A Study to Determine the Relationship between the Amount of Innovation Present in an Organization and the Governance Structure of the Organization

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A STUDY TO DETERMINE THE RELATIONSHIP BETWEEN THE AMOUNT OF INNOVATION PRESENT IN AN ORGANIZATION AND THE GOVERNANCE STRUCTURE OF THE ORGANIZATION

by

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A Dissertation Submitted to the Faculty of The Graduate College in partial fulfillment of the requirements for the Degree of Doctor of Education Department of Educational Leadership

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Patricia M. Bauhs, Ed.D.
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As higher education administrators examine the applicability of management principles to education, the management of innovation comes into focus. This study was concentrated on the relationship between concern for innovation and other variables, namely: "Institutional Esprit," "Meeting Local Needs," "Self-Study and Planning," "Democratic Governance," and organization size. Relationships examined were based on perceptions of two groups--faculty and administrators--compared over a 12-year time period divided into two discrete, 6-year periods.

Ex post facto data from six systems (public universities, private universities, liberal arts colleges, state four-year colleges, community colleges, and private junior colleges) were purchased from the Educational Testing Service. Data resulted from institutional administrations of the Institutional Functioning Inventory.

The population included U.S. higher education institutions categorized in each of the six systems. The self-selected sample included those institutions that administered the IFI during the 12-year period.
Methods of analysis used were the Pearson product-moment correlation coefficient, the $t$ test, the correlated $t$ test, and a descriptive rank order of scores. Since data were unavailable for private junior colleges and state four-year colleges for the later test administration, means were based on data from 1971-1976. Means for the remaining four systems were based on data from 1971-1982.

Results of testing the hypotheses indicated that Concern for Innovation was strongly supported by Institutional Esprit and by Self-Study and Planning; Democratic Governance tended to be a facilitator of innovation, while Meeting Local Needs was a positive though not significant factor. In addition, administrators as a group scored significantly higher on Concern for Innovation and Democratic Governance than did faculty members.

Of the systems examined, liberal arts colleges scored higher on Concern for Innovation than all other systems combined. Community colleges, compared with all other systems, also reported highly significant Concern for Innovation. Public universities and private universities each reported a highly significant but negative relationship to Concern for Innovation.

Finally, of all variables examined for all systems, the mean scores for Advancement of Knowledge indicated least concern. Aggregate system data were found to
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I would like to acknowledge the support and assistance I have received from the members of the staff of the Department of Educational Leadership during this project. Dr. Hal Boles, my committee chairperson, has been a mentor and friend; from him I have learned the value of true scholarship.

Without the unquestioning support of my husband, Tom, the goal of this three-year endeavor could never have been achieved. I am forever indebted, forever grateful. I also wish to express my thanks to my elder son, Jeffrey James, whose love and pride of accomplishment have been inspiring, and to my younger son, Timothy, whose sense of perspective has helped balance my own.

This report is humbly dedicated to my entire family, with love and devotion, for the strength which it has given me and the hope and comfort I continue to derive from it.

Patricia M. Bauhs
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CHAPTER I

THE PROBLEM AND ITS BACKGROUND

Statement of the Problem

Changing environmental conditions may necessitate managerial innovations in an effort to attain institutional goals to solve the problems seen by managers and to ensure institutional survival. In order to help ensure successful innovation in an organization, it is necessary that managers be aware of elements which may facilitate or inhibit adoption of and concern for innovation.

The four primary goals of an organization are organization maintenance, productivity, innovation, and want satisfiers, according to Boles (1980, p. 123). These become key elements in the leadership process. Since there is general acceptance that organizational climate is directly correlated with the level of productivity in an organization (Miles, 1964), it was hypothesized that climate, of which governance structure is an important component, also is an element of innovation as part of the leadership process. What is the relationship between the type of governance structure in an organization and the level of concern for innovation exhibited by the
organization? The relationship of governance structure to level of concern for innovation or level of innovative activity present in an organization has not been previously investigated insofar as the present investigator was able to ascertain.

Background of the Problem

The innovation process itself requires change which, in turn, may impinge on the domains of individual members of the organization in any of several ways (Bennis, Benne, & Chin, 1961; Rogers, 1962). Some writers contend that innovation cannot occur successfully if members see change as a negative occurrence and do not support the innovation (Drucker, 1980). However, if members view change in a positive way, innovation will be more likely to be effective. Although there is reason to believe that the amount of innovation which occurs in an organization in a given time period is related to whether the system of management is open or closed, democratic or hierarchical, no research found to date has substantiated this belief (Clark, B. R., 1965; Mohr, 1969; Havelock, 1973; Bennis, Benne, Chin, & Corey, 1976).

Havelock (1973) outlined six steps which the manager should follow in initiating innovation in an educational organization:
1. Be aware of the process of change, how it takes place, the attitudes, values, and behaviors that act as barriers or facilitators.

2. Be able to identify the maintainers, the innovators, and the defenders and/or resisters, in your organization.

3. Maintain an awareness of new practices potentially worthy of adoption by the system.

4. Build a staff with a diversity of views and approaches and encourage dialogue.

5. Maintain a total system view of change and its effects.

6. Facilitate the internal self-renewal capability of the staff and the organization (p. 131).

The present study was concentrated on expanding that body of knowledge concerning the elements which act as facilitators or inhibitors in the processes of innovation and change.

**Purposes of the Study**

The primary focus of the study was on: (a) the level of concern for innovation present in institutions of higher education as perceived by the members of the organizations, (b) the place of the organization on a "democratic" to "hierarchical" continuum of governance structure, and (c) any relationship which may be found...
between the two. In addition, several other variables of historic importance to higher education (Peterson, Centra, Hornett, & Linn, 1970) were examined to ascertain any relationship which they might have to the concern for innovation variable.

The degree to which educational institutions are perceived to meet local needs, the shared sense of purpose (institutional esprit) perceived to exist in the same institutions, and the perception of the extent of self-study and planning which occurs in these institutions were the secondary variables examined. The study was focused on any relationship which may be found between any one of the aforementioned secondary variables and the amount of innovation present in institutions of higher education as perceived by the members of the organization.

Institutions of higher education were examined as a composite group and according to system type. System types which were examined were:

1. Public universities
2. Private universities
3. Liberal arts colleges
4. Community colleges
5. Private junior colleges
6. State four-year colleges
The size of the organization was also a variable which was examined in light of its relationship to the perceived amount of innovation. Operational definitions of these variables may be found in the following section. Differences in perceptions of the administration group and the faculty by composite and by system type were also examined in this study.

This study could be important to those individuals concerned with innovation as a major management activity because it provides information about the relationship between the level of concern for innovation evidenced within the organization and the governance structure (designed by management) or any one of the following variables: size, degree of institutional esprit, extent of self-study and planning, and extent to which local needs are met. This information might be used as a basis for management decision-making about the kind of governance structure which should be designed to facilitate innovative activity in an organization. Figure 1 is a conceptual model of the present study and includes variables, the member groups, and the system types which will be considered for the two testing periods.

The variables listed have been examined through the use of the Institutional Functioning Inventory, a testing instrument designed by the Educational Testing Service. Results of the administration of the instrument will be
described within this report.

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**Figure 1**

Factors Possibly Contributing to Institutional Concern for Innovation

Operational Measurements of Constructs

To facilitate understanding of the variables examined in the study in relation to concrete measurability, description of the operational measure of each follows. The measures were developed by the present investigator for the previously explained purposes of the study.

**Governance Structure:** The type of governance structure present in organizations was determined by the participants' responses to Items 26, 29, 36, 38, 41, 44, 46,
48, 50, 57, 62, and 67 on the Institutional Functioning Inventory (IFI), provided in Appendix A. Responses determine rank on a continuum ranging from "democratic" to "hierarchical."

**Meeting Local Needs:** The extent to which organizations are involved in meeting local needs was determined by participant responses to Items 73, 75, 77, 80, 83, 86, 87, 91, 95, 119, 128, and 130 on the IFI.

**Average Size:** The average size of the participating institutions was determined by tallying the enrollments for all institutions for each of the testing periods; that total was then divided by the number of institutions participating in each testing period.

**Institutional Esprit:** The institutional esprit (degree of shared sense of purpose) present in the organization was determined by responses to Items 97, 104, 106, 111, 112, 116, 117, 121, 122, 123, 126, and 131 on the IFI.

**Self-Study and Planning:** The extent of self-study and planning was measured by responses to Items 76, 78, 81, 84, 88, 92, 93, 103, 108, 110, 125, and 132 on the IFI.

**Concern for Innovation:** Level of concern for innovation was determined by the participants' responses to Items 96, 98, 100, 101, 105, 107, 113, 114, 118, 120, 124, and 127 on the IFI.
Higher Education System Type: For purposes of this study, institutions were categorized according to guidelines of the United States Office of Education. This self-categorization is determined through the participants' responses to that item on the IFI.

Time Period: The total time period studied was divided into two discrete 6-year time periods determined by the Educational Testing Service as follows:

- Time Period I: 1971-1976
- Time Period II: 1977-1982

Administrative Group: The administrative group was determined by participating individuals' responses to this item on the IFI.

Faculty Group: The faculty group was determined by participating individuals' responses to that item on the IFI.

Significance of the Study

The major significance of this study is the contribution it may make to a body of knowledge which serves as background planning for the successful initiation of innovation in an organization. The outcome of this investigation could help to provide managers in educational institutions with knowledge necessary to the planning of innovation.
The project was interdisciplinary in scope and thus might provide individuals in Management and Psychology with data about the relationship between organizational governance structure and the amount of innovation successfully initiated in an organization. Others perhaps could use the results of the investigation as a basis for further research and for decision-making about the innovation planning and implementation processes.

Educational managers will also have data available which might allow them better understanding of the ramifications of organizational governance structure in educational settings. Educational managers will have data available about perceptions of two specific groups in higher education, faculty and administrators, and about institutional types: public universities, private universities, liberal arts colleges, community colleges, private junior colleges, and state four-year colleges.

Propositions Explored

It was the intention of this investigator to examine the nature of the relationship which exists between governance structure in an organization and the respondents' concern for innovation. These two variables were examined by higher education system types and by composites of institutions. The particular propositions explored follow; each relates to a specific hypothesis and to the
literature review.

1. The more democratic the governance structure of the organization, the more concern for innovation will be exhibited by both faculty and administrative groups (Morrish, 1976).

2. An organization which evinces interest in community needs will evince greater concern for innovation than one that does not (Bushnell, 1973; Hammons, 1982).

3. The faculty group will tend to be less concerned with innovation activities than will the administrative group (Martorana & Kuhns, 1975).

4. The size of an organization will directly correlate with its concern for innovation activities (Mohr, 1969; Drucker, 1980).

5. The amount of innovation present in an organization will be reflective of the degree of shared sense of purpose which exists in an organization (Lindquist, 1978).

6. Institutions which engage in long-range planning and research will have a higher concern for innovation than similar institutions which do not engage in long-range planning and research (Lindquist, 1978; Baldrige, 1980).

7. Community colleges will exhibit greater concern for innovation than will other institutional system types (Monroe, 1982).
8. Institutions of higher education will, in general, be less concerned with innovation than with other functions and goals (Baldridge, 1980).


Limitations of the Study

The following statements indicate limits to the conclusions or generalizations which can be drawn from the study.

1. The study was focused on institutional members of higher education systems. While inferences may appear pertinent to other business or educational systems, generalizability to other systems is not intended.

2. Perceptions of innovation were identified, but the causes of those perceptions were not identified.

3. There was no attempt to examine behaviors or processes which might induce attitudinal change.

4. No attempt was made to compare perception, by employees of the organization, to hard fact or to evaluate the nature of those perceptions.
5. External environmental forces which may have affected the systems under study were not examined.

6. The differences of perception that were recognized as bound to exist between an administrative group and a faculty group functioning in the same system probably are not generalizable to other hierarchical levels.

7. The study was limited to a particular time and particular systems, and to employees of the systems at that time. Generalizability to other times, systems, and individuals was not intended.

8. The sample used in the study was a self-selected sample rather than a randomly selected sample. The institutions in the sample chose to take part for reasons extraneous to the purposes of this particular study and primarily for the purpose of institutional self-study.

Assumptions

This study was based upon the following assumptions:

1. In a given higher educational system, an organizational structure exists that can be located on a continuum ranging from democratic to hierarchical.

2. Faculty members and administrators are capable of rating the type of organizational governance structure which exists in their organization.

3. Faculty members and administrators are capable of rating the level of concern for innovation present in
4. Instead of considering responses as an individual's perception, responses of the individuals in a given institution can be considered together as a group perception.

5. Faculty members of a given type of institution can be considered as a group.

6. Administrators in a given type of institution can appropriately be considered as a group.

Overview of the Study

Chapter I has stated the problem, along with its background, significance, limitations, and purpose. The measure for each specific construct was described. Propositions to be explored were outlined and essential assumptions were delineated.

In Chapter II, the literature related to the governance structure of an organization, the elements of the leadership process, the concept of innovation in organizations, and the work done by the Educational Testing Service in developing and using the Institutional Functioning Inventory will be reviewed. In Chapter III, the design of the study will be outlined, and terms which are used in the study will be defined; the instrument used, the population and sample, and the data collection procedures will be described. The findings from the study
will be reported in Chapter IV. The study will be summarized, conclusions will be drawn, and the implications of the study will be stated in Chapter V.
CHAPTER II
REVIEW OF SELECTED LITERATURE

This chapter presents a review of significant literature on innovation and leadership, innovation in organizations, the development and use of the Institutional Functioning Inventory (IFI) by the Educational Testing Service, and the governance structure of innovative organizations. The literature reviewed is from a wide range of disciplines, including Communication, Management, Education, and Organizational Behavior.

Innovation and Leadership

The activity of innovation is frequently mentioned in books dealing with educational leadership or management. Innovation is recognized as one of the activities in which many leaders engage to meet the goals of their organizations (Miles, 1964; McGregor, 1966; Rogers & Shoemaker, 1971; Boles & Davenport, 1975; Morrish, 1976). In recent years, however, innovation has become the focus of major management activity as managers (described by Drucker, 1980) and educational leaders (described by Martorana & Kuhns, 1975) strive to keep pace with a changing environment. Innovation may prove to be the key to survival for existing institutions and, for the most part, it will
have to be built into already existing organizations. "Large public service institutions will have to become increasingly capable of organizing themselves for innovation as well as administration" (Drucker, 1974, p. 785).

Critical shifts are occurring in the educational environment. Diminishing public support, deteriorating financial support, and dwindling student enrollment--coupled with an oversupply of long-term faculty--are among the social changes which are occurring (Martorana & Kuhns, 1975; Baldridge, 1980; Three Thousand Futures, 1981; Green, 1981; Hammons, 1982). In short, colleges and universities as well as other types of organizations will be forced to innovate to meet goals and to maintain institutional survival (Innovation, 1972; Drucker, 1974; Harcleroad, in Martorana & Kuhns, 1975).

Innovation is a key element in almost every organization, yet practical attention paid to it in the various books on leadership and management is minimal (Drucker, 1973). It is one of four primary system goals in the leadership process, the others being maintenance, productivity, and want satisfiers (Boles, 1980). Leadership itself "is a process in which an individual takes the initiative to assist a group to move toward the production goals that are acceptable, to maintain the group, to dispose of those needs of individuals within the group that impelled them to join it" (Boles, 1980, 117; 425).
Obviously, organizations must be led in order to continue successfully. The management structure of any enterprise is the "organ of leadership, direction and decision in our social institutions . . . it has to think through the institution's mission, has to set its objectives, and has to organize resources for the results the institution has to contribute" (Drucker, 1980, p. 17). According to Athos and Coffey (1968), a leader is an individual who influences followers to achieve an objective in a certain situation. They made a distinction between a manager and a leader, however, when they commented that "a manager may direct people through the use of formal authority only; the leader influences people through the use of personal power or informal authority" (p. 161). They went on to say that the truly effective manager usually does both.

Much has been written about "styles" of leadership and their resulting effectiveness on leading. Styles can range from openly democratic to rigidly autocratic, as has been discussed, but using different terminology, by writers from the various disciplines (Likert, 1961, 1967; Blake & Mouton, 1964; McGregor, 1966; Herzberg, 1968; Drucker, 1974; Ouchi, 1981; Blake, Mouton, & Williams, 1981). Although each of the styles has had its advocates, there is no general agreement as to which style is more effective in leading the organization through the
innovation process.

Previous study has been conducted from numerous academic perspectives and in numerous contexts on aspects of innovation in organizations. The definition of the word innovation used herein (from Lindquist, 1978) is appropriate to either the public or the private sector and can therefore apply to a business enterprise, to a government agency, or to a private or public for-profit or not-for-profit educational institution. A related but somewhat different term, change, is often used in close association with innovation.

The concept of organizational change includes planned change, which results from conscious effort, and unplanned change, that is, change which is not a consequence of conscious or deliberate effort. Rogers (1962), Katz, Levin, and Hamilton (1963), and Lionberger (1964) each reviewed the diffusion and adoption studies done in years prior to those reviews. In general, the findings of these studies are not applicable to the implementation of organizational innovations. In general the studies dealt with the adoption of rather simple technical innovations used by individuals in a designated geographic region or in a certain school system. The individual retains a freedom to choose to accept (and continue to use) the innovation or to reject it. This assumption does not apply to innovations initiated by and implemented in
organizations.

It is important to note that the decision to implement an innovation in a school system made by a superintendent does not necessarily lead to a successful corresponding change at the school level (Carlson, 1965). Carlson also specified three major barriers to change: (1) lack of a change agent, (2) lack of awareness about new educational practices, and (3) insufficient pressure on or need for schools to change (Carlson, 1965, p. 4).

Ellingsworth (1976) and Knight (1967) used the terms innovation and change interchangeably, while others have made distinctions between them (Rogers & Shoemaker, 1971; Zaltman, Duncan, & Holbeck, 1973; Rogers & Agarwala-Rogers, 1976). According to Zaltman et al.:

Innovation is any idea, practice, or material artifact perceived to be new by the relevant unit of adoption. The innovation, then, is the change object. Change, on the other hand, is the alteration in the structure and functioning of a social system. All innovations imply change. Not all changes involve innovation since not everything an organization adopts is perceived as new. (p. 158)

Innovation, then, has to do with creating change; change has to do with the consequences or outcomes of the innovation. One way in which change occurs is through the initiation and diffusion of innovation in organizational systems.

In a paper entitled "Antecedents of Planned Change," Greiner (1967) noted that historical and unplanned forces
have a significant effect on the change concept and suggested that "future researchers and change agents need to give greater weight to historical determinants of change, with special emphasis being attached to the developing relationship between an organization and its environment" (p. 52). Mohr (1969) also discussed the role of the environment in facilitating organizational innovations.

Heretofore, many studies concerning the implementation of organizational innovation have been focused on the need for changing behavior (Irwin, 1979) and overcoming resistance to change among the members of the organization (Coch & French, 1948; Lawrence, 1954; Zander, 1961; Bennis, 1966; Argyle, 1967). Argyle maintained that participation would motivate employers to want to change behavior (p. 94). Leavitt (1965) argued that a more egalitarian distribution of power was a first step in acceptance of organizational change and encouraged use of a change agent or outside catalyst.

The concept of using a change agent to implement successful change has been supported by a number of scholars, including Lippett, Watson, and Westley (1958); Bennis et al. (1961); Bennis (1966); and Havelock and Havelock (1973). A change agent with high prestige and a solid reputation for expertise is more likely to be successful in implementing change than one without these characteristics (Tannenbaum, 1956; Greiner, 1967;

Other scholars have noted that individuals who have made frequent changes in their work systems are more likely to implement innovative activities than those who do not have this precedent (Burns & Stalker, 1961; Mann & Neff, 1961; Herzberg, 1968). Past history of change within an organization may contribute to successful implementation of future innovations.

Little apparent progress had been made, up to 1974, in overcoming resistance to change in organizations as part of the leadership or management process, according to Drucker (1974). In addressing this problem, Drucker suggested that rather than focus on resistance to change, managers should concentrate on creating, building, and maintaining the innovative organization.

The organization for which change is the norm rather than exception, and opportunity rather than threat. Innovation is, therefore, attitudes and practices. It is, above all, top management attitudes and practices. The innovative organization casts top management into a different role and embodies a different concept of top management's relation to the organization. . . . the first and foremost job of management . . . is to convert impractical, half-baked, and wild ideas into concrete innovative reality. In the innovative organization, top management sees it as its job to listen to ideas and to take them seriously. Top management, in the innovative organization, knows that new ideas are always "impractical." It also knows that it takes a great many silly ideas to spawn one viable one. (p. 797)
Innovation in Organizations

As has been stated previously, the fate of an innovation as it is initiated and diffused throughout an organization is just as important as its conception (Barnett, 1953). And the fact remains that innovations must be accepted before they can become successful in an organization. Rogers and Shoemaker (1971) proposed a model to explain why individuals do or do not accept innovations. They identified five important stages in the adoption process: awareness, interest, trial, evaluation, and adoption. Clark and Guba (1965) also proposed a similar model, a several stage process including development, adoption, and diffusion. Rogers and Shoemaker (1971) also considered a sixth stage, discontinuance, and developed a paradigm to explain the variables which come into play in determining the rate of adoptions of innovations in organizations (Figure 2). Their general hypothesis was that "the more persons involved in making an innovation-decision [sic], the slower the rate of adoption" (p. 159). If indeed this is valid, organizations can alter the size of the decision unit to control the rate of adoption.

Other scholars (Morrish, 1976; Bennis et al., 1976) have cited Rogers and Shoemaker's (1971) paradigm of the innovation-decision process (see Figure 3) when successful
Variables Determining Rate of Adoption

Perceived Attributes of Innovations
1. Relative advantage
2. Compatiblility
3. Complexity
4. Trialability
5. Observability

Type of Innovation-Decision
1. Optional
2. Collective
3. Authority

Communication Channels (e.g., mass media or interpersonal)

Nature of the Social System (e.g., modern or traditional norms, degree of communication integration, etc.)

Extent of Change Agents' Promotion Efforts

RATE OF ADOPTION OF INNOVATIONS


Figure 2
Paradigm of Variables Determining the Rate of Adoption of Innovations
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(A N T E C E D E N T S )

Receiver Variables
1. Personality characteristics (e.g., general attitude toward change)
2. Social characteristics (e.g., cosmopolitanism)
3. Perceived need for the Innovation
4. Etcetera

Social System Variables
1. Social System Norms
2. Tolerance of Deviancy
3. Communication Integration
4. Etcetera

Communication Sources

(P R O C E S S )

KNOWLEDGE

PERSUASION

DECISION

CONFIRMATION

(Channels)

Adoption

Discontinuance
1. Replacement
2. Disenchantment

Consequences

Continued Adoption

Later Adoption
Continued Rejection

TIME

For the sake of simplicity we have not shown the consequences of the Innovation in this paradigm but only the consequences of the process.

Source: Rogers and Shoemaker (1971, p. 103).

Figure 3
Paradigm of the Innovation-Decision Process
innovation was the topic under consideration. The paradigm, designed "to account for the major criticisms raised about the five-stage adoption process" (Rogers & Shoemaker, 1971, p. 103), consists of four functions:

1. Knowledge. The individual is exposed to the innovation's existence and gains some understanding of how it functions.

2. Persuasion. The individual forms a favorable or unfavorable attitude toward the innovation.

3. Decision. The individual engages in activities which lead to a choice to adopt or reject the innovation.

4. Confirmation. The individual seeks reinforcement for the innovation-decision he has made, but he may reverse his previous decision if exposed to conflicting messages about the innovation. (p. 103)

Several writers have stressed the importance of members' participation in the planning for organizational implementation of innovation. Gross, Giacquinta, and Bernstein (1971) have suggested the following arguments in favor of this approach. Each has been supported by at least one other scholar, as indicated.

1. Participation leads to higher morale, and higher morale is necessary to successful implementation. Bennis (1966) also supported this view.

2. Participation leads to greater commitment to affect change. Mann and Hoffman (1960), Goodlad and Anderson (1963), Oliver (1965), and Kotter and Schlesinger (1979) supported this point.
3. Participation leads to clarity, which is necessary for implementation. Anderson (1964) and Kotter and Schlesinger (1979) also favored participation for this reason.

4. Participation reduces initial resistance, thereby facilitating implementation. Oliver (1965), Argyle (1967), and Drucker (1973) mentioned this benefit of participation.

5. Subordinates will tend to resist any innovation if it is initiated solely by their superordinates. Wigren (1967) stated this view.

Much of the literature on innovation in organizations concentrates on the variables which impinge on successful implementation. In addition to those mentioned by Rogers (1962), other variables which are most often cited as correlates of innovation are size of the organization, financial resources, and breadth of organizational goals (Hage & Aiken, 1967; Mohr, 1969; Havelock & Havelock, 1973; Drucker, 1974; Beuke & Farrar, 1979; Baldridge, 1980).

In addition to the organization itself, environmental conditions appear extremely important (Greiner, 1967). An organization is more likely to innovate in response to a rapidly changing environment than when the environment is steady (Mohr, 1969; Drucker, 1973; Martorana & Kuhns, 1975). Griener has also suggested
that organizational change may be preceded by a buildup of outside pressure and internal tension. This may cause the level of anxiety to rise, which would cause the search for relief to increase. In turn, innovation may occur.

Governance Structure of Innovative Organizations

According to Drucker (1974, 787ff.), innovative organizations are very different from their noninnovative counterparts in structure, in characteristics, and in organization and management philosophies. Drucker suggested that they do have several characteristics in common.

1. Innovating organizations know what "innovation" means.

2. Innovative organizations understand the dynamics of innovation.

3. They have an innovative strategy.

4. They know that innovation requires objectives, goals, and measurements that are different from the objectives, goals, and measurements of a managerial organization and appropriate to the dynamics of innovation.

5. Management, especially top management, plays a different role and has a different attitude in an innovative organization.
6. The innovative organization is structured differently and set up differently than the managerial organization.

Hage and Aiken (1967) identified informality, complexity, and decentralization as characteristics of innovative organizations, while Eisenstadt (1963) and Rogers (1962) pointed to organizational size and the size of the budget as predictors. Ouchi (1981) provides models of several organizations, each having a structural unit, i.e., a department, with specific responsibilities for organizational innovation.

Steiner (1965), in a discussion of the creative organization, held that:

Creativity is more likely to flourish in new firms than in old; in small firms engaged in cut-throat competition rather than in firms that have the market to themselves for a time; possibly in marginal firms, in the sense that they are staffed by people new to the particular industry and with different approaches; finally, in firms headed by people who are themselves creative. (p. 262)

Steiner continued that the creative organization is one with open communication channels, decentralized structure, numerous outside contacts, and heterogeneous staff.

Ouchi (1981) states that egalitarianism, openness, and participativeness are necessary structural ingredients for the process of organizational change. He also suggests that these variables will lead to improved productivity as well as heightened loyalty to the
organization.

According to Mohr (1969), an organization is indeed more likely to innovate when its environment is changing rapidly than when it is steady. Since these are turbulent times, innovation--and, correspondingly, change--can be expected to occur frequently in our colleges and universities (Miles, 1964; Taylor, 1971; Bushnell, 1973; Lindquist, 1978) as well as in the business world (Drucker, 1974). Recounted in the literature relative to the change process is the fact that the attitudes of individuals and groups can be resistant to or acceptive of change (Gross et al., 1971; Klein, 1976). If there is indeed an organizational governance structure which is conducive to innovation, it would be of great benefit to the educational administrator to know what that structure might be. Havelock and Havelock (1973) stated that the educational administrator must be aware of all aspects of and relationships in the change process if she/he is to successfully initiate innovation in an organization.

Miles (1964) stated that there is a direct relationship between climate and the level of productivity in an organization; the more "open" or democratic the organizational climate, the higher the level of productivity. Climate thus is reflective of governance structure in an organization. Climate in academia, as related to
democratic governance, is climate in which communications are horizontal (democratic, or shared) rather than vertical (hierarchical). According to Likert (1967), more production occurs in an organization which maintains an open system (System IV) of management (climate) than in an organization which maintains a closed system (System I) of management (p. 11).

From a consequential viewpoint, the fate of an innovation is as important as its conception (Barnett, 1953). Work done by Rogers and Shoemaker (1971) on adoption of agricultural innovations pointed out that categories of adopters of innovations are distributed according to the curve illustrated in Figure 4. It is believed that the finding of Rogers and Shoemaker with regard to categories of adopters of innovations may be generalized to other groups, such as employees in higher education.

Each successive group of adopters (moving from the left to right in the figure) requires stronger and different persuasion tactics in order to accept the innovation and to change accordingly. While it is generally accepted that individuals are more or less acceptive of or resistant to change and that organizational climate is related to level of productivity (Likert, 1967), nowhere in the literature examined was found a direct correlation between the amount of innovation present in an organization and the organizational governance structure which exists there.
Innovators
2.5%

Early Adopters
13.5%

Early Majority
34%

Late Majority
34%

Laggards
16%

\( \bar{x} - 2sd \) \( \bar{x} - sd \) \( \bar{x} \) \( \bar{x} + sd \)

Source: Rogers and Shoemaker (1971, p. 182)

Figure 4

Categories of Adopters of Innovations

College and university faculty have a reputation that, as a group, they are slow to accept innovation and change (Lindquist, 1978; Baldridge, 1980; Boles, 1980). A good case can be made for slowness as a positive influence in academic environments of past years. Colleges and universities have been institutions for study, research, and reflection; traditionally, each of these activities has been performed with precision and without haste. But as a social institution, education must reflect social change. The rapid-paced technological environment of today has accelerated social change, making change in the educational institution inevitable.
The present day environment which calls for innovation and change remains anathema to a faculty, many of whom remain unconvinced of or oblivious to the environment outside Academe. The introduction of innovation into any social setting implies a certain amount of uncertainty, risk, or hazard (Mohr, 1969). Resistance to change in the individual can be an obstacle in the path of innovative activity; the strength of this force is yet to be determined.

Development and Use of the Institutional Functioning Inventory by the Educational Testing Service

The Educational Testing Service has been interested in the variables which are part of the management process in higher education. To that end, Earl McGrath, JB Lon Hefferlin, Hans Flexner, Warren Martin, Morris Keeton, Otis Singletary, and Harold and Pauline Pepinsky were engaged to develop an instrument (the Institutional Functioning Inventory) which would provide a means by which members of an educational organization could describe it in terms of each of several variables (Peterson et al., 1970). The variables listed below represent characteristics judged by those scholars to be of importance in American higher education:

- Intellectual-Aesthetic Extracurriculum Freedom
- Human Diversity
Concern for Improvement of Society
Concern for Undergraduate Learning
Democratic Governance
Meeting Local Needs
Self-Study and Planning
Concern for Advancing Knowledge
Concern for Innovation
Institutional Esprit

A scale for each of these was developed and is described in the following chapter.

The Institutional Functioning Inventory (see Appendix A) has been used by the Educational Testing Service to collect data from colleges and universities in two time periods: 1971-1976 and 1977-1982. Data have been stored for those periods in the computer of the Educational Testing Service. Names of colleges and universities participating in each of the testing periods are listed in Appendix B.

Respondents to the IFI reported what their colleges were like. Two types of item format were used; the first a factual item to which the response was either YES, NO, or DON'T KNOW, while the second called for an opinion on a 4-point scale: STRONGLY AGREE, AGREE, DISAGREE, STRONGLY DISAGREE. To allow for a tendency to agree with almost any proposition, 42 of the items were so stated that a "NO" or "DISAGREE" answer was keyed, that is,
counted in the scale score. These reverse-keyed items were unevenly distributed on the 11 scales and between the two item types. Scoring was on a unit (0-1) basis. If the keyed answer was YES, a (Y) response was scored 1, (N) was scored 0, and (?) was regarded as an omit. Either an (SA) or (A) response (or a D or SD) was scored equivalently as either 1 or 0, depending on whether SA-A or D-SD was the keyed answer. Each individual's scale score (ranging from 0-12) was the number of items answered in the keyed direction. Individual respondents' scores were then averaged to give an institutional (mean) score. Means were calculated for each faculty group, administrator group, and student group.

Summary

Studies about innovation and leadership, innovation and organizations, the governance structure of innovative organizations, and the development and use of the Institutional Functioning Inventory by the Educational Testing Service were reviewed in this chapter. Scholars agree that innovation is a key ingredient in the leadership or management process of successful organizations. Studies have contributed to the understanding of what occurs during the implementation of an innovation, have discussed internal and external environmental conditions which impact change, and have examined strategies of
implementation.

However, nowhere in the literature reviewed was examination of the issue of the actual governance structure as it affects innovations reported. One goal of this study was to attempt to contribute to the manager's knowledge of those factors present in an organization which affect the implementation of innovation.
CHAPTER III

DESIGN AND METHODOLOGY

Within this chapter may be found an overview of the design and methodology, definition of pertinent terms not yet addressed, description of the design of the study, the instrument used in this study, and the procedures and statistical methods applied to complete the study. The hypotheses which were explored, the sources of data, the methodology, instrumentation procedures, and analytical methods are specifically explained.

Overview of the Design and Methodology

Institutions participating in the study were self-selected and then categorized by the Educational Testing Service (ETS) into system type and testing time period. Data from administering the Institutional Functioning Inventory (IFI) were stored in the ETS computer in Princeton, New Jersey, but were made available for purchase upon request. The IFI examines 11 variables deemed important in higher education today, including governance structure and concern for innovation.

The Institutional Functioning Inventory was developed as an instrument for internal self-study. It can be used to: (a) examine interdepartmental differences in a
large multipurpose university, (b) study diversity in responses, (c) examine differences between subgroups, and (d) monitor change by readministering the IFI over a period of time. The IFI has external uses as well. For example, it might be used as part of a report to an accrediting agency or by students of higher education. Intersystem comparisons of IFI data may help to reveal differences not otherwise apparent. It is for these purposes, as well as others which may not be known to the present investigator, that personnel in various colleges engaged in the administration of the IFI and reported their results to ETS. It is assumed that responsible persons in each participating college or university administered a valid study at the respective institutions. It is the summative data of all institutions which were used in this study.

Since the IFI was developed as an instrument for internal self-study or external reporting relative to those variables deemed important in higher education, it is clear that participating institutions were motivated to take part for reasons extraneous to this study. However, it is equally clear that all participating institutions, regardless of system membership, were self-selected for similar reasons. Stated another way, it is assumed there was no difference in the motivations of people from the institutions in any of the six systems for taking part in
the IFI administration; motivating factors across all groups were assumed to be the same.

Finally, institutional managers choosing to administer the IFI were interested in learning and/or reporting what the institution was like as a whole rather than in examining specific responses to any one of the 11 scales (or, for purposes of this study, the variables) on the IFI. It was primarily for this reason that institutions chose to administer the IFI.

Since the sample was not randomly selected, results cannot be generalized "with probabilistic rigor to some larger group of subjects," according to Bracht and Glass (1968, p. 441). Yet, conclusions may be generalized from such a non-randomly-selected sample to a like population (Cornfield & Tukey, 1956).

In this ex post facto study, the purchased data were examined through the use of the SPSS statistical software package. The intent was to ascertain whether any significant relationship existed between the governance structure of an organization or system and that organization's (or system's) concern for innovation. As has been mentioned, six systems of higher education were examined: public universities, private universities, liberal arts colleges, state four-year colleges, community colleges, and private junior colleges. The design allowed the two variables to be examined from the
following three points of focus, alone or in combination: (1) System type, (2) Constituent group within system type, and/or (3) Time period of administration for four systems.

Instrumentation

The instrument used to gather data regarding "governance structure" and "concern for innovation" in this study was the Institutional Functioning Inventory, developed by the Educational Testing Service. The instrument was developed over a 3-year period (1967-1969) by ETS staff members assisted by Earl McGrath, JB Lon Hefferlin, and Hans Flexner of Columbia Teachers College. McGrath, Hefferlin, and Flexner assisted not only in early conceptual efforts but also in the writing and review of the inventory items. Winton Manning, Patricia Cross, and Jonathan Warren, project consultants, provided critical reviews of the draft manual.

The instrument was developed under the assumption that different people and different constituent groups will perceive an institution differently; the IFI then affords an opportunity for the study of sources of disparate beliefs about the work of a college or university. It is an instrument which can be used in multi-college research studies, as well as by individual colleges, as a vehicle for institutional self-study. Intercollege
comparisons of the data collected through use of the IFI are also recommended by ETS.

The background of the development of the instrument is pertinent to this chapter. During June of 1967, ETS sponsored two conferences to consider conceptual efforts on behalf of the instrument and to deliberate new ideas and approaches. The first conference dealt with a wide range of ideas; the second probed a limited number of concepts. Subsequent to the conferences, 11 dimensions of institutional functioning were decided upon as outlined later in this chapter.

The first step in developing the 11 scales was defining each of the dimensions of institutional functioning to be measured. Secondly, all items within a given scale needed to be closely linked conceptually in order to maximize reliability and interpretability of the scale. Items were written by ETS staff members and reviewed by outside consultants, as mentioned earlier. Richard Peterson (Berkeley), John A. Centra (Princeton), and Rodney T. Harnett (Princeton) were also involved in the actual writing of items; Earl McGrath contributed to the ongoing sharpening and refining process. All items were written so as to be as free as possible of ambiguities as well as to fulfill the more technical specifications for the instrument.
A pretest was administered in February of 1968. Of the 72 colleges invited to participate, 50 agreed to do so. Answers for each individual participant were recorded on a separate machine scorables sheet and, to safeguard confidentiality, all such sheets were returned directly to ETS by the individual respondents in prepaid envelopes. The average return rate for all participating colleges was 58%.

Item analyses were then performed in order to select 12 items for each of the 11 a priori scales to maximize their internal consistency, reliability, and empirical independence. The present IFI, then, contains 132 items partitioned into eleven 12-item scales. Each respondent's scale score may range from 1 to 12, with a point accruing each time an item is answered in the keyed direction. Individual scores are then averaged to give an institutional (mean) score for each item. Means and standard deviations are also calculated separately for various constituent groups at each participating college (e.g., faculty, administrators, students, and members of governing boards).

The IFI yields scores on 11 scales of 12 items each. In total, 132 multiple choice items are included on the instrument. For reasons explained later under "Design," only five of the 11 scales were used in the present study. Each is indicated by an asterisk. Titles and
definitions of the IFI scales, taken with permission (see Appendix B) from the *Institutional Functioning Inventory* Preliminary Technical Manual (1978), follow.

**(IAE)** Intellectual-Aesthetic Extracurriculum refers to the availability of activities and opportunities for intellectual and aesthetic stimulation outside the classroom. Colleges with high scores are characterized by their deliberate efforts to encourage intellectual and artistic interests through appearances by leading intellectuals, informal discussion groups, student literary productions, art exhibits, musical presentations, and so forth. Low scores would mean a relative absence of extracurriculum opportunities of an intellectual and aesthetic nature.

**(F)** Freedom has to do with academic freedom for faculty and students as well as freedom in their personal lives for all individuals in the campus community. High scores imply that respondents perceive themselves to be essentially free to discuss topics and organize groups of their own choosing, to invite controversial speakers, and to be relatively free of college restrictions on their personal conduct and activities. Low scores suggest an institution that places many restraints on the academic and personal lives of faculty and students.

**(HD)** Human Diversity has to do with the degree to which the faculty and student body are heterogeneous in their backgrounds and present attitudes. A high score indicates that the college is viewed as having attracted students and faculty of diverse personal tastes and styles. A low score suggests a campus community that is relatively homogeneous in terms of faculty and student backgrounds and beliefs.

**(IS)** Concern for Improvement of Society refers to a desire among people at the institution to apply their knowledge and skills in solving social problems and prompting social change in America. A high score implies that many faculty wish to, and do, consult with governmental agencies on social and economic
matters, that programs dealing with contemporary social problems exist on campus, that campus authorities are committed to the view that the institution should be actively engaged in working to improve social conditions. Low scores imply some combination of disinterest, parochialism, or conservatism in relation to the existing American social order.

(UL) Concern for Undergraduate Learning describes the degree to which the college—in its structure, function, and professional commitment of faculty—emphasizes undergraduate teaching and learning. A high score suggests a faculty generally disposed toward personalized teaching of undergraduates, encouragement of active student involvement in the learning enterprise, and institutional rewards for good teaching. A low score indicates either that undergraduate instruction stands relatively low as an institutional priority, or else the perception that, for whatever reasons, the quality of teaching at the college is generally somewhat poor.

*(DG) Democratic Governance reflects the extent to which individuals in the campus community who are directly affected by a decision have the opportunity to participate in making the decision. High scores signify extensive and meaningful faculty and student involvement in institutional affairs, decentralized decision-making, and shared (horizontal) rather than hierarchical (vertical) organizational arrangements. Low scores suggest authoritarianism—authority and power tightly held, typically by an administrative clique, in a "top-down" administrative framework.

*(MLN) Meeting Local Needs refers to an institutional emphasis on providing educational and cultural opportunities for all adults in the surrounding area, as well as meeting needs for trained manpower on the part of local businesses and government agencies. High scores indicate availability of adult-education, job-related, and remedial curricula; operation of

*Indicates a subscale used in this study.
job-placement and vocational-counseling services; accessibility of the campus to commuters; and so forth. Low scores indicate a low priority, usually reflecting traditional purposes and functions, given to meeting local area needs.

*(SP) Self-Study and Planning has to do with the importance college leaders attach to continuous long-range planning for the total institution, and to institutional research needed in formulating and revising plans. High scores reflect the perception that long-range planning is a high-priority activity for college officials; that a long-range plan for the institution currently either exists, is being developed, or is being reformulated; and that relevant institutional self-studies are periodically conducted. Low scores indicate a perceived lack of systematic long-range planning and pertinent self-study.

(AK) Concern for Advancing Knowledge reflects the degree to which the institution—in its structure, function and professional commitment of faculty—emphasizes research and scholarship aimed at extending the scope of human knowledge. High scores signify heavy faculty engagement in scientific research, institutional rewards for academic productivity, and high institutional priority for knowledge-producing activities in general. Low scores indicate a low priority, usually reflecting traditional college purposes, given to research and scholarship.

*(CI) Concern for Innovation refers, in its highest form, to an institutionalized commitment to experimentation with new ideas for educational practice. A high score reflects the view that senior administrators are receptive to new ideas, that people are encouraged to innovate and experiment at all levels, and that significant changes, in the curriculum, for example, have, in fact, been made in recent years. Low scores could imply traditionalism, complacency, or opposition to change in the college community.

*Indicates a subscale used in this study.
*(IE) Institutional Esprit refers to a sense of shared purposes and high morale among faculty and administrators. High scores reflect a feeling of genuine community (as commitment to shared objectives), loyalty to the institution and satisfaction with its work, open and honest communication among faculty and administrators, and respect for the competency of administrative leaders. Low scores suggest antagonism among and between faculty and administrators, low faculty estimate of the worth of the college, and poor morale in general within faculty and administrative ranks. (pp. 1-2)

The Institutional Functioning Inventory is a group measure rather than an individual measure. Reliability of the instrument, then, must be considered in terms of the aggregate responses of the individuals. The essential question in considering the reliability of the IFI is scale homogeneity or internal consistency.

The internal consistency reliabilities are coefficient alphas based on group means. Appendix E contains coefficient alphas for faculty, students, and administrators. The median internal consistency coefficient is .92, indicating that the scales are quite reliable in terms of internal consistency (Peterson et al., 1970, p. 15).

*Indicates a subscale used in this study.
Design

The design of this study was ex post facto. As mentioned earlier in this paper, the Educational Testing Service commissioned several scholars and noted authorities to design an instrument which, upon administration, would allow representatives of an institution to describe it in terms of several variables of importance to higher education. The Institutional Functioning Inventory is also recommended by ETS to students of higher education as they seek to better understand the higher education enterprise (Peterson et al., 1970).

Data from the Institutional Functioning Inventory were collected by individual research officers at colleges and universities administering the IFI. Raw data were returned to the Educational Testing Service and stored in the computer there. As indicated earlier, institutions of higher education were divided into six systems. These data were made available for purchase upon request and were aggregated for two time periods: 1971-1976 and 1977-1982. Data for both time periods were purchased for use in this study to facilitate examination of the relationships among selected variables; however, data for two systems, private junior colleges and state four-year colleges, were unavailable for the 1977-1982 time period because the number of responses received was too
small to support statistical analysis.

A computer software package (SPSS) was used and included statistical analyses allowing comparison of the data from three basic points of focus:

1. System type
   a. Public universities
   b. Private universities
   c. Liberal arts colleges
   d. Community colleges
   e. Private junior colleges
   f. State four-year colleges.

2. Constituent group within system type
   a. Faculty
   b. Administration
   c. Governing board
   d. Student

3. Time period of IFI administration
   a. 1971-1976
   b. 1977-1982

The data received from the Educational Testing Service were keypunched and then analyzed, using the SPSS package, to determine the significance of the relationships examined.

The study involved no longitudinal component; however, some colleges and universities were represented in both administrations. Students' responses were not
included in the analysis. This was largely due to the fact that students were asked to respond only in part (72 of 132 items) of the IFI instrument (thus yielding scale scores for just six of the 11 scales), reflecting the more limited role in and concern for democratic governance of students, particularly in a long-term sense. Governing board members' responses were also excluded from constituent group analysis because the number of individual responses was too small to support statistical analysis.

Because of the characteristics of the data noted above, five types of comparisons were possible:

1. Comparisons among the 11 scales of the Institutional Functioning Inventory. Comparisons were made using the Pearson product-moment correlation technique.

2. Comparison between constituent groups (faculty and administrator) across the six systems. The t test procedure was used to make these comparisons.

3. Comparisons among organizational characteristics (such as the number of employees, or size, of an organization) and the scales of the Institutional Functioning Inventory. The Pearson product-moment correlation procedure was used for the one comparison of this type done in this study.

4. Comparisons among system types on a given scale of the Institutional Functioning Inventory. The t test technique was used for these comparisons.
5. Comparison between time periods of Institutional Functioning Inventory administration (1971-1976 and 1977-1982) for the four systems. The correlated t test procedure was used for this comparison.

The classification of institutions according to system type was based on characteristics (level of offering, type of control) reported in the United States Office of Education Directory. Constituent groups were aggregated on the basis of self-selection, that is, respondents identified themselves as either faculty, administration, board, or students in completing the IFI.

Data were collected continuously over a 12-year period, but ETS divided the data according to two 6-year periods. The data were split this way for administrative rather than for theoretical reasons. The reasons are: (a) sufficient data had been collected to allow for aggregate examination, and (b) the Educational Testing Service switched computer systems so that data collected after 1976 were stored in a different system and thus were unavailable for integration with data previously collected. For purposes of data analysis, each 6-year period was considered as a discrete time category, and it was assumed that similar data collection occurred at similar rates throughout both time periods. Thus, comparisons over time represent a continuous function even though two discrete time categories (1971-1976 and
1977-1982) are described. Since two institutions might have had data submitted as far apart as 12 years or as close as 1 year, the across-time comparisons were viewed as involving an average time gap of 6 years.

Definitions

In order to provide consistent interpretation and to promote understanding, definitions of some repeatedly used terms follow. The definitions apply any time the terms are used in this paper. Those for which no source is cited are the present investigator's own.

Administrator: An administrator is a person occupying a position in an organization who is expected to implement policies established by others (Boles, 1980).

Change: Change is the modification of, deletion of, or an addition to attitudes and behaviors existing in a person, group, organization, or larger system (Lindquist, 1978).

Democratic governance: Democratic governance is a management system in which job functions, duties, and responsibilities are less formally defined. Decision-making is shared (or horizontal) rather than hierarchical (Athos & Coffey, 1968).

Community college: A community college is a public, two-year post-secondary institution of learning (Bushnell, 1973).
Faculty: A faculty is a group of full-time instructional personnel functioning in a higher education setting.

Innovation: An innovation is an idea, a practice, or an object new to the potential user of it, not necessarily new to the world outside that person, group, or organization (Lindquist, 1978).

Liberal arts college: A liberal arts college is an institution of higher learning which specializes in academic disciplines of general cultural concern, such as languages, history, philosophy, and abstract science.

Manager: A manager is a person holding a position in an organization who is required to manage economic performance, production, worker achievement, social impact, and social responsibility (Drucker, 1974).

Hierarchical governance: Hierarchical governance is a management system characterized by clearly defined duties, responsibilities, and power and a well-developed command and formal information hierarchy (Athos & Coffey, 1968).

Organization: An organization is a structure of relationships among people intended to perpetuate an idea, practice, or belief (Boles, 1980, p. 264).

Organizational climate: Organizational climate is the overall "environmental quality" of the organization in which an individual participates (Farace, Monge, &
Private junior college: A private junior college is one run and supported by private individuals or a corporation and offers the first 2 years of a 4-year undergraduate course.

Private university: A private university is one run and supported by private individuals or a corporation and offers higher learning with teaching and research.

Public university: A public university is an institution for higher learning with teaching and research facilities comprising a graduate school and professional schools awarding Master's and Doctor's degrees as well as an undergraduate division which awards the Bachelor's degree; it is supported at least in part by public funds.

State four-year college: A state four-year college is a public college which awards the Bachelor's and Master's degrees in given disciplines.

Hypotheses

The following hypotheses are related one-to-one to the propositions described in Chapter I. In addition, support for the hypotheses was found in the Chapter II literature review. All variables described in the hypotheses were measured through use of scales of the Institutional Functioning Inventory (IFI), the instrument used in this study. Operational measures of the
constructs can be found in Chapter I.

1. If the governance structure of an organization is found to be democratic (as measured by the "Democratic Governance" [DG] scale of the IFI), then the organization will exhibit a greater concern for innovation (as measured on the "Concern for Innovation" [CI] scale of the IFI) than will an organization which maintains a hierarchical governance structure (as measured by the DG scale of the IFI).

2. The greater the interest of an organization in the needs of the community (as measured by the "Meeting Local Needs" [MLN] scale of the IFI) the more the organization will be concerned with innovation (as measured by the CI scale of the IFI). Conversely, if an organization exhibits little interest in community needs, its concern for innovation will also be low.

3. The mean score of faculty, as a group, representing that group's perception of the organization's concern for innovation (as measured on the CI scale of the IFI) will be lower than that of the administrative group for all systems.

4. The larger the number of employees in an organization, the greater its concern for innovation (as measured on the CI scale of the IFI); organizations with smaller numbers of employees will tend to be less interested in innovation (as measured on the CI scale).
5. Those organizations which exhibit higher mean scores on the scale of shared sense of purpose (as measured by the "Institutional Esprit" [IE] scale of the IFI) will exhibit greater concern for innovation (as measured on the CI scale of the IFI).

6. Those community colleges which do engage in the institutional research necessary to formulate and revise long-range planning efforts (as measured on the "Self-Study and Planning" [SP] scale of the IFI) will exhibit greater concern for innovation than will those community colleges which exhibit low scores on planning and research.

7. The community college system will score higher on the CI scale than will any of the other five systems examined.

8. As an aggregate, higher education in general will score lower on the CI scale than on any other of the 10 scales.

9. Higher education systems reporting in the 1977-1982 period will exhibit lower concern for innovation than will higher education systems reporting in the 1971-1976 period.

Population and Sample

The population addressed through the study was those higher educational systems in the United States as well
as the faculty and administrative groups of those systems. Specifically, six types of systems were included in the sample, designated as:

1. Public universities
2. Private universities
3. Liberal arts colleges
4. Community colleges
5. Private junior colleges
6. State four-year colleges

For purposes of comparison over time the study focused on four of the six systems. Those four are:

1. Public universities
2. Private universities
3. Liberal arts colleges
4. Community colleges

The population figures by system type are outlined in Table 1.

The sample was obtained by the Educational Testing Service through self-selection. The availability of and uses for the instrument were publicized by ETS in appropriate professional journals and magazines. Representatives of individual colleges interested in administering the Institutional Functioning Inventory contacted ETS and, if appropriate, took part in one of the testing time periods. The data collected by institutional research officers were returned to ETS for processing and storage.
### Table 1

Number of Institutions by System

**United States, 1979-1980**

<table>
<thead>
<tr>
<th>System</th>
<th>Number of institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public universities</td>
<td>95</td>
</tr>
<tr>
<td>Private universities</td>
<td>65</td>
</tr>
<tr>
<td>Liberal arts colleges</td>
<td>1,343</td>
</tr>
<tr>
<td>Community colleges</td>
<td>926</td>
</tr>
<tr>
<td>Private junior colleges</td>
<td>269</td>
</tr>
<tr>
<td>State 4-year colleges</td>
<td>454</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>3,152</strong></td>
</tr>
</tbody>
</table>


The data were intended primarily for use by Dr. Richard Anderson, Teacher's College, Columbia University, who is project director for ETS on the Institutional Functioning Inventory Project. Upon request by this investigator, anonymous aggregate data were made available for purchase; the institutions which had submitted those data comprised the sample for this study. This investigator also requested data for faculty and administrator groups for each institution from Richard Anderson. Because of the confidential nature of that data, Dr. Anderson was unable to comply with the request.
The data for numbers and types of institutions reporting during the 1971-1976 period are indicated in Table 2. The names of the institutions that reported in the various system categories appear in Appendix C.

**Table 2**

**Data Regarding Systems Using the IFI, 1971-1976**

<table>
<thead>
<tr>
<th>System</th>
<th>Number of institutions</th>
<th>Number of faculty</th>
<th>Number of administrators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public universities</td>
<td>12</td>
<td>2,110</td>
<td>415</td>
</tr>
<tr>
<td>Private universities</td>
<td>18</td>
<td>2,677</td>
<td>456</td>
</tr>
<tr>
<td>Liberal arts colleges</td>
<td>28</td>
<td>4,071</td>
<td>1,037</td>
</tr>
<tr>
<td>Community colleges</td>
<td>10</td>
<td>966</td>
<td>115</td>
</tr>
<tr>
<td>Private junior colleges</td>
<td>8</td>
<td>448</td>
<td>96</td>
</tr>
<tr>
<td>State 4-year colleges</td>
<td>28</td>
<td>3,587</td>
<td>722</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>103</strong></td>
<td><strong>12,859</strong></td>
<td><strong>2,841</strong></td>
</tr>
</tbody>
</table>


The numbers and types of institutions reporting in the 1977-1982 time period are indicated in Table 3. The names of the institutions that reported in the various system categories for this time period appear in Appendix D.
Table 3
Data Regarding Systems Using the IFI, 1977-1982

<table>
<thead>
<tr>
<th>System</th>
<th>Number of institutions</th>
<th>Number of faculty</th>
<th>Number of administrators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public universities</td>
<td>30</td>
<td>2,285</td>
<td>458</td>
</tr>
<tr>
<td>Private universities</td>
<td>27</td>
<td>2,143</td>
<td>461</td>
</tr>
<tr>
<td>Liberal arts colleges</td>
<td>98</td>
<td>4,675</td>
<td>1,202</td>
</tr>
<tr>
<td>Community colleges</td>
<td>21</td>
<td>1,302</td>
<td>212</td>
</tr>
<tr>
<td>Totals</td>
<td>176</td>
<td>10,405</td>
<td>2,333</td>
</tr>
</tbody>
</table>


Data Collection

The data for the study were obtained from the Educational Testing Service, located in Princeton, New Jersey. Specifically, Nancy Beck, the ETS Director for Higher Education, cooperated throughout in supplying available data. A letter indicating this cooperation may be found in Appendix B.

The data were delivered in a single format. Comparative data for the 1971-1976 and 1977-1982 administrations of the Institutional Functioning Inventory were provided in tabular form, with frequencies and scale scores, including standard deviation, for the scale mean.
Thus, analyses were performed based on the scope and format of the available data.

As indicated earlier, data were collected from six systems of higher education for 1971-1976 and for four systems for 1977-1982. Institutions participating by system have been named (see Appendices C and D) for each of the test periods. Institutions included in the sample for each system were self-selected; that is, they were assigned to these groups for purposes extraneous to this research problem. Thirty-six institutions were duplicated in both test periods.

Data were anonymous and aggregate, therefore, it is not possible to single out data for any specific higher educational institutions and data received were aggregated for all participating institutions categorized in a given system.

Data Analysis

The methods of analyzing data were determined in part according to the hypotheses developed. Method choice was in part also influenced because of the format of the data as received from the Educational Testing Service. Ideally, the unit of analysis for the hypotheses to be tested would have been the individual school, college, or university. In most cases, testing for significant Pearson product-moment correlations between scores resulting from two scales of the Institutional
Functioning Inventory would have been a preferred procedure. The nature of the available data precluded this procedure for individual schools, colleges, or universities for either the 1971-1976 or the 1977-1982 period. Product-moment correlations were used at the system level (e.g., community colleges, public universities, etc.) for both time periods. The t test also was used in testing for significant differences in the means of two groups (e.g., faculty and administrators) for the same scale. These could be calculated as desired since the Educational Testing Service provided the necessary elements (N, mean, standard deviation) for each of the 11 scales. Statistics were computed according to the SPSS software package whenever possible, but because of the aggregate character of much of the data, a number of manual calculations were also performed.

Five of the nine hypotheses in this study were tested using the Pearson product-moment correlation, as correlations were appropriate where a relationship between scales was posited. Table 4 reflects the ways in which the correlation technique was applied.

Thus the Product-moment correlation analysis focused on the hypothesized positive relationships between Concern for Innovation (CI) and each of four other scales of the IFI (DG, MLN, IE, and SP) as well as organizational size.
Table 4

Relationships Examined in Testing Hypotheses Numbers 1, 2, 4, 5, and 6

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Relationship</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>High democratic governance $\leftrightarrow$ high concern for innovation</td>
</tr>
<tr>
<td>2</td>
<td>High meeting local needs $\leftrightarrow$ high concern for innovation</td>
</tr>
<tr>
<td>4</td>
<td>Large organization size $\leftrightarrow$ high concern for innovation</td>
</tr>
<tr>
<td>5</td>
<td>High shared sense of purpose $\leftrightarrow$ high concern for innovation</td>
</tr>
<tr>
<td>6</td>
<td>High self-study and planning $\leftrightarrow$ high concern for innovation</td>
</tr>
</tbody>
</table>

It is important to note here that the arrows in Table 4 are two-directional for a specific reason. A high positive correlation is not de facto evidence that one variable "causes" another. Rather, correlations provide a measure of association, the degree to which variables occur (or take on certain values) together. Correlation is not causation.

Argued within Hypothesis 3 is the proposition that faculty will perceive lower concern for innovation than will administrators. This can best be assessed by using the \( t \) test of differences between means. Hypothesis 7 was analyzed using the \( t \) test procedure while the correlated \( t \) test was applied to analyze Hypothesis 9.
Table 5 outlines these three hypotheses.

### Table 5

**Data Analysis Techniques Used for Testing Hypotheses Numbers 3, 7, and 9**

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Variable</th>
<th>Group mean score</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Concern for innovation</td>
<td>Administrators ↔ faculty</td>
</tr>
<tr>
<td>7</td>
<td>Concern for innovation</td>
<td>Community colleges ↔ all others</td>
</tr>
</tbody>
</table>

Hypothesis 8 was tested using a simple rank order comparison to assess whether, as hypothesized, higher education systems scored lower on the CI scale than on any other of the 10 scales. This nonparametric method was judged sufficient in this instance.

A significance level of $p < .05$ was established for all statistical tests. However, because of the small sample sizes resulting from the aggregate nature of the data, assessment and discussion of nonsignificant differences were important to the study.

### Summary

The design and methodology of the study as well as the instrument used in the study have been described.
within this chapter. Pertinent terms were defined and the procedures and statistical methods applied were discussed. The following chapter will include discussion of results of the study and identification of the findings of the investigation.
CHAPTER IV

FINDINGS

In this chapter an analysis of the data obtained from the Educational Testing Service (ETS) covering administrations of the Institutional Functioning Inventory (IFI) from 1971 to 1982 is presented. The analysis involved each of the nine hypotheses of the study, with some comment on related issues and technical concerns.

Analysis of the data was accomplished using either the Pearson product-moment correlation coefficient or the \( t \) test where appropriate. In one case, a descriptive rank-order comparison was used, this being sufficient to test the hypothesis in question. In all cases, the alpha was set at the .05 level of significance.

Findings Related to the Research Hypotheses

The first hypothesis concerned the relationship between democratic governance and concern for innovation in organizations. It was hypothesized that systems scoring higher on the Democratic Governance (DG) scale of the IFI would also score higher on the Concern for Innovation (CI) scale. The evidence that this hypothesis was not supported at a statistically significant level is
presented in Table 6; the relationship was high ($r_{xy} = .70$) and in the direction specified, however. The N in Table 6 indicates the number of participant responses in a given system.

The correlation was based on six cases, i.e., six systems of education. Means\(^1\) were based on data collected from 1971-1982 for four system types (public universities, private universities, liberal arts colleges, and community colleges) since data were unavailable for the two other system types (private junior colleges and state four-year colleges) for the later test administration dates. Means for these two were based on data collected from 1971-1976.

It was also hypothesized that systems having higher scores on the Meeting Local Needs (MLN) scale would also have higher scores on the CI scale. The correlation was judged not significant in this case, with $r_{xy} = .49$. The correlation was positive, which indicated that the relationship was in the direction specified, but not of the strength required for statistical significance. A summary of the results of applying the Pearson product-moment correlation coefficient is presented in Table 7. Again, means were based on data collected from 1971.

\(^1\)Means were weighted according to the formula

\[
\frac{(n_1)(\bar{x}_2) + (n_2)(\bar{x}_2)}{n_1 + n_2}.
\]
Table 6

Relationship Between Concern for Innovation and Governance Structure

<table>
<thead>
<tr>
<th>Higher education system</th>
<th>Time period</th>
<th>Democratic governance</th>
<th>Concern for innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td>Public universities</td>
<td>1971-1982</td>
<td>5,276</td>
<td>5.36</td>
</tr>
<tr>
<td>Private universities</td>
<td>1971-1982</td>
<td>5,850</td>
<td>6.16</td>
</tr>
<tr>
<td>Liberal arts colleges</td>
<td>1971-1982</td>
<td>12,074</td>
<td>6.76</td>
</tr>
<tr>
<td>Community colleges</td>
<td>1971-1982</td>
<td>2,587</td>
<td>5.97</td>
</tr>
<tr>
<td>Private junior colleges</td>
<td>1971-1976</td>
<td>609</td>
<td>6.45</td>
</tr>
<tr>
<td>State 4-yr. colleges</td>
<td>1971-1976</td>
<td>4,328</td>
<td>5.78</td>
</tr>
</tbody>
</table>

Note. N = number of participant respondents.

r_{xy} = .70, NS

p < .10
Table 7
Relationship Between Concern for Innovation and Meeting Local Needs

<table>
<thead>
<tr>
<th>Higher education system</th>
<th>Time period</th>
<th>Meeting local needs</th>
<th>Concern for innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td>Public universities</td>
<td>1971-1982</td>
<td>5,127</td>
<td>8.47</td>
</tr>
<tr>
<td>Private universities</td>
<td>1971-1982</td>
<td>5,902</td>
<td>7.78</td>
</tr>
<tr>
<td>Liberal arts colleges</td>
<td>1971-1982</td>
<td>12,116</td>
<td>7.97</td>
</tr>
<tr>
<td>Community colleges</td>
<td>1971-1982</td>
<td>2,633</td>
<td>10.48</td>
</tr>
<tr>
<td>Private junior colleges</td>
<td>1971-1976</td>
<td>611</td>
<td>8.32</td>
</tr>
<tr>
<td>State 4-yr. colleges</td>
<td>1977-1982</td>
<td>4,336</td>
<td>7.20</td>
</tr>
</tbody>
</table>

Note. N = number of participant responses.

$r_{xy} = .49$, NS

$p = .16$
until 1982 for four system types and on data collected from 1971 until 1976 for the other two system types.

Along a different line, it was hypothesized that administrators would perceive significantly more concern for innovation than would faculty members. Again, this could only be tested at an aggregate level, rather than on an institution-by-institution basis. This hypothesis was supported at a highly significant level, with \( p < .01 \). Presented in Table 8 are the results of the \( t \) test applied to examine the third hypothesis.

Table 8

<table>
<thead>
<tr>
<th>Group</th>
<th>( N )</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>( t ) value</th>
<th>( p )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty</td>
<td>23,652</td>
<td>7.20</td>
<td>3.02</td>
<td>-13.33</td>
<td>.01</td>
</tr>
<tr>
<td>Administration</td>
<td>4,961</td>
<td>7.82</td>
<td>2.78</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>28,613</td>
<td>7.31</td>
<td>2.98</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. \( df = 28,611 \)

\( N \) = number of participant responses.

Another purpose of this study was to assess the relationship between organizational size and Concern for Innovation. This could be done only imperfectly, since the aggregate character of the data dictated a measure of
size that was not exact. Size was established at the system level, assuming that the average enrollment over the 6-year period—for all institutions in the IFI sample for each system—was equal to the average enrollment at a given time. For the early administrations (1971-1976), enrollment data from 1974 were used; for the later administrations (1977-1982), 1979 enrollment data were chosen. As an example, the assumed average enrollment for the community colleges in the 1971-1976 period was 4,886 (1974 average enrollment). The resulting negative correlation (−.55) between size and scores on the CI scale may be seen in Table 9. This correlation is not statistically significant. The hypothesis, then, was not supported.

In Hypothesis 5, a relationship between the Concern for Innovation (CI) scale and the Institutional Esprit (IE) scale was examined. It was hypothesized that organizations with higher scores on the IE scale would also score higher on the CI scale. Means were calculated for public universities, private universities, liberal arts colleges, and community colleges for the 1971-1982 period. The means for private junior colleges and state four-year colleges were based on 1971-1976 data. Results of the Pearson product-moment correlation coefficient analysis indicating that the hypothesis was supported at a significant level may be found in Table 10. A correlation of
<table>
<thead>
<tr>
<th>Higher education system</th>
<th>Time period</th>
<th>Assumed average enrollment</th>
<th>Concern for innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Public universities</td>
<td>1971-1982</td>
<td>11,308</td>
<td>5,039</td>
</tr>
<tr>
<td>Private universities</td>
<td>1971-1982</td>
<td>5,318</td>
<td>5,744</td>
</tr>
<tr>
<td>Liberal arts colleges</td>
<td>1971-1982</td>
<td>1,684</td>
<td>11,976</td>
</tr>
<tr>
<td>Community colleges</td>
<td>1971-1982</td>
<td>4,543</td>
<td>2,554</td>
</tr>
<tr>
<td>Private junior colleges</td>
<td>1971-1976</td>
<td>1,229</td>
<td>599</td>
</tr>
<tr>
<td>State 4-yr. colleges</td>
<td>1971-1976</td>
<td>5,188</td>
<td>4,286</td>
</tr>
</tbody>
</table>

Note: $r = -0.55$, NS
$p = 0.13$
Table 10

Relationship Between Concern for Innovation and Institutional Esprit

<table>
<thead>
<tr>
<th>Higher education system</th>
<th>Time period</th>
<th>Institutional esprit</th>
<th>Concern for innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td>Public universities</td>
<td>1971-1982</td>
<td>5,044</td>
<td>6.84</td>
</tr>
<tr>
<td>Private universities</td>
<td>1971-1982</td>
<td>5,754</td>
<td>8.22</td>
</tr>
<tr>
<td>Liberal arts colleges</td>
<td>1971-1982</td>
<td>11,993</td>
<td>9.20</td>
</tr>
<tr>
<td>Community colleges</td>
<td>1971-1982</td>
<td>2,567</td>
<td>8.47</td>
</tr>
<tr>
<td>Private junior colleges</td>
<td>1971-1976</td>
<td>603</td>
<td>9.90</td>
</tr>
<tr>
<td>State 4-yr. colleges</td>
<td>1971-1976</td>
<td>4,271</td>
<td>7.16</td>
</tr>
</tbody>
</table>

Note. $N =$ number of participant responses

\[ r_{xy} = .82 \]

$\ p < .05 $
.82 between Concern for Innovation and Institutional Esprit may be seen. This was found to be significant at $p < .05$. The number of participant responses is indicated by N.

In Hypothesis 6, a relationship between long-range planning efforts (as measured on the SP scale of the IFI) and Concern for Innovation (CI) was postulated. Presented within Table 11 are the results of the Pearson product-moment correlation coefficient as applied to the data regarding responses to the SP and CI scales. A strong and significant correlation was found, indicating a positive relationship between long-range planning efforts and concern for innovation. The correlation found was .89 at $p < .01$.

It was suspected that the majority of the IFI scales would correlate highly with Concern for Innovation. If this were true, it would certainly vitiate the significance of the correlations found in two of four such comparisons performed in this study (Institutional Esprit and Self-Study and Planning were found to correlate significantly with Concern for Innovation; Democratic Governance and Meeting Local Needs did not). To investigate this possibility, the correlation of scores on the remaining scales with the scores on the CI scale was examined. Only one additional significant correlation was found. Results showed a positive correlation between
Table 11
Relationship Between Concern for Innovation and Self-Study and Planning

<table>
<thead>
<tr>
<th>Higher education system</th>
<th>Time period</th>
<th>Self-study and planning</th>
<th></th>
<th></th>
<th>Concern for innovation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>N</td>
<td>Mean</td>
<td>SD</td>
<td>N</td>
<td>Mean</td>
</tr>
<tr>
<td>Public universities</td>
<td>1971-1982</td>
<td>5,100</td>
<td>6.63</td>
<td>3.2</td>
<td>5,039</td>
<td>7.22</td>
</tr>
<tr>
<td>Private universities</td>
<td>1971-1982</td>
<td>5,829</td>
<td>6.50</td>
<td>3.1</td>
<td>5,744</td>
<td>7.25</td>
</tr>
<tr>
<td>Liberal arts colleges</td>
<td>1971-1982</td>
<td>12,070</td>
<td>7.42</td>
<td>3.0</td>
<td>11,976</td>
<td>7.84</td>
</tr>
<tr>
<td>Community colleges</td>
<td>1971-1982</td>
<td>2,571</td>
<td>6.80</td>
<td>3.0</td>
<td>2,554</td>
<td>7.62</td>
</tr>
<tr>
<td>Private junior colleges</td>
<td>1971-1976</td>
<td>609</td>
<td>7.92</td>
<td>2.8</td>
<td>599</td>
<td>7.68</td>
</tr>
<tr>
<td>State 4-yr. colleges</td>
<td>1971-1976</td>
<td>4,319</td>
<td>5.80</td>
<td>3.2</td>
<td>4,286</td>
<td>6.77</td>
</tr>
</tbody>
</table>

Note. N = number of participant responses.

\[ r_{xy} = .89 \]

\[ p < .01 \]
scores on the Undergraduate Learning (UL) scale ($r_{xy} = .85$, $p < .01$) and the Concern for Innovation (CI) scale.

An additional area examined in this study was inter-system comparison. In Hypothesis 7 it was proposed, in particular, that community colleges would show higher concern for innovation than would other systems. Once again, the aggregate nature of the data dictated limitations on the way in which this could be tested. Presented in Table 12 are the results of a series of four $t$-test comparisons. In each case one system type's mean CI score was compared to the mean CI score for all other systems. The private junior colleges and state four-year colleges were not considered separately, since no data for these systems were available for the 1977-1982 period.

As may be seen from the final comparison in Table 12, the difference between the community college mean score and the mean of all other systems was found to be highly significant at $p < .01$. A similar comparison for each of the other three system types resulted in highly significant differences being found for each. The data analysis results showed a positive correlation for the mean score of community colleges and liberal arts colleges to the mean score of all other systems. The means for public universities and private universities were found to have negative correlations with the mean for all other systems. Liberal arts colleges, with a mean CI of 7.84 compared to
Table 12
Relationship Between Concern for Innovation and Higher Education System Type

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>t value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public universities</td>
<td>5,039</td>
<td>7.22</td>
<td>3.05</td>
<td>-5.86</td>
<td>.01</td>
</tr>
<tr>
<td>All other systems</td>
<td>25,159</td>
<td>7.49</td>
<td>3.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>df = 30,196</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private universities</td>
<td>5,744</td>
<td>7.25</td>
<td>3.06</td>
<td>-5.23</td>
<td>.01</td>
</tr>
<tr>
<td>All other systems</td>
<td>24,454</td>
<td>7.48</td>
<td>2.95</td>
<td></td>
<td></td>
</tr>
<tr>
<td>df = 30,196</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liberal arts colleges</td>
<td>11,976</td>
<td>7.84</td>
<td>2.90</td>
<td>18.57</td>
<td>.01</td>
</tr>
<tr>
<td>All other systems</td>
<td>18,222</td>
<td>7.19</td>
<td>3.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>df = 30,196</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community colleges</td>
<td>2,554</td>
<td>7.62</td>
<td>2.80</td>
<td>3.09</td>
<td>.01</td>
</tr>
<tr>
<td>All other systems</td>
<td>27,644</td>
<td>7.43</td>
<td>2.99</td>
<td></td>
<td></td>
</tr>
<tr>
<td>df = 30,196</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
7.19 for all other systems, were found to have the highest significance ($t$ value = 18.57, two-tailed $p < .01$).

In the eighth hypothesis it was postulated that the CI scale score for higher education in general would be lower than the score on any of the other 10 scales. A descriptive rank order of the mean scale scores for the 11 scales for each system type revealed that the CI scale was clearly not the lowest, either individually or in aggregate. Table 13 shows that CI never ranked lower than sixth (out of 11), and ranked as high as fourth in two instances. Thus, Hypothesis 8 was not supported.

Table 13

<table>
<thead>
<tr>
<th>System</th>
<th>Period</th>
<th>Rank of Concern for Innovation (out of 11 variables)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public universities</td>
<td>1971-1982</td>
<td>4</td>
</tr>
<tr>
<td>Private universities</td>
<td>1971-1982</td>
<td>6</td>
</tr>
<tr>
<td>Liberal arts colleges</td>
<td>1971-1982</td>
<td>4</td>
</tr>
<tr>
<td>Community colleges</td>
<td>1971-1982</td>
<td>6</td>
</tr>
<tr>
<td>Private junior colleges</td>
<td>1971-1976</td>
<td>5</td>
</tr>
<tr>
<td>State 4-year colleges</td>
<td>1971-1976</td>
<td>5</td>
</tr>
</tbody>
</table>
For testing Hypothesis 9, a final comparison was made between CI mean scores in earlier (1971-1976) and later (1977-1982) administrations of the IFI. It was hypothesized that the administrators in the institutions surveyed in the later time period would perceive a lower concern for innovation than those surveyed in the earlier period, and this proved to be the case. The data in Table 14 reflect a statistically higher ($p < .001$) concern in the group that reported in the 1971-1976 time period.

Table 14

<table>
<thead>
<tr>
<th>IFI time period</th>
<th>N</th>
<th>CI mean</th>
<th>SD</th>
<th>$t$ value (correlated test)</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1971-1976</td>
<td>12,493</td>
<td>7.63</td>
<td>2.98</td>
<td>243.06</td>
<td>.001</td>
</tr>
<tr>
<td>1977-1982</td>
<td>12,820</td>
<td>7.49</td>
<td>2.93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Totals</td>
<td>25,313</td>
<td>7.56</td>
<td>2.95</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note. N = number of participant responses.*

It is emphasized that this time comparison was not longitudinal; however, some institutions (and, thus, respondent groups) compared from the first time period to the second time period were the same. In the public university system, seven institutions were included in both administrations; five private universities were duplicated.
in the later administrations as were 21 liberal arts colleges and three community colleges. A total of 36 institutions were duplicated. Because of the nature of the purchased data, it was not possible to identify or eliminate duplicate colleges.

Summary

In this study aggregate data obtained from ETS, for administrations of the Institutional Functioning Inventory covering two time periods from 1971 to 1982, were analyzed. The main purposes of the study were to explore the relationships or differences:

1. Between Concern for Innovation and each other IFI scale.
2. Between Concern for Innovation and organizational size.
3. Between Concern for Innovation as perceived by faculty in comparison to administrators.
4. Among various system types and their perceived Concern for Innovation.

The main findings were:
1. Scores on the Concern for Innovation (CI) scale were not significantly correlated with scores on either
the Democratic Governance (DG) or the Meeting Local Needs (MLN) scale, contrary to hypotheses.

2. Both Institutional Esprit (IE) and Self-Study and Planning (SP) scale scores were significantly correlated with the Concern for Innovation (CI) scale score. Higher education in general did not, contrary to hypothesis, score lower on the CI scale than on any other.

3. The hypothesized positive correlation between organizational size and scores on the CI scale was not supported by the data. Rather, the reverse tendency was found, with systems having smaller average enrollments also having higher CI scores. This correlation (-.55) tended toward significance, with \( p < .10 \).

4. Administrators reported perceiving significantly higher \( (p < .05) \) concern for innovation than did faculty members.

5. There was a highly significant difference between community colleges and all other system types in terms of scores on the CI scale, with \( p < .01 \). Three other systems tested (public universities, private universities, and liberal arts colleges) were each found to have a highly significant difference in terms of scores on the CI scale, each with \( p < .01 \).

Despite the limited nature of the available data, the hypotheses of the study were tested in a satisfactory manner. In more difficult cases (e.g., those involving organizational size or intersystem comparisons), approximations to the ideal were made insofar as possible. In Chapter V a summary of the study, as well as conclusions drawn from the findings, will be presented, along with recommendations for other investigators or practitioners.
CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purposes of this chapter are to: (a) provide a brief summary of the study, (b) present a discussion of the findings reported in the preceding chapter, (c) draw and discuss conclusions from the aforementioned findings, and (d) provide recommendations for further study or examination.

Summary of the Study

In an effort to ensure institutional survival during times of changing environmental conditions, many educational managers have been seeking to effect innovation in their organizations. The purpose of this study was to learn what relationships exist between the level of Concern for Innovation in an organization and certain other organizational elements or variables. Managers interested in innovation as an institutional activity could then have access to information about the relationship of innovation to the governance structure (which could range between "democratic" and "hierarchical" on a continuum) of the organization. In addition, the following variables were also examined to ascertain any relationships
they might have to the Concern for Innovation variable:

1. Meeting local needs
2. Institutional esprit
3. Self study and planning

Each of the variables was examined both in the aggregate and according to the following system types:

1. Public universities
2. Private universities
3. Liberal arts colleges
4. Community colleges
5. Private junior colleges
6. State four-year colleges

Responses from two specific groups, faculty and administrators, were also examined by system type and in the aggregate. Comparisons were also made between the results of the first time period of administration (1971-1976) and the later time period of administration (1977-1982) of the Institutional Functioning Inventory.

Discussion and Interpretation of Findings

General Findings: Organizational Elements

Respondents who evidenced a commitment to Democratic Governance also showed some concern for the level of Concern for Innovation in their organizations. While the correlation between these two variables was positive, it
was not of statistical significance. This information points out to the educational manager that democratic governance is not a necessary component of innovative activity in an organization, but it may tend to support the innovative process. It should be emphasized that the "tendency" toward significance ($p < .10$) is worth noting because the number of degrees of freedom affects the correlation. The fact that only six cases were examined caused a lack of significance for this high correlation ($p = .70$). Managers and others interested in facilitating innovation in their organizations may find that an established, open (democratic) climate of governance is a positive element in support of innovation as a major management activity.

Further support for the above finding may be found in the literature. While Steiner (1965) Drucker (1974), and Morrish (1976) all described the innovative organization as one characterized by open channels of communication, other scholars (Bennis et al., 1976) indicated that organizations which maintain a hierarchical system of governance are able to effect change and initiate innovation through power and coercive management strategies.

In addition, no significant relationship was found between the Meeting Local Needs variable and the level of Concern for Innovation in an organization. Since the correlation between these variables was positive though
not statistically significant, it can be concluded that the degree of commitment to meeting local community needs evidenced by an organization is not a strong facilitator of innovation. However, the correlation ($r_{xy} = .49$) indicated a strong tendency toward a significant relationship; it should be noted that the analysis was based on only six cases which gave reason for a lack of significance for high correlations such as appear here. This finding was unsupported in the literature reviewed. Scholars who addressed the issue of community needs as related to innovative activity indicated that interest in serving community needs would initiate responding innovative program development (Bushnell, 1973; Monroe, 1982).

Another finding regarded the relationship between a third organizational variable, Self-Study and Planning, and Concern for Innovation. A strong, positive relationship was found to exist between these two variables, indicating that those organizations which are more involved in the self-study and planning processes are also more involved in innovative activities. This provided a hint that the most "off-the-cuff" or "loose" organization is not necessarily the most innovative one as well as evidence that careful planning and imaginative leadership are not mutually exclusive, but may actually complement each other to a large extent. Lindquist (1978), Baldridge (1980), and Hammons (1982) were among those who
have discussed a possible relationship between the planning process and innovative, vital activity in an educational institution or other organizational enterprise.

A fourth organizational element under consideration with regard to its relationship to the level of Concern for Innovation variable was that of Institutional Esprit. The results of the applied statistical technique showed a strong, significant correlation between the degree of Institutional Esprit in organizations and the level of Concern for Innovation. The greater the sense of "team spirit," the sense of working together with mutuality in an organization, the greater the level of concern for innovation. Drucker (1974, 1980) contended that those organizations wishing to be innovative concentrate on developing a management team (or teams) throughout the organization. The finding reported above supported Drucker's contention.

Since two (Institutional Esprit and Self-Study and Planning) of the four variables of primary concern were found to correlate significantly with the Concern for Innovation variable, this researcher decided to examine mean scores on all the remaining scales for correlations with the scores on the Concern for Innovation scale. Only one additional significant correlation was found, that of Concern for Undergraduate Learning (UL). The high significance of this result indicated that those
organizations which evidence strong support of undergraduate learning are also greatly concerned with innovative activity in their organizations. Educational managers may wish to examine this variable in their own organizations to ascertain its relationship to innovative activity in the institution. *Three Thousand Futures* (1981), a report of the Carnegie Commission on Higher Education, proposed that institutions which have a strong commitment to the undergraduate program would need to seek new ways through which to reach new populations of learners.

A different type of organizational variable, that of organizational size, was also examined for any relationship it might have to the Concern for Innovation variable. A negative correlation was found to exist between organizational size and scores on the Concern for Innovation variable. In other words, systems with higher average enrollment tended to show less concern for innovation than did systems with smaller average enrollments. This correlation, while not statistically significant, was found to be important because it was in the opposite direction from that hypothesized. Steiner (1965) and Mohr (1969) opined that smaller organizations were more likely to be innovative than were larger organizations.
General Findings: Group Membership Comparison

Data from responses on the IFI were also examined for two distinct groups, faculty and administrators, with the thought that one group might perceive the variables differently than would the other. The results of a t-test indicated a high, positive and significant relationship of group type to the Concern for Innovation variable. As hypothesized, the administrative group perceived significantly more concern for innovation in the organization than did the faculty group. Martorana and Kuhns (1975) noted a difference between faculty and administrator perceptions of innovation and found that faculty (for the most part) were unconcerned with innovation as an activity in which they might engage.

It was suspected that faculty scores might be significantly lower than administrator scores on all of the IFI scales. A t-test performed on mean scores of each of the remaining scales indicated a significant difference between faculty and administrator scores on only one other scale, that of Democratic Governance. This significance suggests a possible three-way relationship involving Democratic Governance, Concern for Innovation, and type of group membership.
General Findings: Intersystem Comparison

Responses to scales on the IFI were also examined among and between systems at the system level. Aggregate system data were used, excluding private junior colleges and state four-year colleges. It was hypothesized that community colleges would score higher on the Concern for Innovation variable than would all the other combined systems. This was found to be the case. A high, statistically significant difference was found between the community college scores on the CI variable and the aggregate score of all other systems, indicating that community colleges evidenced a stronger Concern for Innovation than did all other systems combined. However, when the score for each of the remaining three systems was compared to the aggregate score data of all other systems on the CI variable, each showed a like significance (p < .01). This result may serve to lessen the significance in any of the single system versus all other systems comparisons, including that of the community college versus all other systems. However, the negative result for public universities and private universities indicated that each of these systems was less concerned with innovation than was the aggregate of all other systems. Results of score comparisons for community colleges and liberal arts colleges were positive, which indicated a
strong relationship with Concern for Innovation. Bushnell (1973) and Monroe (1982) noted a tendency for community colleges to be innovative as opposed to the more established and mature systems of higher education (public universities, private universities, liberal arts colleges, and private junior colleges, in some instances); this finding lent support to their contentions.

Contrary to Hypothesis 8, higher education (in general) did not score lower on the Concern for Innovation scale than on any of the other 10 scales of the IFI. However, in rank ordering of the scores for the 11 scales for all systems under study and for both time periods (1971-1976 and 1977-1982), Advancement of Knowledge (AK) ranked lowest of all. In the early history of higher education "advancement of knowledge" was a prime function of the institution; thus, the results found here reflect a change in the priority of that function and may reflect the diversity of mission of higher education as it strives to serve "all of the people" who choose it. This finding once again supported the contentions of Bushnell (1973) and Monroe (1982) as previously mentioned.

General Findings: Time Comparison

An effort was made to compare system, group membership, and aggregate responses to the IFI on each of the 11 scales for each of two time periods of administration:
1971-1976 and 1977-1982. It was hypothesized that systems surveyed in the later time period would show a lower level of Concern for Innovation than would systems which took part during the earlier testing period. This did prove to be true, and the results showed an extremely significant concern in the earlier group. While several scholars (e.g., Steiner, 1965; Drucker, 1974) referred to the fact that younger organizations may be more innovative than older, more mature institutions, nowhere in the literature examined was the relationship of Concern for Innovation to specified time periods discussed.

Comparisons over time were not longitudinal, but some of the same institutions were represented in later as well as earlier test administrations (see pp. 77-78). However, each 6-year period was treated as a discrete category and it was assumed that data collection was similar for both time periods.

Conclusions

The findings of this study should be considered against the backdrop of current knowledge of innovation and leadership, innovation within organizations, and the governance structure of organizations as presented and discussed in Chapter II of this study. As has been mentioned, management has the prerogative both to initiate and to maintain organizational elements or conditions
which, in turn, would serve to facilitate innovative activity within the organization.

The conclusions presented here were drawn from the results of the investigation as well as from the literature review. They are presented so that educational managers and others may consider each in relation to the implementation of innovative activity in their own respective institutions.

1. A democratic governance structure is not a necessary component of innovative activity in an educational organization; however, it may tend to support the innovative process in all systems.

2. The extent to which institutions attempt to meet local community needs does not significantly facilitate innovative activity, but a positive relationship was found between these two activities.

3. Two variables of primary importance to higher education facilitate the innovative process in educational institutions, namely: (1) the extent to which the institution is engaged in self-study and long-range planning and (2) the degree of Institutional Esprit present in the organization.

4. Smaller organizations tend to be more innovative than their larger counterparts. One reason for this may be that larger institutions are generally older and more mature, whereas many smaller institutions are young and
still in the development stages.

5. Administrators perceive more innovation in their organizations than does the faculty group, and the faculty group also scored lower on the Democratic Governance scale than did the administrative group. It is possible that faculty groups have less information about the organization than do administrative groups (Nelson, 1981), hence their perceptions of these variables may be based only on that information they receive. If communications about the organization do not reach the faculty group, then it can be assumed that democratic governance is not institution-wide.

6. Each individual system examined (public universities, private universities, liberal arts colleges, and community colleges) was found, in comparison with all other systems, to be greatly concerned with innovation. Public and private universities exhibited results which indicated a lesser concern with innovation than was exhibited by the aggregate of all other systems. Community colleges and liberal arts colleges evidenced greater concern for innovative activity than did the aggregate of all other systems.

7. Of all the variables examined through use of the IFI (see Chapter III), Advancement of Knowledge (AK) seemed least important to all six systems studied at this time. This conclusion was based on a review of a rank
ordering of all scale scores.

8. Those institutions surveyed in the earlier test administration (1971-1976) were found to be significantly more concerned with the activity of innovation than were those systems surveyed in the later (1977-1982) test administration.

Recommendations

The findings of this study could provide practicing educational leaders, managers, and others with information about elements which facilitate innovation in educational institutions. The following recommendations serve as commentary on the results of the investigation and as suggestions for future study by leaders, managers, students, and researchers.

Recommendation Number 1

The investigator recommends that educational managers consider the implications of this study as they prepare for innovation and change. Environmental conditions of today threaten the structure of the educational system as it is now known. Limited federal, state, and local funding impose budget constraints while changing community demography necessitates changes in curriculum as well as in some areas of policy. In reaction to a changing society, the very purpose of higher education
has undergone alteration. Educational institutions have been slow to change; if change--and correspondingly, innovation--is to be introduced into these systems, educational managers must be aware of and plan for this activity.

Recommendation Number 2

The investigator recommends making appropriate changes, if necessary, to support an open, or democratic, management system with communication at and among all levels (administrative, faculty, and support staff). The relationship between the organizational elements Concern for Innovation and Democratic Governance indicated a tendency for a democratic structure of governance to be a positive support for innovative activity. Educational managers seeking to foster innovative activity in their institutions should consider reexamination of the existing governance structures in light of this recommendation.

Recommendation Number 3

Additionally, it is recommended that, in light of the "tendency" noted above, further investigation be carried out to examine the in-depth relationship between an open, or democratic, governance structure and the management activity called innovation. This investigation should be done in either institutions of higher education
or business enterprises.

Recommendation Number 4

It is recommended that managers consider the variables "Self-Study and Planning" and "Institutional Esprit" in terms of their strongly significant and facilitative relationship in support of the innovation process. Strengthening these organizational elements in an institution should serve to strengthen the base for innovative activity.

Recommendation Number 5

The investigator further recommends that organizational leaders interested in innovation engage in a self-study using the Institutional Functioning Inventory. Each of the 11 variables examined through use of the IFI subscales should be considered in light of its relationship to concern for innovation. Self-study results can be compared to the results outlined in this study, as part of the institutional planning process.

Recommendation Number 6

Since innovation has become a recognized major activity in organizations in recent years, research should be conducted on those variables (such as organizational size, budget, use of a change agent, and breadth of
organizational goals) which have heretofore been found to affect the innovative process, as reported in the literature reviewed in Chapter II. Present economic and other environmental conditions may affect the strength of the correlation between each of these variables and concern for innovation.

Recommendation Number 7

It is recommended that further research be conducted regarding the goals of higher education systems as well as the changes which have occurred in the priority of certain goals over time. In particular, it was found that respondents from all higher education systems reported less concern with Advancement of Knowledge than with any of the other variables under study. The reason for this should be known to practicing higher education managers and others.

Recommendation Number 8

Lastly, this investigator recommends that additional research be conducted that would lead to a theory of the innovative process as it occurs in organizations. As social, environmental, and technological changes become the norm for daily living rather than the exception, it could be helpful to managers and leaders from all walks of life to study a theory of the innovation process as a
preamble to innovative activity.

Summary

Democratic Governance and Meeting Local Needs were not found to be significant facilitators of innovation in organizations (Democratic Governance "tended" to be a positive element, however), whereas Institutional Esprit and Self-Study and Planning were found to be organizational elements in strong support of innovation. In addition, smaller organizations were found to be more innovative than were larger ones.

Faculty members perceived significantly less innovative activity in their organizations than did members of the administrator group. The administrator group perceived more Democratic Governance than did the faculty group.

Each of the four systems examined (public universities, private universities, community colleges, and liberal arts colleges) evidenced significant Concern for Innovation. The scores for public universities and private universities exhibited a negative relationship with innovation while the scores for community colleges and liberal arts colleges were found to have a positive relationship with the Concern for Innovation variable. Representatives of higher education reported scale scores, the means of which indicated less concern with
Advancement of Knowledge than with any of the other 10 variables. Finally, respondents from organizations reporting in the earlier time period (1971-1976) evidenced greater concern for innovative activity than did those from organizations reporting in the later time period (1977-1982).
REFERENCES


Boles, H. W. Leaders, leading and leadership. Kalamazoo: Western Michigan University, Department of Educational Leadership, 1980.


Clark, D., & Guba, E. An examination of potential change roles in education. *Columbus: The Ohio State University,* 1965.


Irwin, P. H. Changing organization behaviour through strategic planning. Managerial Planning, 1979, 28 (September/October), 3-12.


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Appendix A

Institutional Functioning Inventory
Institutional Functioning Inventory

Revised Edition
INSTITUTIONAL FUNCTIONING INVENTORY

TO THE RESPONDENT:

This inventory is for institutional self-study. In it you will be asked for your perceptions about what your institution is like—administrative policies, teaching practices, types of programs, characteristic attitudes of groups of people, and so forth. This inventory is not a test; the only "right" answers are those that reflect your own perceptions, judgments, and opinions. Results will be summarized only for groups. In no instance will responses of individuals be reported.

Confidentiality of responses can be assured by not giving your name on the answer sheet. Comments and criticisms are invited regarding any aspect of the inventory; please send them to Institutional Functioning Inventory, ETS College and University Programs, Princeton, NJ 08541.

DIRECTIONS:

1. PENCILS. Use any soft lead pencil (preferably No. 2). Do not use an ink or ball-point pen.

2. MARK ONLY ON THE SEPARATE ANSWER SHEET. Please make no marks in this booklet, which may be reused.

3. INFORMATION ITEMS. Fill in the name of your institution on the answer sheet. Then answer the questions that apply to you on the right-hand side of the answer sheet. Blacken only one answer oval for each question. All respondents should answer item I and each of the Items II - VI that apply.

4. SUBGROUPS. Instructions may be given for gridding the Subgroup item. If not, please leave it blank.

5. LOCAL OPTION QUESTIONS (A-J). A sheet of additional questions designed to provide information for local research purposes may be enclosed in this booklet. If so, mark your responses to these questions in the appropriate ovals below the boxes lettered A through J on the answer sheet. Mark only one response to each question.

6. MARKING YOUR RESPONSES. Sections 1 and 3 consist of statements about policies and programs that may or may not exist at your institution. Indicate whether you know a given situation exists or does not exist by gridding either YES, NO, or T (DON'T KNOW).

In Sections 2 and 4, the statements are such that different individuals at the college will have different opinions or judgments. Indicate your opinion by gridding either STRONGLY AGREE, AGREE, DISAGREE, or STRONGLY DISAGREE.

7. STUDENTS. Students should answer only the questions in Section 1 and Section 2 of the inventory (statements 1 through 72).

8. RESPOND TO EVERY STATEMENT. Please try to mark a response for every statement in the inventory (or, for students, in Sections 1 and 2). Leave blank only those statements that clearly do not apply to your institution.

9. MARK ONLY ONE RESPONSE FOR EACH STATEMENT.

The Institutional Functioning Inventory was developed in collaboration with the Institute of Higher Education, Teachers College, Columbia University, under a grant from the Kettering Foundation.

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SECTION 1

Respond to statements on this page by gridding either

YES (Y)  NO (N)  DON'T KNOW (I)

If the statement applies or is true at your institution.

If the statement does not apply or is not true at your institution.

If you do not know whether the statement applies or is true.

1. There is a campus art gallery in which traveling exhibits or collections on loan are regularly displayed.

2. There are provisions by which some number of educationally disadvantaged students may be admitted to the institution without meeting the normal entrance requirements.

3. There are programs and/or organizations at this institution that are directly concerned with solving pressing social problems, e.g., race relations, urban blight, rural poverty, etc.

4. A number of professors have been involved in the past few years with economic planning at either the national, regional, or state level.

5. Foreign films are shown regularly on or near campus.

6. There are established procedures by which students may propose new courses.

7. This institution attempts each year to sponsor a rich program of cultural events—lectures, concerts, plays, art exhibits, and the like.

8. There are no written regulations regarding student dress.

9. Professors from this institution have been actively involved in framing state or federal legislation in the areas of health, education, or welfare.

10. A number of nationally known scientists and/or scholars are invited to the campus each year to address students and faculty groups.

11. This institution deliberately seeks to admit a student body in which a variety of attitudes and values will be present.

12. Quite a number of students are associated with organizations that actively seek to reform society in one way or another.

13. When this institution is looking for new faculty, it goes primarily to a limited number of particular graduate schools.

14. At least one modern dance program has been presented in the past year.

15. Students publish a literary magazine.

16. In the past two years, administrators or the governing board have countermanded one or more invitations from student groups to controversial speakers.

17. Faculty promotion and tenure are based primarily on assessments of teaching effectiveness.

18. This institution, through the efforts of individuals and/or specially created institutes or centers, is actively engaged in projects aimed at improving the quality of urban life.

19. A concerted effort is made to attract students of diverse ethnic and social backgrounds.

20. At least one serious classical music concert has been given within the past year.

21. At least one poetry reading, open to the campus community, has been given within the past year.

22. The institution imposes certain restrictions on off-campus political activities by faculty members.

23. One of the methods used to influence the flavor of the college is to try to select students with fairly similar personality traits.

24. A number of faculty members or administrators from this institution have gone to Washington to participate in planning various government programs.

25. There are a number of student groups that meet regularly to discuss intellectual and/or philosophic topics.
26. In general, decision making is decentralized whenever feasible or workable.

27. Many faculty members would welcome the opportunity to participate in laying plans for broad social and economic reforms in American society.

28. This institution tends to attract students from a somewhat restricted range of socioeconomic backgrounds.

29. Meaningful arrangements exist for expression of student opinions regarding institutional policies.

30. An essentially free student newspaper exists on this campus (with accountability mainly to its readership).

31. Little money is generally available for inviting outstanding people to give public lectures.

32. Generally speaking, there is not very much contact between professors and undergraduates outside the classroom.

33. Senior professors seldom teach freshman or sophomore courses.

34. Application of knowledge and talent to the solution of social problems is a mission of this institution that is widely supported by faculty and administrators.

35. A visitor to this campus would most certainly notice the presence of poets, painters, and political activists.

36. In dealing with institutional problems, attempts are generally made to involve interested people without regard to their formal positions or hierarchical status.

37. Either tutorials or extensive independent studies are important features of the undergraduate curriculum.

38. This institution tends to be dominated by a single "official" point of view.

39. Religious authority has meant some curtailment of academic freedom for faculty and students.

40. When recruiting new faculty, care is taken to seek candidates with a particular set of personal values.

41. Power here tends to be widely dispersed rather than tightly held.

42. A wide variety of religious backgrounds and beliefs are represented among the faculty.

43. A wide variety of religious backgrounds and beliefs are represented in the student body.

44. Serious consideration is given to student opinion when policy decisions affecting students are made.

45. How best to communicate knowledge to undergraduates is not a question that seriously concerns a very large proportion of the faculty.

46. In reality, a small group of individuals tends to pretty much run this institution.

47. Radical social or political organizations are not, or probably would not be, allowed to organize units on this campus.

48. Governance of this institution is clearly in the hands of the administration.

49. Professors get to know most students in their undergraduate classes quite well.

50. In arriving at institutional policies, attempts are generally made to involve all the individuals who will be directly affected.

51. Most faculty members do not wish to spend much time in talking with students about students' personal interests and concerns.

52. The notion of colleges and universities assuming leadership in bringing about social change is not an idea that is or would be particularly popular on this campus.

53. Compared with most other colleges, fewer minority groups are represented on this campus.

54. Certain highly controversial figures in public life are not allowed or probably would not be allowed to address students.
55. Eccentric convictions and unpopular beliefs among faculty members are generally not frowned upon by senior administrators or governing board members.

56. The student newspaper comments regularly on important issues and ideas (in addition to carrying out the more customary tasks of student newspapers).

57. There is wide faculty involvement in important decisions about how the institution is run.

58. Because of the pressure of other commitments, many professors are unable to prepare adequately for their undergraduate courses.

59. Most faculty members are quite sensitive to the interests, needs, and aspirations of undergraduates.

60. Senior administrators generally support (or would support) faculty members who spend time away from the campus consulting with governmental agencies about social, economic, and related matters.

61. Faculty members feel free to express radical political beliefs in their classrooms.

62. Students, faculty and administrators all have opportunities for meaningful involvement in campus governance.

63. In recruiting new faculty members, department chairpersons or other administrators generally attach as much importance to demonstrated teaching ability as to potential for scholarly contribution.

64. The governing body (e.g., Board of Trustees) strongly supports the principle of academic freedom for faculty and students to discuss any topic they may choose.

65. Students or faculty members whose records contain suggestions of unusual characteristics—e.g., bizarre activities, unpopular ideas—are not encouraged to remain here.

66. Many opportunities exist outside the classroom for intellectual and aesthetic self-expression on the part of students.

67. A concept of "shared authority" (by which the faculty and administration arrive at decisions jointly) describes fairly well the system of governance on this campus.

68. Capable undergraduates are encouraged to collaborate with faculty on research projects or to carry out studies of their own.

69. Most faculty on this campus tend to be reasonably satisfied with the status quo of American society.

70. The governing board does not consider active engagement in resolving major social issues to be an appropriate institutional function.

71. Institutional authorities have reprimanded faculty members who have publicly registered their dissent concerning policies of the state or federal government.

72. Unorthodox student lifestyles tend to be viewed with disfavor by institutional authorities.
SECTION 3

Respond to statements on this page by checking either:

YES (Y)
If the statement applies or is true at your institution.

NO (N)
If the statement does not apply or is not true at your institution.

DON'T KNOW (?)
If you do not know whether the statement applies or is true.

73. This institution operates a program of evening courses open to local area residents.

74. Government or foundation research grants comprise a substantial portion of the institution's income.

75. Courses are offered through which local area residents may be retrained or upgraded in their job skills.

76. There is a long-range plan for the institution that is embodied in a written document for distribution throughout the institution.

77. Counselling services are available to adults in the local area seeking information about educational and occupational matters.

78. Reports of various institutional studies are announced generally and made available to the entire teaching and administrative staff.

79. A number of departments frequently hold seminars or colloquia in which a visiting scholar discusses his ideas or research findings.

80. There is a job placement service through which local employers may hire students for full- or part-time work.

81. One or more individuals are presently engaged in long-range financial planning for the total institution.

82. Quite a number of faculty members have had books published in the past two or three years.

83. Facilities are made available to local groups and organizations for meetings, short courses, clinics, forums, and the like.

84. The institution has a long-range plan based on a reasonably clear statement of goals.

85. There are a number of research professors on campus, i.e., faculty members whose appointments primarily entail research rather than teaching.

86. There are a number of courses or programs that are designed to provide trained personnel for local area business, industry, or public services.

87. Courses dealing with artistic expression or appreciation are available to all adults in the local area.

88. At the present time, there is greater emphasis on departmental planning than on institution-wide planning.

89. The average teaching load in most departments is eight credit hours or fewer.

90. Faculty promotions generally are based primarily on scholarly publication.

91. The curriculum is deliberately designed to accommodate a great diversity in student ability levels and educational-vocational aspirations.

92. Analyses of the philosophy, purposes, and objectives of the institution are frequently conducted.

93. Planning at this institution is continuous rather than one-shot or completely nonexistent.

94. Extensive laboratory facilities exist for research in the natural sciences.

95. Attention is given to maintaining fairly close relationships with businesses and industries in the local area.
SECTION 4

Respond to statements on this page by grading either:

<table>
<thead>
<tr>
<th>STRONGLY AGREE (SA)</th>
<th>AGREE (A)</th>
<th>DISAGREE (D)</th>
<th>STRONGLY DISAGREE (SD)</th>
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</thead>
<tbody>
<tr>
<td>If you strongly agree with the statement as applied to your institution.</td>
<td>If you mildly agree with the statement as applied to your institution.</td>
<td>If you mildly disagree with the statement as applied to your institution.</td>
<td>If you strongly disagree with the statement as applied to your institution.</td>
</tr>
</tbody>
</table>

96. There is a general willingness here to experiment with innovations that have shown promise at other institutions.

97. Most faculty members consider the senior administrators on campus to be able and well-qualified for their positions.

98. In the past few years, there have been a number of major departures from old ways of doing things at this institution.

99. In general, the governing board is committed to the view that advancement of knowledge through research and scholarship is a major institutional purpose.

100. A sense of tradition is so strong that it is difficult to modify established procedures or undertake new programs.

101. High-ranking administrators or department chairmen generally encourage professors to experiment with new courses and teaching methods.

102. Few, if any, of the faculty could be regarded as having national or international reputations for their scientific or scholarly contributions.

103. The change that has taken place at this institution in recent years has been more the result of internal and external influences than of institutional purposes (and deliberate planning based thereon).

104. Generally speaking, top-level administrators are providing effective educational leadership.

105. It is almost impossible to obtain the necessary financial support to try out a new idea for educational practice.

106. Generally speaking, communication between the faculty and the administration is poor.

107. There have been few significant changes in the overall curricula in the past five years.

108. Currently there is wide discussion and debate in the campus community about what the institution will or should be seeking to accomplish five to ten years in the future.

109. Professors engaged in research that requires use of a computer have easy access to such equipment.

110. Most administrators and faculty tend to see little real value in data-based institutional self-study.

111. Staff infighting, backbiting, and the like seem to be more the rule than the exception.

112. The institution is currently doing a successful job in achieving its various goals.

113. Proposed curricular changes seem to be accepted or rejected more on the basis of financial considerations than of assumed educational merit.

114. The curriculum committee of the college concerns itself with basic curriculum issues rather than, for example, merely approving or disapproving new courses.

115. One or more important scientific breakthroughs have been achieved at this institution in the past five years.

116. Close personal friendships between administrators and faculty members are quite common.

117. In comparison with most other institutions, faculty turnover here appears to be somewhat high.

118. Almost all ideas for innovations must receive the approval of top-level administrative officials before they can be tried out.

119. There are no courses or programs for students with educational deficiencies, i.e., remedial work.

120. This institution would be willing to be among the first to experiment with a novel educational program or method if it appeared promising.

Continue on to next page.
Continue responding to statements on this page by gridding either:

**STRONGLY AGREE (SA), AGREE (A), DISAGREE (D), or STRONGLY DISAGREE (SD)**

121. Although they may criticize certain practices, most faculty seem to be very loyal to the institution.

122. There is a strong sense of community, a feeling of shared interests and purposes, on this campus.

123. In general, faculty morale is high.

124. There is an air of complacency among many of the staff, a general feeling that most things at the college are all right as they are.

125. There is an institutional research unit at this institution that does more than simply gather facts for the administration.

126. The faculty in general is strongly committed to the acknowledged purposes and ideals of the institution.

127. In my experience it has not been easy for new ideas for educational practice to receive a hearing.

128. The location of this campus makes it easily accessible to students who live at home and commute.

129. Senior administrators do not consider advancement of knowledge through research to be an important institutional purpose.

130. This institution considers its most valuable service to lie in educating the upper 10 percent or so of secondary school graduates.

131. Most faculty would not defend the institution against criticisms from outsiders.

132. Laying plans for the future of the institution is a high priority activity for many senior administrators.

Comments and criticisms regarding any aspect of the inventory are welcomed; please send them to:

**Institutional Functioning Inventory**

**ETS College and University Programs**

**Princeton, NJ 08541**
Ms. Patricia M. Bauhs  
Associate Dean  
School of Continuing Education  
Triton College  
2000 Fifth Avenue  
River Grove, IL 60171

Dear Pat:

Following up on our recent phone conversation, I am pleased to give you permission to use material—specifically the definitions of the scales and the discussion of reliability—from the Institutional Functioning Inventory "Preliminary Technical Manual." Our only requirement is that you acknowledge the source of the selections you use.

Sincerely yours,

Nancy Beck  
Program Director

NB/em  
Enclosure
Appendix C

Names of Participating Colleges and Universities, 1971-1976
Public Universities

Alabama State University
California State University--Long Beach
Central Michigan University
Georgia State University
Governors State University
John Jay College of Criminal Justice
Northwest Missouri State University
State University of New York--Binghamton
University of Northern Colorado
University of Tennessee
University of Wisconsin--Green Bay
University of Wisconsin--Oshkosh

Private Universities

Baylor University
Catholic University of Puerto Rico
Fairleigh Dickinson University
Furman University
Hofstra University
John Carroll University
Roosevelt University
Rose-Hulman Institute of Technology
St. Louis University
Stetson University
Suffolk University
University of Ottawa (Ontario)
University of Pittsburgh
University of Redlands
University of Waterloo (Ontario)
Wake Forest College
Willamette University
Wittenberg University

Liberal Arts Colleges

Albright College
Allentown College of St. Francis de Sales
Arkansas College
Averett College
Baldwin-Wallace College
Baptist College at Charleston
Barat College
Barrington College
Bartlesville Wesleyan College
Belmont College
Bethel College
Blackburn College
Blue Mountain College
Bluefield College
California Baptist College
Campbellsville College
Canisius College
Carson-Newman College
Columbia College
Concordia College
Cumberland College
Dallas Baptist College
Dominican College
### Liberal Arts Colleges (Concluded)

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<th>East Texas Baptist College</th>
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<td>Emmanuel College</td>
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<td>Florida Southern College</td>
<td>Molloy College</td>
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<td>Gardner-Webb College</td>
<td>North Carolina Wesleyan College</td>
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<td>George Fox College</td>
<td>North Greenville College</td>
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<td>Georgetown College</td>
<td>Oklahoma Baptist University</td>
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<td>Grand Canyon College</td>
<td>Ouachita Baptist University</td>
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<td>Hampton Institute</td>
<td>Palm Beach Atlantic College</td>
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<td>Hannibal LaGrange College</td>
<td>Principia College</td>
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<td>Hardin-Simmons University</td>
<td>Roberts Wesleyan College</td>
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<td>Hartwick College</td>
<td>Roger Williams College</td>
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<td>Hobart &amp; William Smith</td>
<td>Rollins College</td>
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<td>College</td>
<td>St. John College of Cleveland</td>
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<tr>
<td>Hollins College</td>
<td>St. Joseph's College</td>
</tr>
<tr>
<td>Houghton College</td>
<td>St. Thomas Aquinas College</td>
</tr>
<tr>
<td>Houston Baptist University</td>
<td>St. Xavier College</td>
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<tr>
<td>Huntingdon College</td>
<td>Samford University</td>
</tr>
<tr>
<td>Illinois Benedictine College</td>
<td>Southern Baptist College</td>
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<tr>
<td>Iowa Wesleyan College</td>
<td>Southwest Baptist College</td>
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<td>Judson College</td>
<td>Sterling College</td>
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<td>Kansas Wesleyan</td>
<td>Suomi College</td>
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<td>Lebanon Valley College</td>
<td>Union University</td>
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<td>Louisiana College</td>
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<td>Marietta College</td>
<td>Virginia Intermont College</td>
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<td>Mars Hill College</td>
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<td>Mary Hardin-Baylor College</td>
<td>Washington College</td>
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<td>Wayland Baptist College</td>
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<tr>
<td>Mercer University-Atlanta Campus</td>
<td>William Carey College</td>
</tr>
<tr>
<td>Mercer University-Macon Campus</td>
<td>William Jewell College</td>
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</table>

### Community Colleges

| Adirondack Community College | Delta College |
| Black Hawk College          | Dodge City Community College |
| Central Technical Community College | McHenry County College |
| Community College of Denver--North | Modesta Junior College |
|                             | Montgomery College |
|                             | Vanier College (Quebec) |
### Private Junior Colleges

- Anderson College
- Bennett College
- Brewton-Parker College
- Chowan College
- Clarke College
- Dean Junior College
- Ricks College
- Wingate College

### State Four-Year Colleges

- Boston State College
- Bridgewater State College
- Central Connecticut State College
- Concord College
- Delaware State College
- Federal City College
- Fitchburg State College
- Framingham State College
- Frostburg State College
- Glassboro State College
- Grand Valley State College
- Jersey City State College
- Kearney State College
- Lincoln University (Missouri)
- Lowell State College
- North Adams State College
- Ohio Northern College
- Panhandle State College
- Salem State College
- Salisbury State College
- Shippensburg State College
- Southern Oregon State College
- Stanislaus State College
- Stockton State College
- University of Montevallo
- Wayne State College
- West Virginia State College
- Westfield State College
Appendix D

Names of Participating Colleges and Universities, 1977-1982
### Public Universities

<table>
<thead>
<tr>
<th>University</th>
<th>University</th>
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<td>Central Michigan University</td>
<td>SUNY--Binghamton</td>
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<td>CUNY--John Jay College of Criminal Justice</td>
<td>Texas Southern University</td>
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<td>Georgia State University</td>
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<td>Governors State University</td>
<td>University of Kentucky</td>
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<td>Lincoln University (Missouri)</td>
<td>University of Massachusetts at Amherst</td>
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<td>Lincoln University (Pennsylvania)</td>
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<td>Mankato State University</td>
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<td>North Carolina Ag &amp; Tech State University</td>
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<td>North Carolina Central University</td>
<td>University of South Carolina</td>
</tr>
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<td>Northeastern Illinois University</td>
<td>University of Southern Colorado</td>
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<tr>
<td>Northwest Missouri State University</td>
<td>University of Tennessee at Martin</td>
</tr>
<tr>
<td>University of South Carolina</td>
<td>University of West Florida</td>
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<tr>
<td>University of Wisconsin--Oshkosh</td>
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### Private Universities

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<tr>
<td>Bucknell University</td>
<td>Roosevelt University</td>
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<td>C. W. Post, Long Island University</td>
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<td>Fairleigh Dickenson University</td>
<td>Southwestern University</td>
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<td>Siena College</td>
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Liberal Arts Colleges

Adrian College
Albion College
Albright College
Alderson-Broaddus College
Allentown College
Alma College
Aquinas College
Arkansas College
Augustana College
Averett College
Baldwin-Wallace College
Barat College
Beaver College
Bethel College (Indiana)
Bethel College (Minnesota)
Birmingham Southern College
Bloomfield College
Briar Cliff College
Bridgewater College
Bryan College
Calvin College
Canisius College
Carroll College
Chapman College
College of St. Teresa
College of St. Thomas
Delta College
Doane College
Dominican College
Dordt College
Earlham College
Godard College
Goldey Beacom College
Gordon College
Hannibal-LaGrange College
Haverford College
Hobart & William Smith College
Hollins College
Hope College
Houghton College
Illinois Benedictine College
Juniata College
Kalamazoo College
Lambuth College
Lancaster Bible College
LaRoche College
Lawrence College of Technology
Lenoir-Rhyne College
Loretto Heights College
Louisiana College
Luther College
MacMurray College
Madonna College
Manchester College
Manhattanville College
Marist College
Mars Hill College
Marymount College
Marymount Manhattan College
Mercer University--Macon Campus
Mercy College
Mercy College of Detroit
Mississippi College
Molloy College
Moravian College
Mount Mary College
Mundelein College
Muskingum College
Northwest Nazarene College
Northwestern College
Northwood Institute
Oklahoma Christian College
Olivet College
Regis College
Roanoke College
Robert Morris College
Roberts Wesleyan College
Rochester Institute of Technology
Rockhurst College
St. Joseph's College (Maine)
St. Joseph's College (New York)
St. Mary's College of California
St. Michael's College
St. Olaf's College
St. Thomas Aquinas College
Silver Lake College
Simpson College
Southern California College
Spring Arbor College

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Liberal Arts Colleges (Concluded)

Suomi College
Tennessee Wesleyan College
Wagner College
Western Maryland College
Westmont College

Wheaton College
Whitman College
William Jewell College
Wilmington College

Community Colleges

Alpena Community College
Community College of Allegheny County
Community College of Denver
Delta College
El Reno Junior College
Jamestown Community College
Jefferson College
Luzerne Community College
McHenry Community College
North Adams Community College
Northern Essex Community College
Northern New Mexico Community College
Rockland Community College
Scott Community College
Shawnee State Community College
St. Louis Community College at Florissant Valley
SUNY Agricultural and Tech. College at Morrisville
Triton College
University of Pittsburgh at Bradford
Western Iowa Tech
Windward Community College
Appendix E

Coefficient Alphas for Faculty, Students, and Administrators
Coefficient Alpha Reliabilities, Means, Standard Deviations, and Standard Errors of Measurement (Based on Faculty Means at 37 Institutions)

<table>
<thead>
<tr>
<th>Scale</th>
<th>Coefficient alpha</th>
<th>Mean</th>
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<th>SE meas.</th>
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<td>F</td>
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<td>HD</td>
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Coefficient Alpha Reliabilities (Based on Student Means at 17 Institutions and Administrator Means at 22 Institutions)

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BIBLIOGRAPHY


Boles, H. W. Leaders, leading and leadership. Kalamazoo: Western Michigan University, Department of Educational Leadership, 1980.


Clark, D., & Guba, E. An examination of potential change roles in education. Columbus: The Ohio State University, 1965.


Irwin, P. H. Changing organization behaviour through strategic planning. Managerial Planning, 1979, 28 (September/October), 3-12.


Lawrence, P. R., & Lorsch, J. W. *Organization and environment.* Boston: Harvard University Graduate School of Business Administration, 1967.


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Rogers, E. M. Where are we in understanding the diffusion of innovations? In W. Schramm & D. Lerner (Eds.), *Communication and change: The last ten years*.


Tuite, M., Chisholm, R., & Radnor, M. Interorganizational decision making: A multidisciplinary approach to the problem of coordinating the programs of independent decision units. Chicago: Aldine, 1972.


