culture of college community. As such, decision making for technology policy issues within the cabinet can be interpreted as a reflection of the attitudes and values the decision makers themselves possess regarding how the entire community as a larger culture should respond to technology issues. Recently, however, and

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particularly in business environments, questions have been raised regarding how a relationship with the chief executive officer impacts the success of the chief information officer. These discussions tend to underscore that the relationship needs to be based on common expectations, open communication, and recognition of the responsibilities of each role.

CHAPTER THREE

METHODOLOGY

The following chapter discusses the research design, the sample, the development of the survey instrument, data collection procedures, the analysis of the data, and the limitations of the study.

Research Design

The purpose of this research was to investigate the working relationship between the small college president and the campus's chief information officer as it is perceived by the college president and determine some of the aspects that might facilitate and strengthen it. The relationship between the college president and the campus technology leader was framed by how much influence in campus wide decision making was designated by the college president to the technology leader and how strategically important the college president viewed the information technology infrastructure of the institution. The research sought to determine whether three factors: (1) the extent to which college presidents use available campus information technology; (2) the president's attitude regarding the importance of information technology for the college; and (3) the reporting distance between the president and the campus technology leader, can function as predictors of the role in which the technology leader will play in campus decision making processes. In addition, the research sought to determine if whether the college president's appointment of the campus technology leader impacted any of the other three factors.

The research method was a descriptive survey of American small college presidents which measured (1) the president's technical fluency, (2) the

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proximity within the administrative between the technology leader and the college president, (3) the college president's participation in choosing the campus technology leader, (4) the president's perception of the importance of information technology to the campus, and (5) the participation of the technology leader in institutional decision making processes.

Population and Sample

The scope of this research was small private and public accredited liberal arts colleges and universities in the United States, having between 500 and 3,000 full time students and offering (at least) baccalaureate degrees. Two year colleges were not considered in this study.

A 10% random sample of small colleges was chosen from Peterson's Guide to Four-Year Colleges 1997 (Peterson, 1996). The subjects of the study were the presidents of these institutions. Colleges in the state of New Hampshire and their presidents were excluded from the sample to assure anonymity of all responses and objectivity of the research outcomes.

Demographic data for the sampled colleges was based on information extracted from Peterson (1996). The data included: (a) undergraduate enrollment, (b) whether the undergraduate student population was coeducational, predominantly men, or predominantly women, and (c) the institution's affiliation type as described by Peterson (state, private, private with religious affiliation, or proprietary). Names and addresses for college presidents of the sampled colleges were identified from sources such as the Higher Education Directory (Rodenhouse, 1995), World Wide Web home pages published by the institutions, and lists of college presidents maintained by state board of regents and associations. When discrepancies were found in the proper name and title for the college's chief executive, the college was contacted by telephone or electronic

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mail for the proper name and mailing address.

Instrumentation

The researcher-developed survey instrument was a questionnaire (Appendix A) containing thirty forced-choice questions. The survey was developed by the researcher to address the specific hypotheses of this study and was designed and implemented using the "total design method" (TDM) suggested by Dillman (1978). The purpose of the total design method is to maximize the effectiveness of the survey instrument, as an efficient means of collecting reliable data (Dillman, 1978). The method consists of specific principles of survey design and an administrative plan of detailed actions for survey implementation.

> The TDM [Total Design Method] consists of two parts. The first is to identify each aspect of the survey process that may affect either the quality or quantity of response and to shape each of them in such a way that the best possible responses are obtained. The second is to organize the survey efforts so that the design intentions are carried out in complete detail (Dillman, 1978, p. 12).

The questions were organized into three topic areas which directly related to the research questions of the study.

Section 1. The first set of questions in the survey evaluated how much the college president said he or she makes use of available technology on the college campus. The questions sought to determine the extent which the college presidents personally make use of available campus technology.

Section 2. The second group of questions determined whether the college president could identify a chief information officer or technology leader for the campus. In addition, if a chief information officer or technology leader was identified, further questions measured the reporting distance between the college president

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and that person within the administrative hierarchy. The measure consisted of four levels of reporting distances from the college president for the technology leader:

(1) If the technology leader reported directly to the college president, then it was assumed that the chief information officer was at the first level, organizationally close to the president and thus a candidate for membership in the president's executive decision making team.

(2) The technology leader was assumed to operate at a secondary level if that position reported to either the chief financial officer or the chief academic officer.

(3) The technology leader reported to someone else or reported to more than one person (operated at the third level). The vagueness of the reporting structure indicated the technology leader was not considered an influential member of the president's executive decision making team.

(4) If the position of technology leader was external to the college, such as a consultant, or an out-sourced service provided to the college, then it was measured at a fourth level. As an outsider to the college administration, the technology leader at this level would be assumed to have little if any influence on campus strategic decisions.

The third question of section 2 asked if the college president appointed the current technology leader. The question was used to determine if factors of this study were impacted by whether the college president had chosen the technology leader for the institution.

Section 3. The third section of survey questions considered the college president's view of the strategic importance of the technology leader and information technology to the institution. The first set of questions of this section defined the extent of involvement of the technology leader in decision making activities of the office of the president. The second set of questions of this

section determined how important the college president perceived the role of information technology for the campus.

The first of these sets of questions consisted of eight questions and the second set consisted of six questions to which the college president indicated a response from "strongly disagree" to "fully agree" on a Likert style scale. Since the literature (Bensimon & Neumann, 1993; Fullan, 1993; Clarke, 1994; Marshall, Mitchell, & Wirt, 1989; Rocheleau, 1996; Bensimon, Neumann, & Birnbaum, 1989; Cotton, 1996; Oberlin, 1996; Oblinger & Maruyama, 1996; Earl & Feeny, 1994; Horgan, 1996) suggested that technology leaders who are involved in strategic planning have a strong working relationships with their college presidents, questions 1 and 2 of this section were used to determine from the viewpoint of each responding college president, the technology leader's involvement in presidential decision making. Questions 3 and 4 gave indication as to whether the college president felt the technology leader was an asset to his or her administration. Questions 5 and 6 assessed how much the college president felt the technology leader was aware of and committed to the strategic directions of the institution. The final two questions, questions 7 and 8 indicated whether the technology leader had a leading voice in core decision making processes.

The second set of questions of this section considered the importance of information technology on the campus as perceived by the college president. It was measured by the last six questions of the third section of the survey. Questions 9 and 10 referred to whether the college president publicly endorsed the status of the information technology infrastructure on campus. Question 11 assessed the president's view of the impact of information technology on all aspects of college life. Question 12 was used to determine if the president viewed the college's investment in information technology as as asset to the college or a liability to the college. Question 13 evaluated whether the college president

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viewed information technology as a means to other purposes of the campus, and the last question generally assessed the president's sense of the overall value of information technology to the college.

The design and clarity of the survey questionnaire was validated by a random sample of five college presidents from five New Hampshire colleges analogous to the definition of small colleges used in the research. Appendix C contains correspondence with the five jurors who were asked to review the survey instrument. Following their evaluation (which resulted in no changes to the instrument), the survey instrument was reviewed and approved by the University of New Hampshire Institutional Review Board for the Protection of Human Subjects in Research.

Data Collection

An explanatory cover letter (Appendix B) accompanied the survey the initial mailing to each of the 10% sample of college presidents. The survey instrument was formatted as a booklet, in which the cover served as a pre-addressed and postage paid mailing label. Responses from the sample were returned by mail to the researcher.

To insure confidentiality, each survey questionnaire was numbered and the respondent identified by the number was noted on a master roster of all survey participants. The cover letter asked that the respondent return the survey within two weeks of receipt. A follow up reminder (Appendix D) and a replacement survey was then sent to those who had not responded. College presidents continued to be systematically selected by the procedures a minimum of 200 responses were received, and the data analysis included the first 213 usable responses received from the survey returns.

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Coding

For each survey response, 30 items reflecting the responses to all the questions of the survey were coded and verified. Five scores were computed that synthesized the data contributing to the variables of the research. Four scores were created that reflected the four variables of interest and a fifth score was computed for the outcome variable. The first score (items 1 through 13 of Section 1) measured the technical fluency of the college president. The second score (items 1 and 2 of Section 2) represented the reporting distance between the college president and the campus technology leader. The third score (item 3 of Section 2) determined whether the college president appointed the campus technology leader. The fourth score (items 9 through 14 of Section 3) measured the president's attitude regarding the importance of information technology to the institution. The fifth score (items 1 through 8 of Section 3) measured the outcome variable - the extent of participation of the campus technology leader in presidential decision making processes.

The first score, the technical fluency score, was calculated as the mean score for Section 1 of the survey instrument. The technical fluency score was used to quantify how much the college president used the available technology on a particular campus. The score was computed as the mean for the first thirteen questions of the questionnaire. If, however, the respondent indicated that a certain technology mentioned in any of the questions was not available (N/A), the value associated with the question regarding that technology was discarded for the mean score.

Section 2 of the questionnaire yielded two scores. The first score of Section 2, the proximity score, indicated the administrative distance between the college president and the technology leader within the institution by assigning a score to each of four levels:

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1. First level proximity - Technology leaders reporting directly to the college president received a proximity score of 4, indicating they were at the closest level of supervisory distance from the college president.

2. Second level proximity - Technology leaders reporting to either the college's chief financial officer or the chief academic officer were considered at the second level of the reporting structure and they received a score of 3.

3. Third level proximity - Technology leaders reporting to other offices of the college or who reported to more than one supervisor were considered to be third level employees and they received a score of 2.

4. Fourth level proximity - Where the college president did not or could not identify a technology leader for the campus (Question 1 of Section 2), or in situations where technology leaders were not identified to be directly employed by the college, such as those who were categorized as outside contractors of the college, the technology leader was considered at the fourth level of the reporting structure and received a score of 1.

The second score of Section 2, the appointment score, consisted of the response to a single question about whether the college president actually appointed the campus technology leader. If the college president stated that he or she appointed the technology leader for the campus, the appointment score was 1. If the technology leader had been established prior to the tenure of the college president or if the campus technology leader had appointed without influence from the college president, the appointment score was 0. If the question was left unanswered, the score was recorded as zero.

Section 3 of the questionnaire consisted of fourteen questions and yielded the final two scores. The first seven questions were used to compute the CIO participation score. The CIO participation score was used to measure the extent to which the technology leader was perceived by the college president to participate in campus wide decision making. For each questionnaire, the CIO

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participation score was computed as a mean across the first eight questions of this section.

The final seven questions (questions 8 - 14) was used to compute a technology importance score to measure of how important information technology on the campus was perceived to be by the college president. For each questionnaire, the technology importance score was computed as the mean of these seven items.

Data Analysis

Hypotheses

The research was designed to test hypotheses concerning the working relationship between the small college president and the campus chief information officer as it perceived by the college president. The following hypotheses for the research were formulated:

Hypothesis 1: College presidents who themselves make use of available campus technology will more likely have a close reporting relationship with the technology leader for the campus than those who less frequently use technology.

Hypothesis 2: College presidents who themselves make use of available campus technology will more likely include the technology leader in campus decision making than those college presidents who less frequently use technology.

Hypothesis 3: College presidents who themselves make use of available campus technology will be more likely to consider and promote information technology as important to the institution.

Hypothesis 4: The extent to which college presidents use available campus information technology together with their own opinions of the importance of information technology for the college is a predictor of the role which the technology leader will play in campus policy decision making processes.

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Hypothesis 5: The distance in reporting structure that exists between the college president and the technology leader is a predictor of the role in which the technology leader will play in campus policy decision making processes.

Research questions

The data analysis process sought to answer the research questions posed in the study. Those research questions were:

Research Question 1- How often does the college president personally use the campus's information technology resources?

Research Question 2 -Is the college president able to identify the role of technology leader or chief information officer for the college?

Research Question 3 - What is the administrative proximity of the campus technology leader to the college president?

Research Question 4 - How does the college president see the technology leader's role in campus decision making?

Research Question 5 - How importantly does the college president perceive information technology for the college?

Research Question 6 - Can the college president's experience with campus information technology resources, the decision making proximity of the campus technology leader to the college president, and the college president's perception of the importance of information technology to the campus function as predictors of the extent of involvement of the technology leader in campus decision making processes?

The level of significance chosen for each of the hypotheses was chosen before data collection to be at the .05 level of significance.

The Statistical Package for the Social Sciences (SPSS) computer program was used to analyze the data. The data analysis consisted of the following steps.

First, descriptive statistics including the frequency distributions, the mean and standard deviation were calculated for the demographic data and the five

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scores derived from the responses of the survey instrument.

The second step was the calculation of the internal reliabilities (Cronbach's Alpha) of the five scales. For the CIO participation and technology importance scales, item analyses were done to determine the relationships between the items comprising the score.

The third step was the calculation of Pearson correlation between four scores representing the predictor variables (technical fluency, proximity, appointment, and importance of technology) and the score for the outcome variable (CIO participation score). A correlation matrix was created to present the intercorrelations of each of the predictor variables and the outcome variable.

The fourth step developed a regression model used to evaluate how important technology fluency, reporting proximity between the college president and the technology leader, the appointment of the technology leader, and presidential attitudes toward the importance of information technology for the institution, are in predicting the extent to which college presidents will use their campus technology leaders in institutional decision making processes.

<u>Summary</u>

The study was designed to determine if factors which, according to research literature, might impact the working relationship between a president of a small college and the campus technology leaders relate to the extent to which the technology leader participates in campus decision making done through the office of the college president. This chapter presented an overview of the research design, the sample population, the development of the survey instrument, data collection procedures, the analysis of the data, and the limitations of the study.

CHAPTER FOUR

DATA ANALYSIS

The following chapter discusses the results of survey responses from small college presidents (N=213) regarding their working relationships with campus technology leaders and the role of information technology at their institutions. The data analysis sought to respond to the research questions posed in the study and to test hypotheses regarding how three factors: (1) the extent to which college presidents use available campus information technology; (2) the reporting distance between the president and the campus technology leader; and (3) the president's attitude regarding the importance of information technology for the college, can function as predictors of the role in which the technology leader will play in campus decision making processes. In addition, the research sought to determine if whether the college president's appointment of the campus technology leader impacted any of the other three factors. To make these determinations, means and standard deviations of the scores from the survey responses, levels of correlation between survey scores, and regression models were computed.

Demographic Characteristics of the Institutions

College presidents in the study worked at 213 institutions of higher education in the United States. These institutions enrolled between 500 and 3,000 undergraduates and offered at least baccalaureate degree programs. Table 1 profiles the colleges and universities represented in the study. It includes the distribution of institutional control or affiliation categories reported to Peterson

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(1996), the distribution of the student body by gender, and the undergraduate enrollment as reported by Peterson (1996).

Table 1

Demographic Characteristics of Represented Institutions

Geographic Distribution by State	n	Percent
Alabama	3	1.4%
Arizona	1	0.5%
Arkansas	2	0.9%
California	12	5.6%
Colorado	4	1.9%
Connecticut	2	0.9%
Delaware	1	0.5%
District of Columbia	1	0.5%
Florida	8	3.7%
Georgia	3	1.4%
Illinois	9	4.2%
Indiana	7	3.3%
Iowa	4	1.9%
Kansas	4	1.9%
Kentucky	4	1.9%
Louisiana	2	0.9%
Maine	6	2.8%
Maryland	6	2.8%
Massachusetts	11	5.2%
Michigan	9	4.2%
Minnesota	6	2.8%
Mississippi	1	0.5%
Missouri	8	3.7%
Montana	3	1.4%
Nebraska	1	0.5%
New Jersey	1	0.5%
New Mexico	3	1.4%
New York	12	5.6%
North Carolina	6	2.8%
Ohio	14	6.6%
Oklahoma	3	1.4%
Oregon	3	1.4%
Pennsylvania	20	9.4%
South Carolina	2	0.9%
South Dakota	4	1.9%

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Table 1 Continued

Geographic Distribution by State	n	Percent
Tennessee	7	3.3%
Texas	5	2.4%
Vermont	3	1.4%
Virginia	5	2.4%
Washington	1	0.5%
West Virginia	2	0.9%
Wisconsin	4	1.9%
Total	213	100.0%

Distribution by Institutional Control	n	Percent
Independent	65	30.5%
Independent with religious affiliation	110	51.6%
Proprietary	4	1.9%
State related	34	16.0%
Total	213	100.0%

Distribution by Student Body	n	Percent
Coed	199	93.4%
Primarily Men	1	0.5%
Primarily Women	13	6.1%
Total	213	100.0%

Distribution by Undergraduate Enrollment	n	Percent
500 - 1000 students	71	33.3%
1001 - 1500 students	57	26.8%
1501 - 2000 students	50	23.5%
2001 - 2500 students	19	8.9%
2501 - 3000 students	16	7.5%
Total	213	100.0%

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Means and Standard Deviations

Means and standard deviations were calculated for four of the five scores obtained from the survey responses. Those scores were (1) the president's technical fluency (FLUENCY), (2) the proximity within the organization of the administration between the technology leader and the college president (LEVEL), (3) the president's perception of the importance of information technology to the campus (ITIMPORT), and (4) the participation of the technology leader in institutional decision making processes (TLINVOLVE). The fifth score (APPOINT) was a determination of whether the college president appointed the technology leader by a response of "yes" or "no."

FLUENCY

The first score (FLUENCY) was computed as the mean of the scores obtained from the thirteen questions of Section 1 of the survey instrument. The questions sought to measure the extent to which the college presidents personally make use of specific types of technologies available to them on their campuses. Presidents were also able to indicate if a specific technology from the list was not available. The mean scores was 3.42 with a range of 2.06 to 4.14 on a Likert scale ranging from 1("rarely or seldom") to 5 ("very often"). The large variance among the responses indicated that there was considerable differences among the chief executives regarding the extent to which they as individuals make use of campus information technology. However, the calculated scores indicated that college presidents on average make some use of their campus information technologies. The mean scores for each of the items composing the composite FLUENCY score and a histogram depicting their distribution are displayed in Table 2 and Figure 1.

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Table 2
Means and Standard Deviations of FLUENCY

	N	Mean	Standard Deviation
FLUENCY	213	3.42	0.93
1. Computer/terminal at desk	201	3.96	1.54
2. Personal computer at home	183	3.54	1.58
3. Laptop/portable computer	175	3.29	1.65
4. Fax machine	212	4.14	1.05
5. Modem/network connection	194	3.73	1.52
6. Voice mail	189	3.79	1.49
7. Video conferencing	163	2.06	1.30
8. Electronic mail	205	4.08	1.31
9. Internet/WWW services	204	3.48	1.44
10. Word processing	208	4.09	1.44
11. Presentation graphics	203	2.91	1.42
12. Spreadsheets	204	2.75	1.48
13. Database software	201	2.55	1.42

Figure 1
Distribution Histogram of FLUENCY

Std. Dev = .93
Mean = 3.42
N = 213.00

7 4
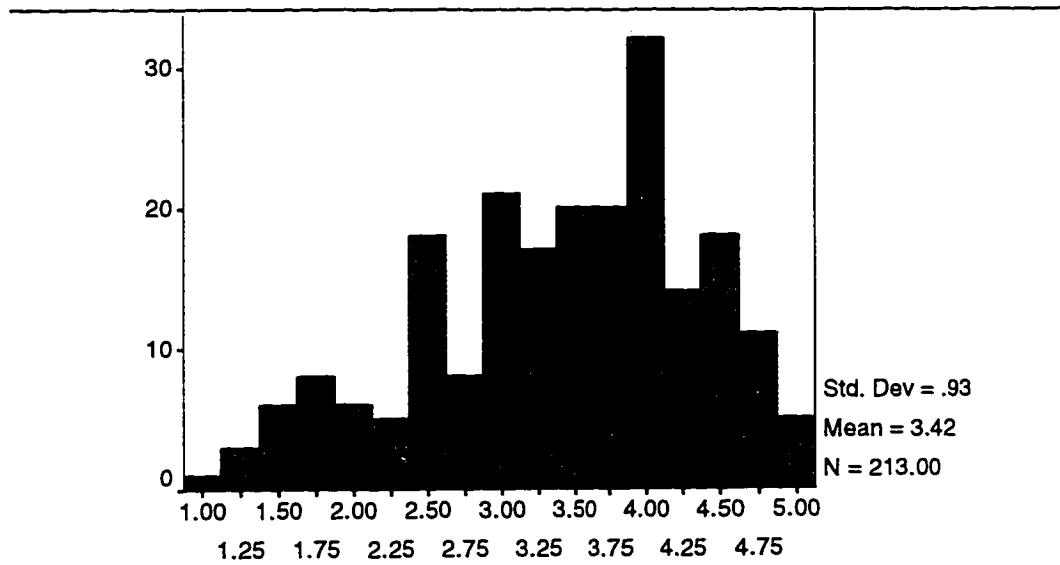
LEVEL

Questions from section 2 of the survey were designed to determine whether the college president could identify a chief information officer or technology leader for the campus, and if so, determine a measure of the reporting levels between the college president and that person within the administrative hierarchy (LEVEL). In all, 208 of the 213 sampled presidents identified a campus technology leader. The mean score for the reporting distance indicated a fairly close working relationship with the college president. Thus the reporting structure enabled the technology leader to be positioned sufficiently close to the office of the president within the administration hierarchy to be considered or presumed a candidate, if not a member, of the president's executive decision making team. The proximity within the administration between the technology leader and the college president (LEVEL) was scored as 1, 2, 3, or 4, where lower scores indicated a closer supervisory relationship. The histogram of the distribution of this score is found in Table 3 and Figure 2.

Table 3
Means and Standard Deviations of LEVEL

	N	Mean	Standard Deviation
LEVEL	208	1.86	0.66

1 = Technology leader reports to president
2 = Technology leader reports to academic dean/treasurer
3 = Technology leader reports to more than one person
4 = Technology leader reports to someone else

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Figure 2

Distribution Histogram of LEVEL
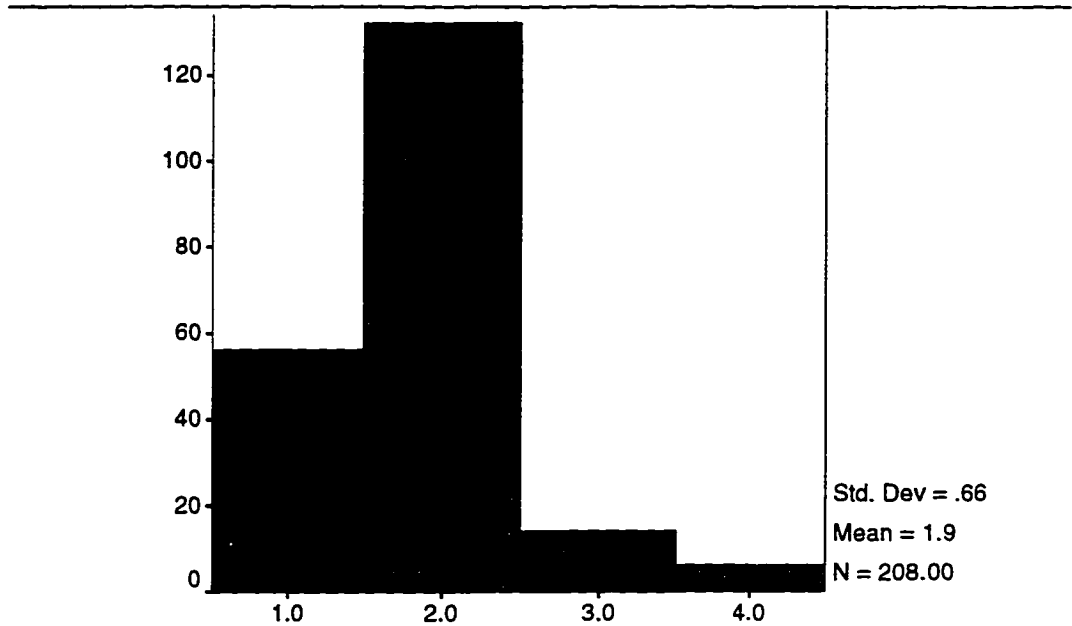
Std. Dev = .66
Mean = 1.9
N = 208.00

ITIMPORT

The president's perception of the importance of information technology to the campus (ITIMPORT) was measured by items 9 -14 of section 3 of the survey. The means of questions were scored on a Likert scale from "strong disagree," a value of 1, to "fully agree," a value of 5. The scores revealed that college presidents believe information technology planning is important to their campuses, indicating strong agreement with the importance of campus information technology. The resulting data and the histogram of the distribution characterizing ITIMPORT are recorded in Table 4 and Figure 3.

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Table 4

<u>Means and Standard Deviations of ITIMPORT</u>

	<u>N</u>	<u>Mean</u>	<u>Standard Deviation</u>
ITIMPORT	208	4.14	0.64
1. Campus technology is an important selling point for prospective students.	211	4.15	0.99
2. The alumni are interested in the technology investments made by our college.	210	3.56	1.04
3. Technology planning is a campus-wide activity, including faculty and students.	211	4.21	0.99
4. As college president, I know the value we have received from our investment in information technology.	211	4.33	0.88
5. The purpose for our college's technology resources is well understood on campus.	211	3.86	0.86
6. Information technology is essential for our college.	211	4.73	0.68

Figure 3

<u>Distribution Histogram of ITIMPORT</u>

Std. Dev = .64
Mean = 4.14
N = 211.00
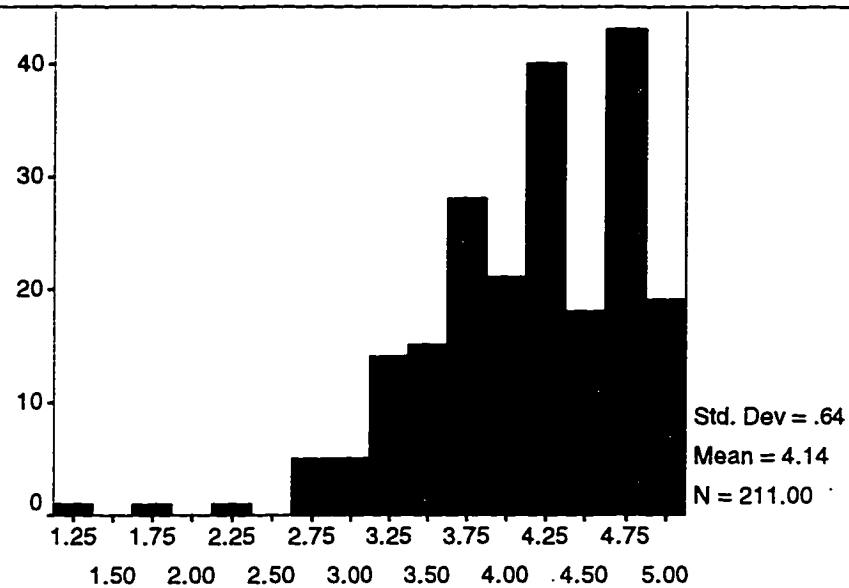
<u>TLINVOLVE</u>

The participation of the technology leader in institutional decision making

processes (TLINVOLVE) was measured by items 1-8 of section 3 of the survey

instrument. Mean scores for these items ranged from 3.00 to 4.04, with an

overall mean score of 3.68, indicating an above average level of participation for

the technology leader in decision making activities conducted through the office of

the college president. Highest scores among the items of this scale were noted in

situations which the president and others call on the campus technology leader

for technical support, advice, or information regarding campus technology

issues. Data and the distribution histogram for the TLINVOLVE score are recorded

in Table 5 and Figure 4.

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Table 5

Means and Standard Deviations of TLINVOLVE

	N	Mean	Standard Deviation
TLINVOLVE	209	3.68	0.88
1. The TECHNOLOGY LEADER attends many meetings which I attend as the college president.	209	3.00	1.35
2. The TECHNOLOGY LEADER is one of my key advisors.	208	3.26	1.32
3. I often refer others to the TECHNOLOGY LEADER for information and advice.	208	3.93	1.13
4. I appoint the TECHNOLOGY LEADER to key committees and task forces on the campus.	207	3.76	1.16
5. The TECHNOLOGY LEADER provides key committees with technical support for our college's visions.	205	4.04	1.01
6. The TECHNOLOGY LEADER always seems to know what is happening on our campus.	201	3.72	0.97
7. The TECHNOLOGY LEADER has influenced strategic directions taken by the college in positive ways.	204	4.02	1.00
8. The TECHNOLOGY LEADER positively challenges the way things are done at the college.	206	3.68	1.05

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Figure 4

Distribution Histogram of TLINVOLVE

Std. Dev = .88
Mean = 3.67
N = 209.00
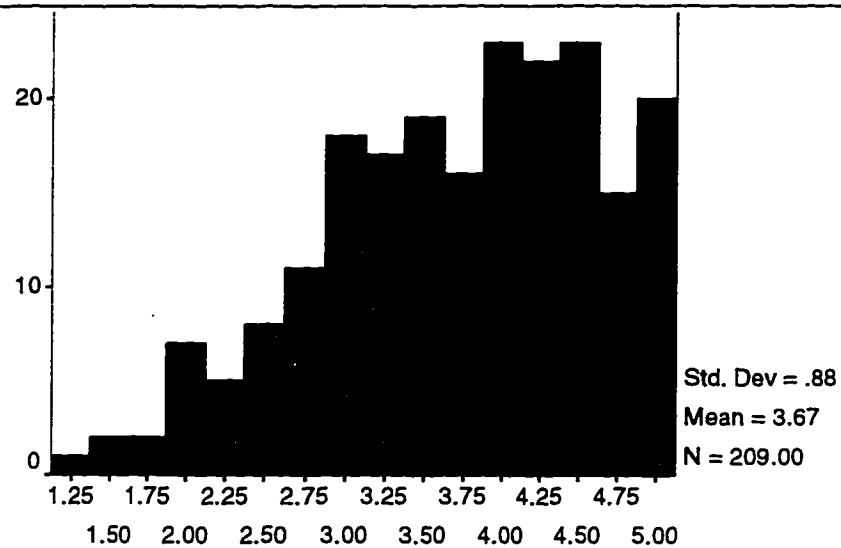
APPOINT

The fifth score from the survey responses (APPOINT) measured the college president's participation in choosing the campus technology leader. The question relating to this score was designed to be either a "yes" or "no" response. Of the 202 responses, 123 college presidents (57.7%) indicated that they appointed the campus technology leader and 79 (37.1%) indicated they did not.

Reliability

The reliability of three scales (FLUENCY, ITIMPORT, and TLINVOLVE) was calculated using Cronbach's Alpha Coefficient. The calculation measured the internal consistency of the items within each of the three scales. For the items contributing to the technical fluency scale, the alpha coefficient was 0.88, with

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the correlation between the items and the subscale score ranging from .48 to .77. For the items contributing to the importance of information technology score (ITIMPORT), the alpha coefficient was 0.86, and the correlation between items and the subscale score ranged from .65 to .77. For the items contributing to the extent of participation of the technology leader in decision making activities, the alpha coefficient was 0.93. The correlation between the items comprising the score and the subscale score ranged from .70 to .82. These alpha levels indicated moderate to high degrees of reliability and internal consistency of the items in each of the three individual subscales. Therefore the scales determined by the survey instrument were judged reliable.

Levels of Correlation

Levels of correlation were used to measure the strength of relationship between the four scores: (1) FLUENCY, (2) ITIMPORT, (3) LEVEL, and (4) TLINVOLVE. The data analysis generated Pearson's Product Moment Coefficients among these four scores. Three correlations were found to be significant at the 0.01 level, implying the existence of relationships is greater than would be expected through chance alone. The data are summarized in Table 6.

The output revealed that the best indicator of the extent of involvement for the campus technology leader in presidential level decision making activities as measured by the survey instrument was the measure of importance that the college president places on campus information technology (r=0.399). The reporting distance between the president and the campus technology leader reflects a nearly equal correlation for involvement of the technology leader in campus decision making at the presidential level (r=-0.391), indicating a tendency for the involvement of the technology leader in campus decision making activities to increase when the technology leader is administratively close to the

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college president. The negative correlation is indicative of the lower scores for the LEVEL scale reflecting closer proximities between the president and technology leader in the administrative hierarchy.

Table 6

Correlations of Constructed Scores from Survey Responses

FLUENCY	Technical fluency of the college president
ITIMPORT	Perceived importance of campus technology
LEVEL	Administrative proximity of technology leader
TLINVOLVE	Use of technology leader in decision making

	FLUENCY	ITIMPORT	LEVEL	TLINVOLVE
FLUENCY	1.000			
ITIMPORT	0.390**	1.000		
LEVEL	0.054	-.010	1.000	
TLINVOLVE	0.124	0.399**	-.391**	1.000

** Correlation is significant at the .01 level (2-tailed).

Multiple Regression

Regression equations were developed to ascertain how the combined measures of the FLUENCY, LEVEL, APPOINT, and ITIMPORT were effective in predicting the extent to which college presidents will use their campus technology leaders in institutional decision making processes (TLINVOLVE). Two regression models were computed. The first model used the three measures, FLUENCY, ITIMPORT, and LEVEL, as independent variables. Table 7 reflects the output of this regression analysis.

In this first regression equation, 31% of the variance, as indicated by the coefficient of determination (R^2 = .310), in the extent of use of the technology

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leader in presidential decision making is explained through a linear combination of the three independent variables employed in the regression analysis. Thus, there were likely to be other factors that contributed to the extent to which the college president employed the technology leader in campus decision making. Of the three variables considered in the regression model, both ITIMPORT - the perceived importance of campus technology, and LEVEL - the administrative reporting distance between the technology leader and the college president were seen as nearly equally important in accounting for the variation of the role of the technology leader in campus decision making as deemed by the college president. The third variable, FLUENCY, indicating the college president's familiarity with campus technologies, appeared to contribute very little to the equation.

Table 7

Regression Analysis - Model 1

Dependent variable	TLINVOLVE	Use of technology leader in decision making
Predictors	FLUENCY	Technical fluency of the college president
	ITIMPORT	Perceived importance of campus technology
	LEVEL	Administrative proximity of technology leader

Independent Variable	B	Beta	t	Sig
(CONSTANT)	2.401		6.494	.000
ITIMPORT	.550	.400	6.318	.000
LEVEL	-.519	-.386	-6.627	.000
FLUENCY	-.060	-.011	-.178	.859

R^2 = .310, Std. Error of the Estimate = .740, $F(3, 204)$ = 30.847*
*$p < .05$

A second regression model was then calculated to include whether the college president had appointed the technology leader for the campus, in

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combination with the other variables was effective in predicting the extent of the role of the technology leader in campus decision making. This model used the four measures, FLUENCY, ITIMPORT, LEVEL, and APPOINT, as independent variables. The addition of the measure APPOINT to the analysis resulted in a slightly better prediction (noted in Table 8) of the use of the technology leader in campus decision making processes. The coefficient of determination demonstrated a small increase (R^2=.354) and the combined influence of the independent variables remained significant at p=.05. Table 8 reflects the output of this regression analysis.

Table 8

Regression Analysis - Model 2

Dependent variable	TLINVOLVE	Use of technology leader in decision making
Predictors	FLUENCY	Technical fluency of the college president
	ITIMPORT	Perceived importance of campus technology
	LEVEL	Administrative proximity of technology leader
	APPOINT	President appointment of technology leader

Independent Variable	B	Beta	t	Sig
(CONSTANT)	2.166		5.749	.000
ITIMPORT	.508	.362	5.759	.000
APPOINT	.433	.240	4.064	.000
LEVEL	-.450	-.388	-5.752	.000
FLUENCY	-.132	-.007	-.117	.907

R^2 = .354, Std. Error of the Estimate = .718, $F_{(4, 197)}$ = 26.968*
*p<.05

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Answers to the following questions posed for the research were determined from the results of analysis of the survey data:

Research Question 1- How often does the college president personally use the campus's information technology resources?

Of the college presidents surveyed in the study (N=213), the mean score for their use of campus information technology was 3.42, with a standard deviation of 0.93. This indicated that college presidents are likely to personally use a majority, but less than all, of the information technology resources available to them. The large standard deviation indicated that there was wide variance in the amount of use of campus technology by the sampled college presidents. Thus, not all college presidents appeared to view their own use of campus technology as having critical value to their executive position or as a defining element in their role as chief executives.

Research Question 2 -Is the college president able to identify the role of technology leader or chief information officer for the college?

Of the college presidents surveyed (N=213), 207 presidents (97.2%) indicated that there existed a technology leader or chief information officer for their college. Of those who recognized a technology leader for the campus, 123 presidents (57.7%) noted that they had appointed that person, indicating that the length of tenure of the technology leader was at least less than that of the college president.

Research Question 3 - What is the administrative proximity of the campus technology leader to the college president?

The mean reporting distance between campus technology leaders and college presidents was 1.86, with a standard deviation of 0.66. The survey data noted that college presidents (N=208) reported 26.3% of the technology leaders reported directly to the college president, 62.0% reported at the second level, and 6.6% reported on a third level. Among those at the fourth level (2.8%) who

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were reported to be furthest removed from the supervision of the campus technology leaders, a few college presidents indicated that their institution had contracted technology services and leadership from a vendor or consultant. Thus on most of the sampled campuses, the technology leader was within sufficient reporting proximity to the college president to be considered as a candidate for a key advisory role.

Research Question 4 - How does the college president see the technology leader's role in campus decision making?

Of the 209 college presidents responding to this question, the mean score for the extent to which the technology leader participated in campus decision making was 3.68 with a standard deviation of 0.88. The mean for items used in computing this score ranged from 3.00 (SD = 1.35) to 4.04 (SD = 1.01). The highest mean score was recorded for the response in agreement to the statement, "The TECHNOLOGY LEADER provides key committees with technical support for our college's visions" (Section 3, Question 5). Thus there was indication that on most of the sampled colleges and universities, the technology leader was involved at some level in campus decision making activities for some issues that demand presidential consideration.

Research Question 5 - How importantly does the college president perceive information technology for the college?

College presidents who participated in the survey indicated high levels of importance for campus information technology. The mean for items used in computing this score ranged from 3.56 (SD = 1.04) to 4.73 (SD = 0.68). The highest mean score was recorded for the response in agreement to the statement, "Information technology is essential for our college" (Section 3, Question 14). There appeared overwhelming consensus among college presidents that information technology is important to the small college institution.

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Research Question 6 - Can the college president's experience with campus information technology resources, the decision making proximity of the campus technology leader to the college president, and the college president's perception of the importance of information technology to the campus function as predictors of the extent of involvement of the technology leader in campus decision making processes?

The variables investigated by the research indicated were found to contribute 31% of the variance of the extent of involvement of the technology leader in campus decision making processes. The perceived importance of campus technology and the administrative proximity between the technology leader and the college president were seen to be nearly equivalent in their significance as predictors. The extent to which the college president personally uses campus technologies was not demonstrated to be a significant predictor.

Summary

Analysis of the survey data with regard to the posed research questions indicated three moderate correlations: (1) the correlation between the technical fluency of the college president and the president's perceived importance of campus technology, (2) the correlation between the college president's perceived importance of campus technology and the use of the technology leader in decision making activities, and (3) the correlation between the administrative proximity of the technology leader to the college president and the president's perception of the importance of campus technologies. The variables considered in the study, FLUENCY - the technical fluency of the college president, ITIMPORT - the president's perceived importance of campus technology, LEVEL - the reporting distance between the technology leader and the college president, and APPOINT -

whether the college president appointed that technology leader, were found to represent 35.4% of the variance in the extent of use of the technology leader in presidential decision making activities. Of the four variables, the president's personal use of campus information technologies, had the least impact on the role designated by the president for the technology leader in decision making activities.

CHAPTER FIVE

FINDINGS, CONCLUSIONS AND IMPLICATIONS

Overview of the Study

Previous research clearly indicates that most chief executives create an inner circle of key decision makers to help them determine key strategic directions (Caffrey & Mosmann, 1967; Balash, 1996; Katzenbach & Smith,1993; Bensimon & Neumann,1993), and further, that the membership of these key decision making groups reflects the culture and values of the institution (Clarke, 1994; Katzenbach & Smith, 1993; Bolman and Deal,1991; Bensimon, Neumann & Birnbaum, 1989; Bensimon and Neumann,1993; Fullan, 1993; Marshall, Mitchell, & Wirt, 1989). As designated campus leaders, college presidents chose their closest advisors (Bensimon & Neumann, 1993). Further, membership in the president's circle of advisors denotes campus wide recognition of a person's responsibilities and qualifications, extending beyond their regular domain of responsibilities and functions (Cohen & March, 1974).

An important indicator that information technology has been woven into the fabric of the culture of the small college and is seen as an essential strategy for the institution's continued growth and competitive advantage, would be its representation among those of the highest circle of campus decision makers. West (1996) noted that increasing numbers of institutions have come to value the role of the campus technology leader as one who serves the institutional and external directions of the college rather than being solely concerned with specific technical knowledge. As such, the chief information officer (CIO) should be recognized as a contributing member of the institution's executive leadership team.

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This study identified, from the small college president's perspective, factors that provide a key decision making role for the campus technology leader. The study investigated three of the factors noted in current literature (Bolman & Deal, 1991; Cohen & March, 1974; Bensimon & Neumann, 1993; Marshall, Mitchell, & Wirt, 1989) to be determinants of the extent of participation of the technology leader in key decision making processes. Those were: (1) the president's personal use of campus technologies, (2) the levels of management supervision that existed between the college president and the technology leader, and (3) the president's personal view of the strategic importance of information technology to the institution. In addition, a determination of whether the president appointed the campus technology leader, was explored as fourth factor that might influence the role of the technology leader in campus wide decision making.

The research focused on the membership and nature of presidential cabinets at small American colleges or universities, serving between 500 and 3,000 undergraduate students and offering at least baccalaureate degree programs. A descriptive survey of small college presidents was employed to investigate the college president/CIO working relationship. Using theoretical frameworks established in the literature (Bensimon & Neumann, 1993; Fullan, 1993; Marshall, Mitchell, & Wirt, 1989; Bensimon, Neumann, & Birnbaum, 1989; Cotton, 1996; Oberlin, 1996; Oblinger & Maruyama, 1996; Earl & Feeny, 1994; Horgan, 1996), the survey instrument was designed to question presidents of small American four year colleges and universities regarding areas that appeared important to determining the extent of participation in campus planning allotted to the chief information officer of each institution. The survey's three scores reflecting predominant factors that appeared to influence the working relationship between the college president and the campus technology leader. These factors were: (1) the president's personal use of campus

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technologies, (2) the management levels existing between the president and the technology leader, and (3) the president's view of the strategic importance of information technology to the institution. Additionally, two more factors were considered in the survey. Those additional points were: (4) whether the college president appointed the campus technology leader, and (5) the current level of participation of the technology leader in institutional decision making processes as perceived by the president.

Data Analysis regarding the Hypotheses of the Study

The research was designed to test hypotheses concerning the working relationship between the small college president and the campus chief information officer (or the senior technology leader) as it perceived by the college president. Five hypotheses for the research were formulated and tested through analysis of the survey data:

> Hypothesis 1: College presidents who themselves make use of available campus technology will more likely have a close reporting relationship with the technology leader for the campus than those who less frequently use technology.

The Pearson's Product Moment Correlation calculated between the two variables (FLUENCY and LEVEL) was 0.054. The low correlation indicated that reporting relationships between the sampled college presidents and their campus technology leaders were not notably influenced by the college presidents' use of campus technology. The college president's interest in establishing a close working relationship with the technology leader did not appear to be prompted by the president's personal familiarity with campus technology. Thus, the hypothesis that the use of campus technology by the college president and the closeness of the administrative proximity of the technology leader to the college

president cannot be supported by the survey data.

> **Hypothesis 2: College presidents who themselves make use of available campus technology will more likely include the technology leader in campus decision making than those college presidents who less frequently use technology.**

The survey data did not support this hypothesis. The Pearson's Product Moment Correlation between the two variables (FLUENCY and TLINVOLVE) was 0.124. The president's use of campus technology was also not found to be a significant contributor to the role of the technology leader in campus decision making activities in the calculation of the regression model for predictors of the use of the technology leader by the college president in campus decision making activities (TLINVOLVE).

> **Hypothesis 3: College presidents who themselves make use of available campus technology will be more likely to consider and promote information technology as important to the institution.**

The survey data supported this hypothesis. The Pearson's Product Moment Correlation between the two variables (FLUENCY and ITIMPORT) was 0.390, and was significant at the 0.01 level. Sampled college presidents who use campus technology in their own work activities appeared to have greater confidence in the importance of information technology for all institutional functions. The support for the campus information technology infrastructure and the value of information technology to the overall campus was reported to increase when the college president took personal interest in using the technology.

> **Hypothesis 4: The extent to which college presidents use available campus information technology together with their own opinions of the importance of information technology for the college is a predictor of the role which the technology leader will play in campus policy decision making processes.**

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The regression model developed for the variables of the study to determine their value as predictors of the extent of the role which the technology leader would play in campus decision making (TLINVOLVE) indicated only moderate support for this hypothesis. The coefficient of determination for these two variables (FLUENCY and ITIMPORT) indicated 16% (R^2=.160) of the variation of the extent to which the technology leader participates in campus decision making at the presidential level. The variable indicating the importance of information technology to the college president (ITIMPORT) was found to significantly contribute to the extent of the technology leader's role in decision making. However, the use of technology by the college president (FLUENCY) was not significant. Table 9 reflects the output of the regression analysis.

Table 9

Regression Analysis for Hypothesis 4

Dependent variable Predictors	TLINVOLVE FLUENCY ITIMPORT	Use of technology leader in decision making Technical fluency of the college president Perceived importance of campus technology

Independent Variable	B	Beta	t	Sig
(CONSTANT)	1.440		3.860	.000
FLUENCY	-.066	-.040	-.574	.566
ITIMPORT	.570	.415	5.968	.000

R^2 = .160, Std. Error of the Estimate = .8125, F(4, 197) = 26.968*
*p<.05

Hypothesis 5: The distance in reporting structure that exists between the college president and the technology leader is a predictor of the role in which the technology leader will play in campus policy decision making processes.

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The reporting proximity of the technology leader to the college president (LEVEL) was found to be a significant contributor to the extent to which the president uses the technology leader in campus decision making (TLINVOLVE). The negative value of the coefficient is indicative of the lower scores reflecting closer proximities between the college president and the chief information officer in the organizational hierarchy. Campus technology leaders who were organizationally close to the college president were found to be more likely included in decision making activities and appeared more likely to speak to technology issues for issues raised for consideration at the executive level.

Conclusions and Implications of the Research

While the results of the data were mixed, deeper examination of the data indicates that the roles of information technology to the small college campus and that of the campus technology leader are being redefined. The data point to many of these new directions.

New Roles for Campus Technology and the CIO

In 1984, Lucas (cited in Rocheleau, 1996) indicated that information technology departments had little visibility and impact in organizations. The data indicate that none of the surveyed college presidents would agree to today to that statement, and in fact, all of the surveyed college presidents collectively view campus information technology as strategically important to their institutions. A resounding 94.4% of the sampled presidents (N=211) responded that they fully agreed (the highest level of agreement on the Likert scale used in the survey) with the statement (Section 3, Question 14), "Information technology is essential for our college." None of the sampled presidents responded with less than a score of 3, the midpoint of the Likert scale. The implication can be made that, whether or not the college president considers the campus technology leader

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a key figure in campus wide decision making activities, there is wide consensus that the responsibilities of the technology leader's position as overseer of the institution's technology assets and technology planning activities is of great importance to the future of the college or university.

As the role of information technology has moved to the forefront of the small college campus, college presidents appear to more readily identify a technology leader to oversee computers and information technologies for the institution. Rocheleau (1996) reported that about 56% of the colleges and universities in the 1994 CAUSE Institution Database recognized a chief information officer for their institution. Of the sampled college presidents (N=213) in this study, 97.2% of them identified a technology leader for their college. Only two of the surveyed college presidents noted that the role of the technology leader was shared between campus positions, so that different technology leaders existed for academic and administrative missions of the institution.

The identification of a campus technology leader, however, does not imply that across the sampled colleges and universities, the roles of the technology leaders were the same. It is conceivable that the structure and power of the position can vary greatly, particularly in planning and budgeting functions. Technology planning that includes academic and administrative computing, telecommunications, library, and networking would provide substantial evidence of the importance of the planning function. In addition, technology planning that is linked to the budget and that is regularly updated may indicate stronger communication with other administrative units of the college (Rocheleau, 1996). Indeed, the sampled college presidents reflect this attitude. Survey items indicating interaction between the technology leader and other administrators - providing technical assistance, advice, and technical information - noted the highest scores of the subscale for the technology leader's

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involvement in campus decision making (TLINVOLVE). The lower scores for this area were for interaction (as viewed by joint meeting attendance) between the college president and the technology leader (Mean = 3.00, SD = 1.35).

Although more institutions have identified a campus technology leader, the placement of the technology leader within the campus administration has seen little change. The results of the current survey indicated little change in the reporting structure. For the administrations of the responding college presidents (N=208), 26.3% of the presidents said their institution's technology leader reported directly to them and 62% of the college presidents, the same percentage as in the earlier study (Rocheleau, 1996), said that the technology leader either reported to the chief academic or financial officer. Few of the sampled college presidents placed the technology leader below that level, and of those, four of the 208 college presidents noted on their response that for their campuses, information technology leadership was outsourced to a vendor. In each case, although the designated technology leader was supervised at a presidential or vice presidential level, the technology leader was not in fact a member of the campus community.

In his study, Rocheleau (1996) concluded that the fact that the campus chief information officer reported directly to the chief executive officer had no major impact in regards to campus and technology planning activities. The current study revealed a modest correlation (r^2=-.391) at the 0.01 level between the reporting distance between the president and technology leader and the extent of participation of the technology leader in decision making. In Rocheleau's study, both large and small colleges and universities were considered. Since presidents of larger schools tend to spend more time in administrative roles than do presidents of smaller institutions (Cohen & March, 1974), the discrepancy in results may be accountable to the increased amount of

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contact with campus administrators at many levels that would be more likely to occur at larger institutions.

Presidents Rely on More than Experience

Leadership theory (Bolman & Deal,1991; Cohen & March,1974) indicated that college presidents rely heavily on their personal knowledge and experience in leading their institutions, but as the institution faces major change, high level decision making team approaches become more commonplace (Bensimon & Neumann, 1993; Katzenbach & Smith, 1993). The current data clearly reveal that college presidents used more than their personal experience to gather information for their campus decision making needs, and that the college president's own use of campus information technologies had little effect on the role in campus wide decision making activities delegated to the technology leader. In fact, the data reveal the president's personal fluency with campus technology was not significantly correlated with any of the other factors investigated in the study. The survey results then support the argument that new and more strategic roles for the technology leader and the information technology infrastructure are emerging on the small college campus, and the belief of their value to the institution is less dependent on a hands-on attitude on the part of the chief executive.

Not only do the sampled college presidents no longer depend on only their personal experience with technology to conclude its strategic importance to the campus, but their personal use of campus technology was found to vary widely. Individual scores for technology use by sampled college presidents (N=213) ranged across all values of the Likert scale, with a mean score was 3.42 and standard deviation of .93 (1 being "rarely or seldom used," and 5 being "very often used"). Since American college presidents generally live almost all of their professional lives within academic institutions and, as such, they are strongly committed to the values they acquire as faculty before becoming chief

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executives (Cohen & March, 1974), a possible explanation may be that as faculty, many may have started their professional careers before information technologies gained foothold on their campuses. Thus, their personal work habits conceivably may have been entrenched before new technologies were available to facilitate their needs. As campus issues demand increasing time and attention of the institution's chief executive position (Cohen & March, 1974; Benezet, Katz, & Magnusson, 1981; Bensimon, Neumann, & Birnbaum, 1989), college presidents could find that mastering new work patterns to purposely integrate campus technology becomes a never-accomplished task.

Of the surveyed college presidents, 57.7% reported that they had appointed the campus technology leader and 37.1% said they did not. A likely scenario may be that even with new appointments, college presidents are who need technology advice and support know (or readily determine) where in the administration to find it. Further, these chief executives are likely successful in finding whatever information or support they need to support their position within the institution. As such, their use - or lack of use - of campus technology thus appeared to have little impact on the administrative hierarchy and the significance of information technology and the technology leader for the campus.

Predictors of the Technology Leader's Role in Decision Making

The current research study focused on the level of participation in campus decision making that the college president viewed as appropriate for the campus technology leader. The strength of the factors investigated in the study as predictors of the technology leader's role in campus decision making was moderate, comprising nearly 31% of the total variance. Of three factors, (1)president's use of campus technology, (2) reporting levels between president and technology leader, and (3) the president's view of the importance of technology, both the reporting distance between the college president and technology leader and the importance of technology for the campus were seen as

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nearly equally strong as predictors of the technology leader's role in campus decision making.

A closer reporting relationship between the technology leader and the college president clearly appeared to increase the prospects of the technology leader's membership in the president's inner circle of advisors. Similarly, college presidents who view information technology as strategically important to the functions of the institution appear to more readily call on the the technology leader for advice and assistance with other interactions of their office. Thus, the data demonstrate that the college president who views the technology leader as a service provider rather than a strategic planner would not include the technology leader in campus wide decision making activities.

The near equivalency as predictors of the importance of technology and the proximity of the technology leader to the college president indicates that either the variables are equal contributors to the use of the technology leader in campus decision making. The data indicate 45% of the sampled college presidents, agreed or fully agreed with the statement, "The technology leader is one of my key advisors" (Section 3, Question 2 of the survey). Thus, if the president includes the technology leader in his or her inner circle of advisors, the appointment was made with nearly equal recognition to the technology leader's stature in the administration and the strategic importance designated to campus information technology.

The assignment of membership into the president's cabinet may equally depend on either the president's acknowledgement for the technology leader's abilities in leadership and team participation or may be considered an indication of the acceptance of information technology and the technology leader into the culture of the institution. This inner circle of advisors is one of the few resources over which the president has full control to build and use as he or she views appropriately. Thus, to protect its usefulness and integrity, the college

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president will avoid adding new members who do not fit its culture, who do not subscribe to the preexisting values of the group, or who lack promise that they will significantly contribute to the group process.

In smaller institutions, particularly those that are actively engaged in building their technology infrastructure, the technology leader may be either a newcomer to the campus, lacking deep understanding of traditions and rituals of the institution at large and probably as yet unable to adequately demonstrate commitment to the values of the campus culture, or an existing administrator who is allocated responsibilities that may be new to the institution and different than with what he or she has previously been charged. The uncertainty of how the new role will be executed on the campus and how others will perceive that role may cause the college president to acknowledge the campus technology leader as a key player in drafting the strategic future of the institution and yet continue to exclude that person as an outsider to the discussions that articulate those strategic directions.

Presidents as Information Gatherers

Lastly, it appeared that college presidents were curious about how their peers in other small institutions responded to items of the survey. The majority of the sampled college presidents (64.8% of the responding presidents, N=213) requested copies of the results of the survey. Several of the presidents were anxious to add to their responses and they included notes explaining current transitions and issues relating to their campus technology leaders and infrastructures (see Appendix E). Their high interest in the data of this research indicates that these college presidents are indeed information gatherers (Benezet, Katz & Magnusson, 1981), and that information regarding their working relationship with their technology leaders may be scarce.

Scant resources, such as information regarding how their peers perceive and use information technology and technology leaders, available to the sampled

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college presidents may be accountable to the size, locality, and budget of the institutions. The current literature relating to information technology management tends to be contributed by technology professionals of larger institutions where human and financial resources can be more readily allocated to focus on one or more aspect technical management within higher education. Small institutions tend to be marginalized from a national perspective because they often lack the resources and funds to participate in forums regarding leading edge technologies and research. Simply put, many small institutions cannot afford to replicate the levels of introspection and management research that attract the attention of investigations in technology management

Limitations of the Study

The study has several limitations that preclude viewing the results as more than exploratory. In particular, the study did not determine whether an institution actively and effectively does strategic planning for the overall campus and for information technology. It did not determine if information technology strategic planning was integrated into campus wide planning - a factor that could notably impact the identification of the campus technology leader as a key advisor to the president. It did not investigate the college president/technology leader relationship with regard to resource allocation, replacement budgets, and effective use of the technology for students and faculty. As a cross-sectional study, the research based its theoretical framework on the results of several case studies of changes in information technology management. The need exists for further research employing longitudinal studies to help identify the sequence of changes that occur in the college president/technology leader relationship.

The data were gathered from the perspective of the college president, but did not include measures of the quality of the relationships described by the

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responses. No indications were made relating the style of leadership and team management used by the college president to the composition and utility of the advisory team. The research was a cross-sectional study which lacks the perspective of longitudinal studies to thoroughly test for causal relationships among the variables.

Directions for Further Study

The current research investigated some of the factors that impact the college president's use of information technology and the campus chief information officer as a strategic asset of the institution. The scope of the study, was small, private and public, four year institutions. The study investigated some of the factors that may theoretically influence that the president's attitudes and beliefs in this area. Additional considerations regarding the overall environment of a particular institution might include the level of sophistication of the information technology infrastructure for the college, the emphasis and strengths of the institution's curriculum, the financial stability of the college as measured by the size of the institutional endowment, and human resource issues and politics surrounding the designation of the chief information officer for the campus. How technology is viewed by key administrators and how influential information technology is seen in strategic decision making might be influenced by the agenda set by institutional leaders (the trustees, the chancellor, or the governing board, the faculty) other than the office of the president.

In addition, the study assumed that the campus chief executive could identify a chief information officer for the college. It did not consider reasons why a college president may not be able to do so. Similarly, how the chief executive defined the position for an individual campus was not considered for study. Likewise, if the designated campus technology leader also functioned in

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another key administrative role, whether that person's contribution to presidential decision making and strategic planning may be credited to other than technology leadership within the college was not researched. Indeed, this was the case in at least two of the colleges who participated in the sample. At both institutions, the college president appointed an existing administrative vice president to be the technology leader for the campus, even though that person lacked some or all of the technical expertise normally associated with a CIO position. The participation of these persons in key decision making, then, was due to their vice presidency stature, not the recognition of the person's leadership or understanding of information technology.

In addition, the possibility existed that the function and responsibilities may be distributed among more than one administrator, so that, for instance, technology leadership would be shared by a financial officer and a librarian, or by a team of interested faculty and administrators. The status and influence of members of the group who would be considered information leaders on campus might impact the decision regarding who would function as a key advisor to the president and how significant of a role is designated for a campus chief information officer.

Finally, the conclusions drawn from previous research were often focused on viewing institutions of higher education as comparable to corporations. Although corporation management techniques often do serve as models for some college and university administrative functions (Besse, 1973), their usefulness may apply to only some of the management issues facing the college president and chief administrators. The question of how much do college presidents feel their administrative responsibilities mirror those of corporate chief executives was not addressed.

This dissertation considers elements of a relatively new functional area of the college and a relatively new collegiate relationship - between the college

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president (or the presidential team) and the chief information officer. A significant piece of the theoretical base, particularly in reference to how information technology issues are presented for policy decisions and who best speaks to the issues of those decisions, is extracted from the documented experience of practitioners, both in higher education and in industry. Further research is warranted to assess other factors that contribute to the participation of the technology leader in campus wide planning done at the highest levels of the administration.

Concluding Remarks

Although there is growing recognition by campus leaders that information technology is a critical component of an institution's future, the institutionalization of technology and the role of the technology leader on the campus appears to be still emerging. Presidents of small colleges know that information technology is an essential part of the institution's future. They readily define the technology leader as the overseer of their campus information technology assets and a service provider for other administrative and academic functions at the college. The data provide evidence, however, that many college presidents have yet moved to acknowledge their technology leaders also as strategic campus decision makers and use them in key decision making teams. The technology leader is seen as interacting with other administrators, but not necessarily directly with the college president.

Recognition of the technology leader in both roles, as a manager of technology and as a participant in key decision making at the executive level, moves the institution's technology assets from being viewed as an institutional priority to the higher level of an institutional value. Technology as an institutional priority implies a support role, that of executing what are truly the institutional values. The information technology infrastructure viewed as a

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priority retains the image of being bolted onto the periphery of the college's culture. When viewed as a value in itself, however, it becomes incorporated into the fabric of the college's institutional future, a piece of how the college defines itself and its potential. The paradigm of information technology as an institutional value integrates the campus technology infrastructure into both the academic and administrative lives of the college's culture.

The distinction between the two views of technology on the small college campus is an important one. The movement of information technology from an institutional priority to an institution value is reflective of Ellul's (1964) premise. Ellul saw an emerging society in which processes are redefined so that the final objective becomes the singular best way to accomplish a goal, overshadowing the realization of the goal itself. When viewed as a priority, the campus technology infrastructure is the means which the values of the institution are realized. When seen as an institutional value, it naturally becomes in itself a permanent, enduring, and meaningful end-point of the culture of the college.

The transition has implications for the technology leader as well. As overseer of an institutional priority, the technology leader is a service provider, supporting the articulated values of the college. In a supporting role, commitment to the missions of the college and fitting into the collegiate culture are less important than the accomplishment of tasks that are mandated by the executive decision makers. When information technology is seen as an institutional value, however, a second role for technology leaders on the small college campus is defined. Technology leaders are then both facilities managers of the technology infrastructure and institutional planners. The technology leader is both recognized and empowered to help technology create and secure a viable future for the college.

Information technology on the small college campus reflects the same role

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as a vehicle of change that it performs for all facets of society. The technology leader is an agent of that change. Successful college presidents will continue to seek out change agents so that they and their institutions are best prepared for the future.

BIBLIOGRAPHY

Allen, A. O. (1978). Probability, statistics, and queueing theory. New York, NY: Academic Press, Inc.

Ashby, E. (1974). Adapting universities to a technological society. San Francisco, CA: Jossey-Bass.

Balash, J. (March/April, 1996). A blinding glimpse of the obvious goes unseen. Educom Review, 31(2).

Barboni, E. J. (September, 1993). Information technologies in independent, liberal arts colleges: a summary and analysis of comparative data. Washington D.C.: Council of Independent Colleges.

Barone, C. A. (1996). Management is about relationships. CAUSE/EFFECT Magazine, 19(1), pp. 9-11.

Beckhard, R. and Pritchard, W. (1992). Changing the essence. San Francisco, CA: Jossey-Bass.

Benezet, L. T., Katz, J. and Magnusson, F. W. (1981). Style and substance: leadership and the college presidency. Washington D.C.: American Council on Education.

Bennis, W. and Nanus, B. (1985). Leaders. New York, NY: Harper Perennial.

Bensimon, E. M. and Neumann, A. (1993). Redesigning collegiate leadership: teams and teamwork in higher education. Baltimore MD: Johns Hopkins University.

Bensimon, E. M., Neumann, A. and Birnbaum, R. (1989). Making sense of administrative leadership: the "L" word in higher education. ASHE-ERIC Higher Education Report No. 1. Washington, D.C.: School of Education and Human Development, The George Washington University.

Besse, R. M. (1973). A comparison of the university with the corporation. The university as an organization. Berkeley, CA: Carnegie Commission on Higher Education.

Bolman, L. G. and Deal, T. E. (1991). Reframing Organizations: Artistry, Choice, and Leadership. San Francisco, CA: Jossey-Bass.

Caffrey, J. and Mosmann, C.J. (1967). Computers on Campus. Washington D.C.: American Council on Education.

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Clarke, L. (1994). The Essence of change. London UK: Prentice Hall International (UK) Ltd.

Cohen, M. D. and March, James G. (1974). Leadership and ambiguity: the American college president. New York, NY: McGraw-Hill.

Cotton, C. (1996). Understanding information systems in higher education, 1995-1996. (CCA Research, Division of CCA Consulting Inc. 888 Worcester Street, Wellesley, MA 02181).

Daily, J. C. (1995). What it takes to be CIO. Datamation. <http:://www.datamation.com>. (11 April 1997).

Davenport, T. H. (May, 1995). Transforming the CIO. Computerworld. <http:://www.computerworld.com>. (11 April 1997).

Dillman, D. A. (1978). Mail and telephone surveys: the total design method. New York, NY: John Wiley & Sons.

Dolence, M. G. & Norris, D. M. (1995) Transforming higher education: a vision for learning in the 21st century. Ann Arbor, MI: Society for College and University Planning.

Earl, M. J. and Feeny, D. F. (Spring, 1994). Is your CIO adding value? Sloan Management Review, 36,11-20.

Ernst, D.J., Katz, R. N. and Sack, J. R. (1994). Organizational and technological strategies for higher education in the information age. Boulder CO: CAUSE Professional Paper Series, #13.

Ellul, J. (1964). The technological society. (J. Wilkinson, Trans.) New York: Vintage Books. (Original work published in 1954).

Fullan, M. (1993). Change forces: probing the depths of educational reform. New York, NY:Falmer Press.

Fullan, M. and Stiegelbauer, S. (1981). The new meaning of educational change. (2nd ed.). New York, NY: Teachers College Press.

Gardner, J. W. (1990). On leadership. New York, NY: Macmillan.

Green, M. F. (1988). The American college president: a contemporary profile. Washington DC: American Council on Education.

Heterick, R.C. and Sanders W. H. (1993). From plutocracy to pluralism: managing the emerging technostructure. EDUCOM Review, 28(5), 22-28.

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Horgan, B. (1996). CAUSE's CIO constituent group: sharing experience and expertise. CAUSE/EFFECT Magazine, 19(1), 8-9, 53.

Huck, S. W., Cormier, W. H., & Bounds, W. G., Jr. (1974). Reading statistics and research. New York: Harper & Row.

Iversen, G. R. and Norpoth, H. (1976). Analysis of variance. (Sage University paper series on Quantitative Applications in the Social Sciences, 07-001). Beverly Hills, CA: Sage.

Johnson, J. W. (1993). Health care and higher education: a chilling parallel. Educom Review, 28(5), 42-45.

Kanter, R. (1983). The change masters. New York, NY: Simon & Schuster.

Katzenbach, J. R. and Smith, D.K. (1993). The wisdom of teams. New York, NY: Harper Collins.

Kouzes, J. M. and Posner, B. Z. (1995). The leadership challenge: how to keep getting extraordinary things done in organizations. San Francisco, CA: Jossey-Bass.

Lewis-Beck, M. S. (1980). Applied regression: an introduction. (Sage University Paper Series on Quantitative Applications in the Social Sciences, 07-022). Newbury Park, CA: Sage.

Machiavelli, N. (1992). The Prince. (N. H. Thomson, Trans.) New York, NY: Dover Publications. (Original work published 1513).

Marshall, C., Mitchell, D., and Wirt, F. (1989). Culture and education policy in the American states. New York, NY: Falmer Press.

Massy, W. F. & Zemsky, R. (1995). Using information technology to enhance academic productivity. Washington D.C.: National Learning Infrastructure Initiative (NLII) of Educom, Interuniversity Communications Council Inc.

McGregor, D. (1960). The human side of enterprise. New York, NY: McGraw-Hill.

Oberlin, J. L. (Summer, 1994). Departmental budgeting for information technology: a life-cycle approach. CAUSE/EFFECT Magazine, 17(2), pp. 22-31.

Oberlin, J. L. (Spring, 1996). The financial mythology of information technology: the new economics. CAUSE/EFFECT Magazine, 19(1), pp. 21-29.

Oblinger, D. G. and Maruyama, M. K. (1996). Distributed learning. Boulder CO: CAUSE Professional Paper Series, #14.

Ortega y Gasset, J. (1944). Mission of the university. New York, NY: Norton Library.

Parker, M.M., Benson, R. J., and Trainor, H.E. (1989). Information economics. Englewood Clifs, NJ: Prentice-Hall.

Peterson's guide to four-year colleges 1997. (1996). Princeton, NJ: Peterson's.

Pitkin, G. M. (1994). Leadership and the changing role of the chief information officer in higher education. Managing Information Technology as a Catalyst of Change: Proceedings of the 1993 CAUSE Annual Conference. Boulder, CO: CAUSE, 91-122.

Radosevich, L. (March, 1997). The CEO agenda. CIO,10(11), 36-40.

Ringle, M.D. and Smallen, D.L. (Summer,1996). Can small colleges be information technology leaders? CAUSE/EFFECT Magazine, 19(2), 18-25.

Rocheleau, B. (Fall, 1996). Structures, plans, and policies: do they make a difference? An initial assessment. CAUSE/EFFECT Magazine, 19(3), 35-39.

Rodenhouse, M. P. (Ed.). (1995). Higher Education Directory. Falls Church, VA: Higher Education Publications, Inc.

Schroeder, L. D., Sjoquist, D. L., & Stephan, P. E. (1986). Understanding regression analysis: an introductory guide. (Sage University paper series on Quantitative Applications in the Social Sciences, 07-057). Newbury Park, CA: Sage.

Scott, W. R. (1992). Organizations: rational, natural, and open systems. (3rd ed.). Englewood Cliffs, NJ: Prentice-Hall.

Silverman, M. (1984). The technical manager's survival book. New York, NY: McGraw-Hill.

Sizer, T. R. (1992). Horace's school: redesigning the American high school. Boston, MA: Houghton Mifflin Company.

Torbert, W.R. (1991). The power of balance. Newbury Park, CA: Sage.

West, T. W. (1996). More lessons from the CIO trail: from Butch Cassidy to City Slicker. Reflections on leadership, by winners of the CAUSE ELITE Award for Exemplary Leader and Information Technology Excellence. (CAUSE Professional Paper Series #15). Boulder, CO: CAUSE.

Wiersma, W. (1991). Research methods in education: an introduction (5th ed.). Boston, MA: Allyn & Bacon.

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APPENDICES

APPENDIX A

Survey Questionnaire

TECHNOLOGY LEADERSHIP FOR SMALL COLLEGES *

Section 1: Technology Access

Please circle the number which indicates how often you use each of the following technologies: (5) if you use it very frequently; (1) if you rarely or seldom use it; or (4) (3) or (2) if your use falls between these extremes; (N/A) if the technology is not available to you.

		Rarely or Seldom				Very Often	Not Available
1.	Computer or terminal at your desk	1	2	3	4	5	N/A
2.	Personal computer at your home	1	2	3	4	5	N/A
3.	Laptop or portable compute	1	2	3	4	5	N/A
4.	Fax machine	1	2	3	4	5	N/A
5.	Modem or network connection	1	2	3	4	5	N/A
6.	Voice mail	1	2	3	4	5	N/A
7.	Video conferencing	1	2	3	4	5	N/A
8.	Electronic mail	1	2	3	4	5	N/A
9.	Internet/World Wide Web services	1	2	3	4	5	N/A
10.	Word processing/letter writing	1	2	3	4	5	N/A
11.	Graphics and charts for presentations	1	2	3	4	5	N/A
12.	Spreadsheets	1	2	3	4	5	N/A
13.	Database software	1	2	3	4	5	N/A

Section 2: Supervision of Technology Leaders.

Assume the TECHNOLOGY LEADER identifies the most senior person on your campus who oversees computers and information technologies.

1. Does your college have a TECHNOLOGY LEADER?   YES   NO

2. If YES, who supervises the TECHNOLOGY LEADER on your campus?
(Circle only one answer)

    A. Technology leader reports directly to you, the college president.

    B. Technology leader reports to the treasurer/CFO.

    C. Technology leader reports to the academic dean/provost.

    D. Technology leader reports to more than one person.

    E. Technology leader reports to someone else.

3. Did you appoint the current TECHNOLOGY LEADER for your campus?   YES NO

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Section 3:   Technology Leadership

Please circle the number which indicates the extent of your agreement with each statement: (5) if you strongly agree; (1) if you strongly disagree; or (4) (3) or (2) if you fall between these extremes.

		Strongly Disagree				Fully Agree
1.	The TECHNOLOGY LEADER attends many meetings which I attend as the college president	1	2	3	4	5
2.	The TECHNOLOGY LEADER is one of my key advisors	1	2	3	4	5
3.	I often refer others to the TECHNOLOGY LEADER for information and advice	1	2	3	4	5
4.	I appoint the TECHNOLOGY LEADER to key committees and task forces on the campus	1	2	3	4	5
5.	The TECHNOLOGY LEADER provides key committees with technical support for our college's visions	1	2	3	4	5
6.	The TECHNOLOGY LEADER always seems to know what is happening on our campus	1	2	3	4	5
7.	The TECHNOLOGY LEADER has influenced strategic directions taken by the college in positive ways	1	2	3	4	5
8.	The TECHNOLOGY LEADER positively challenges the way things are done at the college	1	2	3	4	5
9.	Campus technology is an important selling point for prospective students	1	2	3	4	5
10.	The alumni are interested in the technology investments made by our college	1	2	3	4	5
11.	Technology planning is a campus-wide activity, including faculty and students	1	2	3	4	5
12.	As college president, I know the value we have received from our investment in information technology	1	2	3	4	5
13.	The purpose for our college's technology resources is well understood on campus	1	2	3	4	5
14.	Information technology is essential for our college	1	2	3	4	5

Do you want a copy of the results?   YES   NO

Thank you again for your participation!

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APPENDIX B

Cover Letter for Survey

January 5, 1997

«First Name» «Last Name»
«Company»
«Address1»
«Address2»
«City», «State» «Zip»

Dear President «Last Name»:

As a doctoral candidate in the Ph.D. program in Education at the University of New Hampshire, I am requesting your help with my dissertation study regarding the role in which information technology plays on small college campuses. The study, consisting of survey research, is designed to determine some factors that impact the extent the college technology leader participates in strategic planning activities. I am interested in the relationship you as college president have established with your campus technology leader. I specifically seek your opinion about: (1) your own use of information technologies; and (2) the position of information technology within your administration.

You have been randomly selected to participate in this study because you have been identified as the chief executive of a four year college with between 500 and 3000 full time undergraduate students. The questionnaire takes less than 10 minutes to complete. Your answers will be confidential, and will only be compiled along with all the other responses so that only the totals will be reported. If you wish to receive a copy of the study results, please indicate at the end of the survey.

If you have questions about the survey, feel free to call me at 603-641-7266 or to contact my dissertation director, Professor Todd A. DeMitchell, University of New Hampshire Department of Education.

Please return the completed questionnaire by January 20. Your participation in this study is deeply appreciated.

Sincerely,

Elizabeth Ann Rivet, Executive Director
Office of Information Technology
Saint Anselm College

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APPENDIX C

Cover Letter for Field Test

December 10, 1996

«First Name» «Last Name»
«Company»
«Address1»
«Address2»
«City», «State» «Zip»

Dear President «Last Name»:

As a doctoral candidate in the Ph.D. program in Education at the University of New
Hampshire, I am requesting your help with my dissertation study regarding the role in
which information technology plays on small college campuses. The study, consisting of
survey research, is designed to determine some factors that impact the extent in which
the technology leader for the college participates in strategic planning activities. I am
interested in the relationship you as college president have established with your
campus technology leader. I specifically seek your opinion about: (1) your own use of
information technologies; and (2) the position of information technology within your
administration.

You have been randomly selected to field test this study because you have been identified
as the chief executive of a four year college in New Hampshire with between 500 and
3000 full time undergraduate students. The questionnaire takes less than 10 minutes to
complete. Both your answers and criticism of the survey instrument will be
confidential, and your response will only be compiled along with all the other responses
so that only a summary of your remarks and the totals represented by all respondents
will be reported. If you wish to receive a copy of the study results, please indicate at the
end of the survey.

If you have questions about the survey, feel free to call me at 603-641-7266 or to
contact my dissertation director, Professor Todd A. DeMitchell, University of New
Hampshire Department of Education.

Please return the completed questionnaire by December 30. Your participation in this
study is deeply appreciated.

Sincerely,

Elizabeth Ann Rivet, Executive Director
Office of Information Technology
Saint Anselm College

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APPENDIX D

Follow Up Letter for Survey

January 20, 1997

«First Name» «Last Name»
«Company»
«Address1»
«Address2»
«City», «State» «Zip»

Dear President «Last Name»:

Two weeks ago I asked for your participation in my dissertation study focusing on the role which information technology plays on small college campuses and I requested that you complete and return a brief questionnaire in the postage paid addressed envelope. To date, I have not received your response. It is very important that I be able to include your response in my study.

If you have already responded, thank you for your help and kindly excuse this reminder. If you have not responded, won't you please take less than 10 minutes to complete and forward the questionnaire? Let me reassure you that your individual answers will be held in the strictest confidence. Your answers will be compiled along with all other responses and only the totals will be reported.

If by some chance you did not receive the questionnaire or it got misplaced, I have enclosed another copy of the questionnaire for you.

Again, thank you so much for your help.

Sincerely,

Elizabeth Ann Rivet, Executive Director
Office of Information Technology
Saint Anselm College

APPENDIX E

Notes from Responding College Presidents

I didn't appoint the technology leader, I hired him.

I have been a university president for 25 years. In 1990 I returned to college and earned a second doctoral degree - PhD in Information Systems - obviously I'm sold on technology and have implemented very advanced DSS [Digital Satellite Systems] throughout the university.

By August we will be fully wired for distance learning and a new phone system with voice mail will be available as well.

Technology leader sits on the President's Council.

He [the technology leader] is new here, began in January 1997. I just began here also in January 1997.

If the questions [for Section 3] were "should" rather than "is", answers would be all 5 [Fully Agree].

My network connection will be available in 2 months!

Our CIO (the first we've had) has only been here 3 months and has been focused on installing the campus network.

We have growing interest in video conferencing.

We recently changed admin. The president resigned and I've been in the Interim position a short time. Some focus and "reference" will change.

We have two technology leaders, one reporting to the Exec. VP and the other to the Provost.

[In response to "The purpose for our college's technology resources is well understood on campus"] working on this.

I did not initially appoint the technology leader, but I did combine the library and info services under him.

The technology leader is the treasurer who has assumed this role after search for tech leader did not materialize.

We just appointed a technology leader last month!

We don't have a technology leader, we have a TECHNOLOGY TEAM!

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