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Innovation in Student Affairs: The Influence of Individual and Organizational Factors on Programmatic and Technological Change

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Innovation in student affairs: The influence of individual and
organizational factors on programmatic and technological change

Thomas, Sally S., Ed.D.

East Tennessee State University, 1989

INNOVATION IN STUDENT AFFAIRS:

THE INFLUENCE OF INDIVIDUAL AND ORGANIZATIONAL

FACTORS ON PROGRAMMATIC AND TECHNOLOGICAL CHANGE

_____

A Dissertation

Presented to

the Faculty of the Department of

Supervision and Administration

East Tennessee State University

_____

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Education

_____

by

Sally S. Thomas

May, 1989

Approval
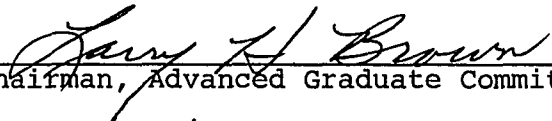
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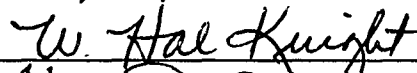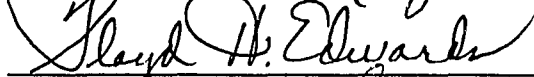
SALLY STRAWINSKI THOMAS

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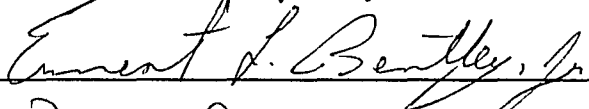
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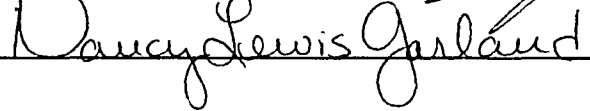
The committee read and examined her dissertation, supervised her defense of it in an oral examination, and decided to recommend that her study be submitted to the Graduate Council and the Associate Vice President for Research and Graduate Studies in partial fulfillment of the requirements for the degree Doctor of Education in Educational Administration.

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Chairman, Advanced Graduate Committee

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Signed on behalf of   Associate Vice President for
the Graduate Council   Research and Graduate Studies

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ABSTRACT

INNOVATION IN STUDENT AFFAIRS:

THE INFLUENCE OF INDIVIDUAL AND ORGANIZATIONAL

FACTORS ON PROGRAMMATIC AND TECHNOLOGICAL CHANGE

by

Sally Strawinski Thomas

The purpose of this paper was to explore the influence individual and organizational factors exerted on technological innovations, programmatic innovations and combined technological and programmatic innovations. Student affairs divisions in Comprehensive I colleges and universities constituted the administrative unit examined. The two types of program innovations examined were substance abuse prevention/education programs and retention/academic support programs. The technological innovations examined were financial aid computerized award calculation and computerized career counseling. The individual factors examined were professionalism, gender and age of the chief student affairs officer. The organizational factors were ver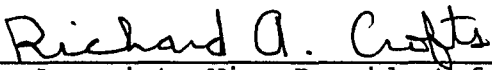tical, horizontal and combined vertical and horizontal complexity, centralization and size. Size was measured as student body size, a combined staff size within the four units examined and combined student body and staff size.

The method of study was survey. One hundred chief student affairs officers were surveyed for responses about their institution's innovations and the factors of professionalism, age, gender, centralization, complexity and size. The statistical analysis of the data was intended to determine significant differences in factors impacting technological innovation, programmatic innovation and combined programmatic and technological innovation.

The findings were:

1. There was a significant relationship between professionalism and technological innovation. The more professional the chief student affairs officer was, the more technological innovation was reported.

2. There was a significant relationship between age and combined programmatic and technological innovation. The higher the age of the chief student affairs officer, the

lower the level of combined technological and programmatic innovation was reported.

3. There was a significant relationship between complexity and programmatic innovation. The more complexity present, the more programmatic innovation was reported. This significance held across the three different measures of horizontal, vertical and combined complexity.

4. There was a significant relationship between complexity and combined technological and programmatic innovation. The more complexity, the more combined technological and programmatic innovation was reported. This significance held across vertical and combined measures for complexity.

5. There was a significant relationship between the size and programmatic innovation. The larger the size, the more programmatic innovation was reported. This significance held for staff size and combined size measures.

The major conclusion was that different factors may impact programmatic innovation differently than technological innovation or combined programmatic and technological innovation. Future study of innovation should consider these differences.

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PROJECT TITLE: Innovation in Student Affairs

PRINCIPAL INVESTIGATOR: Sally S. Thomas

The Institutional Review Board has reviewed the above-titled
project on (date)___2-21-89___ with respect to
the rights and safety of human subjects, including matters
of informed consent and protection of subject
confidentiality, and finds the project acceptable to the
Board.

_____
CHAIRMAN

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To

My Son

J. Drew Thomas

Thank you for keeping me innovating.

ACKNOWLEDGEMENTS

Special thanks are in order for many specific colleagues in the Student Affairs Division. Specifically, Dr. Dorman G. Stout, Dr. Steve Bader, Ms. Mary Jordon, Ms. Gladys McMackin, Ms. Peggy Calkins, Ms. Virgie Frisco and Ms. Carolyn Peeples all understood in the office when I had dissertation deadlines, etc. Thank you all. Other professional colleagues who were particularly supportive were Ramona Milhorn, Tony Warner, Bonnie Burchett, Wilsie Bishop, Ginger Hawk, Dr. Sharon Turnbull, Ms. Sonya Cantrell and Dr. Susan S. Twaddle.

Friends and family were all supportive and often believed in me when I had given up. Specifically, Jennie Gerace for all kinds of support and Bob Plummer for being a task master. My parents, William and Pat Strawinski, for giving me the courage to undertake anything I wanted to accomplish in life and for giving me emotional, financial and friendly support throughout the process. My brother, Jim and his wife, Tyler, were always there for me if I just needed to fuss. My former inlaws, Ken and Madelyn Thomas for encouragement and for taking care of their grandson often and particulary near major deadlines. The most supportive member of my family was my son, J. Drew Thomas who put up with all the years of schooling and dissertation writing during his formative years. His humor about the process helped as he threatened to "ground me from my dissertation" thinking that was the ultimate threat.

Financial support was provided from a generous scholarship provided by the Greek honorary, The National Order of Omega. This support was genuinely needed and provided a wonderful boost at a low time.

The local McDonald's needs to be recognized for the environment they provided on critical days when any other location just wouldn't work.

I know that the saying from the Beatle's song, "I get by with a little help from my friends," was my theme throughout my doctoral studies and my dissertation.

A special thanks for emotional support, envelope sealing and stamp sticking to a very special person in my life, G. Aubrey Lee.   Thank you.

CONTENTS

CHAPTER 1

Introduction

The organizations that will succeed and flourish
in the times ahead will be those that have
mastered the art of change: creating a climate
encouraging the introduction of new procedures and
new possibilities, encouraging anticipation of the
response to external pressures, encouraging and
listening to new ideas from inside the
organization. (Kanter, 1984, p. 65).

Major challenges requiring innovative programs and new
technology face institutions of higher education today as in
the past. The rate of change is continually increasing as
technological innovations become available, the world of
work is being transformed, the demographics of our society
are shifting and societal expectations are demanding change
within institutions of higher education (Toffler, 1972;
Naisbitt, 1982; Kanter,1984; Bonner, 1986).

Education reform is a topic of focused attention in the
United States currently and will remain throughout the end
of the 20th century at least. "Over the past two years,
tasks forces in 26 states have formed to examine higher
education issues at public two-year and four-year
institutions (Mangieri & Arnn, 1986, p.36) They identify
common concerns being analyzed such as mission, efficiency,

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governance and financial matters. The tasks ahead of higher education will require effective change efforts and innovation in all of these areas. Keller posed the questions about academic management in 1983 in his book, Academic Strategy: The Management Revolution in American Higher Education. He reaffirmed that many of the issues were still with us in 1988 (Marchese, 1988).

The Chronicle of Higher Education provides the reader with examples of areas where change is needed and being resisted. A recent article focused on the need for business programs to be more interdisciplinary and emphasize the global economy (Evangelauf, 1988). Changes are constantly being required both in curriculum areas and in program/service delivery systems.

Understanding what factors impact on innovation adoption is important for the leaders of today's organizations as they manage their institutions. Recent research into innovation adoption needs to be continued and expanded. Many of the studies in higher education have centered on curriculum or teaching innovations (Lindquist, 1978; Levine, 1980). These studies provide some insight but little usable information for decision-makers operating in an administrative unit. For this kind of information studies that examine the dual-core aspects of organizations must be examined and the body of knowledge in this area

expanded (Daft, 1978; Kimberly & Evanisko, 1981; Howard, 1981).

<div align="center">The Problem</div>

The Statement of the Problem

The problem of this study was to determine if individual and organizational factors impact program innovations differently than technological innovations within the student affairs function of universities.

Sub-Problem. The sub-problem of this study was to determine what individual and organizational factors impact the overall technological and programmatic innovations within the student affairs function of universities.

The Purpose of the Study. The purpose of the study was to add to the body of knowledge of innovation within organizations using student affairs functions within universities as the focus. Innovation research (Kimberly & Evanisko, 1981) has examined individual and organizational factors as they affect the technical and administrative cores of an organization. However, their findings did not provide insight into the difference between technical and programmatic innovations since they only examined technological innovations within both cores. This study will provide new information since it will examine two

technological innovations and two programmatic innovations
within the administrative core.

Significance of the Study. "American higher education
has entered a new era that requires better planning,
strategic decision-making, and more directed change. To
accomplish this, colleges and universities need new
procedures, structures and attitudes" (Keller, 1983, p.27).
In order to direct change more effectively, educators have
studied innovation (Miles, 1964; Mort, cited in Miles, 1964;
Carlson, 1967; Bhola, 1982; Creamer & Creamer, 1986a;
Levine,1980; Keller,1983; Gilley, Fulmer, &
Reithlingshoefer,1986). The educational system exists as a
mirror of the changes in the society at large. As our
country and world change rapidly, so must our school systems
and higher education institutions (Toffler, 1972). Planned
change is perceived to be more advantageous than reactive
change. Education recently has been depicted as
inadequately responding to the environmental demands.
Bonner (1986), in the "The Unintended Revolution in
America's Colleges since 1940," chronicles the changes in
American higher education since Pearl Harbor. Criticisms
abound in the news media and in the literature, but the
characteristics affecting innovation within organizations
and educational institutions are still being explored.
While the volume of literature related to innovation is

vast, comparatively little is really known. The literature is contradictory at points where factors are found to be significant to innovation in some studies and not in others. These differences will be noted in Chapter 2, The Review of Literature.

Much has been learned about how organizations innovate in recent years. Innovation is defined as "the adoption of an idea or behavior that is new to the organization's industry, market, or general environment" (Daft, 1982). This is different from an invention which is generally something entirely new. For the purpose of this study innovation will be defined externally to the organization and will consist of programs and technological advances generally accepted as new in a particular field. Innovations come about as a response to an environmental pressure of some kind such as when there is a need and a response is designed to meet that need (Daft,1986).

Studies in complex organizations have determined that there is a difference in the structure and the way innovation takes place in the technical core and the administrative core. The concept is called dual core technology (Daft, 1978). Hospitals and universities are described as operating with a dual core. The technical core is generally considered to be patient care in the case of a hospital and teaching and curriculum in a university. This study will examine innovation in the administrative core

which is the area of the organization where organizational maintenance tasks are carried out. These maintenance tasks involve the supervision and management of the organization (Daft, 1986). In the case of a university, the administrative core includes those tasks directly related to the maintenance of the organization that are outside of the teaching arena. This core includes payroll and other personnel procedures as well as student programs and services considered extracurricular in nature.

In 1981, Kimberly and Evanisko, examined technological innovations in a hospital setting in the administrative core and the technical core to determine which factors were influencing innovation. He found different factors impacted the two cores. A weakness of his study was the fact that both of the innovations he examined were technological in nature. This investigator speculated that since different factors were at work in the technical core and the administrative core, that the administrative core could innovate differently when innovating programmatically than technologically. It was the purpose of this study to determine if programs in a student affairs division that are innovative are related to different individual and organizational factors than technological innovations in the same area of a university.

Limitations

1. This study was limited to a random sample of Comprehensive Institutions rated by the Carnegie Commission in 1987 ("Carnegie Foundation's," 1987, July 8a).

2. This study was limited to Chief Student Affairs Officers at the above institutions and their individual responses as obtained on the questionnaire. It is recognized that the actual questionnaires may be completed by the Chief Student Affairs designee because of routine administrative practice.

3. This study was limited by the original nature of the questionnaire with the inherent limitations in its development, such as concerns related to questions not leading responses, questions asking and obtaining the actual information required, the measures being accurate, statistical analysis of data accurately measuring what was intended and general validity questions concerning surveys of behavioral phenomenon.

Assumptions

1. It was assumed that a process of innovation had occurred for any of the innovations studied to be in place.

2. Innovations will be in different stages of adoption by different organizations.

3. If an innovation was in place it was considered adopted.

Definition of Terms

Administrative core--the part of the organization that sets goals, policies, strategies, structures, control systems and personnel (Daft, 1986, p.280).

Centralization--the hierarchial level that has authority to make a decision (Daft, 1986, p.18).

Complexity--the number of activities or subsystems within the organization. Vertical complexity is the number of levels in the hierarchy. Horizontal complexity is the number of job titles or departments existing horizontally across the organization. Spatial complexity is the number of geographical locations (Daft, 1986, p.18).

Comprehensive I university--institutions having the following characteristics: at least 2,500 full-time students; offer baccalaureate programs and, with few exceptions, graduate education through at least the master's degree; and more than half of their baccalaureate degrees are awarded in two or more occupational or professional disciplines, such as engineering or business administration (Carnegie Commission, cited in Staff, (1987, July 8b).

Dual-core technology--an organization with two structures; one that supports the technical core of the organization and one that supports the administrative core (Daft, 1986).

Innovation--the adoption of an idea or behavior that is new to the organization's industry, market, or general

environment (Daft, cited in Bacharach, ed., 1982).
Externally defined innovation is determined to be new by a
source outside the organization and internally defined
innovation is determined by the organization as being new
(Kimberly & Evanisko, 1981).

Professionalism--the level of formal education and
training of employees (Daft, 1986, p.18). Training includes
attending conferences, participating in workshops and
reading professional journals.

Programmatic innovation--an innovation that requires
only staff and routine support services to implement but no
new technological support such as new computer hardware.

Size--the organization's magnitude as reflected in the
number of people in the organization (Daft, 1986, p.18).

Technical core--the part of the organization that
transforms raw materials into products or services (Daft,
1986, p.280).

Technological innovation--an innovation that requires
the purchase of new hardware to implement.

Procedures

The following procedures were followed in conducting
the study:

1. A review of related literature was conducted.

2. A questionnaire was developed utilizing portions of
already validated instruments.

3. The questionnaire was pilot tested and adjustments made accordingly.

4. The questionnaire, cover letter and postage paid return envelope were mailed to a random sample (100) of all Chief Student Affairs Officers at Carnegie Foundation's Comprehensive I institutions.

5. One week later a follow-up postcard was mailed to all who were sent the original mailing.

6. Eleven days later a follow-up letter, questionnaire and postage paid return envelope were mailed to administrators who had not responded.

7. A random sample of non-respondents was called to determine if there was any difference demographically between non-respondents and respondents.

8. When at least 60 percent of the responses were collected, the data were analyzed and recorded in tables.

Organization of the Study

Chapter 1 includes the introduction, the statement of the problem, sub-problems, purpose of the study, significance of the study, the limitations, the assumptions, the definition of terms, the procedures, and the organization of the study.

Chapter 2 includes the review of the literature followed by postulates and by the research questions. Chapter 3 includes the methodology. Chapter 4 includes the

reporting of the pilot and analysis of the data. Chapter 5 includes the summary, conclusions, and recommendations.

CHAPTER 2

Review of Literature

Innovation in Organizations

The word innovation is presently in vogue. How does
the literature define innovation within an organization?
What process does innovation follow? What theory of
innovation exists? What factors contribute to innovation?

These are the questions to be examined while reviewing
the literature relevant to innovation. The review focuses
on organizational innovation specifically essential for an
understanding of administrative innovation within a
university.

Definition of Innovation

Numerous definitions of innovation have been proposed,
and studies of innovation utilize different definitions.
Rogers and Shoemaker (1971) define innovation as:

> An idea, practice, or object perceived as new by
> the individual. It matters little, as human
> behavior is concerned, whether or not an idea is
> ˜objectively' new as measured by the lapse of time
> since its first use or discovery. . . If the idea
> seems new and different to the individual, it is
> an innovation. (p.19)

Organizationally, innovation is usually defined as the adoption of a new idea or behavior by an organization. Zaltman, Duncan, and Holbek (1973) discuss innovation from a primarily individual perspective through to an organizational level by identifying innovations adopted by various size units from individuals to state legislatures. Some specify that the adoption of the idea or behavior be new to the organization adopting it (Mohr, 1969; Aiken & Hage, 1971). The idea can be utilized by other organizations as long as it has not been used previously by the adopting organization. Further differentiation can also be added by defining an innovation internally or externally. An internal innovation is one that is new to the organization and defined as new by the organization. An external innovation is one that is defined by an external source as being new to a whole class of organizations.

Innovation is often confused with invention. Invention implies bringing something new into being; innovation implies bringing something new into use (Rogers, 1962; Mohr, 1969). While it is possible for an organization to invent something and put it into use (innovate) this is rarer than the more common practice of innovation by putting an already existing idea into practice.

The Innovation Process

The innovation process is often studied from the
perspective of organizational change. Organizational change
is the process of adjusting the organization to changes in
the environment (Michael, 1982, p. 68). Lewin's three step
process of change, unfreezing, moving and refreezing, is
often referred to as the basis of any change process (Lewin,
1951, p. 228-229). Chin and Benne's three strategies for
affecting changes are also often referenced when considering
innovations. The empirical-rational, the normative-
reeducative and the power-coercive strategies all can be
part of an innovation process depending on the
organizational environment (Bennis, Benne, & Chin, 1964;
Bennis, Benne, Chin, & Corey, 1976).

Rogers (1962) defined the adoption stages of innovation
and thereby established the process of innovation for an
individual or an organization. He identified the following
five stages in the process as "(1) awareness, (2) interest,
(3) evaluation, (4) trial, and (5) adoption" (Rogers, 1962,
p. 81). Other explanations of the process are related. For
example, Daft (1978) specifies four essential steps starting
with the conception of an idea, which is proposed, then a
decision is made to adopt, and finally the innovation is
implemented. The process an organization utilized to
innovate will not be examined in this study. It will be
assumed that some process has occurred for an innovation to

be in place, and that innovations will be in different
stages of adoption, but if a program or service exists it
will be considered adopted.

Models and Theories of Innovation

Researchers and writers have studied innovation in
organizations from different perspectives (Havelock, 1969;
Rogers, 1962; Daft, 1978; Burns & Stalker, 1961; Aiken &
Hage, 1971). Several models and theories have been proposed
(Havelock, 1969; Rogers, 1962; Levine, 1980 ; Daft, 1978).
For purposes of reviewing innovation literature the works of
Havelock, Rogers, Levine and Daft will be discussed.
Havelock contributed three separate models of innovation and
a fourth synthesizing model. In his extensive review of the
work of others, he categorized other models of innovation
into one of his three basic models. Rogers contributed
another major review of the literature and contributed the
noted bell curve of when innovations are adopted by various
groups such as innovators and laggards. Levine developed
his model out of a case study at a University and
contributed the concept of boundary spanning. Daft examined
specific types of organizations that innovate in two
separate realms, the technical core and the administrative
core. He called this the dual core theory of innovation.

Havelock

Havelock reviewed 4,000 studies related to dissemination and utilization of scientific knowledge. The exhaustive research done by Havelock synthesized the knowledge of innovation at the time and therefore requires review. Dissemination and utilization were the focus of his review of innovation literature. His findings were published in 1969 for educators, decision-makers and policy setters. As part of his review, he categorized the information into a manageable format. He identified three major models representing the body of knowledge available. He then proposed a fourth synthesizing model.

Briefly, Havelock identified the following models of innovation:

1. The Problem Solver Model

2. The Research, Development and Diffusion (R,D & D) Model

3. The Social Interaction Model

The Problem Solver Model. The Problem Solver Model emanates from the clients' needs. This is the heart of our humanistic and individualistic tradition. This model stresses collaboration with the client system and diagnosis of the client system's needs as the two essential ingredients of the change process (see Figure 1). It is general in nature and "could apply to a process inside a

FIGURE 1

The Problem-Solver Model
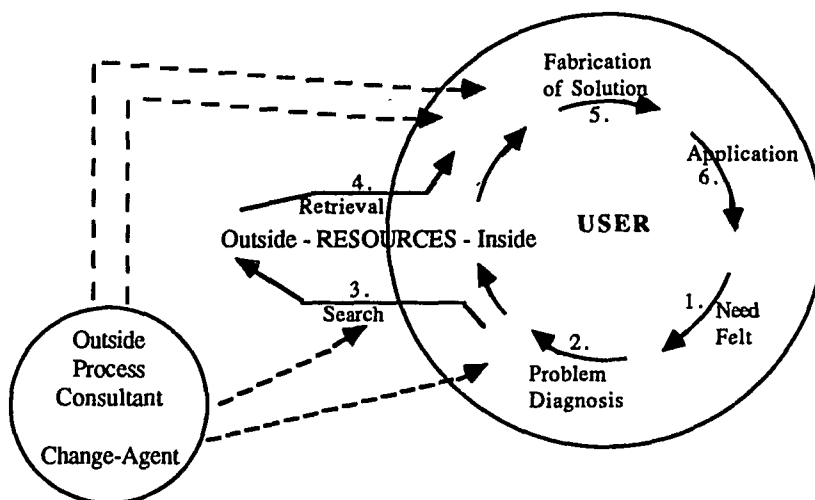
Major Points Stressed: The User's Need is the Paramount Consideration
Diagnosis is Part of the Process
The Outsider is a Catalyst Consultant or Collaborator but the
  User must find the Solution Himself or See it as His Own
Internal Resources should be fully utilized
Self-Initiated Change has the Firmest Motivational Basis and
  the Best Prospects for Long-Term Maintenance

single person, or inside a group, an organization, a community, or society as a whole" (Havelock, 1969, p. 2-41). Researchers commonly identified with this model are Rogers (1962) and Rogers and Shoemaker (1971).

Advocates of this orientation to innovation usually emphasize five points:

1. User need is the paramount consideration, this being the only acceptable value-stance for the change agent; what the user needs and what the user thinks he needs are the primary concern of any would-be helper.

2. Diagnosis of need always has to be an integral part of the total process.

3. The outside change agent should be non-directive, rarely, if ever, violating the integrity of the user by setting himself up as the "expert."

4. Internal resources, that is, those resources already existing and easily accessible within the client system itself, should always be fully utilized.

5. Self-initiated and self-applied innovation will have the strongest user commitment and the best chances for long-term survival (Havelock, 1971, p.90).

Research, Development and Diffusion Model (R,D and D).

Havelock's R,D and D Process Model "is represented by those
who start from research and the products of research and
delineate a path toward the consumer" (Havelock, 1969, p. 2-
41). Here research is not initiated in response to a human
need but rather starts as a set of facts and theories. This
knowledge proceeds through a process of development. In the
development process,

> basic theories and data are used to generate ideas for
> useful products and services, and these ideas are then
> turned into prototypes which have to be tested and
> redesigned and retested before they represent anything
> that is truly useful to the bulk of humanity.
> (Havelock, 1969, p.2-42)

Mass production follows and then diffusion to users.

This model is the basis of much of our national
investment in research. Agriculture research, development
and dissemination in the United States exemplify the R,D and
D model.

Social Interaction Model. Havelock's third model, the
Social Interaction Model emphasized the diffusion aspect.
It has its roots in anthropological studies of cultural
traits. These researchers assume "the existence of a
diffusible `innovation' as a precondition for any analysis
of the diffusion process" (Havelock, 1969, p. 11-7). The
perspective favors concrete innovations such as a type of

fertilizer or a new prescription drug. Advocates of this
orientation stress six points. These are:

(1) The importance of the social relations network, (2)
the user's position in that network, (3) the
significance of informal personal relationships and
contacts, (4) the importance of reference group
identifications, (5) the essential <u>irrelevance of the
size</u> of the adopting unit, and (6) the differential
significance of different types of influence strategies
at different stages in the adoption process. (Havelock,
1969, 11-7)

Researchers utilizing social interaction models
emphasize opinion leadership, personal contact and social
interaction. Researchers identified with this model are
Mort (cited in Miles, 1964) from education, Rogers (1962)
from agriculture and Coleman, Katz and Menzel, (1966), from
the medical field.

Students of innovation will always recognize the
herculean effort of reviewing and categorizing these 4,000
studies, but Havelock will be remembered as well for
proposing his Linkage model (see Figure 2). This model
proposes that the other three models are compatible, but
that two way communication (linkage) must occur at several
points for innovation to successfully take place. This
linkage connects the "user systems with various resource
systems including basic and applied research development and

FIGURE 2

The Linkage Model

THE RESOURCE SYSTEM   **THE USER SYSTEM**
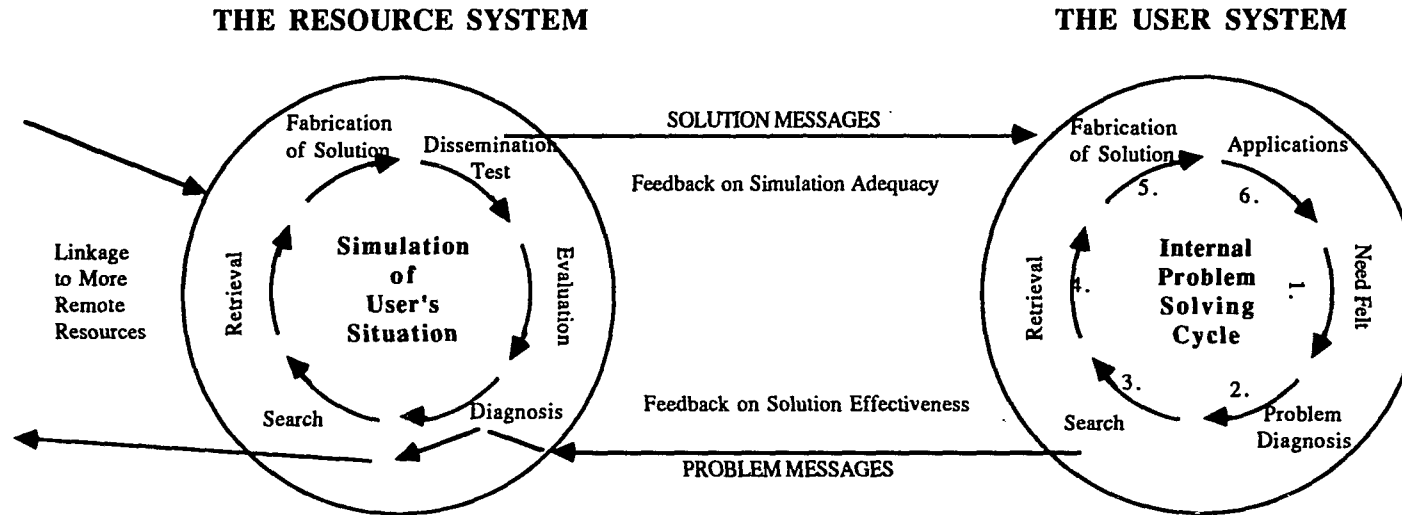
From the Linkage Perspective:

1. Resource system must recapitulate or adequately simulate the user's problem-solving process.
2. The user must be able to understand (and simulate) the research, development, and evaluation
   processes employed by the resource system in the fabrication of solutions.
3. Resource and user must provide reciprocal feedback.
4. Successful linkage experiences build channels for efficient dissemination.

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practice" (Havelock, 1969, p.iv). Senders and receivers
must participate in two way communication and simulate the
other's problem-solving behavior. This genuine
understanding and acceptance of the other's situation builds
trust. "These trust relations over time can become channels
for the rapid, effective and efficient transfer of
information" (Havelock, 1969, p.iv). This innovation system
is similar to a counseling process for individuals (Zaltman,
Duncan & Holbek, 1973; Rogers, 1962; Gross, Giacquinta, &
Bernstein, 1971).

Havelock's model identification system provides a
framework for looking at more recent works and for
discussions of research findings. His approach aids the
researcher in synthesizing across disciplines. Again,
Havelock's synthesis of the innovation research and
development of the linkage model serve as a basis for
subsequent research.

Rogers

Rogers (1962) and later Rogers and Shoemaker (1971)
examined innovation from the perspective of sociology.
Rogers and Shoemaker (1971) reviewed over 1500 articles
covering a broad range of innovation topics. These studies
focused on individual attributes regarding acceptance,
characteristics of individuals of early adopters, and the
role of opinion leaders. Rogers is most noted for

contributing the bell curve concept of innovators, early adopters, later adopters and laggards (see Figure 3). These groups were identified in his research on adoption of new agricultural techniques. Organizations can be perceived as being innovators or laggards, but Roger's contribution really relates to individuals innovating rather than organizations innovating. "These studies, however, contribute little to the explanation of innovation at the organizational level. Organizational innovation is an explicit action of the organization in response to stimuli from the environment" (Kim, 1980, p.227).

Levine

Levine (1980) presented a model for why innovations fail in an in-depth case study of the creation of colleges within a university. Levine's work is included here because it is a model developed with a university as the organization of examination and because he introduces the concepts of boundaries. He named the model the institutionalization-termination model. It has:

> Three basic elements: a process involving
> boundaries, boundary contraction, and boundary
> expansion; a series of outcomes including
> diffusion of innovation, enclaving of innovation,
> resocialization of innovation, and termination of
> innovation; and a switch or control mechanism for

FIGURE 3

**Adopter categorization
on the basis of innovativeness**
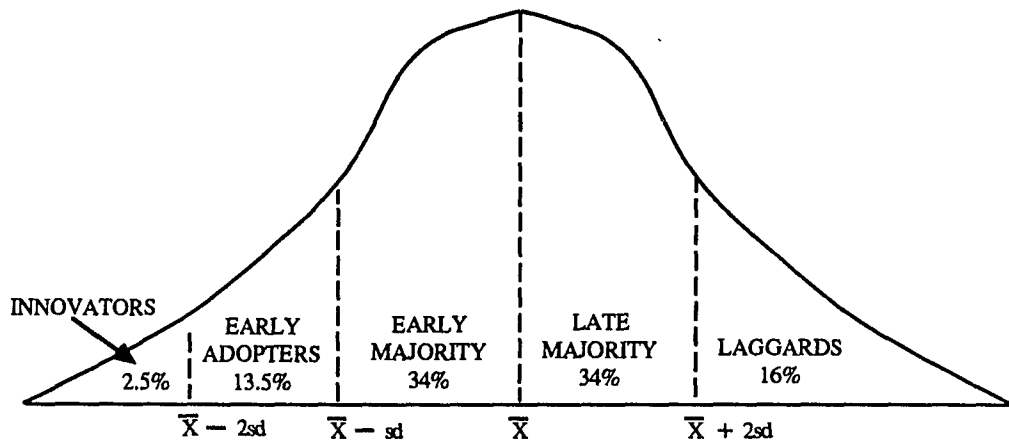
The innovativeness dimension, as measured by the time at which an individual adopts an innovation or innovations, is continuous. However, this variable may be partitioned into five adopter categories by laying off standard deviations from the average time of adoption.

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making the model work--innovation compatibility and profitability. (Levine, 1980, p. 196)

The concept of organizational boundaries means simply that boundaries encompass or define the culture appropriate to the organization. Their function is to strictly maintain the status quo. Any change in an organization's culture requires a comparable change in its boundaries. His model encompasses a continuum of boundary expansion-boundary contraction in order to accommodate change or prevent change from occurring.

Another major component of the model involves the concepts of compatibility versus profitability. This premise states that an innovation can fail if its norms are not compatible with those of the organization or it can fail if it is not perceived as profitable to the organization. The innovation with which Levine (1980) tested the model, supported the model. He concluded: "The answer to the question, "Why innovation fails?" would then be because it is either unprofitable or incompatible. The degree of failure is greater if it is unprofitable" (p.160). (see Figure 4).

While Levine, Rogers, and Havelock all contributed to the models of innovation, Kimberly & Evanisko (1981) found three issues in previous research which they thought to be "basic" (p. 690). First, single innovations or single classes of innovation made generalizing difficult. Second,

FIGURE 4

<u>The Institutionalization or Termination of Innovation in Organizations</u>

Innovation Boundaries

Organization Boundaries

Implementation-
Initiation Stage
(Innovation and
Organization
Boundaries Coverge)

Boundary Expansion ———————— Boundary Contraction

Diffusion   Enclaving   Resocialization   Termination
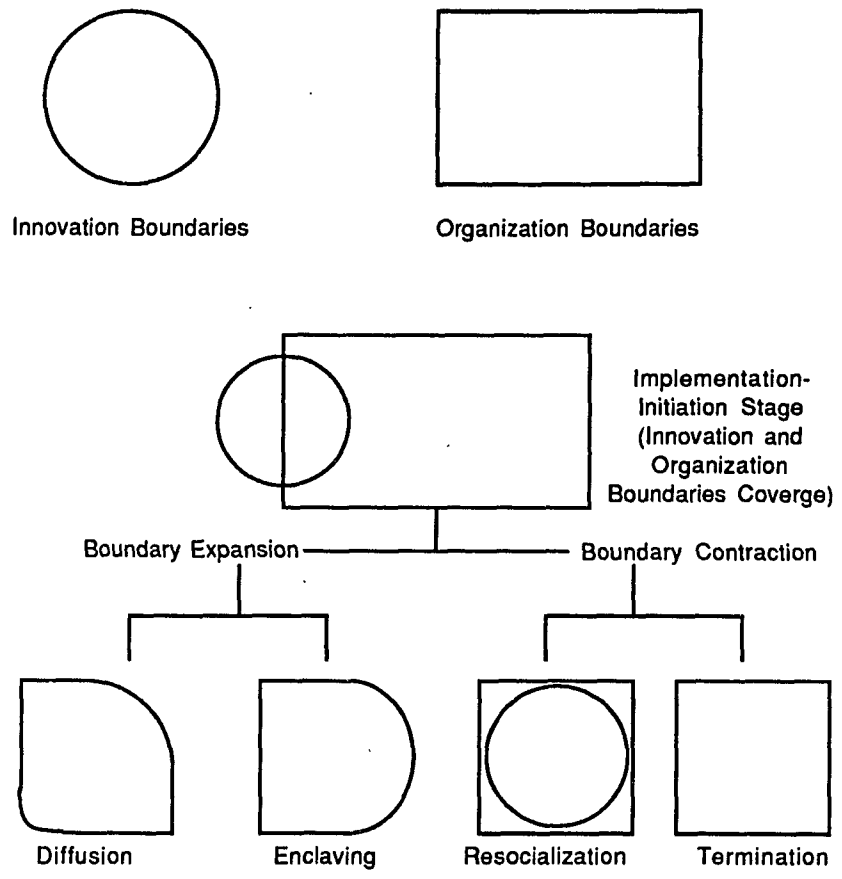
Reprinted from <u>Why Innovation Fails</u> by Arthur Levine by permission of the
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the nature of the studies was limited.

> Many studies-perhaps most-of innovation are either case
> studies or are based on sample sizes so small as to
> preclude the possibility of the application of
> multivariate analytic techniques. This is not to deny
> the central importance of case studies as sources of
> insight and testable hypotheses. Rather it is to
> indicate that systematic quantitative comparative
> analysis of adoption behavior focused on the relative
> significance of different classes of variables requires
> larger samples than traditionally have been used.
> (Kimberly & Evanisko, 1981, p. 690)

The third basic issue they identified from the literature
was that individual, organizational and contextual factors
all play a role in innovation but little evidence on primacy
was available. Their study clearly attempted to examine all
three sets of variables, individual, organizational and
contextual and capitalized on the advantage of comparative
research in innovation adoption. Another salient aspect of
Kimberly and Evanisko's (1981) research was the use of
hospitals' dual-core aspect in the analysis: examining data
collected from both the hospital administrator and the chief
of medicine.

Daft's Dual-core Model of Organizational Innovation

Daft (1978) proposed a dual-core model of organizational innovation. He examined school districts as his organizations and measured at which of five levels innovations were initiated. He measured teacher professionalism by measuring educational level, i.e., who had completed a master's degree, etc. He defines the technical core as the part of the organization that transforms raw materials into products or services. He further defines the administrative core as the part of the organization that sets goals, policies, strategies, structures, control systems and personnel (Daft, 1986, p.280).

"An administrative innovation pertains to the policies of recruitment, allocation of resources, and the structuring of tasks, authority and reward. . . and will be related to the social structure of the organization" (Daft, 1978, p. 198). When studying high schools, Daft (1978) defined those things not directly affecting classroom method or content as being in the administrative core.

He found administrators and technical core employees are expected to play important but different roles in the innovation process. Each set of core employees is expected to initiate innovations pertaining to the cores' own organization task. This division of labor is expected to

increase as employee professionalism and organization size increase.

Daft analyzed his data using a system of total number of innovations adopted by organization versus professionalism and size. He found that teachers were the major source of technical ideas (70 percent). The principal and superintendent were also sources of technical ideas (8 percent and 9 percent respectively). For administrative innovations, teachers initiate only 13 percent, principals initiate 22 percent, and superintendents initiate 45 percent. Collaborations between teachers and administrators accounted for 12 and 15 percent of each innovation type, technical and administrative. Therefore, he concluded that there is a strong relationship between innovation type and where the innovation is initiated because 70 percent of technical innovations originate with teachers and 67 percent of administrative innovations originate with administrators.

Another relevant aspect of Daft's study had to do with professionalism. Professionalism influences where ideas originate. Daft (1978) found the districts with highly professional teachers proposed 93 percent of the technical innovations. This drops to 66 percent and 53 percent in the medium and low professional districts. The percent of administratively initiated technical innovations drops significantly as the educational level of the teachers rises.

A similar pattern was observed for administrative innovations. Administrators initiate a larger percentage of administrative innovations only as teacher education decreases. When teachers are less professional and less active, administrators take on a larger share of the idea load. Organizations only adopt a larger number of innovations of either type when individuals in the relevant task domain actively initiate them. The involvement of teachers in administrative innovations or administrators in technical innovations is associated with fewer total adoptions of each innovation type.

The work of March and Simon (1958) previously produced similar findings when they concluded that in the federal type of organizational structure, innovation falling outside the province of any of the existing unitary departments took place at the top levels.

Daft found the influence of organization size to have less impact on innovation than professionalism. With the organizations divided into three groups based on the number of students in the district, he found large districts had a slightly greater percentage of technical innovation proposals by teachers and fewer collaborations between administrators and teachers.

On the other hand, he suggests this results because large organizations have greater differentiation between teachers and administrators with more professionalism in

both groups. He speculates that in small districts teachers and administrators are closer and therefore collaborate technically more readily. Size had virtually no effect on the process of administrative innovation. The source of innovations was similar across the various size groups. Size did impact the frequency of innovation. More innovations of each type were initiated and adopted in large districts. In essence, he found size to positively influence the number of technical and administrative innovations proposed and adopted. But he found the source of administrative innovations to remain unaffected by size.

The final component of Daft's analysis compared districts that adopted many innovations to districts that adopted few. He found that districts which adopt many technical innovations do so because of teacher activity. Administrators proposal rate remained fairly constant across the districts, suggesting that administrative initiative is not a major factor in technical innovation.

The administrative core is above the technical core in the hierarchy, and the domain of the administrative core includes the organization itself. Under certain circumstances the two cores are loosely coupled, e.g., attachments between them are weak and each retains identity and separateness (Weick, 1976; Daft, 1978). Kimberly and Evanisko (1981) found organizational variables to have considerably weaker effect on administrative innovations

than on technological innovations. Organizational size
still had unique variance on adoption.

Obviously, universities are dual-core organizations
similar to the schools studied by Daft (1978). When
Kimberly and Evanisko (1981) studied innovation in both
cores of hospitals, they were able to look at the chief of
each core because of the unique dualism offered by
hospitals. The division of the cores is not as neat in
universities however.

Divisions of student affairs in universities are
clearly part of the administrative core because they do not
directly affect teaching, curriculum and classroom
methodology or in other words, the technical core. The work
of student affairs is clearly one of maintenance tasks for
the organization such as support services.

As one studies programmatic and technological
innovation within the administrative core, it is important
to consider if individual and structural factors may impact
the innovations. Individual factors to be considered in
this study are professionalism, gender and age. Structural
factors include centralization, complexity and size. The
next sections review the relevant literature in these areas.

Individual Factors

Rogers (1962) and later Rogers and Shoemaker (1971)
studied innovation from the perspective of an individual's

influence. Kirton (1976) specified a description and measures of different characteristics for adapters than for innovators. Among these behavior characteristics were items like: sensitivity to people, general approach to problems and risk taking. As researchers have looked at various aspects of individuals and innovation, several recurring themes emerge.

Professionalism

Professionalism can be defined as "the level of formal education and training of employees" (Daft, 1986, p. 18). Professionalism is most often measured by the numbers of years of training required to be job holders in the organization. Thompson (1964), when describing the innovative atmosphere, suggested that "innovation or `creativity' is facilitated by a group administrative effort dominated by a professional outlook" (p.94). Becker (1970b) studied professionalism as it related to the diffusion of innovations among health professionals and found substantial correlations between an individual's standing in his communications networks and his degree of professionalism.

Corwin (1972) postulated that "an organization can be more easily changed if it is invaded by liberal, creative and unconventional outsiders with fresh perspectives" (p.441). Corwin (1972) found that "outsiders actually contributed to conflict, but the conflict had a small

positive correlation with innovation" (p.450). Counte and Kimberly (1974) have found professionalism to have no significance on initial receptivity to innovation however.

Aiken and Hage questioned professionalism also in the extra-organizational realm of activity. They found "the relationship between the degree of extra-organizational activity of the staff and the rate of innovation is strong and positive and the more innovative organizations are also those in which the staff is more involved in professional activities" (Aiken & Hage, 1971, p. 72). Extra-organizational activity is appropriate to use as a professional indicator in research because "staff member exposure to programmatic and technological developments in their respective disciplines is more likely to insure a continual stream of ideas and information into the organization than simply a high level of professional training of the staff" (Aiken & Hage, 1971, p.72). Aiken, Bacharach, and French (1980) hypothesized that the greater the extent of boundary spanning activities by organizational members, the greater the reported proposals for innovation (p.637) They found the effects of boundary spanning activities had different effects depending on the members' locations in the hierarchy. Unfortunately, their study emphasized the lower and middle echelons only and does not provide information about upper echelon effects. Daft (1978) points out the top down approach to innovation within

the administrative core is effective. Kimberly and Evanisko
(1981) found adoption is positively affected by the hospital
administrator's professionalism. "Hospitals that are
adopters of administrative innovations tend to be large and
have hospital administrators who are cosmopolitan (Kimberly
& Evanisko, 1981). They concluded :

> That hospitals involving research activity and hospital
> allocation of resources to bring in outside speakers
> and send physicians to meetings, however, proved to be
> good predictors of innovations. (p.670)

Professionalism is usually correlated with innovative
organizations because of the increased flow of ideas into
the organization from outside the organization. This
boundary spanning activity has often been found to be
positively correlated to innovation proposal but sometimes
not positively correlated with innovation adoption.
Zaltman, Duncan and Holbek (1973) argued that employee
professionalism is associated with a greater number of
innovation proposals and fewer adoptions. One suggestion
for why this is observed is that employee professionalism is
accompanied by increased criticism of others' ideas, so
proposals are often never adopted due to professional
resistance.

In light of the findings of Daft (1978) regarding
innovations in the administrative core flowing from the top
down, it will be clarifying to explore the professionalism

of chief student affairs officers with regard to specific
types of innovations within their functional areas.

Gender

Gender of the leader has been examined as it relates to
organizational innovation (Baldridge & Burnham, 1975), but
gender has been examined less frequently than
professionalism. Baldridge and Burnham (1975) found sex did
not seem to be important in determining innovative behavior
among people in complex organizations. They did find that
administrative positions and roles did "seem to have an
impact on the involvement of an individual in the innovation
process" (Baldridge & Burnham, 1975, p.165). In light of
these findings, the examination of the relationship between
gender and innovativeness of the chief student affairs
officer may verify Baldridge and Burnham's findings. Their
findings showed organizational position and role to be
highly influential in change efforts, but sex was
irrelevant. Chief student affairs officers would logically
be in the position to be highly influential in change
efforts within student affairs at a university.

Age

Researchers have examined the relationship between age
and receptivity to innovation (Rogers, 1962; Counte &
Kimberly, 1974). Rogers (1962) argued that increasing age
was inversely related to acceptance of innovations. Various

explanations for this relationship have been proposed. Age
is associated with a tendency toward increasing conservatism
in one's attitudes and beliefs. Statistical support exists
for this inverse relationship (Rogers, 1962; Counte &
Kimberly, 1974). The impact of age of the Chief Student
Affairs Officer will be examined to determine if the impact
is similar.

Structural Factors

Within similar task environments, some organizations
innovate better than others. Recent studies suggest that
structural properties are much more highly associated with
organizational innovation than characteristics or attitudes
of individuals within the organization (Hage & Aiken, 1967;
Baldridge & Burnham, 1975). Many researchers have examined
the structure of organizations as they relate to innovation
(Aiken & Hage, 1971; Burns & Stalker, 1961). The emphasis
these researchers placed on structure related to mechanistic
versus organic structure. Their research indicated that an
organic structure supported innovation, whereas a
mechanistic structure tended to inhibit innovation. This
research is further refined by the more recent research of
Daft (1978) on dual-core technologies, as he found fewer
factors impacting innovation in the administrative core than
in the technical core. Aiken and Hage (1971) found
several variables that characterize organic organizations

are associated with innovation. The number of occupational specialties, the intensity of scheduled and unscheduled communication and, to a lesser extent, the decentralization of decision-making, are related to innovation.

The organic organization is discussed by Burns and Stalker (1961) and Aiken and Hage (1971), and they conclude that organic organizations have characteristics that facilitate innovations. Galbraith (1982) suggests that an organization that is designed "to do something well for the millionth time is not good at doing something for the first time. Therefore, organizations that want to innovate or revitalize themselves need two organizations, an operating organization and an innovating organization" (p.6). Child (1973) examined the interrelationships between size, complexity and centralization as they predict structure. He concluded that the size of the organization exerts a dominant influence on the level of organizational complexity. Complexity levels are also influenced by the integration of technology and contacts across organizational boundaries. Decentralization is consequent upon larger size than upon greater complexity (Child, 1973, p.168).

Kim (1980) reviewed studies of organizational innovation and structure and identified two groups of studies concerned with the relationship between them. The first group of studies are concerned with how organizational structure is related to innovation, ignoring the stages of

innovation. The second group is concerned with the contingency aspect that organizational structure is related differently to the different stages of the innovation process. This particular research study will be concerned with the first type of relationship only because all innovations will be accepted as implemented and not divided into various stages of adoption. Kim (1980) found that organizational innovation is positively related to professional training, professional activity, integration, and inversely related to job codification and hierarchy of authority (p.225).

Others have studied the interrelationships of several structural factors and innovation (Child, 1973; Kimberly & Evanisko, 1981). One should keep the aspects of organic organizations in mind when examining structural issues within an organization and yet remember that the more mechanistic organization can innovate well in an administrative core.

Centralization

Centralization "refers to the hierarchical level that has authority to make a decision" (Daft, 1986, p. 18). "The lower in the organization a decision is made, the more decentralized the organization is said to be" (Aiken & Hage, 1971, p. 73) Structural looseness such as latitude in work roles, minimal stratification of prestige and rewards and

the dispersion of social power has been suggested by
Thompson (1965) as well as Burns and Stalker (1961) as being
a necessary organizational condition for innovation.
Thompson (1964) described the innovative atmosphere as
facilitated by a non-hierarchical "climate, especially a
nonhierarchical communication structure, and by 'loose'
organization in general" (p.94).

Thompson (1965) argues that concentrated power
arrangements prevent imaginative solutions to problems;
dispersed power arrangements can contribute to the
implementation of innovation because they make possible a
variety of sub-coalitions, thus expanding the number and
kinds of profitable supporters and sponsors. Clark (1968)
has suggested a similar hypothesis for institutions of
higher learning. On the other hand, Evan and Black (1967)
found that the centralization of decision-making was not
significantly related to the acceptance of innovation in
their study of business organizations. In an earlier study
(Hage & Aiken, 1967) support was also found for the
hypothesis that innovative organizations are more
decentralized and, therefore, that there is an indirect
relationship between the rate of innovation and the degree
of centralization of decision-making. McDonough and Leifer
(1983) found that centralization was associated with non-
routine tasks within a work unit and an uncertain external
environment (p.731).

Centralization issues as they relate to innovation were
discussed by several authors in the 1960s. Wilson (1966)
theorized that decentralization would enhance the proposal
of innovations but decrease the probability of adoption for
precisely the same reasons. Professionals who interacted
more freely within the organization would have the
opportunity to bring in innovative ideas, but these same
professionals would have skills of criticism that would
allow for them to sabotage innovation. Sapolsky (1967)
echoed this perspective.

Lewis-Beck (1977) studied the impact of resources and
influence equalization and found that equalizing decision-
making among the professional staff will enhance innovation
more than just increasing the resource base. The two
coupled together were more effective than either separately.
Increasing the resource base alone would produce innovative
results but when coupled with equalized decision-making, the
results were significantly enhanced. Kimberly and Evanisko
(1981) found centralization to be positively related to the
adoption of administrative innovations. Zmud (1982) also
examined centralization as it affected innovations in the
technical realm and the administrative realm. He
hypothesized that centralization would be positively
associated with the initiation, adoption and implementation
of administrative innovations. He found that "the

initiation of administrative innovations was significantly associated with centralization" (p.1429).

Although communication is not all that is involved in decision-making, it is important to note some findings related to communication and innovation. Albrecht and Ropp (1984) found that "the discussion of innovation in organizations is facilitated by the occurrence of other types of personal communication" (p. 87). In addition, they found that "individuals who had highly multiplex relationships were the ones who talked most frequently about innovation" (Albrecht & Ropp, 1984, p. 88). These findings tend to support the aspect of innovation flourishing in organizations where information flow is widespread, feedback is rapid and both mechanisms cut across traditional lines of authority (Kanter,1984; and Peters & Waterman,1982). The frequent finding that decentralization is related to innovation may stem from concentration of technical expertise among lower level personnel in the organizations studied. Similarly, recent arguments regarding the specialization of lower and higher level personnel in technical and administrative changes, respectively, may be valid only in organizations with very distinct professional and administrative components (Moch & Morse, 1977; Daft, 1978: Aiken, Bacharach & French, 1980). This suggests the strong need for additional examination in this area. Hage and Aiken (1967) found a positive relationship between

participation in decision-making and the adoption of new programs, and a negative relationship between the hierarchy of authority and the adoption of new programs. Kim (1980) found organizational innovation was positively related to hierarchy of authority and not related to participation in decision-making. Kim (1980) concluded that the structural variables showed such high intercorrelations, that more general structural dimensions exist. "This raises a problem about discriminate validity of theoretically separate variables used in this and previous studies. Future research should identify new structural dimensions" (Kim, 1980, p.243).

> The fact that both the Hospital Administrator's and the Chief of Medicine's involvement in their counterparts' activities enhanced adoption of technological but not administrative innovations suggests that the March & Simon hypothesis about the relationship between involvement in policy as opposed to operations and receptivity to innovation needs to be refined. (Kimberly & Evanisko, 1981, p.705)

So centralization can produce a similar effect as for professionalism - centralization can enhance the proposals of innovation and yet impede adoption. An examination of the specific impact of centralization within the same unit on various innovations is appropriate.

Complexity

Complexity refers to:

The number of activities or subsystems within the
organization. Complexity can be measured along three
dimensions; vertical, horizontal, and spatial.
Vertical complexity is the number of levels in the
hierarchy. Horizontal complexity is the number of job
titles or departments existing horizontally across the
organization. Spatial complexity is the number of
geographical locations. (Daft, 1986, p.18)

Most researchers of innovation have either used
vertical complexity alone or with horizontal complexity.
Few have used spatial complexity as a factor in measuring
complexity. Structural complexity has been found to
increase, decrease and not affect innovation depending on
what factors are being considered. Aiken, Bacharach and
French (1980) examined two of these aspects of complexity
(pp. 631-652). They found neither to be positively related
to proposals for innovation (p.647). Carroll (1967) found
that innovative medical schools had greater occupational
diversity (horizontal complexity) as measured by the number
of department chairmen.

Baldridge and Burnham (1975) discussed complexity and
size as being interrelated and both being positively related
to innovation. In most situations increased size and
complexity are expected to lead to increased innovation.

With increased structural complexity, there is an increase
in specialists who handle specialized sub-tasks and initiate
search procedures for more efficient techniques to
accomplish their goals (March & Simon, 1958). This
diversity, however, results in conflicts over resources and
goals which must be resolved by integrative mechanisms, such
as hierarchical decision making or joint policy making by
coordinating committees. Both differentiation (in terms of
structural units) and integration (in terms of coordinating
mechanisms) help promote innovation--the former by creating
specialists to seek new solutions, and the latter by
providing mechanisms for overcoming conflict (Lawrence &
Lorsch, 1967). Thus, as the number of differentiated
subunits increase, the quantity of alternatives and
solutions also increases in response to perceived unique
problems. Finally, the diversity of incentive systems and
task structures resulting from differentiation helps promote
innovation.

Howard (1981) used Hage and Aiken's (1967) definition
of complexity as the number of occupational specialties and
the degree of professionalism of each. Three measures were
used: (1) the number of distinct occupational specialties;
(2) an index of professional training; and (3) an index of
professional activity (p. 429). This definition has been
called into question.

When examining architectural firms, Blau and McKinley (1979) found structural complexity impeded innovation. Their definition of structural complexity was mainly one of horizontal differentiation.

Zaltman, Duncan and Holbek (1973), after reviewing others' research, concluded that complexity is associated with a greater number of innovation proposals but fewer adoptions.

> At the "initiation" stage, highly diverse organizations apparently are able to bring a variety of bases of information and knowledge to bear that can increase the awareness and knowledge of innovations and general proposals for innovation. However, at the "implementation" stage high complexity, because of potential conflicts, makes it more difficult for the organization to actually implement the innovation. (Zaltman, Duncan, & Holbek, 1973, p.137)

Hage and Dewar (1973) explored elitist values as they related to complexity and centralization. They found elite values to be the best predictor of innovation but found complexity to be almost as predictive and more predictive than centralization (Hage, & Dewar, 1973, p.285.)

Relevant research on complexity demonstrates that complexity may be a factor by itself but more than likely is interrelated with other factors such as professionalism, size and centralization. However, this research will

examine vertical complexity and horizontal complexity as
combined variables relating to various specific innovations
to determine if complexity of and to itself is an important
factor in administrative core innovation.

Size

Size is generally held to be positively related to
adoption of innovations (Baldridge & Burnham, 1975; Moch &
Morse, 1977; Kimberly & Evanisko, 1981). Speculation as to
the cause of this relationship falls into two categories:
first, that mass accumulates thereby facilitating innovation
by the increased exchange of information (Rogers, 1962); or
second, that mass necessitates innovation by demanding more
control (Kimberly & Evanisko, 1981; Baldridge & Burnham,
1975).

Kimberly (1976) provided an extensive review of the
literature on organization size. The review led to the
"conclusion that, relative to the amount of empirical work
that has been undertaken with size, there has been
strikingly little conceptual definition of what is"
(Kimberly, 1976, p.575). He also found the most common
measure of size to be the number of employees. Eighty
percent of the 80 studies he reviewed used this factor. He
concluded that the number of personnel available to an
organization constitutes the best measure of organizational
size. He found four basic types of measures of size other

than the number of employees. They were "capacity, number of clients served, net assets and sales volume" (Kimberly, 1976, p.583). He also notes that organizational inputs or outputs have been used. In the case of an educational operation, the number of students in a given time period have been used as inputs. In order to use this approach as an output, one would determine the number of graduates in a defined time period.

Size is defined for purposes of this study as "the organization's magnitude as reflected in the number of people in the organization" (Daft, 1986, p.18). Two factors were used to measure size. They were the number of employees in specific units of the organization and the number of total students at the institution.

Moch (1976) notes that as organizations become larger, they become more specialized, differentiated, and decentralized. The effect of size on this process is pervasive. Size has direct effects on each of the three structural attributes and seems to affect decentralization indirectly through specialization . . . . Larger and consequently more specialized, differentiated and decentralized organizations are more likely to adopt technical innovations. (p.671)

In a specific study of a dual-core organization, Kimberly and Evanisko (1981) found hospital size clearly was

the best predictor of adoption of both administrative innovation and technological innovation (p. 708).

Mohr (1969) stated "that size--and therefore the resources implied by size--was not associated with greater proportional innovation" (p.121). He compared small and large public health organizations and found they spent "approximately the same proportion of their growth" (Mohr, 1969, p.121) on non-traditional services. He also examined small and large organizational usage of slack resources for innovation. Slack resources is a concept introduced by Cyert and March (1963) referring to resources available after the main tasks are addressed. In Mohr's study (1969), he suggested slack innovation would be "innovation motivated by a desire for prestige and professional status on the part of the health officer and other health department staff members" (p.122). Since small organizations managed to find the resources to place as many personnel in non-traditional roles proportionately, Mohr concluded that size only enhanced the organization's ability to innovate rather than initiate innovation.

Size has been examined as it regards innovation from many perspectives, utilizing various factors in interrelationships. This research will look at two specific measures of size -- the number of employees and the number

of students as they interrelate with other factors and impact various specific innovations.

Levels of Use of an Innovation

Levels of Use is one dimension of the Concerns Based Adoption Model developed by Hall, Loucks, Rutherford and Newlove (1975). This model is a behavioral and developmental oriented system for assessing an individuals behavior with respect to innovation use. "The term 'concerns' is used to represent a composite description of the various motivations, perception, attitudes, feelings, and mental gyrations experienced by a person in relation to an innovation" (Hall, 1979, p.203). "The model is the result of a three and one-half year study of innovation adoption in educational institutions" (Hall, 1974, p.5). Levels of Use is only one aspect of this very sophisticated system. The system is designed for use by an educational change agent.

"The Levels of Use (LoU) dimension describes the various behaviors of the innovation user through various stages--from spending most efforts in orienting, to managing and finally to integrating use of the innovation" (Hall, Loucks, Rutherford & Newlove, 1975, p.52). They "found that regardless of the character of the outside variables, what actually happens in the individual application of an innovation is open to tremendous variations" (Hall, Loucks,

Rutherford & Newlove, 1975, p.52). The LoU dimension "does not attempt to explain causality" (Hall, 1975, p.52).

Within the LoU chart there are eight categories and each category is divided into seven levels. "These categories represent the key functions that users carry out when they are using an innovation. At each level, the category descriptions represent the typical behaviors that users at the level are engaged in" (Hall, 1975, p.53). The seven categories in the LoU framework are knowledge, acquiring information, sharing, assessing, planning, status reporting and performing.

Only the scale point definitions and the knowledge category were utilized in this research. Recognizing that it is risky to lift one aspect of a sophisticated system model for use in another framework, it was decided that modifying the knowledge scale would be the most accurate way for chief student affairs officers to rate their institution on specific innovations. Permission for this was granted by Gene Hall but he expressed concerns about using the survey approach when describing complex behavior.

Given the alterative options the researcher chose to proceed with this system as the measure of innovations. One aspect of innovation is that the study is vast and has been approached from many disciplines. No single approach has emerged as the right way to study innovation. This conflict

was evident when selecting a measure for innovation designed
to study behaviors when one is examining structures as well.

Student Affairs

Innovation has been studied in student affairs by
Creamer and Creamer (1986a,b). They surveyed chief student
affairs officers to determine the nature of program
innovations using student development goals. They found:

> . . . change projects currently initiated in student
> affairs in higher education settings, particularly
> those motivated by student development goals, may
> differ from change projects without this emphasis.
> Similarly, such projects may flourish more readily in
> environments, such as those of small, liberal arts
> colleges, that are more congruent with student
> development goals than in environments of larger,
> generally public institutions, which endorse and serve
> more comprehensive goals. (Creamer & Creamer, 1986a,
> p.25)

They identified fourteen general categories of innovative
change projects which were utilized in this study to develop
this researchers innovations for student affairs.
The areas were:

> Reorganization with student development goals;
> reorganization without explicit student
> development goals; automation projects; student

development curriculum; residence hall

programming; long range planning; orientation to

student life programs; career planning and

placement; alcohol and substance abuse education

programs; academic advising programs; retention

programs; academic enrichment (including remedial

programs); staff development programs; and all

others. (Creamer & Creamer, 1986a, p.22)

Moch & Morse (1977) note that studies of the adoption of

innovation in organizations have suffered from:

. . .a failure to distinguish among types of

innovations. . . . In addition, there have been few

studies designed to identify differential adoption

patterns for different types of innovations. The

conclusion frequently drawn is that organizations are

either "pioneers" or "laggards" in general, rather than

pioneers in some areas and laggards in others. (p.716)

This suggested that studying different types of innovations

within similar organizations such as student affairs

divisions will add to the body of knowledge about

innovations.

Kimberly and Evanisko (1981) suggested a need for

additional research focused on "adoption of particular types

of innovation" (p.709) because there "is no reason to expect

that a given set of variables will be related to the

adoption of different types of innovation in the same way"
(Kimberly & Evanisko, 1981, p.709).

Student Affairs also offers the opportunity to study
both programmatic and technological innovations within the
same organization. It is suggested that adoption of the two
types of innovation studied by Kimberly and Evanisko (1981)
because they were both "technologically oriented, is more
likely to be organizationally determined than, for example,
non-hardware programmatic innovations" (p.709). This study
provided information about the difference between
programmatic and technological innovation within the same
functional area, whereas, Kimberly and Evanisko's (1981)
study only looked at technological innovations within the
two cores of a hospital.

Chief Student Affairs Officers

Creamer and Creamer (1986a) found Chief Student Affairs
Officers (CSAOs) were the dominant leaders of change in
student affairs and that "they were less likely to be the
leader during implementation (48%) than during planning
(60%), whereas a unit or department head within student
affairs was the next most frequently cited leader" (p.24).
The chief student affairs officer was the individual
surveyed for this study. The age, gender and
professionalism factors utilized were those of the CSAO's.

Summary

The research in innovation is vast. Havelock (1969) called for innovation to be a discipline of its own. This vastness should imply more would be known about innovation than really is. Research in innovation is becoming more specific with regard to the types of innovations being studied and the parts of the structure being examined. Kimberly and Evanisko (1981) contributed significantly to the knowledge about several factors impacting the two cores of a dual-core structure. Unfortunately the fact that both sets of innovations examined were technical in nature limited their results somewhat. The structural aspects of size, complexity and centralization warrant further investigation within an administrative core unit when both programmatic and technological innovation can be utilized. In addition the individual factors warrant further exploration within this same context. Age, gender and professionalism all have been related in the past to innovation. It will be helpful to see if they respond similarly within this more defined context.

Postulates

The review of literature led the researcher to the following postulates:

1. Some organizations have a dual-core structure and innovation may occur differently in the

administrative core than in the technical core
(Daft, 1978; Kimberly & Evanisko, 1981).

2.   Professionalism enhances innovation (Aiken &
Hage, 1971, p.72; Aiken, Bacharach, & French,
1980, p. 637; Kimberly & Evanisko, 1981, p.707).

3.   Gender is not a factor in innovation efforts
(Baldridge & Burnham, 1975; Rogers, 1962; Counte
& Kimberly, 1974).

4.   Age is inversely related to innovation efforts
(Baldridge & Burnham, 1975; Rogers, 1962; Counte
& Kimberly, 1974).

5.   Centralized administrative units enhance
innovation (Kimberly & Evanisko, 1981; Zmud,
1982).

6.   Centralization and professionalism when combined
will produce a stronger relationship with
innovation than either separately (Wilson, 1966;
Sapolsky, 1967).

7.   Complexity will enhance innovation (Carroll,
1967) and will be a better predictor than
centralization (Hage & Dewar, 1973, p.285).

8.   Size will be positively related to innovation
(Baldridge & Burnham, 1975; Moch & Morse, 1977;
Kimberly & Evanisko, 1981; Rogers, 1962).

9.   Size, complexity and centralization when combined will be a better predictor of innovation than any factor separately (Moch, 1976).

These postulates were used as a guide for these hypotheses and this study.

Hypotheses

Hypothesis 1: The more professional the Chief Student Affairs Officer (CSAO) is, the more technological innovation will be present.

Hypothesis 2: The more professional the Chief Student Affairs Officer (CSAO) is, the more programmatic innovation will be present.

Hypothesis 3: The more professional the Chief Student Affairs Officer (CSAO) is, the more combined technological and programmatic innovation will be present.

Hypothesis 4: The gender of the CSAO will have no relationship to the level of technological innovation.

Hypothesis 5: The gender of the CSAO will have no relationship to the level of programmatic innovation.

Hypothesis 6: The gender of the CSAO will have no relationship to the level of combined technological and programmatic innovation.

Hypothesis 7: The higher the age of the CSAO, less technological innovation will be present.

Hypothesis 8: The higher the age of the CSAO, the less
programmatic innovation will be present.

Hypothesis 9: The higher the age of the CSAO, the less
combined technological and programmatic innovation will be
present.

Hypothesis 10: The more centralization, the more
technological innovation will be present.

Hypothesis 11: The more centralization, the more
programmatic innovation will be present.

Hypothesis 12: The more centralization, the more
combined technological and programmatic innovation will be
present.

Hypothesis 13: The more complexity, the more
technological innovation will be present.

Hypothesis 14: The more complexity, the more
programmatic innovation will be present.

Hypothesis 15: The more complexity, the more combined
technological and programmatic innovation will be present.

Hypothesis 16: The larger the size, the more
technological innovation will be present.

Hypothesis 17: The larger the size, the more
programmatic innovation will be present.

Hypothesis 18: The larger the size, the more combined
technological and programmatic innovation will be present.

Hypothesis 19: Professionalism and centralization
together, will be a better predictor of technological

innovation than either professionalism or centralization alone.

Hypothesis 20: Professionalism and centralization together, will be a better predictor of programmatic innovation than either professionalism or centralization alone.

Hypothesis 21: Professionalism and centralization together, will be a better predictor of combined technological and programmatic innovation than either professionalism or centralization alone.

Hypothesis 22: Size, complexity and centralization together will be a better predictor of technological innovation than size, complexity or centralization alone.

Hypothesis 23: Size, complexity and centralization together will be a better predictor of programmatic innovation than size, complexity or centralization alone.

Hypothesis 24: Size, complexity and centralization together will be a better predictor of combined technological and programmatic innovation than size, complexity or centralization alone.

Hypothesis 25: The relationship between complexity and technological innovation will be stronger than the relationship between centralization and technological innovation.

Hypothesis 26: The relationship between complexity and programmatic innovation will be stronger than the

relationship between centralization and programmatic innovation.

Hypothesis 27: The relationship between complexity and combined technological and programmatic innovation will be stronger than the relationship between centralization and combined technological and programmatic innovation.

CHAPTER 3

Research Methodology

Introduction

Many researchers have used different approaches to
examine innovation in organizations (Kimberly, 1976; 1978;
Kimberly & Evanisko, 1981; Levine, 1980; Aiken & Hage, 1971;
Baldridge & Burnham, 1975; Carroll, 1967). One recognized
problem with innovation research is the lack of a
standardized system for studying innovation. At this time,
each researcher is adding to the information available, but
an acceptable standardized system is not evident.

One common approach to examining innovation in
organizations is called "closed list" (Aiken & Hage, 1971)
whereby the researcher defines a "list of innovations that
logically could have been adopted by a set of organizations
during some period of time" (p.68). A determination is then
made about the number of innovations adopted. "Such a
procedure is the most appropriate for studies of
organizations performing approximately the same functions,
that is, organizations that could logically adopt each of
the innovations on a given list in the process of achieving
its objectives." (Aiken and Hage, 1971, p.68). This
research will be a variation of closed list in that an
externally defined set of innovations (Creamer & Creamer,
1986a) will be utilized as the measure in similar

organizations. In addition, the four innovations examined were scaled utilizing a modification of the knowledge portion of the levels of use of an innovation developed by Hall, Loucks, Rutherford, and Newlove (1975). The combination of externally referenced innovations, combined with the knowledge of the CSAO of the level of use of each innovation was the measure utilized in this research.

Sample and Population

The Carnegie Foundation classifies institutions into various categories based on specified criteria. Only Comprehensive I institutions were used in this study. These institutions have the following characteristics: at least 2,500 full-time students; offer baccalaureate programs and, with few exceptions, graduate education through at least the master's degree; and more than half of their baccalaureate degrees are awarded in two or more occupational or professional disciplines, such as engineering or business administration (How Classifies,1987, July 8b).

Using the 1987 classifications, a total population of 423 Comprehensive I institutions were identified. Utilizing a random number table (Champion, 1981, p.401), 100 institutions were chosen (see Appendix A).

Instrument

The survey instrument (see Appendix B) was designed based on the review of literature. There were six variables that were measured. They were: (1) age of the Chief Student Affairs Officer (CSAO); (2) gender of the CSAO; (3) professionalism of the CSAO; (4) centralization of identified student affairs function areas; (5) horizontal and vertical complexity of identified student affairs function areas; (6) student body size and size of the staff in identified student affairs function areas. There were four innovations that were studied. These four innovations were developed from the Creamer and Creamer (1986a) study of innovations in student affairs. They identified 12 functional areas for innovation that were related to student development goals (p. 22). Utilizing this list yielded externally defined innovations. The four areas were selected to equally represent both technological innovations and programmatic innovations. Computerized award calculations in financial aid and computer assisted career counseling constituted technological innovation. Substance abuse prevention/education programs and retention/academic support programs comprised programmatic innovation. (see Appendix B).

A scale utilizing the levels of use scale (Halls, Loucks, Rutherford, & Newlove, 1975) was developed for each

of the four innovations. Each of the scales was evaluated by the pilot group of Chief Student Affairs Officers.

Professionalism

Professionalism was measured by using continuous training rather than just formal education. Formal education alone would not yield enough differentiation between Chief Student Affairs Officers since the majority of these individuals possess advanced degrees. Kimberly and Evanisko (1981), in their study of hospital innovation, utilized these same aspects of formal education and continuous education. Training both on-site and elsewhere was the component utilized by Kimberly and Evanisko (1981) in their study. Even though they utilized an existing data set, they examined "job tenure, cosmopolitanism, educational background, and nature of organizational involvement of leaders" (Kimberly & Evanisko, 1981, p. 696).

Cosmopolitanism in their study was measured by "the extent to which the hospital administrator and chief of medicine, respectively, have contacts with professional colleagues outside the immediate work setting" (Kimberly & Evanisko, 1981, p.696).

Aiken and Hage (1971) used reading of professional journals and participation in meetings of professional societies as their measures of professionalism (p. 72). They also examined the level of professional training and

found the degree of extra-organizational activity to be a stronger predictor of adoption of innovations (p. 72).

Becker (1970a) used a 19-question scale measuring both attitudes and actions related to cosmopolitiness. Twelve of these questions were taken from Gouldner's "Co-op College" study and applied to the situation in public health.

Daft (1978) measured teacher professionalism "as the percentage of district certified staff who have completed a masters degree" (p. 198).

Counte and Kimberly (1974) looked at cosmopolitan orientation as "the degree to which the individual looks beyond his local situation for guidance and satisfaction" (Becker, 1970a). Data in Counte's and Kimberly's 1974 study were gathered from mailed questionnaires. They found a significant relationship between their measure of cosmopolitanism and attendance at professional gatherings.

For purposes of this study, a composite score of answers to questions (3,4,5,6) about attendance at workshops and conferences, professional reading and education level will comprise the score for professionalism.

Size

Size was measured in two ways. The size of the combined staff of the four innovation specific function areas were measured utilizing the system of "full time equivalent employees (full-time employees plus one-half of

the number of part-time employees)" (Kimberly & Evanisko, 1981, p.700). The second size measure was the size of the student body as obtained from the HEP 1989 Higher Education Directory (Healey, 1989). Measuring size by the size of the student body has been utilized in other research in educational institutions (Holdaway, Newberry, Hickson, & Heron, 1975).

Size was found as the most predictive factor of innovation in both the administrative core and the technical core in the Kimberly and Evanisko study (1981). Kimberly (1976) did an exhaustive study of size as a factor in studies and found the number of employees as the most common measure in organizational research. The hospital study afforded him the opportunity to examine four alternative size measures for hospitals: beds, total assets, total employees and full-time equivalent employees. He found them all to be highly correlatable. This research used the number of employees as defined by Kimberly (1981) as a measure of employee size within the units being examined and the student body size for the more general measure of entire organizational size.

Centralization

Centralization was measured using a system designed by Holdaway, Newberry, Hickson, and Heron, 1975), in their studies of higher education systems in Canada. A series of

questions was asked with the response categories numbered to determine at what level decisions were made. They identified six levels, two external to the organization and four within the organization. The levels of response wer used against 18 different questions related to authority.

This paper utilized seven levels, one external to the organization and six within the organization. This research utilized seven questions related to authority. This system adequately measured centralization because it identified at which level in the hierarchy authority existed.

Others have used different forms of assessing centralization. Hage and Dewar (1973) interviewed their sample and asked how often they participated in decision-making and then developed an average of positional means by classifying each individual according to their occupational speciality. Hage and Dewar's system would not work for this study because only the Chief Student Affairs Officer is being contacted.

Child (1973) measured centralization by measuring personnel delegation, budget delegation and influence decentralization. This study will utilize a combined score for questions about budget, hiring, promotion and starting new programs or services utilizing the seven point scale described above.

Complexity

Complexity was measured using two factors in combination. The first was horizontal differentiation (the number of staff across the organization) and vertical differentiation (the number of levels in the organization). Similar measures have been utilized by Aiken, Bacharach, & French (1980) and Kim (1980).

Child (1973) measured complexity by overall role specialization, functional specialization and level of specialist qualifications. Hage and Dewar (1973) measured complexity by measuring the professional activity and the number of different occupational specialities. Carroll (1967) measured complexity by measuring the occupational diversity in the medical schools by counting the number of department chairs.

Kim (1980) utilized measures of the number of occupational specialities, the degree of professional training and the degree of professional activities. For this research the number of job titles for horizontal complexity was utilized. The number of levels within specific units was utilized for vertical complexity. These combined will serve as the complexity score.

The survey instrument was constructed, and the instrument was pilot-tested with 19 Chief Student Affairs Officers at comprehensive I institutions. Three of the 19 completed the survey in the presence of the researcher.

The instrument was submitted and approved by the Institutional Review Board at East Tennessee State University. This approval represents satisfactory compliance with requirements for protecting the rights and safety of human subjects including confidentiality.

Data Collection

The data were collected using the "Total Design Method" (Dillman, 1978). The "Total Design Method (TDM) is a system for maximizing responses to mail or telephone surveys. It was developed by Don A. Dillman after years of experience with questionnaires.

The TDM is a results oriented approach that is based on past research on surveys. Knowing why people respond is the core of most of the method.

The TDM begins with guidelines for writing questions and avoiding common wording problems. The construction of the mail questionnaire is specified with exact detail including: suggestions about lower case and upper case letter usage with answers being all upper case; use of numbers with answers; provision of directions for how to answer; attractive cover design and question order to stimulate respondents interest.

The time frame for mailings was specified for an eight week process. This aspect was only partially followed by the researcher since a third complete mailing was not

planned. The guideline for Tuesday mailings; coding of questionnaires; size of questionnaire (6 1/8" by 8 1/4"); content of letters and postcards; folding of mailings; and signing of documents were all followed.

The researcher observed three chief student affairs officers while they completed the pilot instrument. It was discussed with two other Chief Student Affairs Officers and mailed to 15 others. The materials were all printed utilizing total design method recommendations, from cover letter content, the use of a postcard follow-up, printing specifications, to timing of follow-ups (Dillman, 1978).

Cover letters (see Appendix C), openly coded questionnaires and self-addressed postage-paid envelopes were mailed to the Chief Student Affairs Officers (CSAOs) at the randomly selected Comprehensive I institutions. One week later all CSAOs were mailed a follow-up thank you postcard (see Appendix D).

Eighteen days after the original mailing a second mailing containing a different cover letter, (see Appendix E) a second coded questionnaire and a self-addressed postage-paid envelope was mailed to all CSAOs whose response had not been received. Eight weeks after the original mailing, telephone calls were made to ten non-respondents to determine if there were any demographic differences between respondents and non-respondents.

Once a 60% response had been obtained, the data were analyzed. More details about the total design method and the pilot study are available in Chapter Four.

Analysis of Data

Technological innovations, programmatic innovations and combined technological and programmatic innovations were analyzed as the dependent variables. Each of the six independent variables of age, gender, professionalism, centralization, complexity (horizontal, vertical and combined), and size (student body size and staff size within specific units) were compared to the innovations using Pearson Product Moment correlations, Point bi-serial correlations or Spearman rho correlations. Randomness was insured and the appropriate statistic was utilized based on the level of data being analyzed. The level of significance for this study was set at .05.

The hypotheses utilizing two or more variables against the dependent variable were analyzed utilizing multiple regression analysis. The hypotheses comparing the relationship between one variable and the dependent variable with a second variable and the same dependent variable were analyzed with the test statistic for dependent samples.

The SPSSX statistical software for the personal computer was utilized to assist with the analysis of data.

Summary

The methodology of this study was a questionnaire mailed to 100 chief student affairs officers at Comprehensive I institutions. These responses were analyzed utilizing standard statistical practice. The variables in the study were age, gender and professionalism of the CSAO and organizational size, complexity and centralization.

CHAPTER 4

Analysis of Data

The Pilot Study

The original mock-up of the questionnaire was completed
and submitted to the researcher's doctoral committee for
suggestions. The survey instrument was designed following
Dillman's (1978) guidelines for spacing, size of instrument,
print type and question arrangement.

Dillman (1978) specified the pilot be shared with three
groups: colleagues; a mailed group representative of the
actual sample; and a select representative group who
actually completed the questionnaire in the presence of the
researcher. Colleagues who reviewed the instrument were the
researcher's committee and a colleague in student affairs
who routinely completes questionnaires. The three Chief
Student Affairs Officers (CSAOs) who completed the
questionnaire in the researcher's presence were all at
Comprehensive I institutions and were in California,
Tennessee and North Carolina. Two of the three CSAOs took
less than 12 minutes to complete the survey. The third took
approximately 25 minutes.

The following changes were made from the original
instrument as a result of the pilot. The construction
process of the survey instrument was accomplished using a
computer and a laser printer to eliminate complicated

construction steps. This process produced pages at the
appropriate size and in the actual location on the page,
required for production.

The first administration of the survey with the
researcher observing resulted in one serious problem being
identified. In the questions 18, 24, 30 and 36, about part-
time employees, the option of zero needed to be added. This
option was added before further administrations of the pilot
were conducted. Following the pilot it was noted that this
same change needed to be added to the full-time employee
questions 17, 23, 29 and 35. This was done for the actual
instrument. In addition, the option of answering, "less
than one full time employee", in questions 17, 23, 29 and 35
was added to accomodate the operations where one individual
relates to the area but does not dedicate full-time to it.
The suggestion to reorder the areas, putting the financial
aid area later in the questionnaire, was made in order to
maximize response rates based on the assumption that several
student affairs operations might not include financial aid.
The last suggestion was to clarify the wording regarding
substance abuse efforts being for students and not staff
(Section E before question 26). Appropriate wording was
incorporated accordingly.

The second administration of the instrument with the
researcher observing went very smoothly and no changes in
the instrument were made as a result. The third

administration again pointed out potential problems of reporting employees in categories accurately. No changes were made, however. A fourth Chief Student Affairs Officer took the instrument and then conferred with the researcher over the phone. This particular individual would also have problems interpreting the questions about the number of employees in various categories because of a large peer counselor program. The additional potential problem of separating developmental/remedial operations from other remedial services might be difficult if not impossible at some institutions. The wording of question 9, about starting a new program or service, was strengthened by adding the wording "not requiring equipment or new personnel". Question 10, about purchasing a piece of computer hardware, was strengthened by deleting the words "or software". These suggestions all strengthened the final questionnaire.

The colleague in student affairs made specific suggestions for improved wording on the open-ended question at the end of the instrument. These wording changes helped focus the reader's attention on the issue of innovation and the aspects of the questionnaire.

Eight of the fifteen questionnaires mailed were returned. Follow-up by phone was conducted. Both respondents and non-respondents were telephoned for suggestions they had regarding the questionnaire. The

comments obtained by phone in this manner were confirming of those obtained earlier in the observed completions of the questionnaire. All of the observed respondents, as well as five of the eight returned questionnaires, answered all of the questions. Two of the returned mailed questionnaires contained all but four answers. These were all in the situation where no formal program existed. One additional questionnaire was missing two answers in the situation where no program existed. One mail respondent wanted a definition of innovation. This was not provided in order to allow the respondent to use the broadest interpretation of the word. This same mailed respondent wanted evidence of the claims in the the first paragraph of the cover letter. These claims (see Appendix C) are that innovation is becoming more important to Universities and Student Affairs and that Student Affairs professionals are interested in utilizing innovations. Evidence is provided in chapter two for the first claim. The second claim is an assumption.

The questionnaire with the incorporated adjustments was considerably strengthened by the pilot process. All changes and adjustments could not be made. The changes made were the ones judged to be valid by the researcher.

Data Collection

One hundred surveys with self-addressed return envelopes and the first cover letter (see Appendix B and C)

were mailed to all of the CSAOs in the random sample of
Comprehensive I institutions (see Appendix A). As
prescribed by the Total Design Method, follow-up postcards
were mailed to all one hundred institutions, one week after
the original mailing (see appendix D). A full follow-up
mailing, including second cover letter (see Appendix E), a
second copy of the coded questionnaire and a second return
envelope, were mailed approximately one week later.
The follow-up mailing was mailed to forty-two non-
respondents. A second copy of the first mailing was mailed
to one institution based on a phone call received from the
student affairs office because they had received the
postcard but had not received the original mailing. A
second phone call was also received requesting a second copy
because of the postcard. This institution was satisfied to
receive the second mailing only. The useable response rate
was seventy-six percent.

Ten of the twenty four non-respondents were called
regarding demographic information to determine if there was
a difference of concern with the respondent group. Each of
the CSAO's or their secretaries were asked seven demographic
questions. These were questions about education completed
(question 1), the number of higher education institutions
worked in (question 2), age (question 38, gender (question
39), race (question 40), the number of years at present
institution (question 41) and the number of years in the

student affairs profession (question 42). One further
analysis of the non-respondents was undertaken according to
student body size.

The non-respondents were similar on size of student
body, age, gender and number of institutions worked. The
non-respondent group differed on race. Forty percent of non-
respondents were Afro-American/Black, whereas only 10.7% of
respondents were Afro-American/Black. The non-respondent
group appeared to have less formal education since two (20%)
of non-respondents had bachelor's degrees whereas all
respondents had higher than a bachelor's degrees. A larger
percentage of non-respondents had been at their institution
for a shorter period of time than the respondents. Non-
respondents (40%) had been at their institution less than
two years whereas only 8% of the respondent group were in
this category. These differences should be considered when
interpreting the results of this study.

<center>Data Manipulation</center>

Usable responses were coded and entered into the
SPSS/PC+ software package for data manipulation. The size
of the student body, used as one measure of size, was
obtained from the HEP 1989 Higher Education Directory
(Healey, 1989). Their data was copyrighted information from
the Educational Testing Service and was used by permission
of Educational Testing Service for this study. Utilizing

standard size measures was believed to be a more reliable for student body size than a self report by chief student affairs officers would have been. Data were coded into the data set as answered on the questionnaire with a few exceptions. Education (question 1) was recoded in reverse order except the category "other" was moved to the middle to accommodate people who designated two masters degrees, educational specialist degrees or law degrees. Gender (question 39) was recoded with females entered as zero rather than two.

Any question where a respondent entered a number on the "or more" response was coded with the number entered. Some of these values were later grouped for evaluation. Any response greater than 5 was recoded as a 5 to create the category "5 or more" for the three questions (3, 4, and 5) about the chief student affairs officer's attendance at national conferences, regional conferences and staff development workshops. Another category that was recoded was the amount of reading done regularly by the CSAO (question 6). In this case a category of "7 or more" was created.

The scores for various variables utilized for analysis were also calculated. The professionalism score was originally calculated by combining the responses to questions 1, 2, 3, 4, 5, and 6 together. The following six responses were the CSAO's formal education: (question 1),

the number of institutions the CSAO had worked in (question
2), the number of national conferences attended (question
3), the number of regional conferences attended (question
4), the number of staff development workshops attended
(question 5) and the number of publications read on a
regular basis (question 6).

These six responses, when combined, were found to be
less reliable than the four about conference workshop
attendance (question 3, 4, and 5) and reading (question 6)
alone based on a reliability analysis. The alpha score with
all six variables and 75 cases was .62 and with just the
four it was .69. The reliability score would have been
improved even more (.75) by removing the question about
national conference attendance (question 2). This was not
done because it was not logical that professional CSAO's not
attend national conferences. Any future reference to the
variable of professionalism will be as calculated by
combining the four questions on conference and workshop
attendance as well as professional reading (questions 3, 4,
5 and 6). The mean was 11.83, the standard deviation was
4.42, the range was 20 with 75 responses (see Table 1).

Age and gender (questions 38 and 39, respectively) were
the other two individual variables utilized in analysis.
The age scale was obtained in ranges of years rather than
exact years, thus providing an ordinal scale of one to
eight.

TABLE 1

Horizontal, Standard Deviations, Sample Size and Range
for Individual Factors, Organizational Factors
and Innovations

Individual Factors

	Professional	Age	Gender
M	11.83	4.0[a]	0.70[b]
SD	4.42	1.5	0.46
n	75	76	75
Range	20	6	1

Organizational Factors

	Central- ization	Complexity			Size		
		Hori- zontal	Verti- cal	Com- bined	Stu. Body	Staff	Com- bined
M	23.49	12.42	10.71	3.31	7790.63	31.11	3.24
SD	5.73	4.16	2.84	1.80	5586.96	13.51	1.75
n	73	55	56	54	76	53	53
Range	30	19	13	5	27,767	54	5

Innovations

	Technological	Programmatic	Combined
M	8.54	7.98	16.44
SD	3.15	3.29	5.27
n	69	61	57
Range	12	12	21

[a] Age category for 46-50 years of age
[b] Male equals 1.0

The age mean was 4.0 where the category of 4 represented the age range of 46-50 years of age. The standard deviation for age was 1.5, and the range was 6.0 with all 76 responses useable. The gender mean was .70 when males were 1.0. The standard deviation for gender was .46, the range was 1.0 with 75 responses useable.

The other variables utilized in analysis were the organizational variables of centralization, complexity and size and three measures of innovation. Methods for calculating these were as follows.

Centralization was calculated by combining the scores to all questions in the decision-making section of the questionnaire. There were seven questions (7, 8, 9, 10, 11, 12 and 13) in this section. These seven questions all established a level in the organization where various decisions were made. The ranking utilized for each question was:

1. Committee or other agent considered within the unit but not including the unit director

2. Unit Director

3. Student Affairs committee or other agent considered within student affairs but not including the chief student affairs officer

4. Chief Student Affairs Officer

5.   Committee or other agent generally
      considered outside student affairs

6.   President or Chief Executive Officer

7.   Governing body external to the campus

The seven questions related to the decision making
authority for promotion (question 7) or hiring of a unit
director (question 8), starting a program or service
(question 9), purchasing computer hardware (question 10) and
purchasing at three different dollar increments (question
11, 12 and 13). These seven questions were added together
for the centralization score. Reliability scales produced
the alpha score of .77. The mean was 23.49, the standard
deviation was 5.73, and the range was 30.00 with 73 useable
responses.

Complexity was calculated three ways, horizontally,
vertically and a combination of horizontal and vertically.
Spatial differentiation was not a consideration in this
study. Horizontal complexity was measured by adding the
responses to the question about the number of titles in each
of the four areas questioned (questions 16, 22, 28 and 34).
These were the number of titles in career counseling,
financial aid, substance abuse education and retention
academic support. The mean was 12.42, the standard
deviation was 4.16 and the range was 19 with 55 useable
responses.

Vertical complexity was measured by adding the responses to the question about the number of levels for reporting in each of the four areas questioned (questions 15, 21, 27 and 33). Therefore, vertical complexity was measured by adding four scores together about reporting levels in career counseling, financial aid, substance abuse and retention academic support. The mean was 10.71, the standard deviation was 2.84 and the range was 13 with 56 useable responses.

In order to combine horizontal and vertical complexity into one complexity score, the mean and standard deviation were calculated for the variables. Calculating one standard deviation around the mean of each variable, each case was classified as having low, medium and high values. Vertical complexity was divided into low, medium and high with low being below 9.29. Medium vertical complexity ranged from 9.30 to 12.13. High vertical complexity was above 12.14. This divided low, medium and high vertical complexity into 20, 21 and 15 cases respectively. Horizontal complexity was divided into the three levels with low being below 10.34. Medium horizontal complexity ranged from 10.35 to 14.50. High horizontal complexity was above 14.51. This divided low, medium and high horizontal complexity into 20, 23 and 12 cases respectively.

The two variables were then combined using the following system. A low score on both horizontal and

vertical complexity was a low score on combined complexity.
This was entered as a score of one. A medium score on
either variable and a low score on the other was entered as
low medium or a two. A high score on one scale and a low on
the other was entered as low high or a three. A medium
score on both variables was entered as medium or a four. A
medium score on one scale and a high on the other was
entered as medium high or a five. \ high score on both
scales was entered as high or as a 6. Therefore the
complexity range was one to six (see Table 2). The mean of
the combined complexity score was 3.31 with a range of 5.
The standard deviation was 1.80 with 54 useable cases.

Each of the three measures of complexity, horizontal,
vertical and combined were utilized for all hypothesis
testing involving correlations but the combined score was
judged to lack enough variance or normal distribution and so
it was not entered into a regression.

Size was also figured three ways, student body size,
staff size and a combined size score. As stated earlier the
student body size was obtained externally rather than by
questionnaire. This was the first measure of size. The
range of this variable was from 1922 to 29,689 or 27,767.
The mean was 7790.63 and the standard deviation was 5586.96
with 76 useable responses.

The second measure of size was a calculation of full-
time equivalent staff within the areas being studied.

TABLE 2

Meaning and Point Value of Combined Complexity Score

VERTICAL COMPLEXITY

H O R I Z O N T A L C O M P L E X I T Y	Low horizontal Low vertical 1	Low horizontal Medium vertical 2	Low horizontal High vertical 3
	Medium horizontal Low vertical 2	Medium horizontal Medium vertical 4	Med. horizontal High vertical 5
	High horizontal Low vertical 3	High horizontal Medium vertical 5	High horizontal High vertical 6

VALUE	FREQUENCY	VALID PERCENT
1	12	22.2
2	12	22.2
3	2	3.7
4	10	18.5
5	11	20.4
6	7	13.0
TOTAL	54	100%

The formula for calculating staff size (Kimberly & Evanisko, 1981) was full-time staff plus one half of part-time staff. A full-time employee score was calculated for each area utilizing this formula. These four area scores were then combined into a staff size score. The range of this score was 10.5 to 64.5 or 54. The mean was 31.11 with a standard deviation of 13.51 with 53 useable responses.

Methodology for combining student body size and staff size into a combined size score was the same as that for complexity (see Table 3). Again, this combined size score did not result in a normal distribution and the range was only one to six and therefore was not entered into any regression analysis.

When dividing the student body size around the mean, the low segment had a student body size below 4,997.15, the medium segment was between 4,997.16 and 10,584.12 and the high segment had more than 10,584.13 students. This resulted in 26 institutions in the low category, 34 in the medium category and 16 in the high category. When dividing the staff size around the mean the low segment had a staff size below 24.35, the medium segment was between 24.36 and 37.86 and the high segment had more than 37.87 staff. This resulted in 19 institutions in the low category, 21 in the medium category and 13 in the high category.

The final three variables for analysis were those related to innovation. The questionnaire provided four

TABLE 3

Meaning and Point of Combined Size Score

STUDENT BODY SIZE

Low student body Low staff 1	Low student body Medium staff 2	Low student body High staff 3
Med. student body Low staff 2	Med. student body Medium staff 4	Med. student body High staff 5
High student body Low staff 3	High student body Medium staff 5	High student body High staff 6

S
T
A
F
F

S
I
Z
E

VALUE	FREQUENCY	VALID PERCENT
1	12	22.6
2	12	22.6
3	2	3.8
4	10	18.9
5	12	22.6
6	5	9.4
TOTAL	53	100%

scores on a level of knowledge about innovations. Two
innovation scores were technological (question 19 and 25)
and two were programmatic in nature (question 31 and 37).
The two technological scores were added together for a
technological innovation score and the other two for a
programmatic innovation score. The potential range for both
technological innovation and programmatic innovation was
zero to fourteen on each since it was obtained by adding
responses on two questions with possible answers of 0 to 7
on each. The resulting range for technological innovation
was 2 to 14 or 12. The mean was 8.54 and the standard
deviation was 3.15. The potential range for programmatic
innovation was also 2 to 14 or 12. The mean was 7.98 and
the standard deviation was 3.29.

The combined technological and programmatic innovation
score was obtained by adding all four innovation responses
together (question 19, 25, 31 and 37). The potential range
was zero to twenty-eight. The actual range was 5 to 26 or
21. The mean was 16.44 with a standard deviation of 5.27.

Data Analysis

For purposes of analysis the null hypothesis was tested
when no direction was predicted. When a directional
alternative hypothesis was stated, a one-tail test was
employed. In order to maintain clarity, the statistic used
for analysis will be discussed with the results. For all

hypotheses stated mathmatically, the following symbols will
be used: technological innovation (x), programmatic
innovation (y) and combined technological and programmatic
innovation (z).

Professionalism

Hypothesis one, two and three all involve the variable
of professionalism (a) and one of the innovation variables
(x, y and z). Since all of these variables were interval
level data and since the alternative hypotheses were stated
directionally, the Pearson Product Moment Correlation
Coefficient with a one-tail test of significance was
utilized.

The first hypothesis was that the relationship between
the professionalism of the Chief Student Affairs Officer
(CSAO) and technological innovation will be positive (H_1:
$r_{ax}>0$). A total of sixty-eight cases entered this analysis.
The correlation coefficient was .2529, the professionalism
mean was 11.82 and the standard deviation was 4.48. This
finding was significant at the .05 level. Therefore, the
hypothesis was supported, and the more professional the CSAO
was, more technological innovation was reported. (See Table
4).

The second hypothesis stated that the relationship
between the professionalism of the CSAO and programmatic
innovation will be positive (H_1: $r_{ay}>0$). The number of cases

TABLE 4

Correlations for Professionalism
with Innovations

PROFESSIONALISM WITH TECHNOLOGICAL INNOVATION

VARIABLE	n	M	SD	CORRELATION COEFFICIENT
PROFESSIONALISM	68	11.82	4.48	.2529*
TECHNOLOGICAL INNOVATION	68	8.57	3.16	

PROFESSIONALISM WITH PROGRAMMATIC INNOVATION

VARIABLE	n	M	SD	CORRELATION COEFFICIENT
PROFESSIONALISM	60	11.42	4.19	.0481 NS
PROGRAMMATIC INNOVATION	60	7.98	3.32	

PROFESSIONALISM WITH COMBINED TECHONOLOGICAL
AND PROGRAMMATIC INNOVATION

VARIABLE	n	M	SD	CORRELATION COEFFICIENT
PROFESSIONALISM	56	11.36	4.16	.1830 NS
COMBINED INNOVATION	56	16.48	5.31	

NS=Not Significant *=P$\leq$.05 **=P$\leq$.01 ***=P$\leq$.001

utilized in this analysis was 60. The correlation coefficient was .0481. Therefore, this hypothesis was not supported, and the more professional the CSAO was, more programmatic innovation was not reported. (See Table 4).The third hypothesis stated that the relationship between the professionalism of CSAO and combined technological and programmatic innovation will be positive (H_1: $r_{xz}>0$). The number of cases utilized in this analysis was 56. The correlation coefficient was .1830. Therefore, this hypothesis was not supported, and the more professional the CSAO was, more combined technological and programmatic innovation was not reported. (See Table 4).

Gender

Hypotheses four, five and six involve the variable of gender and the innovations. Gender is nominal level data and the relationship was not directional. A point-biserial correlation coefficient with a two-tailed test was utilized for this analysis.

The first hypothesis was that the relationship between the gender of the CSAO (b) will have no relationship to the level of technological innovation reported (H_0: $r_{bx}=0$). The number of cases utilized in this analysis was 69. The correlation coefficient was -.0262, the gender mean was .67 and the standard deviation was .48. The technological innovation mean was 8.54 and the standard deviation was 3.15. The null hypothesis was accepted because no

TABLE 5

Correlations for Gender
with Innovations

GENDER WITH TECHNOLOGICAL INNOVATION

VARIABLE	n	M	SD	CORRELATION COEFFICIENT
GENDER	69	0.67	0.47	
				-.0262NS
TECHNOLOGICAL INNOVATION	69	8.54	3.15	

GENDER PROGRAMMATIC INNOVATION

VARIABLE	n	M	SD	CORRELATION COEFFICIENT
GENDER	61	0.72	0.45	
				-.1152 NS
PROGRAMMATIC INNOVATION	61	7.98	3.29	

GENDER WITH COMBINED TECHNOLOGICAL
AND PROGRAMMATIC INNOVATION

VARIABLE	n	M	SD	CORRELATION COEFFICIENT
GENDER	57	0.70	.46	
				-.1141 NS
COMBINED INNOVATION	57	16.44	5.27	

NS=Not Significant   *=$P \leq .05$ **=$P \leq .01$ ***=$P \leq .001$

significant relationship was found between the gender of the CSAO and technological innovation reported. (see Table 5).

The second hypothesis stated that the relationship between the gender of the CSAO will have no relationship to the level of programmatic innovation reported (H_0: $r_{by}=0$). The number of cases utilized in this analysis was 61. The correlation coefficient was -.1152, the gender mean was .72 and the standard deviation was .45. The programmatic innovation mean was 7.98 and the standard deviation was 3.29. This hypothesis was also stated in the null and it was accepted. No significant relationship was found between the gender of the CSAO and programmatic innovation reported. (see Table 5)

The third hypothesis stated that the gender of the CSAO will have no relationship to the level of combined technological and programmatic innovation reported (H_0: $r_{bx}=0$). The number of cases in this analysis was 57 and the correlation coefficient was -.1141. The gender mean was .70 and the standard deviation was .46. The combined technological and programmatic innovation mean was 16.44 and the standard deviation was 5.27. This hypothesis was also stated in the null and was accepted. No significant relationship was found between the gender of the CSAO and combined technological and programmatic innovation. (see Table 5).

Age

Hypotheses seven, eight and nine involve the variable
of age which is ordinal since only an age range was obtained
on the questionnaire. The ordinal data suggest the use of
the Spearman Rho statistic. For purposes of this
calculation both age and the three innovation variables were
ranked. The one-tailed test was used since the alternative
hypothesis was directional.

The first hypothesis was that the relationship between
the age of the CSAO (c) and the level of technological
innovation reported would be inversely related (H_1: $r_{cx}<0$).
The number of cases utilized in this analysis was 69 and the
correlation coefficient was -.0961, the ranked age mean was
37.90 and the standard deviation was 20.95. The ranked
technological innovation mean was 35 and the standard
deviation was 19.97. The hypothesis was not supported and
the inverse relationship between age and technological
innovation was not significant. (see Table 6).

The second hypothesis was that the relationship between
the age of the CSAO and the level of programmatic innovation
reported would be inversely related (H_1: $r_{cy}<0$). The number
of cases utilized in this analysis was 61 and the
correlation coefficient was -.2080. The mean of the ranked
age was 37.99 and the standard deviation was 20.91. The
mean of the ranked programmatic innovation was 31.0 and the
standard deviation was 17.64. The exact probability found

TABLE 6

Ranked
Correlations for age
with Innovations

AGE WITH TECHNOLOGICAL INNOVATION

VARIABLE	n	M	SD	CORRELATION COEFFICIENT
AGE	69	37.90	20.95	
				-.0961NS
TECHNOLOGICAL INNOVATION	69	35.00	19.97	

AGE WITH PROGRAMMATIC INNOVATION

VARIABLE	n	M	SD	CORRELATION COEFFICIENT
AGE	61	37.99	20.91	
				-.2080 NS
PROGRAMMATIC INNOVATION	61	31.00	17.64	

AGE WITH COMBINED TECHNOLOGICAL
AND PROGRAMMATIC INNOVATION

VARIABLE	n	M	SD	CORRELATION COEFFICIENT
AGE	57	36.80	20.76	
				-.2374 NS
COMBINED INNOVATION	57	29.00	16.54	

NS=Not Significant   *=P$\leq$.05   **=P$\leq$.01   ***=P$\leq$.001

was P=.054. This hypothesis was not supported and the inverse relationship between age and programmatic innovation was not significant. (see Table 6).

The third hypothesis was that the relationship between the age of the CSAO and combined technological and programmatic innovation reported would be inversely related (H_1: $r_{az}<0$). The number of cases utilized in this analysis was 57 and the correlation coefficient was -.2374. The mean of the ranked age was 36.80 and the standard deviation was 20.76. The mean of the ranked combined technological and programmatic innovation was 29.00 and the standard deviation was 16.54. This hypothesis was supported and the inverse relationship between age and combined technological and programmatic innovation was significant (see Table 6).

Centralization

Hypotheses ten, eleven and twelve involve the variable of centralization (d) and one of the innovation variables (x, y, and z). Since this variable was scaled intervally, the Pearson Product Moment Correlation Coefficient was utilized as the statistic. The hypothesis was directional and therefore a one-tailed test was employed.

The first hypothesis stated that the relationship between centralization and the technical innovation reported would be positive (H_1: $r_{dx}>0$). The number of cases utilized in the analysis was 68. The correlation coefficient found was -.0663 and the centralization mean was 23.54 and the

standard deviation was 5.65. The hypothesis was not

supported, and the more centralization found did not

correlate with more technological innovation being reported

(see Table 7).

The second hypothesis stated that the relationship

between centralization and the programmatic innovation

reported would be positive (H_1: $r_{dy} > 0$). The number of cases

in this analysis was 60. The correlation coefficient was

-.0470 and the centralization mean was 23.75 and the

standard deviation was 5.42. The hypothesis was not

supported, and the more centralization found did not

correlate with more programmatic innovation being reported

(see Table 7).

The third hypothesis stated that the relationship

between centralization and the combined technological and

programmatic innovation reported would be positive (H_1:

$r_{du} > 0$). The number of cases utilized in this analysis was

57. The correlation coefficient was -.0797 and the

centralization mean was 23.79 and the standard deviation was

5.55. This hypothesis was not supported, and the more

centralization found was not positively correlated with more

combined technological and programmatic innovation reported

(see Table 7).

Complexity

Hypotheses thirteen, fourteen, and fifteen involve the

variables of complexity. Each hypothesis was tested using

TABLE 7

Correlations for centralization
with Innovations

CENTRALIZATION WITH TECHNOLOGICAL INNOVATION

VARIABLE	n	M	SD	CORRELATION COEFFICIENT
CENTRALIZATION	68	23.54	5.65	
				-.0663 NS
TECHNOLOGICAL INNOVATION	68	8.48	3.15	

CENTRALIZATION WITH PROGRAMMATIC INNOVATION

VARIABLE	n	M	SD	CORRELATION COEFFICIENT
CENTRALIZATION	60	23.75	5.42	
				-.0470 NS
PROGRAMMATIC INNOVATION	60	7.95	3.31	

CENTRALIZATION WITH COMBINED TECHONOLOGICAL
AND PROGRAMMATIC INNOVATION

VARIABLE	n	M	SD	CORRELATION COEFFICIENT
CENTRALIZATION	57	23.79	5.55	
				-.0797 NS
COMBINED INNOVATION	57	16.44	5.27	

NS=Not Significant *=P$\leq$.05 **=P$\leq$.01 ***=P$\leq$.001

all three measures of complexity, horizontal (e), vertical
(f) and the combined score (g).

The measures for horizontal and vertical complexity
were assessed to be interval in nature and so for the
analysis of these measures, Pearson Product Moment
Correlation Coefficients were utilized. In the case of the
combined score, the resulting scores were ordinal and
therefore were ranked and the Spearman Rho Correlation was
utilized. In this case the scores for innovation were also
ranked. The research hypothesis was directional and
therefore a one-tailed test was employed.

The first hypothesis stated that the relationship
between complexity and the technical innovation reported
would be positive (H_1: $r_{ex}>0$ or H_1: $r_{fx}>0$ or H_1: $r_{gx}>0$).
The number of cases utilized in the analysis of the
horizontal complexity factor was 53. The correlation
coefficient was .0946, the horizontal complexity mean was
12.28 and the standard deviation was 4.16. The mean of
technological innovation was 8.64 and the standard deviation
was 3.24. This measure of complexity did not support the
hypothesis. There was no significant positive relationship
between horizontal complexity and the technological
innovation reported (see Table 8).

The second measure of complexity, vertical
complexity, produced a similar finding. The number of cases
in this analysis was 54, with a vertical complexity mean of

TABLE 8

Correlations for Complexity
with Technological Innovation

HORIZONTAL COMPLEXITY WITH TECHNOLOGICAL INNOVATION

VARIABLE	n	M	SD	CORRELATION COEFFICIENT
HORIZONTAL COMPLEXITY	53	12.28	4.16	
				.0946NS
TECHNOLOGICAL INNOVATION	53	8.64	3.24	

VERTICAL COMPLEXITY WITH TECHNOLOGICAL INNOVATION

VARIABLE	n	M	SD	CORRELATION COEFFICIENT
VERTICAL COMPLEXITY	54	10.50	2.64	
				.1730NS
TECHNOLOGICAL INNOVATION	54	8.67	3.22	

COMBINED COMPLEXITY" WITH TECHNOLOGICAL INNOVATION

VARIABLE	n	M	SD	CORRELATION COEFFICIENT
COMBINED COMPLEXITY"	52	26.77	15.22	
				.0415NS
TECHNOLOGICAL INNOVATION	52	35.48	20.51	

NS=Not Significant   *=P$\leq$.05   **=P$\leq$.01   ***=P$\leq$.001
"COMBINED HORIZONTAL AND VERTICAL COMPLEXITY

10.5 and a standard deviation of 2.64. The correlation coefficient was .1730. Again, this finding did not support the research hypothesis. There was no significant positive relationship between vertical complexity and the technological innovation reported. (see Table 8).

The number of cases utilized in the analysis of the combined horizontal and vertical complexity factor was 52. The correlation coefficient was .0415. The ranked combined complexity score did not support the hypothesis. There was no significant positive relationship between combined horizontal and vertical complexity and the technological innovation reported. (see Table 8).

The second hypothesis stated that the relationship between complexity and the programmatic innovation reported would be positive (H_1: $r_{wy}>0$ or H_1: $r_{ry}>0$ or H_1: $r_{wy}>0$).

The measure of horizontal complexity utilized 54 cases in this analysis. The correlation coefficient was .2534. The horizontal complexity mean was 12.39 and the standard deviation was 4.19. The mean for the programmatic innovation was 7.94 and the standard deviation was 3.43. This finding supports the research hypothesis. There was a significant positive relationship between horizontal complexity and the programmatic innovation reported. (see Table 9)

The second measure of complexity was vertical and in this analysis 55 cases were utilized. The correlation

TABLE 9

Correlations for Complexity
with Programmatic Innovation

HORIZONTAL COMPLEXITY WITH PROGRAMMATIC INNOVATION

VARIABLE	n	M	SD	CORRELATION COEFFICIENT
HORIZONTAL COMPLEXITY	54	12.39	4.19	
				.2534*
PROGRAMMATIC INNOVATION	54	7.94	3.43	

VERTICAL COMPLEXITY WITH PROGRAMMATIC INNOVATION

VARIABLE	n	M	SD	CORRELATION COEFFICIENT
VERTICAL COMPLEXITY	55	10.64	2.80	
				.4376***
PROGRAMMATIC INNOVATION	55	7.91	3.43	

COMBINED COMPLEXITY" WITH PROGRAMMATIC INNOVATION

VARIABLE	n	M	SD	CORRELATION COEFFICIENT
COMBINED COMPLEXITY"	53	26.77	15.22	
				.3432**
PROGRAMMATIC INNOVATION	53	29.05	16.93	

NS=Not Significant   *=P<.05   **=P<.01   ***=P<.001
"COMBINED HORIZONTAL AND VERTICAL COMPLEXITY

coefficient was .4376, the vertical complexity mean was
10.64 and the standard deviation was 2.80. The mean for the
programmatic innovation was 7.91 and the standard deviation
was 3.43. This hypothesis was significant at the .001
level. This supports the research hypothesis. There was a
significant positive relationship between vertical
complexity and the programmatic innovation reported. (see
Table 9).

The ranked combined horizontal and vertical complexity
factor analysis utilized 53 cases and produced a correlation
coefficient of .3432. This hypothesis was significant at
the .01 level. This supports the research hypothesis.
There was a significant positive relationship between the
combined horizontal and vertical complexity factor and
programmatic innovation. (see Table 9). All three measures
of complexity produced significant findings with
programmatic innovation. This confirms the findings.

The third hypothesis stated that the relationship
between complexity and the combined technological and
programmatic innovation reported would be positive (H_1:
$r_{as}>0$ or H_1: $r_{rx}>0$ or H_1: $r_{ax}>0$). The measure of horizontal
complexity produced a finding that was not significant.
Fifty-three cases were entered in the analysis with a .1973
correlation coefficient. The mean of horizontal complexity
was 12.28 and the standard deviation was 4.16. The mean for
combined technological and programmatic innovation was 16.49

and the standard deviation was 5.40. This hypothesis was
not significant and did not support the research hypothesis.
There was not a significant positive relationship between
horizontal complexity and combined technological and
programmatic innovation reported. (see Table 10)

The second complexity measure, vertical complexity,
produced a significant finding at the .01 level. The cases
entered were 54 and the correlation coefficient was .3542.
The standard deviation was 2.64 and the mean was 10.5.
This finding supports the research hypothesis. There was a
significant positive relationship between vertical
complexity and combined technological and programmatic
innovation reported (see Table 10).

The ranked combined horizontal and vertical complexity
factor utilized 52 cases which resulted in a correlation
coefficient of .2342. This finding was significant at the
.05 level. This significant finding supports the research
hypothesis that complexity is positively related to combined
technological and programmatic innovation. (see Table 10).

Size

Hypotheses sixteen, seventeen, and eighteen involved
the variable of size. Size also had three measures, student
body size (h),staff size (i) and the combined score of staff
and student body size (j). The measures of student body
size and staff size are interval level data and therefore
the Pearson Product Moment Correlation Coefficient was the

TABLE 10

Correlations for Complexity
with Combined Technological and
Programmatic Innovation

HORIZONTAL COMPLEXITY WITH COMBINED* INNOVATION

VARIABLE	n	M	SD	CORRELATION COEFFICIENT
HORIZONTAL COMPLEXITY	53	12.28	4.16	
				.1973NS
COMBINED* INNOVATION	53	16.49	5.40	

VERTICAL COMPLEXITY WITH COMBINED* INNOVATION

VARIABLE	n	M	SD	CORRELATION COEFFICIENT
VERTICAL COMPLEXITY	54	10.50	2.64	
				.3542**
COMBINED* INNOVATION	54	16.48	5.39	

COMBINED COMPLEXITY[b] WITH COMBINED* INNOVATION

VARIABLE	n	M	SD	CORRELATION COEFFICIENT
COMBINED COMPLEXITY[b]	52	26.77	15.22	
				.2342*
COMBINED* INNOVATION	52	29.05	16.93	

NS=Not Significant *=P$\leq$.05 **=P$\leq$.01 ***=P$\leq$.001
*COMBINED TECHNOLOGICAL AND PROGRAMMATIC INNOVATION
[b]COMBINED HORIZONTAL AND VERTICAL COMPLEXITY

statistic chosen for the analysis. The third measure was ordinal in nature and was therefore ranked for use with the Spearman Rho Correlation Coefficient. The research hypothesis was directional and therefore a one-tailed test was applied.

The first hypothesis stated that the relationship between size and the technological innovation reported will be positive (H_1: $r_{nx}>0$ or H_1: $r_{1x}>0$ or H_1: $r_{jx}>0$). The variable of student body size utilized 69 cases and produced a .0337 correlation coefficient, the student body size mean was 7746.36 and the standard deviation was 5407.75. The mean for technological innovation was 8.54 and the standard deviation was 3.15. This was not a significant finding and therefore did not support the research hypothesis. Student body size was not related to the technological innovation reported (see Table 11).

The second measure of size was the number of staff in the four areas under study. The number of cases entering this analysis was 51. The correlation coefficient was -.1068, the mean of staff size was 31.16 and the standard deviation was 13.77. The mean for technological innovation was 8.71 with a standard deviation of 3.26. This was not a significant finding and therefore did not support the research hypothesis. Staff size was not related to technological innovation reported. Not only was this

TABLE 11

Correlations for Size
with Technological Innovation

STUDENT BODY SIZE WITH TECHNOLOGICAL INNOVATION

VARIABLE	n	M	SD	CORRELATION COEFFICIENT
STUDENT BODY SIZE	69	7746.36	5407.85	.0337NS
TECHNOLOGICAL INNOVATION	69	8.54	3.15	

STAFF SIZE WITH TECHNOLOGICAL INNOVATION

VARIABLE	n	M	SD	CORRELATION COEFFICIENT
STAFF SIZE	51	31.16	13.77	-.1068NS
TECHNOLOGICAL INNOVATION	51	8.71	3.26	

COMBINED SIZE" WITH TECHNOLOGICAL INNOVATION

VARIABLE	n	M	SD	CORRELATION COEFFICIENT
COMBINED SIZE"	51	26.61	15.24	-.0898NS
TECHNOLOGICAL INNOVATION	51	36.15	20.39	

NS=Not Significant *=P$\leq$.05 **=P$\leq$.01 ***=P$\leq$.001
"COMBINED STUDENT BODY AND STAFF SIZE

finding not significant but the direction was inverse rather than positive (see Table 11).

The third measure of size was the combined size based on number of employees and student body size. This factor utilized 51 cases and produced a correlation coefficient of -.0898. The mean for combined size was 26.61 with a standard deviation of 15.24. The mean for technological innovation was 36.15 with a standard deviation of 20.39. This was not a significant finding and therefore did not support the research hypothesis. Combined student body size and staff size was not related to technological innovation reported. Again, this finding was not significant but was inverse in direction rather than positive. (see Table 11)

The second hypothesis was that the relationship between size and programmatic innovation reported would be positive ($H_1: r_{ny}>0$ or $H_1: r_{iy}>0$ or $H_1: r_{jy}>0$).

The student body size variable produced a correlation coefficient of .1918 based on 61 cases. The mean for the student body size was 7233.85 with a standard deviation of 4639.36. The mean for the programmatic innovation was 7.98 with a standard deviation of 3.29. The relationship was not significant and therefore did not support the research hypothesis. Student body size was not significantly related to programmatic innovation reported. Future researchers may be interested to note that the probability found was .069 (see Table 12).

TABLE 12

Correlations for Size
with Programmatic Innovation

STUDENT BODY SIZE WITH PROGRAMMATIC INNOVATION

VARIABLE	n	M	SD	CORRELATION COEFFICIENT
STUDENT BODY SIZE	61	7235.85	4639.36	.1918NS
PROGRAMMATIC INNOVATION	61	3.29	7.98	

STAFF SIZE WITH PROGRAMMATIC INNOVATION

VARIABLE	n	M	SD	CORRELATION COEFFICIENT
STAFF SIZE	52	31.11	13.64	.2315*
PROGRAMMATIC INNOVATION	52	7.75	3.27	

COMBINED SIZE" WITH PROGRAMMATIC INNOVATION

VARIABLE	n	M	SD	CORRELATION COEFFICIENT
COMBINED SIZE"	52	26.70	15.10	.2319*
PROGRAMMATIC INNOVATION	52	29.78	18.01	

NS=Not Significant   *=P$\leq$.05   **=P$\leq$.01   ***=P$\leq$.001
"COMBINED STUDENT BODY AND STAFF SIZE

The second measure of size, that of staff size was analysed with 52 cases. It produced a correlation coefficient of .2315. The staff size mean was 31.11 with a standard deviation of 13.64. The programmatic innovation mean was 7.75 with a standard deviation of 3.37. This was a significant finding at the .05 level. This finding supports the research hypothesis because there was a positive relationship between staff size and the programmatic innovation reported (see Table 12).

The third measure of size, the ranked combined sizes produced a correlation coefficient of .2319 based on 52 cases analysed. The combined student body and staff size mean was 26.70 with a standard deviation of 15.10. The programmatic innovation mean when ranked was 29.78 with a standard deviation of 18.01. This was a significant finding at the .05 level. This finding supports the research hypothesis because there was a positive relationship between combined student body and staff size with programmatic innovation reported. Future researchers may be interested to know that the exact probability found was .049 (see Table 12).

The third hypothesis stated that the relationship between size and combined technological and programmatic innovation reported would be positive (H_1: $r_{nx}>0$ or H_1: $r_{ix}>0$ or H_1: $r_{jx}>0$).

The first measure of student body size entered 57 cases into the analysis. They produced a .0885 correlation coefficient. The student body size mean was 7334.47 with a standard deviation of 4766.47. The combined technological and programmatic innovation mean was 16.44 with a standard deviation of 5.27. This was not a significant finding and the research hypothesis was not supported. No significant relationship was found between student body size and combined technological and programmatic innovation reported (see Table 13).

The second measure of size, staff size, utilized 51 cases for the analysis. The correlation coefficient was .0832. The mean for staff size was 31.16 with a standard deviation of 13.77. The mean for combined technological and programmatic innovation was 16.35 with a standard deviation of 5.49. This was not a significant finding and again the hypothesis was not supported. No significant relationship was found between staff size and combined technological and programmatic innovation reported (see Table 13).

The third measure of size, the combined variable entered 51 cases into the ranked analysis producing a .1091 correlation coefficient. The mean for the ranked combined size was 26.61 with a standard deviation of 15.24. The mean for combined technological and programmatic innovation was 28.71 and the standard deviation was 17.09. This finding was not significant and therefore did not support the

TABLE 13

Correlations for Size
with Combined Technological and
Programmatic Innovation

STUDENT BODY SIZE WITH COMBINED* INNOVATION

VARIABLE	n	M	SD	CORRELATION COEFFICIENT
STUDENT BODY SIZE	57	7334.47	4766.47	
				.0885NS
COMBINED* INNOVATION	57	16.44	5.27	

STAFF SIZE WITH COMBINED* INNOVATION

VARIABLE	n	M	SD	CORRELATION COEFFICIENT
STAFF SIZE	51	31.16	13.77	
				.0832NS
COMBINED* INNOVATION	51	16.35	5.49	

COMBINED SIZE[b] WITH COMBINED* INNOVATION

VARIABLE	n	M	SD	CORRELATION COEFFICIENT
COMBINED SIZE[b]	51	26.61	15.24	
				.1091NS
COMBINED* INNOVATION	51	28.71	17.09	

NS=Not Significant *=$P \leq .05$ **=$P \leq .01$ ***=$P \leq .001$
*COMBINED TECHNOLOGICAL AND PROGRAMMATIC INNOVATION
[b]COMBINED STUDENT BODY AND STAFF SIZE

research hypothesis. The measure of combined student body size and staff size was not positively related to combined technological and programmatic innovation (see Table 13).

The following six hypotheses were stated as research hypotheses and were tested with the multiple regression statistic. The first variable mentioned in the hypothesis was entered into the regression first, with the next following second, and if there was a third variable listed, it entered the equation third.

The first set of hypotheses involve the variables of professionalism, centralization and the three measures of innovation. All three of these measures are interval level data. The multiple regression was selected to calculate the predictability of the variables professionalism and centralization against the dependent variable of innovation.

The first hypothesis stated that professionalism and centralization together would predict technological innovation better than either professionalism or centralization alone. The regression produced no significant amount of predictability. R square change for professionalism was .0630 and for centralization .0016. Since both of these levels of change were so low the model was not supported. Professionalism and centralization together or separately were not good predictors of technological innovation (see Table 14).

TABLE 14

Multiple regression results
Professionalism and Centralization on
Technological Innovation

	PROFESSIONALISM ENTERED FIRST	CENTRALIZATION ENTERED SECOND
R SQUARE	.06297	.06454
R SQUARE CHANGE	.06297	.00158

Multiple Regression Results
Professionalism and Centralization on
Programmatic Innovation

	PROFESSIONALISM ENTERED FIRST	CENTRALIZATION ENTERED SECOND
R SQUARE	.00359	.00511
R SQUARE CHANGE	.00359	.00152

Multiple Regression Results
Professionalism and Centralization on
Combined Technological and Programmatic
Innovation

	PROFESSIONALISM ENTERED FIRST	CENTRALIZATION ENTERED SECOND
R SQUARE	.03348	.03750
R SQUARE CHANGE	.03348	.00402

The second hypothesis stated that professionalism and
centralization together would predict programmatic
innovation better than either professionalism or
centralization alone. The regression produced no
significant amount of predictability. R square change for
professionalism was .0036 and for centralization .0015.
Since both of these levels of change were so low the model
was not supported. Professionalism and centralization
together or separately were not good predictors of
technological innovation (see Table 14).

The third hypothesis stated that professionalism and
centralization together would predict combined technological
and programmatic innovation better than either
professionalism or centralization alone. The regression
produced no significant amount of predictability. R square
change for professionalism was .0335 and for centralization
.0040. Since both of these levels of change were so low
this model was not supported. Professionalism and
centralization together or separately were not good
predictors of technological innovation (see Table 14).

The first of these hypotheses stated that size,
complexity and centralization together would predict
technical innovation better than size, complexity or
centralization alone. The regression produced no
significant amount of predictability. This model was not
supported. See Table 15 for R square and R square change

TABLE 15

Multiple Regression Results
Student Body Size, Vertical Complexity and Centralization
on Technological Innovation

	STUDENT BODY SIZE ENTERED FIRST	VERTICAL COMPLEXITY SECOND	CENTRAL- IZATION THIRD
R SQUARE	.00543	.04680	.05244
R SQUARE CHANGE	.00543	.04138	.00563

Student Body Size, Horizontal Complexity and Centralization
on Technological Innovation

	STUDENT BODY SIZE ENTERED FIRST	HORIZONTAL COMPLEXITY SECOND	CENTRAL- IZATION THIRD
R SQUARE	.00372	.01554	.02325
R SQUARE CHANGE	.00372	.01182	.00771

Staff Size, Vertical Complexity and
Centralization
on Technological Innovation

	STAFF SIZE ENTERED FIRST	VERTICAL COMPLEXITY SECOND	CENTRAL- IZATION THIRD
R SQUARE	.01063	.11800	.13465
R SQUARE CHANGE	.01063	.10737	.01665

Staff Size, Horizontal Complexity and Centralization
on Technological Innovation

	STAFF SIZE ENTERED FIRST	HORIZONTAL COMPLEXITY SECOND	CENTRAL- IZATION THIRD
R SQUARE	.01125	.06429	.08652
R SQUARE CHANGE	.01125	.05304	.02223

values for student body and staff measures of size with horizontal and veritcal measures of complexity and centralization against technological innovation.

The second of these hypotheses state that size, complexity and centralization together would predict programmatic innovation better than size, complexity or centralization alone. The regression produced no significant amount of predictability. This model was not supported. See Table 16 for R square and R square change values for student body size, and staff size with horizontal and vertical measures of complexity and centraliation against programmatic innovation.

The third of these hypotheses stated that size, complexity and centralization together would predict combined technological and programmatic innovation better than size, complexity or centralization alone. The regression produced no significant amount of predictability. This model was not supported (see Table 17 for R square and R square change values for student body size and staff size measures of size with horizontal and vertical measures of complexity and centralization against combined technological and programmatic innovation).

The final three hypotheses compared the relationship between two correlations with the same variable. The relationship between complexity and each of the three innovation scores was compared with the relationship

TABLE 16

Multiple Regression Results
Student Body Size, Vertical Complexity and Centralization
on Programmatic Innovation

	STUDENT BODY SIZE ENTERED FIRST	VERTICAL COMPLEXITY SECOND	CENTRAL- IZATION THIRD
R SQUARE	.04103	.19838	.20026
R SQUARE CHANGE	.04103	.15735	.00188

Student Body Size, Horizontal Complexity and Centralization
on Programmatic Innovation

	STUDENT BODY SIZE ENTERED FIRST	HORIZONTAL COMPLEXITY SECOND	CENTRAL- IZATION THIRD
R SQUARE	.04448	.09120	.09128
R SQUARE CHANGE	.04448	.04673	.00008

Staff Size, Vertical Complexity and CEntralization
on Programmatic Innovation

	STAFF SIZE ENTERED FIRST	VERTICAL COMPLEXITY SECOND	CENTRAL- IZATION THIRD
R SQUARE	.05588	.20845	.21063
R SQUARE CHANGE	.05588	.15257	.00217

Staff Size, Horizontal Complexity and Centralization
on Programmatic Innovation

	STAFF SIZE ENTERED FIRST	HORIZONTAL COMPLEXITY SECOND	CENTRAL- IZATION THIRD
R SQUARE	.04893	.10612	.10616
R SQUARE CHANGE	.04893	.05719	.00004

TABLE 17

Multiple Regression Results
Student Body Size, Vertical Complexity and Centralization
on Combined Technological and Programmatic
Innovation

	STUDENT BODY SIZE ENTERED FIRST	VERTICAL COMPLEXITY SECOND	CENTRAL- IZATION THIRD
R SQUARE	.00688	.12595	.12624
R SQUARE CHANGE	.00688	.11907	.00029

Student Body Size, Horizontal Complexity and Centralization
on Combined Technological and Programmatic
Innovation

	STUDENT BODY SIZE ENTERED FIRST	HORIZONTAL COMPLEXITY SECOND	CENTRAL- IZATION THIRD
R SQUARE	.00917	.03314	.04439
R SQUARE CHANGE	.00917	.03314	.00208

Staff Size, Vertical Complexity and Centralization
on Combined Technological and Programmatic
Innovation

	STAFF SIZE ENTERED FIRST	VERTICAL COMPLEXITY SECOND	CENTRAL- IZATION THIRD
R SQUARE	.00787	.16296	.16512
R SQUARE CHANGE	.00787	.15508	.00216

Staff Size, Horizontal Complexity and Centralization
on Combined Technological and Programmatic
Innovation

	STAFF SIZE ENTERED FIRST	HORIZONTAL COMPLEXITY SECOND	CENTRAL- IZATION THIRD
R SQUARE	.00589	.06604	.07226
R SQUARE CHANGE	.00208	.00589	.06015

between centralization and the same innovation score. This
analysis is a comparison of correlations and was analyzed
with the t test for dependent samples. Fifty-two cases were
utilized in each of these analyses. Only the variables of
horizontal and vertical complexity were entered into the
analysis in order to have consistent coefficients for
analysis. For all of these hypotheses a $\underline{t}$ value of 1.671
was required.

The first of these hypotheses stated that the
relationship between complexity and technical innovation
would be greater than the relationship between
centralization and technical innovation. The correlations
involving vertical complexity resulted in $\underline{t}$=.442. Therefore
the research hypothesis was not supported. The relationship
between vertical complexity and technical innovation was not
significantly stronger than the relationship between
centralization and technological innovation.

The correlations involving horizontal complexity
resulted in $\underline{t}$=.434. This value also did not support the
research hypothesis. The relationship between horizontal
complexity and technological innovation was not
significantly stronger than the relationship between
centralization and technological innovation.

The second of these hypotheses state that the
relationship between complexity and programmatic innovation
would be greater than the relationship between

centralization and programmatic innovation. The
correlations involving vertical complexity resulted in
$\underline{t}$=.783. This value did not support the hypothesis. The
relationship between vertical complexity and programmatic
innovation was not significantly stronger than the
relationship between centralization and programmatic
innovation.

The correlations involving horizontal complexity
resulted in $\underline{t}$=.707. This value also did not support the
research hypothesis. The relationship between horizontal
complexity and programmatic innovation was not significantly
stronger than the relationship between centralization and
programmatic innovation.

The third of these hypotheses stated that the
relationship between complexity and combined technological
and programmatic innovation would be greater than the
relationship between centralization and combined
technological and programmatic innovation. The correlations
involving vertical complexity resulted in $\underline{t}$=.542. This
value did not support the research hypothesis. The
relationship between vertical complexity and combined
technological and programmatic innovation was not
significantly stronger than the relationship between
centralization and combined technological and programmatic
innovation.

The correlations involving horizontal complexity resulted in $\underline{t}$=.500. This value also did not support the research hypothesis. The relationship between horizontal complexity and combined technological and programmatic innovation was not significantly stronger than the relationship between centralization and combined technological and programmatic innovation.

CHAPTER 5

Summary, Conclusions and Recommendations

Summary

The purpose of this study was to explore the influence
individual and organizational factors exerted on
technological innovations, programmatic innovations and
combined technological and programmatic innovations.
Student affairs divisions in Comprehensive I status colleges
and universities constituted the administrative unit
examined. The two types of program innovations examined
were substance abuse prevention/education programs and
retention/academic support programs. The technological
innovations examined were financial aid computerized award
calculation and computerized career counseling. The
individual factors examined were professionalism, gender and
age of the chief student affairs officer. The
organizational factors were: vertical, horizontal and
combined complexity; centralization; and student body size, .
staff size, and combined size.

The method of study was survey. One hundred chief
student affairs officers were surveyed for responses about
their institutions' innovation and the factors being
studied. A seventy-six percent useable response rate was
attained.

The statistical analysis of the data was intended to determine significant differences in factors impacting technological innovation, programmatic innovation and combined programmatic and technological innovation. The statistical level of significance was set at .05. The study was undertaken because of an interest on the part of the researcher in the work on dual-core technology by Daft (1978) and the Kimberly and Evanisko (1981) study of organizational innovation in the administrative and technological cores of hospitals. One of the weaknesses of the Kimberly and Evanisko study was that only technological innovations were examined in the two cores. To explore this area more completely, this study examined both technological, programmatic and combined technological and programmatic innovations within the administrative core only.

The literature review produced the six factors to be examined. There were three individual factors, including, the age of the chief student affairs officer (CSAO), the gender of the CSAO, and the professionalism of the CSAO.

Age has been studied by several researchers as it relates to innovation (Rogers, 1962; Counte & Kimberly, 1974). An inverse relationship has been found and so was predicted for this study. This inverse relationship was supported when age was related to combined technological and programmatic innovation.

Gender as it relates to innovation has been studied but fewer researchers have used this as a variable. Baldridge and Burnham (1975) found that gender did not seem to be important in determining innovative behavior among people in complex organizations. This conclusion was supported since gender was not significantly related to innovation in this study. The direction was inverse, however implying that females tend to be more innovative but not significantly.

Professionalism has been studied several different ways as it relates to innovation. Kimberly and Evanisko (1981) found innovation adoption was positively affected by the hospital administrator's professionalism. Their study only looked at technological innovations, however. This study supports their finding because professionalism was positively related to technological innovation but adds a new perspective to it because professionalism was not related for either programmatic innovation or combined technological and programmatic innovation.

There were three organizational factors examined. They were centralization, complexity and size. Complexity was measured horizontally, vertically and by combining horizontal and vertical complexity. Size was measured as student body size, staff size and combined.

The review of the literature on organizational factors revealed that organizational factors are more influential on innovation within complex organizations than the individual

factors examined. They also pointed out that organic organizations support innovation more readily than do bureaucratic organization (Hage & Aiken, 1967; Baldridge & Burnham, 1975). One additional aspect of the review of literature with organizational variables was their interrelated nature (Hage & Aiken, 1967; Baldridge & Burnham, 1975; Kimberly & Evanisko, 1981).

Centralization generally has been found to support innovation. Thompson (1965) found that centralization prevents imaginative solutions to problems. Clark (1968) suggested similar concerns for higher education. Kimberly and Evanisko (1981) found centralization to be positively related to the adoption of administrative innovations even though the innovations were all technological in nature. This study did not support these researchers. There was no significant relationship between centralization and innovation found by this study. The direction was inverse, suggesting that the original studies (Hage & Aiken, 1967) related to organic organizations supporting innovation hold true.

Complexity was studied by Zaltman, Duncan, and Holbek (1973). They found that complexity resulted in increased proposals for innovation but decreased adoptions. Again, complexity appears to be an interrelated variable. Blau and McKinley (1979) found structural complexity impeded innovation. For predictive purposes however, this

researcher predicted with Lawrence and Lorsch (1967) who
stated that both differentiation (in terms of structural
units) and integration (in terms of coordinating mechanisms)
help promote innovation--the former by creating specialists
to seek new solutions, and the latter by providing
mechanisms for overcoming conflict. This research supported
this more traditional relationship. All three measures of
complexity, horizontal, vertical and combined were
positively related to programmatic innovation. Vertical and
combined horizontal and vertical complexity were positively
related to combined innovation.

Size has been studied often and is recognized generally
as an interrelated variable. Kimberly (1976) studied
measures for size and found staff size to be the most common
measure in research. Kimberly and Evanisko (1981) found
size to be the best predictor of adoption of innovation in
both cores of a hospital. The study being reported here
found this relationship was only significant when related to
programmatic innovation. Mohr (1969) reported size was not
associated with greater proportional innovation and
suggested that size only enhanced the organization's ability
to innovate rather than initiate innovation. This study
supports the relationship between size and innovation but
only when size is measured as staff size, or as combined
student body size and staff size, and then only with
programmatic innovation.

In brief the findings of this study were:

1. There was a significant relationship between professionalism and technological innovation. The more professional the chief student affairs officer was, the more technological innovation was reported.

2. There was a significant relationship between age and combined programmatic and technological innovation. The higher the age of the chief student affairs officer, the lower the level of combined technological and programmatic innovation was reported.

3. There was a significant relationship between complexity and programmatic innovation. The more complexity present, the more programmatic innovation was reported. This significance held across the three different measures of horizontal, vertical and combined complexity.

4. There was a significant relationship between combined and vertical complexity and combined technological and programmatic innovation. The more vertical or combined vertical and horizontal complexity , the more combined technological and programmatic innovation was reported.

5. There was a significant relationship between staff size and combined programmatic or programmatic innovation. The larger the staff size, the more programmatic innovation and combined technological and programmatic innovation was reported.

Conclusions

This research contributes to the body of knowledge about the relationship between specific organizational and individual variables as they relate to innovation. The findings suggest that original thoughts of the researcher that different kinds of innovation may require different types of individual and organization supports is appropriate. Specifically, innovations when examined as either technological or programmatic, do relate to different variables differently. This suggests that research should continue to examine innovation in separate components of technologically and programmatically.

Age was significantly related to combined technological and programmatic innovation inversely. This suggests the need for chief student affairs officers to attempt to remain young by "keeping up to date". It may be advisable to surround oneself with innovative staff as one ages, remembering to give them the latitude to innovate.

Gender though it was not significantly different, was directed toward women being more innovative and, being a woman, this was encouraging. Future researchers should continue to explore the relationship of gender with different kinds of innovations.

Professionalism was significantly related to technological innovation but not with the other innovations. This finding suggests that student affairs professionals

should seek to participate in conferences, workshops, and
training as well as maintain a healthy professional reading
habit.

Organizationally, centralization findings confirm that,
even in an administrative core operation such as student
affairs, innovation is linked with decentralization more
than with centralization. This supports the organic
organization as being one that innovates. For practical use
this implies that chief student affairs officers should
allow their staff as much freedom as possible to innovate
within their unit and jointly. This may be one time when
being the step child of the university pays off.
Specifically, if the other parts of the university are not
too interested in student affairs activities, we may have
the freedom to be one of the most innovative parts of the
university because we have fewer people to answer to and
therefore fewer roadblocks.

Complexity, or the number of levels and job titles
across the organization, produced significant results
suggesting that Lawrence and Lorsch's (1967) notion about
having specialists to innovate and mechanisms to handle the
resulting conflicts holds true for these innovations within
student affairs. This suggests that chief student affairs
officers ought to encourage their staff to present
innovations from their specialties and then devise systems
within the division to encourage the successful

institutionalization of some of these suggested innovations on a regular basis.

Size was significantly related to combined innovation suggesting that to be innovative in student affairs, one must have the staff with which to innovate. Chief student affairs officers should advocate regularly for more staff to benefit students. Perhaps one could see where student body size does not necessarily relate to innovation because staff is what is really needed. Maybe student affairs is not getting a proportionate share of the additional staff as the student body grows in size.

Additional conclusions relate to the kind of study undertaken. The researcher concludes that case study would have been more appropriate because of the interrelated nature of the factors impacting innovation and because of measurement problems. Specifically, wording questions to obtain exact responses in categories where there can be significant differences from campus to campus caused some problems. A self-report system for reporting a level of innovation is not assured of providing accurate information. Additionally, utilizing only one question for each innovation also limited the research.

Research into innovation is still at an exploratory stage because the phenomenon of innovation is so complex and the organizations that innovate are also complex. It is premature to suggest a regression model for innovation

based on only a few factors. Further research should continue to explore the factors examined in this study but should include others such as resources available and Levine's (1980) concept of boundary-spanning innovations.

Because some additional findings approached significance when the level was set at .05, further study with those variables is suggested. Specifically these findings were: professionalism with combined technological and programmatic innovation (.089); age with programmatic innovation (.054); vertical complexity with technological innovation (.105); horizontal complexity and combined technological and programmatic innovation (.078); and student body size with programmatic innovation (.069).

Recommendations

Further research with these factors and with the division between technological and programmatic innovations should be undertaken. Case study method ought to be employed. Other organizations besides student affairs should be studied. Studies should include both the administrative and the technical core or organizations. A replication of this study is not recommended because of potential measurement problems.

Further studies should consider the following aspects when undertaking studies of this nature:

1. Questions related to numbers of employees should have a system for accommodating temporary, part-time, job-sharing, volunteering, student workers and graduate assistants as employees.

2. One Level of Use scale may not be the best measure for assessing an innovation. Self-reporting of this variable adds potential biases.

3. Missing data ought to be analyzed when doing survey research in this area to determine if differences exist within institutions that did not report answers to specific responses.

4. Any study of this nature into different types of innovations within the same unit of a complex organization should make an attempt to be sure that all elements being examined are within the unit of study. This will avoid obtaining guessed responses when facts are sought.

5. Anytime a question about age is asked an exact response in years should be sought.

6. The word "innovation" shouldn't be used in conjunction with the study to avoid potential bias.

7. Case study method should be utilized.

8. The variable of programmatic innovations should have more development in operationalizion.

9. Factors being studied should be related to the stage in the innovation process that the particular innovation currently exists in.

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APPENDICES

APPENDIX A

Appendix A

Institutions selected by random sample for study

ALABAMA
Samford U
U of Montevallo
U of North Alabama

ALASKA
U of Alaska
 Anchorage

ARKANSAS
Henderson St U
U of Arkansas
 Pine Bluff

CALIFORNIA
California St U System
 Fullerton
 Northridge
 Humboldt St U
Saint Mary's C of California
U of Santa Clara

COLORADO
Fort Lewis C
 Denver

CONNECTICUT
Connecticut St U System
 Eastern Connecticut St U
 Western Connecticut St U
U of Bridgeport
U of Hartford

FLORIDA
State U System of Florida
 Florida A&M U
 Florida International U

GEORGIA
Armstrong St C
Augusta C
Kennesaw C
Valdosta St C

ILLINOIS
Eastern Illinois U
Governors St U
Lewis U
National Center of Ed
Northeastern Illinois U
Western Illinois U

INDIANA
Indiana St U
 Evansville Campus
Indiana U
 Northwest
U of Indianapolis
Valparaiso U

IOWA
U of Northern Iowa

KANSAS
Emporia St U

KENTUCKY
Bellarmine C
Eastern Kentucky U
Northern Kentucky U

MARYLAND
Morgan St U

MASSACHUSETTS
Assumption C
Massachusetts Board of Regents
 Bridgewater St C
 Fitchburg St C
Simmons C
University of Mass
 Boston
Worcester Poly Inst

MICHIGAN
Michigan Technological U
Northern Michigan U
Oakland U
Saginaw Valley St C
U of Detroit

MINNESOTA
St U System of Minnesota
 Bemidji St U
 Mankato St U
U of Minnesota
 Duluth

MISSOURI
Lincoln U
Missouri Southern St C
Southwest Missouri St U

NEBRASKA
Bellevue C
Creighton U

NEW JERSEY
Monmouth C
Trenton St C

NEW YORK
City University of New York
 Herbert H Lehman C
 Hunter C
 Queens C
 Brooklyn Campus
Mercy C
New York Inst of Tech
 Main Campus
 New York
Rochester Inst of Tech
 C at Oneonta
 C at Oswego

NORTH CAROLINA
U of North Carolina
 North Carolina A&T St U
Western Carolina U

OHIO
Wright St U
 Main Campus

PENNSYLVANIA
Marywood C
St System of Higher Ed
 California U of Penn
 Edinboro U of PA
 Kutztown U of PA
 Lock Haven U of PA
 Shippensburg U of PA
 Slippery Rock U of PA
Wilkes C
York C of Pennsylvania

RHODE ISLAND
Providence C

SOUTH CAROLINA
Citadel, Military C of SC

SOUTH DAKOTA
South Dakota St U

TENNESSEE
St U & CC System of Tenn
 Austin Peay St U
U of Tennessee
 Chattanooga

TEXAS
Abilene Christian U
Midwestern St U
Pan American U
Sam Houston St U
Southwest Texas St U
U System of South Texas
 Texas A&I U

VIRGINIA
Christopher Newport C
Liberty U
Longwood C

WISCONSIN
U of Wisconsin
 La Crosse

GUAM
U of Guam
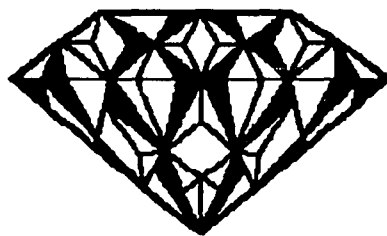
PUERTO RICO
International American U of
 Puerto Rico
U Metropolitana
U of Puerto Rico
 Mayaguez
U of the Sacred Heart

APPENDIX B

INNOVATION

in

Student Affairs

DEPARTMENT OF SUPERVISION AND ADMINISTRATION

P. 0. BOX 19000A

EAST TENNESSEE STATE UNIVERSITY

JOHNSON CITY, TN 37614

**This survey is designed to be completed by the
Chief Student Affairs Officer.**

A. Professional Activities
    The following six questions relate to some of your professional activities. Please circle the number next to the answer that best represents your situation.

1. What is the highest level of formal education you have completed?
    1. POST-DOCTORAL
    2. DOCTORAL
    3. MASTERS
    4. BACHELORS
    5. OTHER, PLEASE EXPLAIN_____

2. How many higher education institutions have you held professional positions in?
    1. ONE
    2. TWO
    3. THREE
    4. FOUR
    5. FIVE
    6. SIX OR MORE (IF MORE, HOW MANY?___)

    The next three questions relate to activities in the last two years. For purposes of this survey use activities since and including Fall 1987.

3. How many national professional conferences or workshops did you attend since and including Fall 1987? (Include national teleconferences in this category.)
    0. ZERO
    1. ONE
    2. TWO
    3. THREE
    4. FOUR OR MORE (IF MORE, HOW MANY?___)

4. How many local, regional or state professional conferences or workshops did you attend since and including Fall 1987?
    0. ZERO
    1. ONE
    2. TWO
    3. THREE
    4. FOUR OR MORE (IF MORE, HOW MANY?___)

5. How many staff development workshops did you attend since and including Fall 1987? (Include workshops sponsored by your division, or workshops provided by your institution.)
    0. ZERO
    1. ONE
    2. TWO
    3. THREE
    4. FOUR OR MORE (IF MORE, HOW MANY?___)

6. How many different professional newspapers, newsletters, or journals do you read regularly? Regularly should be interpreted as reading a majority of it each time it is published.
    0. ZERO
    1. ONE
    2. TWO
    3. THREE
    4. FOUR
    5. FIVE
    6. SIX OR MORE, HOW MANY?___)

B. Decision-making

The following questions have to do with decision-making within your organization. Who has the authority to decide the following? (Authority means that action can be taken on the decision even though the decision may be subject to routine ratification, rubber stamping, elsewhere.) Units refer to distinct functional areas within your organization such as a financial aid office, or career counseling operation. Please circle the number next to the answer that best represents your situation.

7. What is the lowest level a decision about promotion of a unit director can be made?
   1. COMMITTEE OR OTHER AGENT CONSIDERED WITHIN THE UNIT BUT NOT INCLUDING THE UNIT DIRECTOR
   2. UNIT DIRECTOR
   3. STUDENT AFFAIRS COMMITTEE OR OTHER AGENT CONSIDERED WITHIN STUDENT AFFAIRS BUT NOT INCLUDING THE CHIEF STUDENT AFFAIRS OFFICER
   4. CHIEF STUDENT AFFAIRS OFFICER
   5. COMMITTEE OR OTHER AGENT GENERALLY CONSIDERED OUTSIDE STUDENT AFFAIRS
   6. PRESIDENT OR CHIEF EXECUTIVE OFFICER
   7. GOVERNING BODY EXTERNAL TO THE CAMPUS

8. What is the lowest level a decision about hiring of a unit director can be made?
   1. COMMITTEE OR OTHER AGENT CONSIDERED WITHIN THE UNIT BUT NOT INCLUDING THE UNIT DIRECTOR
   2. UNIT DIRECTOR
   3. STUDENT AFFAIRS COMMITTEE OR OTHER AGENT CONSIDERED WITHIN STUDENT AFFAIRS BUT NOT INCLUDING THE CHIEF STUDENT AFFAIRS OFFICER
   4. CHIEF STUDENT AFFAIRS OFFICER
   5. COMMITTEE OR OTHER AGENT GENERALLY CONSIDERED OUTSIDE STUDENT AFFAIRS
   6. PRESIDENT OR CHIEF EXECUTIVE OFFICER
   7. GOVERNING BODY EXTERNAL TO THE CAMPUS

9. What is the lowest level a decision about starting a new program or service not requiring equipment or new personnel can be made?
   1. COMMITTEE OR OTHER AGENT CONSIDERED WITHIN THE UNIT BUT NOT INCLUDING THE UNIT DIRECTOR
   2. UNIT DIRECTOR
   3. STUDENT AFFAIRS COMMITTEE OR OTHER AGENT CONSIDERED WITHIN STUDENT AFFAIRS BUT NOT INCLUDING THE CHIEF STUDENT AFFAIRS OFFICER
   4. CHIEF STUDENT AFFAIRS OFFICER
   5. COMMITTEE OR OTHER AGENT GENERALLY CONSIDERED OUTSIDE STUDENT AFFAIRS
   6. PRESIDENT OR CHIEF EXECUTIVE OFFICER
   7. GOVERNING BODY EXTERNAL TO THE CAMPUS

10. What is the lowest level a decision about purchasing a piece of computer hardware can be made?
   1. COMMITTEE OR OTHER AGENT CONSIDERED WITHIN THE UNIT BUT NOT INCLUDING THE UNIT DIRECTOR
   2. UNIT DIRECTOR
   3. STUDENT AFFAIRS COMMITTEE OR OTHER AGENT CONSIDERED WITHIN STUDENT AFFAIRS BUT NOT INCLUDING THE CHIEF STUDENT AFFAIRS OFFICER
   4. CHIEF STUDENT AFFAIRS OFFICER
   5. COMMITTEE OR OTHER AGENT GENERALLY CONSIDERED OUTSIDE STUDENT AFFAIRS
   6. PRESIDENT OR CHIEF EXECUTIVE OFFICER
   7. GOVERNING BODY EXTERNAL TO THE CAMPUS

11. What is the lowest level a decision about making a budgeted purchase of $500.00 or less can be made?
   1. COMMITTEE OR OTHER AGENT CONSIDERED WITHIN THE UNIT BUT NOT INCLUDING THE UNIT DIRECTOR
   2. UNIT DIRECTOR
   3. STUDENT AFFAIRS COMMITTEE OR OTHER AGENT CONSIDERED WITHIN STUDENT AFFAIRS BUT NOT INCLUDING THE CHIEF STUDENT AFFAIRS OFFICER
   4. CHIEF STUDENT AFFAIRS OFFICER
   5. COMMITTEE OR OTHER AGENT GENERALLY CONSIDERED OUTSIDE STUDENT AFFAIRS
   6. PRESIDENT OR CHIEF EXECUTIVE OFFICER
   7. GOVERNING BODY EXTERNAL TO THE CAMPUS

12. What is the lowest level a decision about making a budgeted purchase of $501.00 to $1,000.00 can be made?
   1. COMMITTEE OR OTHER AGENT CONSIDERED WITHIN THE UNIT BUT NOT INCLUDING THE UNIT DIRECTOR
   2. UNIT DIRECTOR
   3. STUDENT AFFAIRS COMMITTEE OR OTHER AGENT CONSIDERED WITHIN STUDENT AFFAIRS BUT NOT INCLUDING THE CHIEF STUDENT AFFAIRS OFFICER
   4. CHIEF STUDENT AFFAIRS OFFICER
   5. COMMITTEE OR OTHER AGENT GENERALLY CONSIDERED OUTSIDE STUDENT AFFAIRS
   6. PRESIDENT OR CHIEF EXECUTIVE OFFICER
   7. GOVERNING BODY EXTERNAL TO THE CAMPUS

13. What is the lowest level a decision about making a budgeted purchase of $1001.00 to $5,000.00 can be made?
   1. COMMITTEE OR OTHER AGENT CONSIDERED WITHIN THE UNIT BUT NOT INCLUDING THE UNIT DIRECTOR
   2. UNIT DIRECTOR
   3. STUDENT AFFAIRS COMMITTEE OR OTHER AGENT CONSIDERED WITHIN STUDENT AFFAIRS BUT NOT INCLUDING THE CHIEF STUDENT AFFAIRS OFFICER
   4. CHIEF STUDENT AFFAIRS OFFICER
   5. COMMITTEE OR OTHER AGENT GENERALLY CONSIDERED OUTSIDE STUDENT AFFAIRS
   6. PRESIDENT OR CHIEF EXECUTIVE OFFICER
   7. GOVERNING BODY EXTERNAL TO THE CAMPUS

C. Career Counseling
   The following questions relate to the functional area of career counseling at your institution. The specific innovation under consideration is computerized career counseling. Please answer the following questions to the best of your ability even if this unit is not one that reports to you. You may need to call the unit for some information if the unit is not one that reports to you. Circle your answer.

14. Does the career counseling unit report to you?
    1. YES
    2. NO
    3. OTHER, PLEASE EXPLAIN_____

    _____

15. How many vertical levels are there from the lowest to the highest level in the career counseling unit? Do not include student workers or graduate assistants only full-time and part-time employees. (Example: Secretary reports to counselor who reports to director would be three levels.)
    1. ONE
    2. TWO
    3. THREE
    4. FOUR
    5. FIVE
    6. SIX OR MORE (IF MORE, HOW MANY?____)

16. How many different job titles exist in the career counseling unit?
    1. ONE
    2. TWO
    3. THREE
    4. FOUR
    5. FIVE
    6. SIX OR MORE (IF MORE, HOW MANY?____)

17. How many full-time employees work in the career counseling unit?
    0. ZERO
    1. LESS THAN ONE (PERSON HAS OTHER RESPONSIBILITIES)
    2. ONE
    3. TWO
    4. THREE
    5. FOUR
    6. FIVE
    7. SIX
    8. SEVEN
    9. EIGHT
    10. NINE
    11. TEN
    12. ELEVEN
    13. TWELVE
    14. THIRTEEN OR MORE (IF MORE, HOW MANY?____)

18. How many part-time employees work in the career counseling unit? Include student workers, graduate assistants, academic interns, peer counselors, retired staff, and volunteers.
    0. ZERO
    1. ONE
    2. TWO
    3. THREE
    4. FOUR
    5. FIVE
    6. SIX
    7. SEVEN
    8. EIGHT
    9. NINE
    10. TEN
    11. ELEVEN
    12. TWELVE OR MORE (IF MORE, HOW MANY?___)

19. Where would you place the career counseling unit at your institution on the continuum below. This scale relates to the level of computerization in career counseling. Computerized career counseling can be accomplished by using a commercially designed system such as DISCOVER, SIGI or one designed by the state or internally at your institution. Circle the number corresponding to your answer.

    0. THEY HAVE LITTLE OR NO KNOWLEDGE OF COMPUTERIZED CAREER COUNSELING, NO INVOLVEMENT WITH COMPUTERIZED CAREER COUSELING AND ARE DOING NOTHING TOWARD BECOMING IN-VOLVED WITH IT.

    1. THEY ARE ACQUIRING OR HAVE ACQUIRED INFORMATION ABOUT COMPUTERIZED CAREER COUNSELING AND/OR HAVE EXPLORED OR ARE EXPLORING ITS VALUE AND ITS DEMANDS UPON USER AND USER SYSTEMS.

    2. THEY ARE PREPARING FOR FIRST USE OF COMPUTERIZED CAREER COUNSELING.

    3. THEY ARE USING COMPUTERIZED CAREER COUNSELING BUT ARE STILL WORKING THE PROBLEMS OUT.

    4. THEY HAVE STABILIZED IN THEIR USE OF COMPUTERIZED CAREER COUNSELING. FEW IF ANY CHANGES ARE BEING MADE IN ONGOING USE. LITTLE PREPARATION OR THOUGHT IS BEING GIVEN TO IM-PROVING THE USE.

    5. THEY ARE VARYING THE USE OF THE SYSTEM TO INCREASE THE IMPACT ON STUDENTS.

    6. THEY ARE COMBINING THEIR EFFORTS TO USE COMPUTERIZED CAREER COUNSELING WITH RELATED ACTIVITIES OR COLLEAGUES TO ACHIEVE A COLLECTIVE IMPACT ON STUDENTS.

    7. THEY REEVALUATE THE QUALITY OF USE OF COMPUTERIZED CA-REER COUNSELING, SEEK MAJOR MODIFICATIONS TO INCREASE IMPACT ON STUDENTS, EXAMINE NEW DEVELOPMENTS IN THE FIELD AND EXPLORE NEW GOALS FOR THEMSELVES AND THE SYSTEM.

D. Financial Aid

The following questions relate to the functional area of financial aid at your institution. The specific innovation under consideration is computerized award calculation. Please answer the following questions to the best of your ability even if this unit is not one that reports to you. You may need to call the unit for some information if the unit is not one that reports to you. Circle your answer.

20. Does the financial aid unit report to you?
    1. YES
    2. NO
    3. OTHER, PLEASE EXPLAIN_____

    _____

21. How many vertical levels are there from the lowest level to the highest level in the financial aid unit? Do not include student workers or graduate assistants, only full-time and part-time employees. (Example: Secretary reports to counselor who reports to director would be three levels.) Circle your answer.
    1. ONE
    2. TWO
    3. THREE
    4. FOUR
    5. FIVE
    6. SIX OR MORE (IF MORE, HOW MANY?___)

22. How many different job titles exist in the financial aid unit?
    1. ONE
    2. TWO
    3. THREE
    4. FOUR
    5. FIVE
    6. SIX OR MORE (IF MORE, HOW MANY?___)

23. How many full-time employees work in the financial aid unit?
    0. ZERO
    1. LESS THAN ONE (PERSON HAS OTHER RESPONSIBILITIES)
    2. ONE
    3. TWO
    4. THREE
    5. FOUR
    6. FIVE
    7. SIX
    8. SEVEN
    9. EIGHT
    10. NINE
    11. TEN
    12. ELEVEN
    13. TWELVE
    14. THIRTEEN OR MORE (IF MORE, HOW MANY?___)

24. How many part-time employees work in the financial aid unit? Include student work-ers, graduate assistants, academic interns, peer counselors, retired staff and volunteers.
    0. ZERO
    1. ONE
    2. TWO
    3. THREE
    4. FOUR
    5. FIVE
    6. SIX
    7. SEVEN
    8. EIGHT
    9. NINE
    10. TEN
    11. ELEVEN
    12. TWELVE OR MORE (IF MORE, HOW MANY?___)

25. Where would you place the financial aid unit at your institution on the continuum below. This scale relates to the level of computerization in calculating financial aid awards and notifying applicants of their status. This calculation can be accomplished using a commercially designed system such as the FAMS from Information Associates, the SAM system from SIGMA, or one designed internally at your institution. Circle the number corresponding to your answer.

    0. THEY HAVE LITTLE OR NO KNOWLEDGE OF COMPUTERIZED AWARD CALCULATION, NO INVOLVEMENT WITH COMPUTERIZED CALCULA-TION AND ARE DOING NOTHING TOWARD BECOMING INVOLVED WITH IT.

    1. THEY ARE ACQUIRING OR HAVE ACQUIRED INFORMATION ABOUT COMPUTERIZED AWARD AND/OR HAVE EXPLORED OR ARE EXPLOR-ING ITS VALUE AND ITS DEMANDS UPON USER AND USER SYSTEMS.

    2. THEY ARE PREPARING FOR FIRST USE OF COMPUTERIZED AWARD CALCULATION.

    3. THEY ARE USING COMPUTERIZED AWARD CALCULATION BUT ARE STILL WORKING THE PROBLEMS OUT.

    4. THEY HAVE STABILIZED IN THEIR USE OF COMPUTERIZED AWARD CALCULATION. FEW IF ANY CHANGES ARE BEING MADE IN ONGO-ING USE. LITTLE PREPARATION OR THOUGHT IS BEING GIVEN TO IMPROVING THE USE.

    5. THEY ARE VARYING THE USE OF THE SYSTEM TO INCREASE THE IMPACT ON APPLICANTS.

    6. THEY ARE COMBINING THEIR EFFORTS TO USE COMPUTERIZED AWARD CALCULATION WITH RELATED ACTIVITIES OF COLLEAGUES TO ACHIEVE A COLLECTIVE IMPACT ON APPLICANTS.

    7. THEY REEVALUATE THE QUALITY OF USE OF COMPUTERIZED AWARD CALCULATION, SEEK MAJOR MODIFICATIONS TO INCREASE IMPACT ON APPLICANTS, EXAMINE NEW DEVELOPMENTS IN THE FIELD AND EXPLORE NEW GOALS FOR THEMSELVES AND THE SYSTEM.

E. Substance Abuse Prevention
    The following questions relate to the functional area of substance abuse prevention/
education for students or the unit that provides this program/service at your institution. The
specific innovation under consideration is substance abuse prevention program delivery.
Please answer the following questions to the best of your ability even if this unit is not one
that reports to you. Circle your answer.

26. Does the unit that provides substance abuse prevention/education report to you?
     1. YES
     2. NO
     3. OTHER, PLEASE EXPLAIN_____

     _____

27. How many vertical levels are there from the lowest level to the highest level in the unit
     that provides substance abuse prevention/education? Do not include student workers or
     graduate assistants only full-time and part-time employees. (Example: Secretary
     reports to educator who reports to director would be three levels.)
     1. ONE
     2. TWO
     3. THREE
     4. FOUR
     5. FIVE
     6. SIX OR MORE (IF MORE, HOW MANY?____)

28. How many different job titles exist in the unit that provides substance abuse preveniton/
     education?
     1. ONE
     2. TWO
     3. THREE
     4. FOUR
     5. FIVE
     6. SIX OR MORE (IF MORE, HOW MANY?____)

29. How many full-time employees work in the unit that provides substance abuse preven-
     tion/education?
     0. ZERO
     1. LESS THAN ONE (PERSON HAS OTHER RESPONSIBILITIES)
     2. ONE
     3. TWO
     4. THREE
     5. FOUR
     6. FIVE
     7. SIX
     8. SEVEN
     9. EIGHT
     10. NINE
     11. TEN
     12. ELEVEN
     13. TWELVE
     14. THIRTEEN OR MORE (IF MORE, HOW MANY?___)

30. How many part-time employees work in the substance abuse prevention/education unit? Include student workers, graduate assistants, academic interns, peer counselors, retired staff and volunteers.
    0. ZERO
    1. ONE
    2. TWO
    3. THREE
    4. FOUR
    5. FIVE
    6. SIX
    7. SEVEN
    8. EIGHT
    9. NINE
    10. TEN
    11. ELEVEN
    12. TWELVE OR MORE (IF MORE, HOW MANY?___)

31. Where would you place the substance abuse prevention/education program/service at your institution on the continuum below. This scale relates to the level of prevention/ education being provided to your students. Substance abuse prevention/education can be accomplished using BACCHUS, alcohol distributors education programs or internally designed programs. Circle the number corresponding to your answer.

    0. THEY HAVE LITTLE OR NO KNOWLEDGE OF PREVENTION/EDUCA-TION, NO INVOLVEMENT WITH PREVENTION/EDUCATION AND ARE DOING NOTHING TOWARD BECOMING INVOLVED WITH IT.

    1. THEY ARE ACQUIRING OR HAVE ACQUIRED INFORMATION ABOUT PREVENTION/EDUCATION AND/OR HAVE EXPLORED OR ARE EXPLOR-ING ITS VALUE AND ITS DEMANDS UPON USER AND USER SYSTEMS.

    2. THEY ARE PREPARING FOR FIRST USE OF PREVENTION/EDUCATION.

    3. THEY ARE USING PREVENTION/EDUCATION BUT ARE STILL WORKING THE PROBLEMS OUT.

    4. THEY HAVE STABILIZED IN THEIR USE OF PREVENTION/EDUCATION. FEW IF ANY CHANGES ARE BEING MADE IN ONGOING USE. LITTLE PREPARATION OR THOUGHT IS BEING GIVEN TO IMPROVING THE USE.

    5. THEY ARE VARYING THE USE OF PREVENTION/EDUCATION TO IN-CREASE THE IMPACT ON STUDENTS. VARIATIONS ARE BASED ON KNOWLEDGE OF CONSEQUENCES FOR STUDENTS.

    6. THEY ARE COMBINING THEIR EFFORTS TO USE PREVENTION/EDUCA-TION WITH RELATED ACTIVITIES OF COLLEAGUES TO ACHIEVE A COLLECTIVE IMPACT ON APPLICANTS.

    7. THEY REEVALUATE THE QUALITY OF USE OF PREVENTION/EDUCA-TION, SEEK MAJOR MODIFICATIONS TO INCREASE IMPACT ON STU-DENTS, EXAMINE NEW DEVELOPMENTS IN THE FIELD AND EXPLORE NEW GOALS FOR THEMSELVES AND THE SYSTEM.

F.   Retention/Academic Support Services

The following questions relate to the functional area that provides retention/academic support services. The specific innovation under consideration is an effort designed to retain students. This is considered a program and is not necessarily related to computerization. Please answer the following questions to the best of your ability even if this unit is not one that reports directly to you. You may need to call the unit for some information if the unit is not one that reports to you. Circle your answer.

32.   Does the unit that provides retention/academic support services report to you?
   1.   YES
   2.   NO
   3.   OTHER, PLEASE EXPLAIN_____

   _____

33.   How many vertical levels are there from the lowest level to the highest level in the retention/academic support service unit? Do not include student workers or graduate assistants only full-time and part-time employees. (Example: Secretary reports to academic advisor who reports to director would be three levels.)
   1.   ONE
   2.   TWO
   3.   THREE
   4.   FOUR
   5.   FIVE
   6.   SIX OR MORE (IF MORE, HOW MANY?____)

34.   How many different job titles exist in the retention/academic support service unit?
   1.   ONE
   2.   TWO
   3.   THREE
   4.   FOUR
   5.   FIVE
   6.   SIX OR MORE (IF MORE, HOW MANY?____)

35.   How many full-time employees work in the retention/academic support service unit?
   0.   ZERO
   1.   LESS THAN ONE (PERSON HAS OTHER RESPONSIBILITES)
   2.   ONE
   3.   TWO
   4.   THREE
   5.   FOUR
   6.   FIVE
   7.   SIX
   8.   SEVEN
   9.   EIGHT
   10.   NINE
   11.   TEN
   12.   ELEVEN
   13.   TWELVE
   14.   THIRTEEN OR MORE (IF MORE, HOW MANY?____)

36. How many part-time employees work in the retention/academic support service unit? Include student workers, graduate assistants, academic interns, peer counselor, retired staff and volunteers.
    0. ZERO
    1. ONE
    2. TWO
    3. THREE
    4. FOUR
    5. FIVE
    6. SIX
    7. SEVEN
    8. EIGHT
    9. NINE
    10. TEN
    11. ELEVEN
    12. TWELVE OR MORE (IF MORE, HOW MANY?___)

37. Where would you place the retention/academic support service unit at your institution on the continuum below. This scale relates to the level of retention/academic support being provided to students. Retention/academic support services can be commercially produced or internally developed programs. Circle the number corresponding to your answer.

    0. THEY HAVE LITTLE OR NO KNOWLEDGE OF RETENTION/ACADEMIC SUPPORT SERVICE, NO INVOLVEMENT WITH PROVIDING SUCH AND ARE DOING NOTHING TOWARD BECOMING INVOLVED WITH IT.

    1. THEY ARE ACQUIRING OR HAVE ACQUIRED INFORMATION ABOUT RETENTION/ ACADEMIC SUPPORT SERVICES AND/OR HAVE EX-PLORED OR ARE EXPLORING ITS VALUE AND ITS DEMANDS UPON USER AND USER SYSTEMS.

    2. THEY ARE PREPARING FOR FIRST USE OF RETENTION/ACADEMIC SUPPORT SERVICES.

    3. THEY ARE PROVIDING RETENTION/ACADEMIC SUPPORT SERVICES BUT ARE STILL WORKING THE PROBLEMS OUT.

    4. THEY HAVE STABILIZED IN THEIR USE OF RETENTION/ACADEMIC SUPPORT SERVICES. FEW IF ANY CHANGES ARE BEING MADE IN ONGOING USE. LITTLE PREPARATION OR THOUGHT IS BEING GIVEN TO IMPROVING THE SERVICE.

    5. THEY ARE VARYING THE SERVICE TO INCREASE THE IMPACT ON APPLICANTS. VARIATIONS ARE BASED ON KNOWLEDGE OR CONSE-QUENCES FOR STUDENTS.

    6. THEY ARE COMBINING THEIR EFFORTS TO USE RETENTION/ACA-DEMIC SUPPORT SERVICES WITH RELATED ACTIVITIES OF COL-LEAGUES TO ACHIEVE A COLLECTIVE IMPACT ON APPLICANTS.

    7. THEY REEVALUATE THE QUALITY OF USE OF RETENTION/ACA-DEMIC SUPPORT SERVICES, SEEK MAJOR MODIFICATIONS TO IN-CREASE IMPACT ON STUDENTS, EXAMINE NEW DEVELOPMENTS IN THE FIELD AND EXPLORE NEW GOALS FOR THEMSELVES AND THE SYSTEM.

G. Personal
    The following questions relate to the age and gender of the Chief Student Affairs Officer.
Circle the number corresponding to the correct answer and fill in the blank if appropriate.

38. What was your age in years on your last birthday?
     1.   35 or younger
     2.   36-40
     3.   41-45
     4.   46-50
     5.   51-55
     6.   56-60
     7.   61-65
     8.   66 or older

39. What is your gender?
     1.   MALE
     2.   FEMALE

40. What is your race?
     1.   AFRO-AMERICAN/BLACK
     2.   AMERICAN INDIAN, ALASKAN NATIVE
     3.   CAUCASIAN-AMERICAN/WHITE
     4.   MEXICAN-AMERICAN/CHICANO
     5.   ASIAN-AMERICAN, ORIENTAL, PACIFIC ISLANDER
     6.   PUERTO RICAN, CUBAN, OTHER HISPANIC ORIGIN
     7.   OTHER

41. How many years have you been at your present institution?
     0.   LESS THAN ONE YEAR
     1.   NUMBER OF YEARS _____

42. How many years have you been in the Student Affairs profession?
     0.   LESS THAN ONE YEAR
     1.   NUMBER OF YEARS _____

H. Comments

43. Is there anything else you would like to tell me about innovation in student affairs? Do you want to make any comments about what factors you feel are crucial to innovation in terms of structure, decision-making or professionalism of the Chief Student Affairs Officer? If so, please use this space for that purpose.

Also, any comments you wish to make that you think may help us in future efforts to understand what factors impact innovation within student affairs will be appreciated, either here or in a separate letter.

Your contribution to this effort is very greatly appreciated.
If you would like a summary of results, please print your name and address on the back of the return envelope (NOT on this questionnaire). I will see that you receive it.

APPENDIX C

January 10, 1989

Dr. John Doe
Vice President for Student Affairs
State University, USA
100 Main Street
Anyplace, USA 00000

Dear Dr. Doe,

Innovation is becoming more important in universities and specifically
Student Affairs programs and operations. Most student affairs
professionals are interested in providing programs and services
effectively utilizing those innovations available to them. When
utilizing an innovation organizational literature lacks certain
information. The enclosed survey should provide more information for
innovating within our organizations.

You are one of a small number of chief student affairs officers being
asked to provide your response. Your institution was drawn in a random
sample of all similar institutions in the United States. In order that
the results will truly represent the thinking of chief student affairs
officers, it is important that each questionnaire be completed and
returned.

You may be assured of complete confidentiality. The questionnaire has
an identification number for follow-up purposes only. This is so your
name can be checked off of the mailing list when your survey is
returned. Your name will never be placed on the questionnaire.

The results of this research will be made available to student affairs
professionals and others interested in organizational innovation. You
may receive a summary of the results by writing "copy of results
requested" on the back of the return envelope, and printing your name
and address below it. Please do not put this information on the
questionnaire itself.

I would be most happy to answer any questions you might have. Please
write or call. The telephone number is (615) 929-4210.

Thank you for your assistance.

                         Sincerely,

                         Sally S. Thomas
                         Doctoral Student

APPENDIX D

Jan. 17, 1989

Last week a questionnaire seeking your response about innovation in student affairs was mailed to you. Your name was drawn in a random sample of Chief Student Affairs Officers at Comprehensive I institutions in the U.S.

If you have already completed and returned it to me please accept my sincere thanks. If not, please do so today. Because it has been sent to only a small, but representative sample of Comprehensive I Chiefs it is extremely important that yours be included in the study if the results are to be accurate.

If by some chance you did not receive the questionnaire, or it got misplaced, please call me right now, (615-929-4210) and I will get another one in the mail to you today.

Sincerely,

Sally S. Thomas
Doctoral Student

APPENDIX E

January 28, 1989

Dr. John Doe
Vice President for Student Affairs
State University, USA
100 Main Street
Anyplace, USA 0000

Dear Dr. Doe,

About three weeks ago I wrote to you seeking your response on various factors affecting innovation in student affairs. As of today I have not yet received your completed questionnaire.

The large number of questionnaires returned is very encouraging. But, whether we will be able to describe accurately the factors impacting innovation in student affairs depends upon you and the others who have not yet responded. Previous research indicates that those of you who have not yet sent in your questionnaire may provide quite different responses than those who have. Your name was drawn through a random sample thereby requiring nearly a one hundred percent response rate for the results to be accurate. Please know that your response is therefore very important to our profession of student affairs if we are going to have accurate information in this new area.

Others who have completed the instrument required less than 12 minutes to do so. May I urge you to complete and return it as quickly as possible. In the event that your questionnaire has been misplaced, a replacement is enclosed.

If you have returned the questionnaire, let me thank you for your support. Please ignore this plea for your questionnaire if your response and my appeal crossed in the mails.

I'll be happy to send you a copy of the results if you want one. Simply put your name, address, and "copy of the results requested" on the back of the return envelope.

Your contribution to the success of this study will be appreciated greatly.

Most sincerely,

Sally S. Thomas
Doctoral student

VITA

SALLY STRAWINSKI THOMAS

Education: Virginia Polytechnic Institute and State
                    University, Blacksburg, Virginia;
                    Management, Housing and Family
                    Development, B.S., 1974
                    Virginia Polytechnic Institute and State
                    University, Blacksburg, Virginia;
                    Educational Counseling and Student
                    Personnel Services, M.Ed., 1975

Professional
Experience: Regional DWI Program Coordinator for Upper
                    East Tennessee Council on Alcoholism and
                    Drug Dependance; Kingsport, Tennessee,
                    September 1975-August 1976
                    Regional Training Coordinator for Upper
                    East Tennessee Council on Alcoholism and
                    Drug Dependance; Kingsport, Tennessee,
                    August 1976-August 1978
                    Student Development Coordinator; East
                    Tennessee State University; Johnson City,
                    Tennessee, August 1978-January 1981
                    Assistant Dean of Student Affairs, East
                    Tennessee State University; Johnson City,
                    Tennessee, March 1982-present

Professional
Organizations: Member, Association of Fraternity Advisors,
                    1984 Tennessee State Coordinator, 1985
                    Presented session at National Conference
                    on Fraternity Scholarship
                    Member of National Association of Student
                    Personnel Administrators
                    Past Member of American Higher Education
                    Association (1988)
                    Past member of National Association of
                    Women, Deans, Administrators and
                    Counselors
                    Past member of Southern Association of
                    Student Affairs
                    Participant in Interfraternity Institute
                    (1984)
                    National Interfraternity Conference
                    Consultant

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Honors: First recipient of National Order of Omega
      scholarship (1988)
Honorary member of Alpha Lambda Delta,
      freshman academic honorary
Outstanding Young Woman in America (1979)
Member of Kappa Delta Pi, education
      honorary
Honorary member of Rho Lambda, national
      greek women's honorary
Honorary member of Order of Omega, national
      greek honorary
Honorary member of Omicron Delta Kappa,
      national leadership honorary