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Factors affecting high-level college administrators' attitudes toward information from and frequency of use of various sources of information

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FACTORS AFFECTING HIGH-LEVEL COLLEGE ADMINISTRATORS' ATTITUDES TOWARD INFORMATION FROM AND FREQUENCY OF USE OF VARIOUS SOURCES OF INFORMATION

by

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The purpose of this study is to explore the following for high-level college administrators: identify the attitudes toward and frequency of use of information from various sources; investigate factors affecting the attitudes toward and frequency of use of information from various sources. Information sources were modeled along two dimensions, degree of systemization (formal or informal) and location of the source (internal or external to the user's organization). A questionnaire was mailed to 155 administrators of the University of North Carolina system. These administrators held the rank of chancellor, vice chancellor, associate vice chancellor, or assistant vice chancellor. Usable responses were received from 89 of the administrators.

One-way ANOVAs showed that there were no significant differences among administrators of different ranks in their attitudes toward information from or frequency of use of different sources of information. One-way ANOVAs also showed that there were no significant differences in attitudes toward different information sources among administrators of different areas of responsibility. Administrators in the areas of academic affairs and development/university relations use formal sources more frequently than do the administrators in student affairs and business affairs. Administrators in development/university relations use internal sources more frequently than do administrators in student affairs. The results of t tests showed that female high-level college administrators have a more favorable attitude toward formal sources of information than do male administrators. There is no significant

differences between females and males in frequency of use of different sources.

The respondents' degree of dogmatism and propensity for risk were not significantly correlated with their attitudes toward information from various sources. These two factors were also not significantly correlated with the administrators' frequency of use of information from various sources. The respondents' attitudes toward information from external sources and from informal sources were significantly correlated with the administrators' frequency of use of different sources of information.

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A special debt of gratitude goes to my mother for her life-long support. She gave me the wonders of the world of books. She has seen me through many trials and instilled in me the desire for an education. To my mother this work is dedicated.

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CHAPTER I

INTRODUCTION AND STATEMENT OF THE PROBLEM

Power and Information

Leaders have power. Power has been defined as the ability one has to force others to do something despite the reluctance of the others to do that act [Bierstedt, 1950; Blau, 1964; Dahl, 1957; Kaplan, 1964; Mechanic, 1962; Weber, 1947]. Power is dependent upon the leader having both authority over and influence of others [Blau, 1964; Emerson, 1962]. Simon [1953] defined organizational authority to be the right to make decisions that affect the activities of others in the organization. Tannenbaum and Massarik [1950] proposed that an individual exercises influence over others by entering into discussions, offering advice, making suggestions, and persuading but does not make the final decision. Influence is a dynamic aspect of power and may be the ultimate source of change [Gamson, 1968].

The decision-making process poses a dilemma for the higher echelons in an organization. The distinction between authority and influence is particularly important when considering the dilemma posed by the decision-making process. This dilemma stems from the need for reliable information to aid decision making and the need to maintain control of decision making. In order to make correct

decisions, higher echelons must have available all possible sources of information [Bacharach and Aiken, 1976].

Introduction to the Problem

There is a body of literature indicating a need to study the information-gathering process used by decision makers. This literature is found in the fields of management information systems (MIS), management science (MS), educational administration, and business administration. Heany [1972] writes that the educational effort first must try to provide the management systems designers with an understanding of the information requirements arising from the unstructured and semistructured problems that abound at the top of organizations. But do not try to find a text on this topic, now (1972) or in 1980.

Ginzberg [1978] writes that efforts to implement information systems and management science models sometime fail completely and often have some difficulty. Louzoun, ben-Aaron, Hoffman, Medford, and Moorse [1987] write the most foreign mechanisms for collecting information ever seen by older executives are the modern computer systems. Couger [1986] writes that end-user computing, techniques which allow users to develop their own applications, possibly has the largest impact of any development in the computer field. But for many organizations end-user computing has been very

ineffective and much more expensive than anticipated. The accompanying lag in rewards - improved management productivity and better information for crucial management decisions - has also been observed. Carlson, Grace, and Sutton [1977] write that experts have predicted high payoffs from interactive problem-solving systems. However, such systems have seldom been implemented. They see the key problem to be the lack of designers understanding the requirements of the potential users.

Statement of the Problem

The need for decision support systems for executives is indicated. The fact that executives are making little use of such systems is documented. Why are they making little use of information support systems? The literature shows that the decision-making model starts with intelligence gathering. If decision support systems (computer support for unstructured decisions) for high-level college administrators are to be implemented successfully, then the systems must present the information which the administrators most want in a form understandable to the administrator. Many studies have been done about how to process data and present the information to the decision maker, but few studies have been done about the information sources desired by the decision maker [Heany, 1972; Meile, 1985]. Most studies have simply assumed that the required

data exist in data banks or is otherwise easily available to the decision maker.

Purpose of the Study

The problem which this study addresses is that the information gathering process used by executives needs to be improved. The purpose of this study is to add to the understanding of the information-seeking behavior of executives. This will be accomplished by performing four tasks. These tasks are to (1) identify the attitudes toward information from various sources; (2) identify the frequency of use of various sources of information; (3) investigate factors affecting the attitudes toward information from various sources; (4) investigate factors affecting the frequency of use of various sources of information utilized by high-level administrators in their strategic decision-making process on the campuses of the University of North Carolina system. A better understanding of the information-seeking behavior of executives should lead to improvements in the information gathering process.

The investigation will center upon the information gathering behavior of the executives who must make multi-dimensional, non-structured strategic decisions. For this study, a high-level administrator is one holding the administrative rank of chancellor, vice-chancellor, associate vice-chancellor, or assistant vice-chancellor.

These are the people at the top of the traditional three-tiered organizational structure described in the administration literature. Their decision domain lies in the area of long-range strategic planning and encompasses gathering information about both the external and internal organizational environment. Anthony [1965] defines strategic decisions to be those decisions resulting from "the process of deciding on objectives of the organization, on changes in these objectives, on the resources used to attain these objectives, and on the policies that are to govern the acquisition, use, and disposition of these resources".

Research Questions

I. What factors affect high-level college administrators' attitude towards information from various sources utilized for strategic decision-making?

   A. What are the attitudes toward information from various sources utilized for strategic decision-making held by high-level college administrators?

      1. What are the attitudes toward information from various sources utilized for strategic decision-making held by high-level college administrators as a group?

      2. What are the attitudes toward information from various sources utilized for strategic

decision-making held by identifiable subgroups of high-level college administrators?

a. What are the attitudes toward information held by subgroups of high-level college administrators as identified by their administrative rank (i.e. chancellor, vice chancellor, etc.)?

b. What are the attitudes toward information held by subgroups of high-level college administrators as identified by their area of responsibility (i.e. academic affairs, student affairs, etc.)?

c. What are the attitudes toward information held by subgroups of high-level college administrators as identified by their sex?

B. Is there a significant difference among identifiable subgroups of high-level college administrators in their attitudes toward information from various sources utilized for strategic decision-making?

1. Is there a significant difference among subgroups of high-level college

administrators as identified by their administrative rank in their attitudes toward information from various sources utilized for strategic decision-making?

2. Is there a significant difference among subgroups of high-level college administrators as identified by their areas of responsibility in their attitudes toward information from various sources utilized for strategic decision-making?

3. Is there a significant difference between subgroups of high-level college administrators as identified by their sex in their attitudes toward information from various sources utilized for strategic decision-making?

C. What are some of the factors affecting the attitudes held by high-level college administrators toward information from various sources utilized for strategic decision-making?

1. Are there personal/psychological factors which affect high-level college administrators' attitudes toward information from various sources utilized for strategic decision-making?

a. Does the propensity for risk which a

high-level college administrator has affect his/her attitudes toward information from various sources utilized for strategic decision-making?

b. Does the degree of dogmatism which a high-level college administrator has affect his/her attitudes toward information from various sources utilized for strategic decision-making?

2. Does the administrative rank held by a high-level college administrator affect his/her attitudes toward information from various sources utilized for strategic decision-making?

3. Does the area of responsibility (academic affairs, business affairs, or student affairs) which a high-level college administrator below the level of chancellor has affect his/her attitudes toward information from various sources utilized for strategic decision-making?

4. Does the sex of the administrator affect his/her attitudes toward information from various sources utilized for strategic decision-making?

II. What factors affect high-level college administrators'

frequency of use of various sources of information utilized for strategic decision-making?

A. What is the frequency of use by high-level college administrators of various sources of information utilized for strategic decision-making ?

1. How often do high-level college administrators as a group use the various sources of information utilized for strategic decision-making?

2. How often do identifiable subgroups of high-level college administrators use the various sources of information utilized for strategic decision-making?

a. How often do subgroups of high-level college administrators as identified by their administrative rank use the various sources of information utilized for strategic decision-making?

b. How often do subgroups of high-level college administrators as identified by their area of responsibility use the various sources of information utilized for strategic decision-making?

c. How often do subgroups of high-level college administrators as identified by their sex use the various sources of

information utilized for strategic decision-making?

B. Is there a significant difference among identifiable subgroups of high-level college administrators in their frequency of use of various sources of information utilized for strategic decision-making?

1. Is there a significant difference among subgroups of high-level college administrators as identified by their administrative rank in their frequency of use of various sources of information utilized for strategic decision-making?
2. Is there a significant difference among subgroups of high-level college administrators as identified by their areas of responsibility in their frequency of use of information from various sources?
3. Is there a significant difference between subgroups of high-level college administrators as identified by their sex in their frequency of use of information from various sources?

C. What are some of the factors affecting the frequency of use of various sources of information utilized for strategic decision-making used by

high-level college administrators?

1. Are there personal/psychological factors which affect high-level college administrators' frequency of use of various sources of information utilized for strategic decision-making?
    a. Does the propensity for risk which a high-level college administrator has affect his/her frequency of use of various sources of information utilized for strategic decision-making?
    b. Does the degree of dogmatism which a high-level college administrator has affect his/her frequency of use of various sources of information utilized for strategic decision-making?
    c. Do the attitudes toward information from various sources utilized for strategic decision-making which a high-level college administrator has affect his/her frequency of use of various sources of information utilized for strategic decision-making?
2. Does the administrative rank held by a high-level college administrator affect his/her frequency of use of various sources of

information utilized for strategic decision-making?

3. Does the area of responsibility (academic affairs, business affairs, or student affairs) which a high-level college administrator below the level of chancellor has affect his/her frequency of use of various sources of information utilized for strategic decision-making?
4. Does the sex of the administrator affect his/her frequency of use of various sources of information utilized for strategic decision-making?

Hypothesis

In order to answer the research questions pertaining to differences in attitudes toward information from various sources (questions I.B.1, I.B.2, and I.B.3) and differences in frequency of use of various sources (questions II.B.1, II.B.2, and II.B.3) among groups of administrators (grouped by administrative rank, area of responsibility, and sex), the following null hypotheses have been formulated.

1. There is no difference in the attitudes toward information from internal-formal sources among administrators of different rank.
2. There is no difference in the attitudes toward

information from internal-informal sources among administrators of different rank.

3. There is no difference in the attitudes toward information from external-formal sources among administrators of different rank.

4. There is no difference in the attitudes toward information from external-informal sources among administrators of different rank.

5. There is no difference in the attitudes toward information from internal-formal sources among administrators having different areas of responsibility.

6. There is no difference in the attitudes toward information from internal-informal sources among administrators having different areas of responsibility.

7. There is no difference in the attitudes toward information from external-formal sources among administrators having different areas of responsibility.

8. There is no difference in the attitudes toward information from external-informal sources among administrators having different areas of responsibility.

9. There is no difference in the attitudes toward information from internal-formal sources between

administrators of different sex.

10. There is no difference in the attitudes toward information from internal-informal sources between administrators of different sex

11. There is no difference in the attitudes toward information from external-formal sources between administrators of different sex.

12. There is no difference in the attitudes toward information from external-informal sources between administrators of different sex.

13. There is no difference in the frequency of use of information from internal-formal sources among administrators of different rank.

14. There is no difference in the frequency of use of information from internal-informal sources among administrators of different rank.

15. There is no difference in the frequency of use of information from external-formal sources among administrators of different rank.

16. There is no difference in the frequency of use of information from external-informal sources among administrators of different rank.

17. There is no difference in the frequency of use of information from internal-formal sources among administrators having different areas of responsibility.

18. There is no difference in the frequency of use of information from internal-informal sources among administrators having different areas of responsibility.

19. There is no difference in the frequency of use of information from external-formal sources among administrators having different areas of responsibility.

20. There is no difference in the frequency of use of information from external-informal sources among administrators having different areas of responsibility.

21. There is no difference in the frequency of use of information from internal-formal sources between administrators of different sex.

22. There is no difference in the frequency of use of information from internal-informal sources between administrators of different sex.

23. There is no difference in the frequency of use of information from external-formal sources between administrators of different sex.

24. There is no difference in the frequency of use of information from external-informal sources between administrators of different sex.

CHAPTER II

REVIEW OF THE LITERATURE

Objectives of the Literature Review

What is the environment in which executives make decisions? What are the steps in the decision-making process? What do we know about the information-seeking behavior of decision makers? How does information affect the quality of decisions? These are some of the questions which should be answered to provide a framework for studying executives' use of different sources of information. The literature of the field of Management Information Systems (MIS) was examined for the theory of information systems designed to provide information to then members of organizations. Also MIS literature was examined for the impact of new technology on the access to information which organizational members have and the affect on decision-making models of the new technology in computers and communications. The body of literature in the field of business administration was reviewed to gain insights into organization decision-making models and the types of decisions made by executives.

The literature from the fields of cognitive psychology and management science was examined for the theory of the

decision-making process. Factors affecting the quality of decisions and the information-seeking behavior of individuals were also gleaned from the literature of these fields. Educational and public administration literature were reviewed to find the special environment which education and other non-profit organization administrators face. The environment which confronts administrators of professional organizations is different from the environment of for-profit businesses. The educational and public administration literature contains models of the organizational structures and decision-making processes which have evolved in this environment.

MIS and Business Administration Literature

Organizational decision-making structures are influenced by the information needs of the organization. The information needs have changed over time. In organizations small in size and in geographic area served, managers can gather information personally and informally (direct observation. asking others' opinions, and reading general interest publications). Bad decisions affect only a few people -- generally the decision maker is the only individual adversely affected to any great extent. But the growth of large organizations, absentee ownership, and non-profit service organizations have put a greater burden of accountability and responsibility on decision makers. Bad

decisions can affect a large number of people and reverberate throughout society. Business administration scholars have studied the organizational structures which have evolved to provide for better decisions. MIS scholars have developed models of systems to provide information to the decision makers. The organizational structures and information system models have been challenged by the rapid deployment of computer technology within organizations. Access to an unprecedented amount of information is now easily available to managers through the use of new computer-assisted technology.

The best reviews of the frameworks of MIS are given in four papers. First is the paper done by Lucas, Clowes, and Kaplan [1974] who reviewed six frameworks of organizational decision-making. These models were developed by Simon [1960], Forrester [1961], Anthony [1965], Dearden [1965], Blumenthal [1969], and Gorry and Morton [1971]. Lucas, Clowes, and Kaplan rated the models' usefulness for two groups of people, academicians and practitioners. These early models of decision-making were not designed for MIS concepts. They concentrated upon the decision-making process without regard to the sources of information. They are important to this study because they formed the framework models which emphasized that the dynamics of decision-making had information requirements. These models assumed that the information was present and known.

Two later papers, one by Nolan and Wetherbe [1980] and one by Ives, Hamilton, and Davis [1980] examined a later set of frameworks put forth by Gorry and Morton [1971], Chervany, Dickinson, and Kozar [1971], Lucas [1973], Mason and Mitroff [1973], and Mock [1973]. A paper by Meile [1985] reviewed all of these frameworks and proposed a decision-making model which included the impact of the technological changes arising from the use of automated information systems. These frameworks updated the previous frameworks to include the impact of the new computer and communication technologies on the decision-making environment.

Simon [1960] applied the vocabulary of the field of ecology to organizations and modeled the organization as a system. The organizational system is made up of subsystems. Figure 1 depicts a typical manufacturing organization using Simon's concept. A system is composed of entities working together to meet the system's objective. A system consists of inputs, transformation process, and outputs. Part of the outputs are feedback which becomes inputs back into the system to provide stability and control. A decision maker is a system who inputs information, processes the information, and outputs decisions.

Forrester [1961], describing what he called industrial dynamics, views a system as a network of physical flows that connects sources to sinks. Sources and sinks are described

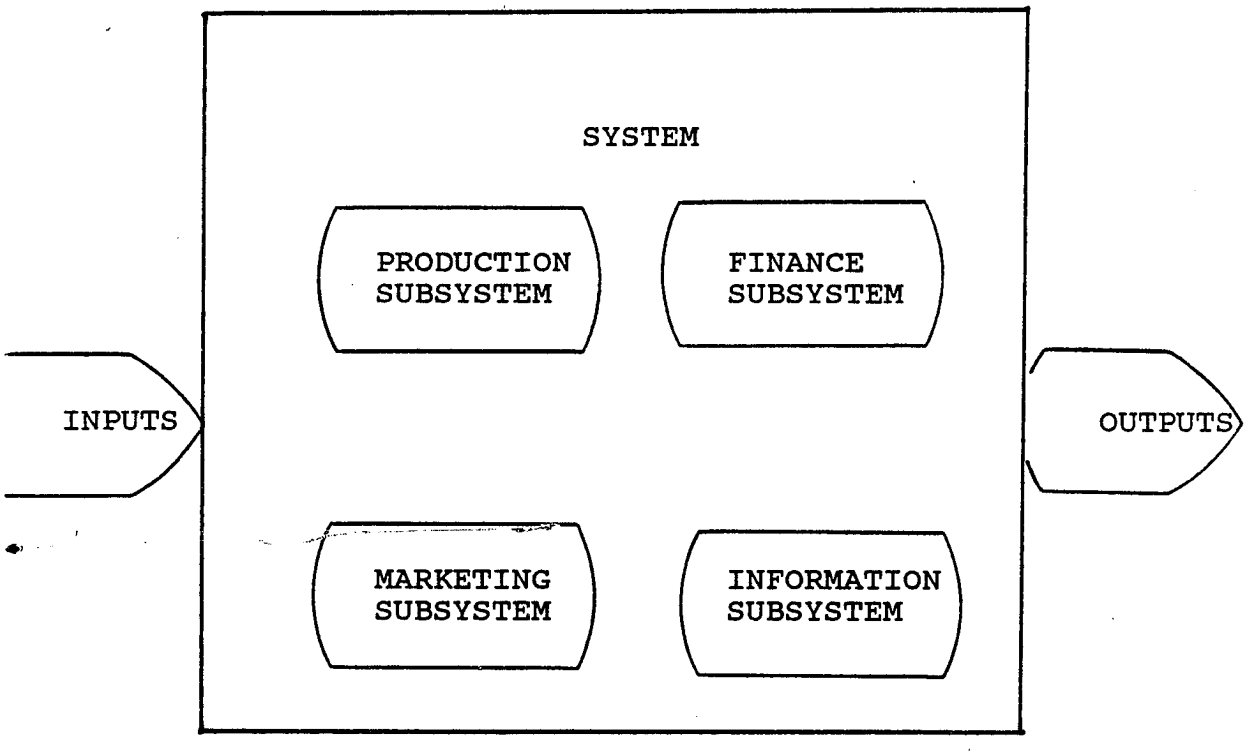

FIGURE 1

SIMON'S CONCEPT OF A SYSTEM
AS APPLIED TO A MANUFACTURING ORGANIZATION

as the level of state of some buffer. Entities flow between the states. Rates (valves) regulate the flow between sources and sinks. Decisions about the rates are made based on the value of the input variables (information). Figure 2 depicts the Forrester model.

Anthony [1965] classified information based upon the management activity needing the information but did not discuss the issue of information transfer. Dearden [1965] classified information in two dimensions -- vertical (e.g. production, accounting, or marketing) information was handled by and horizontal information was handled between systems. He considered organizations to have multiple information systems. Each system must be considered independently of the others.

The first comprehensive model of the interaction of decision makers with the system designed to provide the information needed by the decision makers was presented by Mason and Mitroff [1973, 476]. They began with their definition of an information system:

> An information system consists of, at least, one PERSON of a certain PSYCHOLOGICAL TYPE who faces a PROBLEM within some ORGANIZATIONAL CONTEXT for which he needs EVIDENCE to arrive at a solution (i.e., to select some course of action) and that the evidence is made available to him through some MODE OF PRESENTATION.

The key variables of the decision-making model are those highlighted in their definition: the person, the psychological makeup of the person, the problem, the

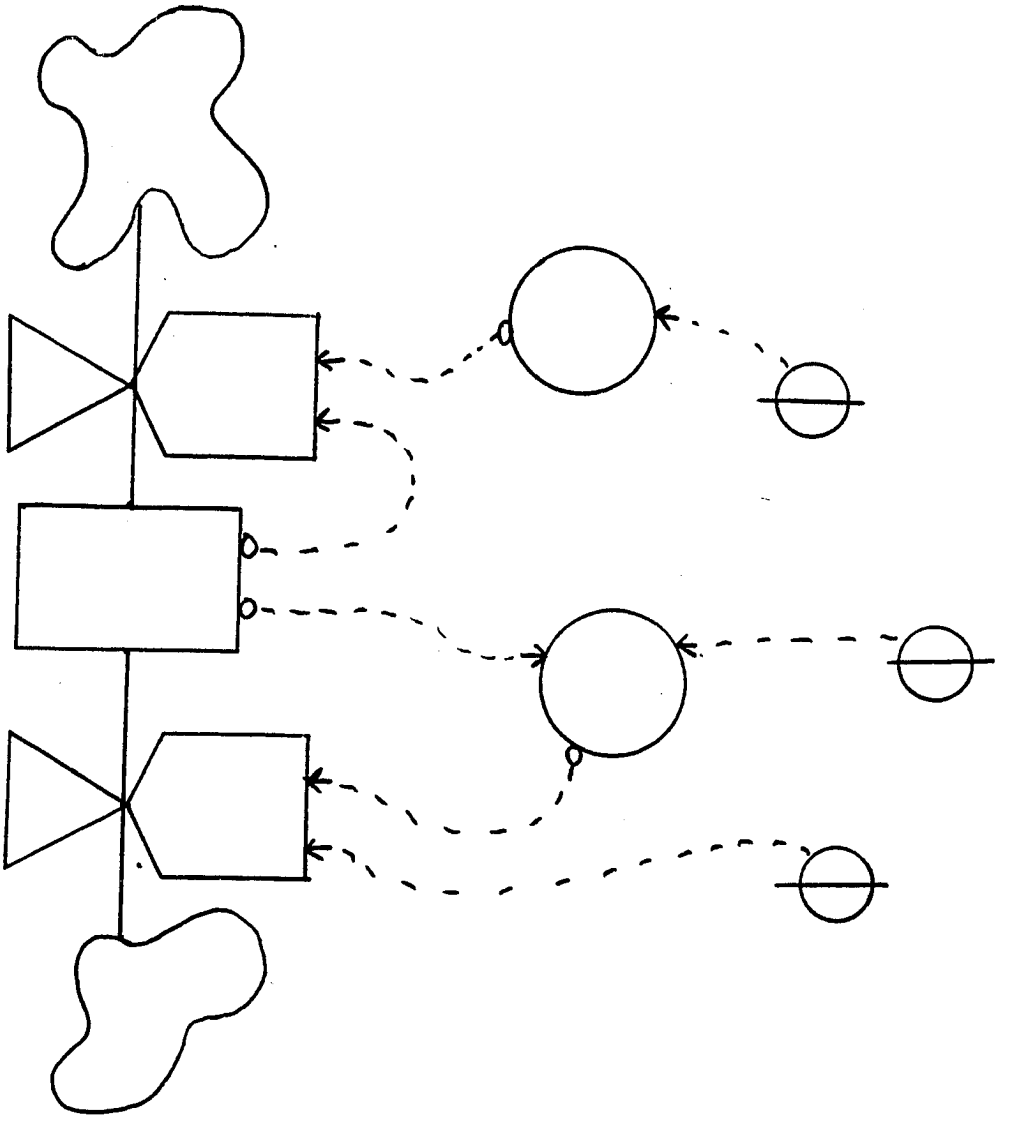

FIGURE 2

FORRESTER DIAGRAM OF A SIMPLE SYSTEM

organizational environment in which the person and problem exist, and the information needed.

Mason and Mitroff divided problems into two general classifications, structured and unstructured. The information needed is gathered through five types of inquiring systems: data based, single model based, multiple model based, conflicting model based, and learning systems based. Unstructured problems are particularly dependent upon multiple model based, conflicting model based, and learning systems based information systems.

The organizational environment is the level at which the problem appears. Mason and Mitroff used Anthony's [1965] organizational pyramid to describe the environment. Anthony divided the organization into three levels, operational management (the lowest level), middle management, and strategic management (the top executives). Mason and Mitroff stated that the interface between the person and the information (the mode of presentation) were traditional (paper text, graphs) and alternatives. The alternatives included more personal modes such as television, telephone, and radio. Mason and Mitroff wrote that there exists a need to investigate the influence of the different modes of presentation; however, they did not address the effect of the source of the information upon the decision.

Chervany, Dickson, and Kozar [1971] identified nine

variables which determined the effectiveness of an information system to meet the users' needs. They grouped these variables into three categories: the attributes of the decision maker, the environment in which the decision is made, and the characteristics of the information system. The primary research emphasis of this model has been the study of the interactions between the characteristics of the system (graphics display, tabular display, colors used) and the characteristics of the user (cognitive style, for example).

Mock [1973] investigated the impact of behavioral constraints on system design. He concentrated on the behavioral characteristics of decision makers. Mock considered five groups of variables: individual and psychological; organizational and interpersonal; sociological and environmental; information; and decision maker performance. He considered these variables to be largely determined by the particular environment (people, task, and technology). Thus, they are constants in the information design process.

The impact of the increased access to computer technology on the decision-making process was explored by Sprague and Carlson [1982]. Decision support systems (DSS) are information systems designed to support managers in finding solutions to unstructured problems. Although DSS may be used by managers at all levels, the major thrust of

these systems is to support high-level decision-making. A major component of a DSS is the access to data, both internal to the organization and external to the organization.

Alter [1980], Carlson [1977], Keen [1980], Keen and Scott Morton [1978] also investigated the role of DSS in the organization. The observed characteristics of DSS which have evolved from their studies include the following:

1. They tend to be directed toward the solution of the semistructured or unstructured problems that upper-level management normally face.
2. They try to combine the newer techniques of management science with traditional data collection, storage, and retrieval technology.
3. They focus on features which make them easy to use by non-IS people in an interactive mode.
4. They feature adaptability and flexibility. They are easily changed to meet the needs of an individual decision maker's environment and style.

Gallagher [1988] states that information system support of the members of organizations may be broken into three stages of evolution. He calls these Era I, Era II, and Era

III. Era I began in the 1960's and concentrated on the collection, storage, and retrieval of routine transactions. Management only needed summaries of these activities. Era II began about 1980 with the introduction of the personal computer. Now the manager has direct access to data and the processing of that data. This is the era of DSS and sophisticated use of management science models. The third era is just beginning. Managers can use their access to information for strategic advantages to the organization. Information is now a weapon to be used by executives. Information systems technologies need to be managed in a complex environment of various decision-making styles, organizational cultures, and organizational structures. It is the executive's need for information which is driving this change in information systems.

These decision-making models vary widely in their scope. Some focus narrowly on supporting decision-making with automated information systems while others are comprehensive in attempting to model all aspects of the decision-making process. The majority of these models do not address the issue of where decision makers look for their information nor how the attitudes which decision-makers have about information from differing sources. Yet, the newer models stress the importance to the decision maker of the need for access to information from various sources.

The decision-making models assume that the information

is communicated from a source to the decision maker. It is important to emphasize that the decision-making process takes place in an organizational context. The information which the decision maker needs is transmitted through communication channels. Figure 3 shows the relationship of three types of communications.

Down-line communication is the passing of information down to subordinates. Smith, Richetton, and Zima [1972] viewed down-line communication as having five types based on content: specific task directives; job rationale (information designed to allow the subordinate to understand the task and the task's relation to organizational goals); information about organizational policies and procedures; performance feedback to the subordinate; and goal indoctrination (information designed to instill the organization's goals into the subordinate.

Simson [1959] defined horizontal communication as the exchange of information among people or entities on the same organizational level. Up-line communication is the exchange of information from a subordinate to a superior. Smith et al. [1972] classified up-line communication into three types based on content: asking questions, providing feedback, and making suggestions. Scholz [1962] gives the value of up-line communication to management to be: an indicator of subordinates' receptivity to down-line communication; a facilitator of the acceptance by subordinates of decisions;

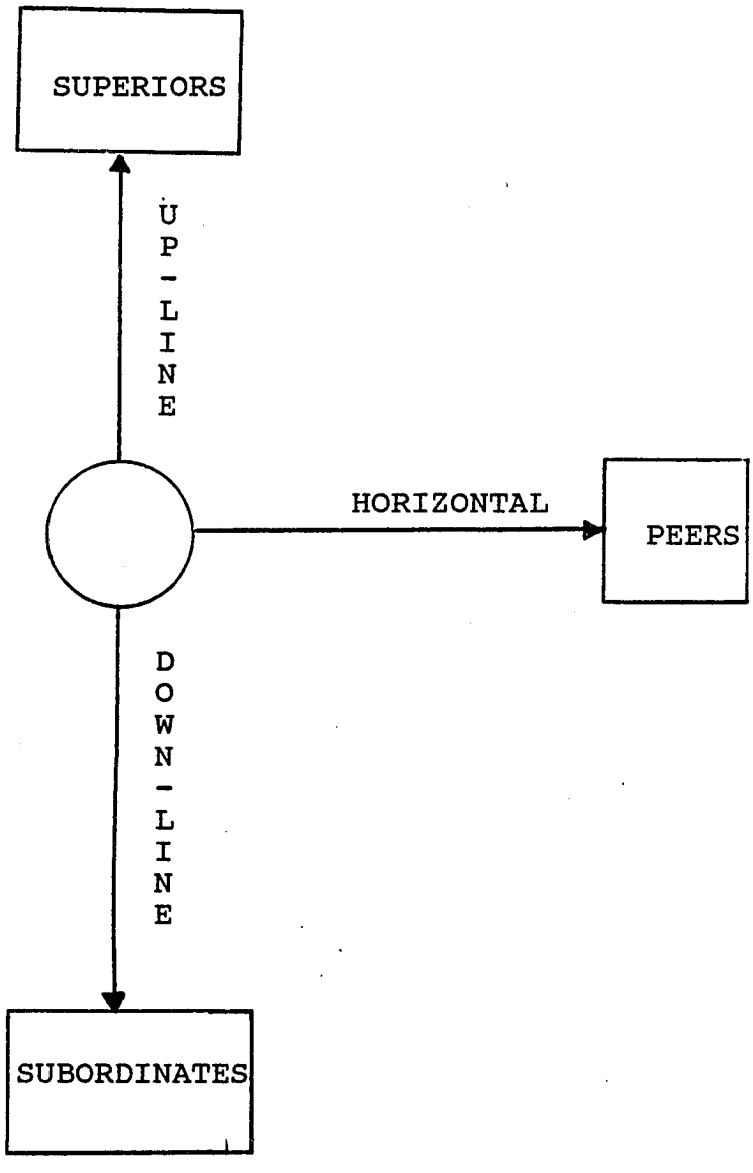

FIGURE 3

THREE TYPES OF COMMUNICATION

a feedback mechanism of the subordinates' understanding of down-line communication; a vehicle for the submission of ideas; and a source of decision-making information. Thayer [1968] stated that the quantity of communication increases at the higher levels of management. Thus, at some level, information overload may set in. Management's attempts to avoid information overload by reducing the amount of communication includes limiting the sources and delegating the information gathering to others.

Ackoff [1967] presented five assumptions for MIS design which he felt were held by information systems designers. He stated that these assumptions were incorrect. In fact, he coined the term Management Misinformation Systems to describe the state that he felt MIS was in. Two of Ackoff's conclusions are of interest in this research. One traditional MIS assumption is that managers suffer from a lack of relevant information on which to base decisions. Ackoff called this the "give-them-more" assumption. Ackoff stated this is erroneous. Instead of needing more information, Ackoff contended that managers suffer from information overload. They need less information than they receive. Therefore, managers need condensed and filtered information, not the raw data. Information systems should therefore not offer the manager access to the original information, but only access to the filtered and condensed information. Davis and Grove [1986] empirically tested this

hypothesis and found that decision makers given condensed reports did not perform better than those given overloaded reports. They concluded that managers did perform better when given more information.

Another traditional MIS assumption that Ackoff attacked is that managers need the information they want. Ackoff theorized that managers who call for more information generally do not know what information they need and thus are demanding unnecessary information. These managers should make worse decisions than those who ask for only a limited amount of very relevant information. Benbasat and Schroeder [1977] empirically found that decision makers given overloaded reports requested more additional reports than those given necessary reports. Davis and Grove [1986] tested this assumption and concluded that Ackoff is correct. Managers who were dissatisfied with the given information and requested more made worse decisions than those who were satisfied with the given information.

Meile [1985] presented a model of the information gathering process. He combined models from information systems, communications, and decision-making literature into a comprehensive model. He included the impact of modern technology on the information-gathering process. Meile developed a two-dimensional continuum (see Figure 4) divided into two areas on each axis. One axis gives the degree of systemization (formal to informal). The other axis denotes

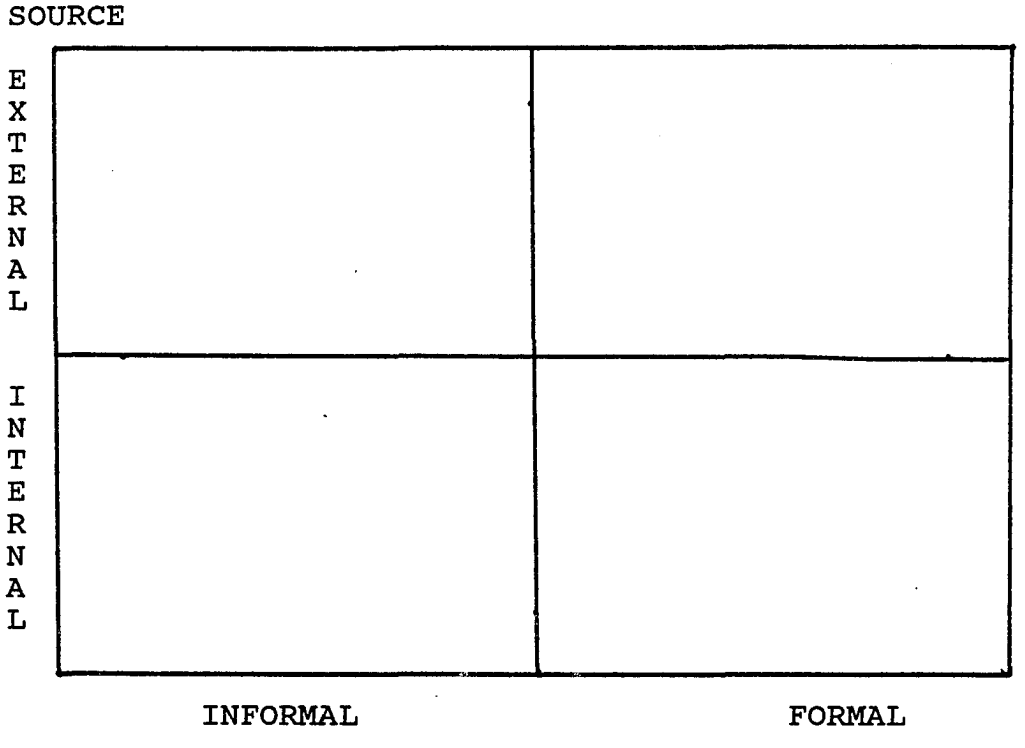

FIGURE 4

MEILE'S MODEL OF INFORMATION SOURCES

the area of the environment from which the information comes (internal/external). Meile looked at four general classifications of information sources: formal internal, formal external, informal internal, and informal external.

Summary of the MIS and Business Administration Literature

The MIS and business administration literature has shown that information gathering is an important component of the decision-making process. Fiedler et al. state that the critical requirement for quality decisions is timely, accurate information. Technological improvements have made the quantity of information available to decision makers practically unlimited. The user/information system interface has been examined and models have been developed. The characteristics of the decision maker affects the design and use of information systems.

Cognitive Psychology Literature

Psychologists attempted to define the psychological impacts upon a decision maker's process. Major contributors to this body are Lanzetta and Kanareff, Bourne, Ekstrand, and Dominowski, Long and Ziller, and Taylor and Dunnette. The focus of these studies is the influence of dogmatism, risk-taking propensity, and intelligence on the strategies used by people to make decisions.

Lanzetta and Kanareff [1962], and Bourne, Ekstrand, and Dominowski [1971] found that the psychological attributes of decision makers affected their decision-making strategies. Rokeach [1960] studied the effect of people's dogmatism on their behavior. Dogmatism has generally been found to affect the speed at which a decision is reached and the amount of information gathered for the decision. Wallach and Kogan [1961] and Slovic [1962] hypothesized that people with a high risk-taking propensity would show a disregard for information in making their decisions.

Long and Ziller [1965] reported that there is a negative correlation between the degree of dogmatism which people have and the length of time they need to make a decision. More dogmatic people make quicker decisions. Also, the greater the degree of dogmatism which people have the more confidence they have in the decisions they make. Taylor and Dunnette [1974] found that the higher the risk-taking propensity which people have then the shorter the time needed to make decisions and the lesser amount of information people use to make decisions. They also found that people with a high risk-taking propensity gathered less information but processed it more slowly. Thus high-risk takers reach rapid decisions by restricting their information search and thoroughly analyzing their limited information.

Summary of the Cognitive Psychology Literature

These studies try more to correlate the effectiveness of the decision made with the decision maker's psychological traits. The major contribution of this body of literature to the present study is the recognition that dogmatism and risk-taking propensity affect the way a decision maker uses information. The literature does not contribute to the question of the information sources used by decision makers.

Management Science Literature

Management scientists have developed a body of literature dealing with the value of information. This body is based upon the concept of the economic decision maker. It attempts to quantify the value of information used in the decision-making process. The management scientist then uses the economic concept of marginal values to determine that a decision maker will seek to continue collecting information until the marginal contribution of the additional information is equal to the marginal cost of collecting that information. This theory assumes that decision makers are rational and their decisions are based on economics alone, that the cost and benefits of information are measurable and known, and that the information is available.

A paper by Miller [1953] reviews information theory and

the measurement of information and points out that this theory measures only the amount of information, not its content, value, accuracy, or purpose. Simon [1959] also reviewed the theories of decision-making in economics and the behavioral sciences. He condenses the decision-making models into three categories and points out the underlying assumptions of each category: (1) price theory assumes that information-gathering continues until the marginal costs equal the marginal benefits; (2) statistical decision theory assumes that the decision maker can use statistical theory to minimize the sample size thus collecting the necessary information at the least cost through sampling; and (3) team theory measures the cost of transmitting information between members of the team.

Diesing [1955] addresses the issue of noneconomic decision-making to provide a model for decision-making not based upon economic rationality. He investigates decision-making involving conflicts of cultural value, community and group conflicts, and moral decisions. His model includes fact-gathering as a major component of the decision-making process.

Sjoberg [1982] writes that managers are limited in their information processing abilities. Their intuitive predictions are susceptible to bias. They have difficulties maintaining consistent relationships among variables. Managers should rely more heavily upon results of

quantitative forecasts than on their own judgments. Hogarth and Makridakis [1981] stated that forecasting research has concluded that even the most elementary quantitative techniques lead to better decision-making than the unstructured intuitive assessments of experts. Managers who use their own judgement to adjust the values of a quantitatively derived forecast reduce the accuracy of that forecast.

Georgoff and Murdick [1986] write that managers must use a mixture of techniques in reaching decisions. Because of the greater access today's managers have to both internal and external data, managers can use forecasting techniques to help them reach important decisions. No longer are the forecasting techniques limited to a few experts. However, in some situations quantitative models are not sufficient to make needed decisions. When confronted with dynamic situations in which quantitative models do not reflect the significant internal and external changes, novel situations, or situations having extended horizons, the decision maker should incorporate the decision maker's own subjective judgments.

Arrow [1964] contends that the problem of transferring information among decision makers make a decentralized decision-making structure more attractive than a centralized structure. Individual managers know more about their particular environment than do the upper management. Upper

management should give the lower managers certain objectives and receive information back to allow them to monitor how well the lower managers are meeting the objectives. One of the two conditions which gives rise to the need for organizational control is that different members of the organization have different bodies of knowledge and that the transmission and assimilation of information is costly. Management needs to learn how to choose small, properly chosen amounts of information.

Alexis and Wilson [1967] state that there is no simple relationship between the decisions reached by a decision maker and the information-gathering activity. Decision makers may choose between structured routines and brute force (closely examining all alternatives and outcomes) techniques. They suggest that all problem-solving strategies have two common elements. These elements are prior concepts of what the parameters of the problem are and a means of searching through information and bringing it to bear on the parameters. The information comes from information already accumulated and obtaining additional information focused on the problem.

Cyert, Dill, and March [1958] investigated the theories of business decision-making. They found that the theories generally assumed that estimates of cost and benefit are made and decisions are to be made which will maximize the return on investment to the organization. Inherent in these

theories, Cyert, Dill, and March state that the theories assume that accurate information on the costs and benefits are available and all alternatives can be investigated. Attempts to modify these deterministic models of decision-making only included the substitution of probabilities for certainties. Again, accurate information about costs, returns, and the associated probabilities are assumed.

Summary of Management Science Literature

The management science literature does not address the issue of where decision makers seek information nor any factors affecting the information-seeking behavior of decision makers. It contributes to this paper by providing a framework which emphasizes information-gathering as a part of the decision-making model and giving credence to the assumption that information has value.

Educational and Public Administration Literature

The organizational environment has an effect on the decision-making style of managers. The informational needs of educational administrators should be examined. The review of the educational and public administration literature was done to provide insights into the environment and informational needs of educational administrators.

Weber [1947] developed the construct of the

bureaucracy. He is probably the most cited organizational theorist. For Weber, organizations are rationally determined systems of interdependent structures. They consist of formal coordination mechanisms where power flows from the top down. This is a logical extension of Weber's views of Western decision-making. The Western world developed a capitalistic society based upon rational organizations which are composed of rational decision makers who gather information, make decisions, and defend their decisions as the logical conclusions based on the information given [1958].

Weber's view of organizations as apolitical has been incorporated by several organizational theorists. Blau and Schoenherr [1971] followed Weber's work and examined the interrelated attributes of formal organizations. They looked at the formal mechanisms of coordination as the determinants of organizational structure. Bacharach [1978] observed that scholars working within the context of Blau and Schoenherr's tradition have made two assumptions. The first of these assumptions is that organizations are normatively integrated systems and ignore political conflicts and other tensions. The second is that they tend to view the organization as a complete entity and do not look at subsystems within the organization.

Weick [1969] looked at organizations as harmonious, cooperative systems. He focused on the negotiation of order

within the organization, but he did not place as large an emphasis on the political conflict as he did on the establishment of the structural order. Bacharach and Lawler [1980] hold that organizations are arenas of political conflict. The organizational structure is determined by negotiations among conflicting groups. They assume that organizations are dominated by political interaction. They define politics as the use of power to retain or obtain control of resources (real or symbolic). According to them, in order to understand organizations as political systems, we must learn how, when, and why groups mobilize power.

Crozier [1964] and Selznick [1949] contend that power is the chief concept in the analysis of organizational structures. Crozier argued that power had not been examined as a factor affecting organizational behaviors. Weber [1947] defined power as the ability of someone to force others to do something despite the others' resistance to the action. Bierstedt [1950] modified Weber's definition to be the ability to apply sanctions. It is the potential to force others not the actual use of force. Dahl [1957] fused the potential and use dimensions and equated power with influence. He viewed power as a cause and effect relationship. X exercises power over Y when X does A forcing Y to do B instead of C. Dahl implies that unused potential is not power. Wrong [1968] drew a distinction between potential power, actual power, and the potential for

power. To Wrong, the potential for power is enough to cause a change in behavior of others.

There is a confusion about the use of the terms power, authority, and influence. Some use the three terms interchangeably, others use power and influence interchangeably to mean something different from authority, and others view the three as being three distinct concepts. Simon [1953] sees authority as the right to make decisions which affect others in the organization. The subordinates do not question the superior's judgments and act even if they find the judgments irrational or immoral. Bierstedt [1950] sees influence as the subordinates acting but not suspending their critical faculties or the right to act on their own inclinations. Tannenbaum [1950] states that influence is exercised across organizational functions while authority is passed down the organizational hierarchy. The superior often relies upon the subordinate to provide information in order to make the best possible decision. The passing of information from one level to another or one person to another is influence. The making of the final decision is the exercise of authority. Authority can only move downward, influence is multidirectional. Gamson [1968] suggests that influence may be the ultimate source of change and is the dyanamic aspect of power.

Bacharach and Aiken [1976] emphasize that the distinction between authority and influence is particularly

important in the consideration of the dilemma which the decision-making process poses for upper-level management. The dilemma stems from the need for reliable information with which to make effective decisions and the need to maintain formal control of the decision-making process. To make proper decisions, upper management must avail itself of all possible sources of information.

What then is the source of power? French and Raven [1959] deduced five bases of power. Raven [1974] and Raven and Kruglanski [1970] added a sixth basis - information. Information is the access to data about the inner workings of the organization or the relation of the organization to the external environment. Mechanic [1962] noted that even organizational members at a low level can accumulate and use informational power. Etzioni [1961] listed three bases of power, coercive, remunerative, and normative. Pettigrew [1973] added knowledge as a fourth basis to Etzioni's three bases. When a person has control of some unique information and that information is needed to make a decision, that person has power. Knowledge is the control of information. Bacharach and Lawler [1980] state that only knowledge is related to all sources and all types of power. This means that the manipulation and control of knowledge are the key elements in the process of influencing others and that knowledge is the most critical basis of power.

Are power and influence major factors in the

organizational structure of colleges and universities? Cohen and March [1974] characterized the organizational structure of colleges and universities as an organized anarchy. Decisions are made by the garbage can rule. Put the problem in the garbage can and if it stays do not worry about it any more. One of the two requirements to manage an organized anarchy which makes decisions based on the garbage can rule is a good information system.

Baldridge [1971] presented three models of university and college organizational structures. The first is the bureaucracy. Decision-making is rational and power flows from the top down. Executives exercise authority and influence. Second is the collegium model. Administrators depend upon committees of faculty and staff to make decisions. The administrators achieve a final decision by using their influence to gain a consensus. Third is the political model. The political model is gaining more acceptance as the organizational structure not just of colleges and universities but of all organizations. Administrators are involved mainly in a policy forming process. Decisions are made based upon the policies. Policies are formed as compromises among the conflicting desires of various interest groups. The administrators set policy based upon the advice and authority of numerous people. This suggests a complex network needed to gather the necessary information.

Corson [1960] states that decision-making is at the heart of the administration of any enterprise. This is particularly true for colleges and universities. Decision-making involves a number of factors which can be combined into three general steps. First, the issues are defined and an investigation is undertaken to gather the information necessary to understand the issues. Second, alternatives are considered. Information nd^Cessary to understand the alternatives is gathered. Third, a choice is made or an action to be followed is prescribed. Corson gives an example of a college president collecting various opinions from different groups and gathering the necessary information from persons both within and external to the college in order to make a decision.

Cleveland [1985] states that information is now our most critical resource. He says that the computer makes it possible for individuals and small groups to gather data and perform complex analysis of the data. These tools empower people who use them to make complex judgements and to better examine the situation as a whole. The requirements of decision makers to consider more and more data and more and more complex models will make the person with the greater access to information more powerful than those with a lesser access to information. Yet, Keller [1985] reports that college administrators do not make use of the research and scholarship about higher education. He finds this

particularly perplexing today when changes have forced better management and strategic planning upon the institutions of higher learning.

Where then do educators gather their information? Researchers in information science (formerly library science) examined some of the information preferences of educators and other social scientists. They attempted to identify factors which influenced the information needs of researchers and practitioners. Line [1971] stated that researchers and practitioners in education share several characteristics with other social science practitioners. Among these characteristics are a shortage of time and a lack of awareness of information tools. He stated that attempts to educate practitioners in the use of information tools had not been very successful and the attempt to simplify information tools weakened their effectiveness. Line recommended the use of intermediaries to collect and summarize relevant information for practitioners. This is consistent with the practitioners mistrust of research results and their preference for informal communication.

Matheson [1979] examined personal, professional, and psychological attributes and their effects on the use of information sources by educators. Summers, Matheson, and Conry [1983] also looked at information-seeking behavior and its effects on educators' use of information sources. Their studies concentrated on the use of research sources utilized

by educators in their scholarly activities. They showed that attitude toward information as well as personal (education, experience), professional (position - teacher, administrator, staff), and psychological (isolation) factors affected educational researchers' use of information from various sources. These studies were directed toward investigating how libraries could use on-line information retrieval systems to aid educational researchers.

Summary of the Educational and Public Administration Literature

Models of organizational structures have evolved from bureaucratic structures to political structures. The models of college and university organizational structures have followed the same path with four major models popular in the literature: the bureaucratic model, the organized anarchy model, the collegiality model, and the political model. In all of these structures, executives must exercise power, authority, and influence. Knowledge and access to information is an important basis of power and is required to exercise influence. Good decisions based upon good information are required to maintain authority. Thus, information is necessary for college and university administrators to be successful. However, educational practitioners display a hostility toward research, have limited time for research, and prefer forms other than

formal research articles for their information sources.

Summary of the Literature Review

Decision-making is the most important activity in organizations, including colleges and universities. Information is required for decision-making. In addition, the access to information is important for administrators to gain and maintain power, authority, and influence. The advances in computer and communications technology have created an information explosion - indeed, an information society. It is the easy access to information and scientific management models which is looked upon for advances in the effectiveness of managing organizations. Where do the administrators find their information? The literature suggests two types of information, formal and informal, and two areas in which to find information, internal and external. This gives four general sources of information. Decision makers' characteristics influence their decision-making style and the sources from which they seek the information needed to make decisions.

The results of the literature review leaves a few questions unanswered. Do dogmatism and propensity for risk which affect how decision-makers use information also affect the sources from which decision-makers gather their information? Have the improvements in technology and the efforts over time to educate practitioners in the use of

information technology changed their attitudes of mistrust of research data and preference for informal sources? It is the purpose of this study to attempt to answer these questions.

CHAPTER III

METHODOLOGY OF THE RESEARCH

Overview

The objective of this study is to identify the attitudes toward information from various sources, identify the frequency of use of various sources of information, investigate factors affecting the attitudes toward information from various sources, and investigate factors affecting the frequency of use of various sources of information. The review of the literature suggested four factors which may influence decision-makers' selection of sources of information: (1) their sex; (2) their position; (3) their area of responsibility; and (4) their attitudes toward information from various sources. The first three factors (sex, position, area of responsibility) may therefore also affect decision-makers' attitudes toward information from various sources. In order to test these factors and the degree to which they influence the decision-makers, a mail survey methodology was chosen. The mail survey consisted of four phases: (1) developing a questionnaire; (2) establishing the sampling frame (list of subjects to whom the questionnaire will be administered); (3) administering the questionnaire; and (4) collecting and analyzing the data.

Development of the Questionnaire

The questionnaire developed for this study (see Appendix A) had five major sections. The first section was designed to elicit a description of the subjects -- sex, position, and area of responsibility. To determine the sex, subjects checked a box corresponding to whether they were male or female. Subjects were given four choices to mark for their position --chancellor, vice-chancellor, associate vice-chancellor, or assistant vice-chancellor. For the area of responsibility, subjects could check the box for academic affairs, business affairs, student affairs, development, or other. If the other box was checked, subjects were asked to specify their area of responsibility by filling in a blank with their area of responsibility.

The second section (Part I) was designed to determine the subject's attitudes toward information from various sources. These sources were grouped according to Meile's [1985] four classifications of sources. The format used was developed by Matheson [1979]. Matheson's Attitudes Toward Information Scale (ATIS) describes a behavior and asks the respondent to indicate how like the respondent the behavior is by checking a four-point Likert scale from "very like me" to "very unlike me." Matheson used a four-point scale without a neutral center point in order to force the respondent to choose between a positive response or a negative response. High scores on this scale indicate a

positive (favorable) attitude toward the source of information.

The ATIS was modified slightly to meet the specific needs of this study. Matheson used it to indicate the attitudes toward specific sources of information. This study attempted to identify attitudes toward Meile's four classifications of sources. Thus, Matheson's 15 sources were condensed to 12 by eliminating some duplicate behaviors (i.e. twice Matheson listed reading newspapers) and entirely eliminating some behaviors (giving workshops). Also, Matheson investigated information sources used by educators for research, personal interest, and practical use. Therefore, some of the behaviors were reworded to specify behavior exhibited in collecting information for administrative decision-making. Overall, the content and context of the ATIS were maintained.

The third section (Part II) of the questionnaire was designed to elicit the frequency with which the subjects use various sources of information. The subjects were asked to indicate how frequently (never, rarely, sometimes, frequently) they use each of 12 listed sources of information. This section was taken from the ATIS with very little modification. Matheson used 14 sources. These were condensed to 12 by combining some (i.e. books and journals in office and books and journals in library were combined). Again, some rewording was done to indicate sources used for

administrative decision-making as opposed to personal research. These 12 sources represented three examples of each of Meile's four classifications of information sources.

The fourth section (Part III) is a measurement of the subject's degree of dogmatism. This section is taken from Rokeach's [1960] Dogmatism Scale, Form E. The Dogmatism Scale, Form E has 40 items. Two items were eliminated because they were not appropriate to the current world. The other 38 items measured political, philosophical, fiscal, and other personal beliefs. The respondent was asked to check a block on a scale of six choices ranging from "strongly agree" to "strongly disagree." The total score reflects the degree of openness or closeness of a person's belief system. The higher the score, the more open a person's belief system. Closed systems are associated with people with an authoritarian nature. Some editing of the items was done to correct grammatical errors, insert non-sexist language, and change some out-dated terms.

The fifth section (Part IV) was used to determine the subject's propensity for risk. This section was taken from Kogan's and Wallach's Choice Dilemmas Procedure. The subject was asked to read a paragraph describing a situation which could typically face a person. The person in each situation faced a decision among a desirable risky alternative and a less desirable but safe alternative. The subject was then asked to check the minimal odds which the

subject would consider necessary for the success of the risky alternative before the subject would advise the situation's person to choose the risky alternative. The respondent could choose between 10%, 30%, 50%, 70%, or 90% probability of success or advise not to choose the risky alternative regardless of the probability of outcome. The higher the probability of success the respondent requires then the lower the respondent's risk-taking propensity.

The questionnaire was given to five current or former college administrators (below the level of assistant vice-chancellor) who were not to receive the questionnaire. This constituted a small pilot test of the instrument. The pilot subjects were asked to complete the questionnaire (except for the demographic information at the top). After completing the questionnaire, they were asked for comments about the questionnaire. They were specifically asked to comment on length of time to complete the questionnaire, the format, the ease of completing the questionnaire, and the clarity of the language. Based upon their comments, some of the wording was changed, two items were deleted from the Dogmatism Scale, and some minor changes were made in the format of the questionnaire.

Choosing the Sample

There are many factors which affect decision-making. These factors have been classified as external environment,

internal environment, and personal factors. This study attempts to isolate some of the personal decision-making factors of the highest level of college administrators. Therefore, an attempt to control the environmental factors was needed. In order to obtain a population which has similar environments but still has a number of top level administrators, all of the top level administrators on each of the sixteen campuses which comprise the University of North Carolina were used. The top level administrators in this study are those holding the positions of chancellor, vice-chancellor, associate vice-chancellor, or assistant vice-chancellor.

The sixteen campuses of the University of North Carolina system provide an environment in which the administrators operate within similar legal, organizational, and operational environments. Yet, the individual campuses provide a diverse array of characteristics. The campuses range in student size from very small to very large; from predominantly black to predominantly white; from predominantly female to predominantly male; from liberal arts to fine arts to applied arts; from four-year colleges to doctorate-granting universities. This population of administrators is not concentrated in any college of a particular nature but is representative of many types of colleges.

The chancellor's office on each of the campuses was

contacted by telephone and asked for the names of the campus' chancellor, vice-chancellors, associate vice-chancellors, and assistant vice-chancellors. In all but two of the cases, the chancellor's office provided the names. In those two cases, the chancellor's office referred the researcher to the personnel office which did provide the names of the top administrators. A list of 155 chancellors, vice-chancellors, associate vice-chancellors, and assistant vice-chancellors was compiled. This constituted the population for the study. Questionnaires were mailed to all of the administrators in the population.

Administration of the Questionnaire

The questionnaire was prepared on a microcomputer with use of a word processing package (WordPerfect 5.0) and printed on a laser printer. A copy of the questionnaire, a cover letter (Appendix B), and a self-addressed stamped envelope were inserted into a manilla envelope which comprised the survey package. The questionnaire included a code on the last page which identified the subject to whom the questionnaire was to be mailed. A copy of the codes and their referents was maintained by the researcher. Nowhere on the questionnaire itself or on any other material associated with the questionnaire was the subject or the subject's responses identified. This was done to ensure the anonymity of the subject while enabling the researcher to

monitor those who had returned the questionnaire.

The survey package was mailed to each of the 155 administrators in the population. With the return of each questionnaire to the researcher, the code on the questionnaire was checked against the master list of codes to indicate those subjects who had returned the questionnaire. Three weeks after the first mailing, a follow-up mailing was sent to the nonrespondents. The second survey package was identical to the first with the exception of a revised cover letter.

Encoding and Analysis of the Data

The returned questionnaires were examined to determine if they were properly completed. If the demographic data (sex, position, area of responsibility) were not completed, the questionnaire's code enabled the researcher to determine this information which which he placed on the questionnaire. If an area of responsibility was marked as "other", the written response was evaluated and one of the other responses marked. For example, "other" was marked for area of responsibility and written in the blank was "Academic Computing". This was changed to "business affairs" by the researcher since the respondent's duties appeared to be most like those in business affairs rather than like "Continuing Education" which was coded as "academic affairs."

The responses were scanned to determine if only one box

was clearly checked. If more than one box was checked, then an effort was made to determine which box was the valid response (some respondents first checked one box, then changed their mind and marked another box and indicated the incorrect response by "blacking" it out or circling the correct response and scribbling "ok" or "correct" next to it or "wrong" next to the incorrect box). If no determination could be made for the correct box, then the first box marked in the series of boxes was assumed correct. This procedure was required for only four answers out of the entire survey (about 0.07% of the responses -- not enough to significantly alter the results).

Among those returned, there was only one questionnaire which had a large number of items with no responses marked. This questionnaire was discarded. On the whole, the questionnaires were completed clearly. The overwhelming majority of mistakes were those in which the boxes for the demographic information were not checked. This mistake was easily remedied by the researcher. The large proportion of clearly completed questionnaires was probably due to the nature of the respondents, i.e. highly educated and employed in a research-oriented environment (either doing or using research is one of the major components of colleges).

The researcher wrote a computer program to enter the data from the questionnaire and create a data file on magnetic disk. This program was written using the COBOL

programming language and utilized the University of North Carolina at Greensboro's (UNCG) academic computer system. The demographic data was encoded into three fields of data -- sex, position, and area of responsibility. In the sex field, a male was coded as a 1 and a female coded as a 2. For position, a chancellor was coded as a 4, a vice-chancellor as a 3, an associate vice-chancellor as a 2, and an assistant vice-chancellor as a 1. The areas of responsibility were coded with a 1 for academic affairs, 2 for business affairs, 3 for student affairs, and 4 for development and public relations.

Part 1 data for the attitudes toward information, "very like me" was codes as a 4, "like me" as a 3, "unlike me" as a 2, and "very unlike me" as a 1. In part 2, a 4 was coded for "frequently", 3 for "sometimes", 2 for "rarely", and 1 for "never." The Dogmatism Scale was coded a 6 for "strongly agree", 5 for "agree", 4 for "somewhat agree", 3 for "somewhat disagree", 2 for "disagree", and 1 for "strongly disagree." For the Choice Dilemmas Procedure, a response of "would not advise regardless of odds" was coded as a 10, "9 in 10" was coded as a 9, "7 in 10" as a 7, "5 in 10" as a 5, "3 in 10" as a 3, and "1 in 10" as a 1. These codings are those developed by Kogan and Wallach.

The data were analyzed using the UNCG academic computer system and the SPSS^X statistical software package [SPSS, 1983]. The various sources of information were grouped into

eight classifications based upon Meile's model. Each dimension of location of the data (internal and external) is represented by six questions in both Part I and Part II of the questionnaire. Each dimension of degree of systemization of the data (formal and informal) is represented by six questions in both Part I and Part II. Each of the four quadrants (internal-informal, internal-formal, external-informal, and external-formal) is represented by three questions each, in both Part I and Part II. Each of the twelve questions then is used as part of the measurement of three dimensions: formal/informal; internal/external; and one combination of the two dimensions. Figure 5 gives a detailed breakdown of the questions in Part I and Figure 6 gives a detailed breakdown of the questions in Part II.

Part I investigated the attitudes toward information from the various sources and Part II, the frequency of use of various sources. For each individual, the attitude toward information from internal sources was found by taking the mean of the responses to the six items pertaining to internal sources from Part I. The frequency of use of internal sources was found by taking the mean of the responses to the six items pertaining to internal sources from Part II. The attitude toward information from external sources was found by taking the mean of the responses to the

SOURCE

EXTERNAL	QUESTIONS 1 5 9 (newspapers, magazines, colleagues)	QUESTIONS 2 6 10 (consultants, books, journals)
INTERNAL	QUESTIONS 3 7 11 (associates, conversations, students)	QUESTIONS 4 8 12 (reports, meetings, printouts)

INFORMAL FORMAL

DEGREE OF SYSTEMIZATION

FIGURE 5

ATTITUDES TOWARD INFORMATION FROM VARIOUS SOURCES:
QUESTION NUMBERS BY QUADRANT OF THE MODEL

SOURCE

EXTERNAL	QUESTIONS 2 6 10 (colleagues, newspapers, magazines)	QUESTIONS 1 5 9 (workshops, seminars, books/journals)
INTERNAL	QUESTIONS 4 8 12 (associates, faculty/staff, students)	QUESTIONS 3 7 11 (committees, reports, printouts)
	INFORMAL	FORMAL

DEGREE OF SYST

FIGURE 5

FREQUENCY OF USE OF VARIOUS SOURCES:
QUESTION NUMBERS BY QUADRANT OF THE MODEL

six items pertaining to external sources from Part I and the frequency of use of information from external sources was found by taking the mean of the responses to the six items pertaining to external sources from Part II. The same procedure was used to find the mean attitude toward and frequency of use of formal/informal sources and each of the four quadrants of the model.

The mean of the responses to the 38 items in Part III was found. This mean represents the respondent's degree of dogmatism. The mean of the responses to the ten items in Part IV was found. This mean represents the respondent's propensity for risk.

The individual scores for attitude toward information from each of the eight classifications of sources, frequency of use of each of the eight classifications of sources, degree of dogmatism, and propensity for risk was used to find the mean score for each of these factors for groups of: male and female; chancellors, vice-chancellors, associate vice-chancellors, and assistant vice-chancellors; academic affairs, business affairs, student affairs, and development. Tests were employed to determine whether significant differences exist among groups based upon sex, position, and area of responsibility.

SPSS^X's Regression procedure was then used to determine if any of the factors of sex, position, area of responsibility, degree of dogmatism, or propensity for risk

were significantly correlated with the attitudes from various sources and if so, how much of the differences among individuals can be explained by the significant factors. This was accomplished by using the Forward feature of the Regression procedure to first introduce the most significant factor in explaining the variation. Then the next most significant factor was introduced. This continued until all of the factors were introduced or none of the remaining factors significantly added to the explanation of differences provided by the most significant factors.

CHAPTER IV

ANALYSIS OF THE DATA

Returns

The questionnaire was mailed to the 155 chancellors, vice-chancellors, associate vice-chancellors, and assistant vice-chancellors in the University of North Carolina's 16 campus system. Seventy-eight questionnaires were returned from the original mailing, giving a 50% response rate. Three weeks later, a second questionnaire packet was sent to the 87 nonrespondents of the original mailing. Seventeen questionnaires were returned from the follow-up mailing (20%). In total, 95 of the subjects responded. This provided a 61% response rate. Of the 95 responses, two declined to complete the questionnaire (lack of time and concern for anonymity), one questionnaire was not usable (many items left unanswered), and two subjects responded to the follow-up mailing with a response that they had responded to the original mailing and would not complete the questionnaire again (their original responses were not received by the researcher). Thus, of the 95 responses, 89 (94%) were usable providing a usable response rate of 57%. Of the usable responses, 6 were from chancellors, 40 from vice-chancellors, 23 from associate vice-chancellors, and 20 from assistant vice-chancellors. Thirteen females and 76 males responded as did 26 subjects from academic affairs, 30

from business affairs, 24 from student affairs, and 9 from development and university relations. Responses were received from all 16 campuses, with an individual campus response rate ranging from a low of 25% to a high of 90%. Appendix D is a summary of the means and standard deviations to each item in Parts I, II, III, and IV of the questionnaire for all respondents and grouped by sex, position, and area of responsibility. Appendix D also gives the means and standard deviations for the measures of propensity for risk, degree of dogmatism, attitudes toward information from various sources, and frequency of use of information from various sources.

Attitudes Toward Information Sources

The sources of information are grouped by two dimensions [Meile, 1985], degree of systemization (informal and formal) and location of the source (internal and external). Sources can thus be considered in four classifications -- informal, formal, internal, and external -- and four subclassifications -- informal-internal, informal-external, formal-internal, and formal-external. Part I of the questionnaire measured the attitudes of the subjects toward these four classifications and four subclassifications of sources of information. The attitude scale ranges from 1 (not favorable) to 4 (very favorable). There were three items for each of the subclassifications.

The mean response to the three items for any subclassification is a measure of the attitude toward that subclassification. Table 1 displays the mean attitudes

TABLE 1

ATTITUDES TOWARD INFORMATION FROM THE SUBCLASSIFICATIONS

	INFORMAL INTERNAL	INFORMAL EXTERNAL	FORMAL INTERNAL	FORMAL EXTERNAL
MEAN	3.08	3.47	3.27	3.26
STANDARD DEVIATION	0.46	0.43	0.49	0.47

toward each of the sub-classifications. The four major classifications (informal, formal, internal, and external) were measured by taking the mean of the six items (for example, three each for informal-internal and informal-external make up the six items for informal) for each of the classifications. Table 2 shows the results of t tests upon attitudes toward each of the major classifications.

There are no significant differences of attitudes towards information among information from the subclassifications. There is no significant difference between attitudes towards information from informal and formal sources. The respondents' attitudes towards information between information from internal and external sources are also not significantly different.

TABLE 2

t TESTS BETWEEN ATTITUDES TOWARD INFORMATION FROM THE CLASSIFICATIONS

	N	MEAN	S. DEV.	t	PROB.
INTERNAL		3.18	0.41		
	89			-1.77	0.08
EXTERNAL		3.25	0.34		
INFORMAL		3.23	0.44		
	89			-0.78	0.44
FORMAL		3.27	0.40		

Table 3 depicts the mean attitudes toward information from the subclassifications for males and females and the results of t tests between the attitudes toward each of the subclassifications for the males and females. While only the attitudes toward information from formal-external sources between the males and females are significantly different, it is interesting to note that the females had a more favorable attitude toward information from all of the subclassifications.

Table 4 displays the mean attitudes toward information from the classifications for males and females and the results of t tests between the attitudes toward each of the classifications for the males and females. Females have a significantly more favorable attitude toward information from formal sources. The results generally indicate that both males and females have favorable attitudes toward all sources of information.

TABLE 3

t TESTS BETWEEN MALES' AND FEMALES' ATTITUDES TOWARD INFORMATION FROM THE SUBCLASSIFICATIONS

	N	MEAN	S. DEV.	t	PROB.
INFORMAL-EXTERNAL					
MALES	76	3.46	0.41		
				-0.41	0.69
FEMALES	13	3.51	0.52		
INFORMAL-INTERNAL					
MALES	76	3.06	0.47		
				-1.04	0.30
FEMALES	13	3.21	0.32		
FORMAL-EXTERNAL					
MALES	76	3.21	0.46		
				-2.35	0.02*
FEMALES	13	3.54	0.44		
FORMAL-INTERNAL					
MALES	76	3.25	0.50		
				-1.29	0.20
FEMALES	13	3.44	0.46		

* SIGNIFICANT AT THE 0.05 LEVEL

TABLE 4

t TESTS BETWEEN MALES' AND FEMALES' ATTITUDES TOWARD INFORMATION FROM THE CLASSIFICATIONS

	N	MEAN	S. DEV.	t	PROB.
INFORMAL					
MALES	76	3.24	0.44		
				0.14	0.89
FEMALES	13	3.22	0.45		
FORMAL					
MALES	76	3.23	0.40		
				-2.17	0.03*
FEMALES	13	3.49	0.37		
INTERNAL					
MALES	76	3.15	0.41		
				-1.38	0.17
FEMALES	13	3.32	0.34		
EXTERNAL					
MALES	76	3.25	0.33		
				0.06	0.95
FEMALES	13	3.24	0.41		

* SIGNIFICANT AT THE 0.05 LEVEL

Table 5 displays the mean attitudes toward information from the subclassifications held by respondents in different positions. The results of analysis of variance (ANOVA) are

TABLE 5

ATTITUDES TOWARD INFORMATION FROM THE SUBCLASSIFICATIONS BY RESPONDENTS GROUPED BY POSITION

	INFORMAL INTERNAL	INFORMAL EXTERNAL	FORMAL INTERNAL	FORMAL EXTERNAL
ASSISTANT VICE-CHANCELLORS				
MEAN	3.08	3.47	3.28	3.43
S. DEV.	0.36	0.49	0.36	0.41
ASSOCIATE VICE-CHANCELLORS				
MEAN	3.14	3.58	3.36	3.28
S. DEV.	0.45	0.42	0.62	0.48
VICE-CHANCELLORS				
MEAN	2.98	3.41	3.22	3.15
S. DEV.	0.48	0.40	0.49	0.48
CHANCELLORS				
MEAN	3.50	3.44	3.28	3.39
S. DEV.	0.46	0.40	0.39	0.44

given in Table 6. There are no significant differences of attitudes toward information from the subclassifications of sources among the respondents by position. The attitudes toward information from informal-internal is almost significant ($p = 0.06$). However, it is interesting to note that for all positions except chancellor the most favorable attitude is toward information from informal-external

TABLE 6

ANOVA AMONG RESPONDENTS BY POSITION FOR THEIR ATTITUDES TOWARD INFORMATION FROM THE SUBCLASSIFICATIONS

SOURCE	DEGREES FREEDOM	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
INFORMAL-INTERNAL					
BETWEEN GROUPS	3	1.5288	0.5096	2.5514	0.06
WITHIN GROUPS	85	16.9780	0.1997		
TOTAL	88	18.5069			
INFORMAL-EXTERNAL					
BETWEEN GROUPS	3	0.4328	0.1443	0.7909	0.50
WITHIN GROUPS	85	15.5048	0.1824		
TOTAL	88	15.9376			
FORMAL-INTERNAL					
BETWEEN GROUPS	3	0.3127	0.1042	0.4190	0.74
WITHIN GROUPS	85	21.1455	0.2488		
TOTAL	88	21.4582			
FORMAL-EXTERNAL					
BETWEEN GROUPS	3	1.1896	0.3965	1.8470	0.14
WITHIN GROUPS	85	18.2486	0.2147		
TOTAL	88	19.4382			

sources and the least favorable is toward informal-internal sources.

Table 7 depicts the mean attitudes toward information from the classifications (informal, formal, internal, and external) for the respondents by position. The analysis of

TABLE 7

ATTITUDES TOWARD INFORMATION FROM THE CLASSIFICATIONS BY RESPONDENTS GROUPED BY POSITION

	INFORMAL	FORMAL	INTERNAL	EXTERNAL
ASSISTANT VICE-CHANCELLORS				
MEAN	3.33	3.36	3.18	3.28
S. DEV.	0.45	0.35	0.30	0.33
ASSOCIATE VICE-CHANCELLORS				
MEAN	3.29	3.32	3.25	3.30
S. DEV.	0.43	0.43	0.46	0.39
VICE-CHANCELLORS				
MEAN	3.15	3.18	3.10	3.18
S. DEV.	0.46	0.42	0.42	0.30
CHANCELLORS				
MEAN	3.22	3.33	3.39	3.42
S. DEV.	0.20	0.33	0.33	0.35

variance for information from the various sources among the respondents by position is given in Table 8. None of the classifications has a significant difference of attitudes toward the information from the classification among the respondents' groups of positions. It is interesting that for all positions other than that of chancellor, the least

TABLE 8

ANOVA AMONG RESPONDENTS BY POSITION FOR THEIR ATTITUDES TOWARD INFORMATION FROM THE CLASSIFICATIONS

SOURCE	DEGREES FREEDOM	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
INFORMAL					
BETWEEN GROUPS	3	0.5249	0.1750	0.9127	0.44
WITHIN GROUPS	85	16.2929	0.1917		
TOTAL	88	16.8177			
FORMAL					
BETWEEN GROUPS	3	0.5350	0.1783	1.1047	0.35
WITHIN GROUPS	85	13.7216	0.1614		
TOTAL	88	14.2566			
INTERNAL					
BETWEEN GROUPS	3	0.6423	0.2141	1.3196	0.27
WITHIN GROUPS	85	13.7909	0.1622		
TOTAL	88	14.4332			
EXTERNAL					
BETWEEN GROUPS	3	0.4079	0.1360	1.2181	0.31
WITHIN GROUPS	85	9.4879	0.1116		
TOTAL	88	9.8958			

favorable attitudes are towards information from internal sources and the most favorable attitudes are toward information from formal sources.

The mean attitudes toward information from the subclassifications of the respondents grouped by area of responsibility are given in Table 9. The results of an

TABLE 9

ATTITUDES TOWARD INFORMATION FROM THE SUBCLASSIFICATIONS BY RESPONDENTS GROUPED BY AREA OF RESPONSIBILITY

	INFORMAL INTERNAL	INFORMAL EXTERNAL	FORMAL INTERNAL	FORMAL EXTERNAL
ACADEMIC AFFAIRS				
MEAN	3.26	3.59	3.33	3.35
S. DEV.	0.37	0.38	0.55	0.46
BUSINESS AFFAIRS				
MEAN	2.93	3.40	3.18	3.18
S. DEV.	0.56	0.43	0.51	0.42
STUDENT AFFAIRS				
MEAN	3.10	3.49	3.32	3.31
S. DEV.	0.37	0.42	0.44	0.49
DEVELOPMENT AND UNIVERSITY RELATIONS				
MEAN	3.04	3.30	3.23	3.19
S. DEV.	0.42	0.51	0.42	0.63

analysis of variance among the respondents grouped by area of responsibility of their attitudes toward information from the subclassifications are given in Table 10. While there are no significant differences among respondents grouped by area of responsibility toward information from each of the

TABLE 10

ANOVA AMONG RESPONDENTS BY AREA OF RESPONSIBILITY FOR THEIR ATTITUDES TOWARD INFORMATION FROM THE SUBCLASSIFICATIONS

SOURCE	DEGREES FREEDOM	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
INFORMAL-INTERNAL					
BETWEEN GROUPS	3	1.4777	0.4926	2.4586	0.07
WITHIN GROUPS	85	17.0292	0.2003		
TOTAL	88	18.5069			
INFORMAL-EXTERNAL					
BETWEEN GROUPS	3	0.7973	0.2658	1.4920	0.22
WITHIN GROUPS	85	15.1403	0.1781		
TOTAL	88	15.9376			
FORMAL-INTERNAL					
BETWEEN GROUPS	3	0.4233	0.1411	0.5702	0.64
WITHIN GROUPS	85	21.0349	0.2475		
TOTAL	88	21.4582			
FORMAL-EXTERNAL					
BETWEEN GROUPS	3	0.4956	0.1652	0.7412	0.53
WITHIN GROUPS	85	18.9426	0.2229		
TOTAL	88	19.4382			

four subclassifications, attitudes toward informal-internal sources is almost significant ($p = .07$). It is interesting to note that the most favorable attitude by all groups is toward information from informal-external sources and the least favorable attitude is toward information from informal-internal sources.

The mean attitudes toward information from the four classifications for groups based upon area of responsibility are given in Table 11. Table 12 reports the results of the

TABLE 11

ATTITUDES TOWARD INFORMATION FROM THE CLASSIFICATIONS BY RESPONDENTS GROUPED BY AREA OF RESPONSIBILITY

	INFORMAL	FORMAL	INTERNAL	EXTERNAL
ACADEMIC AFFAIRS				
MEAN	3.24	3.34	3.29	3.19
S. DEV.	0.41	0.35	0.30	0.39
BUSINESS AFFAIRS				
MEAN	3.17	3.18	3.06	3.24
S. DEV.	0.46	0.40	0.45	0.33
STUDENT AFFAIRS				
MEAN	3.37	3.31	3.21	3.29
S. DEV.	0.35	0.42	0.34	0.35
DEVELOPMENT AND UNIVERSITY RELATIONS				
MEAN	3.09	3.24	3.17	3.33
S. DEV.	0.60	0.51	0.40	0.32

analysis of variance calculated for the differences among attitudes toward information from the classifications by the

TABLE 12

ANOVA AMONG RESPONDENTS BY AREA OF RESPONSIBILITY FOR THEIR ATTITUDES TOWARD INFORMATION FROM THE CLASSIFICATIONS

SOURCE	DEGREES FREEDOM	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
INFORMAL					
BETWEEN GROUPS	3	0.7475	0.2492	1.3180	0.27
WITHIN GROUPS	85	16.0702	0.1891		
TOTAL	88	16.8177			
FORMAL					
BETWEEN GROUPS	3	0.4322	0.1441	0.8859	0.45
WITHIN GROUPS	85	13.8243	0.1626		
TOTAL	88	14.2566			
INTERNAL					
BETWEEN GROUPS	3	0.8282	0.2761	1.7247	0.17
WITHIN GROUPS	85	13.6051	0.1601		
TOTAL	88	14.4332			
EXTERNAL					
BETWEEN GROUPS	3	0.2119	0.0706	0.6198	0.60
WITHIN GROUPS	85	9.6939	0.1139		
TOTAL	88	9.8958			

areas of responsibility. There exists no significant differences toward any of the classifications of information sources among the respondents grouped by area of responsibility. Furthermore, there are no trends of more or less favorable attitudes toward any of the classifications of information sources among the respondents grouped by area of responsibility.

Factors Affecting Attitudes Toward Information Sources

Multiple regression analysis was performed to determine if there are any significant correlations between the respondents' attitudes toward the four classifications of information sources and the factors: sex, position, degree of dogmatism, and propensity for risk. Table 13 gives the

TABLE 13

CORRELATION (R) BETWEEN THE CLASSIFICATIONS AND THE FACTORS SEX, POSITION, DOGMATISM, AND RISK

	INFORMAL	FORMAL	INTERNAL	EXTERNAL
SEX	-0.015	0.227*	0.146	-0.007
POSITION	-0.152	-0.137	-0.021	-0.042
DOGMATISM	-0.022	0.052	0.055	0.073
RISK	-0.098	0.016	-0.024	-0.071

multiple correlation coefficients for the classifications and the factors. Area of responsibility was not used as a

factor because the scale used to represent the areas had no meaning (for example, position from 1 to 4 represented increasing rank in the hierarchy, there is no rank for the areas of responsibility). The multiple correlation coefficients are small and only the correlations between sex and formal-external sources and between position and formal-external sources are significant.

Table 14 displays the correlation between the attitudes toward information from the subclassifications and the factors sex, position, degree of dogmatism, propensity for risk, and the attitudes toward information from the four classifications. The coefficients of multiple regression

TABLE 14

CORRELATION (R) BETWEEN THE SUBCLASSIFICATIONS AND THE FACTORS SEX, POSITION, DOGMATISM, RISK, AND ATTITUDES TOWARD VARIOUS SOURCES

	INFORMAL INTERNAL	INFORMAL EXTERNAL	FORMAL INTERNAL	FORMAL EXTERNAL
SEX	0.111	0.044	0.137	0.245**
POSITION	0.028	-0.078	-0.061	-0.170*
DOGMATISM	0.070	-0.037	0.024	0.063
RISK	-0.021	-0.162	-0.020	0.048
INFORMAL	0.281**	0.568**	0.393**	0.500**
FORMAL	0.519**	0.465**	0.844**	0.826**
INTERNAL	0.838**	0.478**	0.862**	0.479**
EXTERNAL	0.366**	0.709**	0.457**	0.334**

* CORRELATION COEFFICIENT SIGNIFICANT AT THE 0.05 LEVEL
** CORRELATION COEFFICIENT SIGNIFICANT AT THE 0.01 LEVEL

are small for the four factors sex, position, degree of dogmatism, and propensity for risk. Of these factors, the only factors having a significant correlation with attitudes toward the subclassifications are sex correlated with formal-external and position with formal-external. All of the attitudes toward the classifications are highly correlated with the attitudes toward the subclassification sources.

Frequency of Use of Information Sources

Part II of the questionnaire measured the frequency of use of various sources of information. The measurement scale ranged from 1 for never to 4 for frequently. Thus, the higher the score the more frequently the source of information is used. The sources again were considered using Meile's [1985] four classifications (informal, formal, internal, and external), and four subclassifications (informal-internal, informal-external, formal-internal, and formal-external). Each subclassification had three items in Part II of the questionnaire and combining the appropriate items gave six items for each of the classifications. The means and standard deviations of the responses for each of these four classifications and four subclassifications were calculated.

Table 15 summarizes the results of frequency of use of information from the subclassification sources. The

TABLE 15

FREQUENCY OF USE OF INFORMATION FROM THE SUBCLASSIFICATIONS

	INFORMAL INTERNAL	INFORMAL EXTERNAL	FORMAL INTERNAL	FORMAL EXTERNAL
MEAN	3.50	3.03	3.20	2.93
STANDARD DEVIATION	0.41	0.48	0.53	0.48

frequency of use of all the subclassification sources are high (2.93 and above on a 4 point scale). Table 16 displays the results of t tests computed for the frequency of use of information from the classification sources. There are no

TABLE 16

t TESTS BETWEEN FREQUENCY OF USE OF INFORMATION FROM THE CLASSIFICATIONS

	N	MEAN	S. DEV.	t	PROB.
INTERNAL	89	3.35	0.41	6.97	0.00
EXTERNAL		2.98	0.40		
INFORMAL	89	3.27	0.37	4.65	0.00
FORMAL		3.07	0.38		

significant differences between the frequency of use of the different subclassifications. Internal sources are used significantly more often as are informal sources.

Table 17 gives the results of t tests performed between the frequency of use of each of the subclassifications and

TABLE 17

t TESTS BETWEEN MALES' AND FEMALES' FREQUENCY OF USE OF INFORMATION FROM THE SUBCLASSIFICATIONS

	N	MEAN	S. DEV.	t	PROB.
INFORMAL-EXTERNAL					
MALES	76	3.04	0.48		
				0.45	0.65
FEMALES	13	2.97	0.46		
INFORMAL-INTERNAL					
MALES	76	3.51	0.40		
				0.63	0.53
FEMALES	13	3.21	0.32		
FORMAL-EXTERNAL					
MALES	76	2.92	0.48		
				-0.55	0.59
FEMALES	13	3.00	0.47		
FORMAL-INTERNAL					
MALES	76	3.18	0.52		
				-0.99	0.32
FEMALES	13	3.33	0.59		

TABLE 18

t TESTS BETWEEN MALES' AND FEMALES' FREQUENCY OF USE OF INFORMATION FROM THE CLASSIFICATIONS

	N	MEAN	S. DEV.	t	PROB.
INFORMAL					
MALES	76	3.28	0.37		
				0.63	0.53
FEMALES	13	3.21	0.43		
FORMAL					
MALES	76	3.05	0.37		
				-1.05	0.30
FEMALES	13	3.17	0.41		
INTERNAL					
MALES	76	3.34	0.40		
				-0.33	0.74
FEMALES	13	3.38	0.47		
EXTERNAL					
MALES	76	2.98	0.39		
				-0.06	0.95
FEMALES	13	2.99	0.44		

the sex of the respondents. There are no significant differences between males and females in frequency of use of information from either the subclassifications or the classifications of sources of information.

The frequency of use of the subclassification sources of information is detailed in Table 19. The results of the

TABLE 19

FREQUENCY OF USE OF INFORMATION FROM THE SUBCLASSIFICATIONS BY RESPONDENTS GROUPED BY POSITION

	INFORMAL INTERNAL	INFORMAL EXTERNAL	FORMAL INTERNAL	FORMAL EXTERNAL
ASSISTANT VICE-CHANCELLORS				
MEAN	3.53	3.08	3.30	3.10
S. DEV.	0.44	0.37	0.58	0.42
ASSOCIATE VICE-CHANCELLORS				
MEAN	3.49	3.01	3.29	2.90
S. DEV.	0.41	0.54	0.53	0.45
VICE-CHANCELLORS				
MEAN	3.43	2.96	3.01	2.87
S. DEV.	0.39	0.47	0.44	0.54
CHANCELLORS				
MEAN	3.89	3.39	3.78	2.94
S. DEV.	0.27	0.49	0.27	0.14

analysis of variance calculated for each subclassification of information sources among the respondents grouped by their position is shown in Table 20. The variance among the respondents grouped by their position is significant for their frequency of use of formal-internal sources of

TABLE 20

ANOVA AMONG RESPONDENTS BY POSITION FOR THEIR FREQUENCY OF USE OF INFORMATION FROM THE SUBCLASSIFICATIONS

SOURCE	DEGREES FREEDOM	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
INFORMAL-INTERNAL					
BETWEEN GROUPS	3	1.1083	0.3694	2.3498	0.08
WITHIN GROUPS	85	13.3636	0.1572		
TOTAL	88	14.4719			
INFORMAL-EXTERNAL					
BETWEEN GROUPS	3	1.0407	0.3469	1.5618	0.20
WITHIN GROUPS	85	18.8794	0.2221		
TOTAL	88	19.9201			
FORMAL-INTERNAL					
BETWEEN GROUPS	3	3.8579	1.2860	5.2688	0.00
WITHIN GROUPS	85	20.7463	0.2488		
TOTAL	88	24.6042			
FORMAL-EXTERNAL					
BETWEEN GROUPS	3	0.7619	0.2540	1.1069	0.35
WITHIN GROUPS	85	19.5003	0.2294		
TOTAL	88	20.2622			

information. There are no other significant differences in the use of the subclassification sources of information although the use of informal-internal is almost significant ($p = 0.07$).

The summary of the frequency of use of the classification sources of information is given in Table 21.

TABLE 21

FREQUENCY OF USE OF INFORMATION FROM THE CLASSIFICATIONS BY RESPONDENTS GROUPED BY POSITION

	INFORMAL	FORMAL	INTERNAL	EXTERNAL
ASSISTANT VICE-CHANCELLORS				
MEAN	3.31	3.20	3.42	3.09
S. DEV.	0.36	0.36	0.45	0.33
ASSOCIATE VICE-CHANCELLORS				
MEAN	3.25	3.09	3.39	3.96
S. DEV.	0.40	0.35	0.42	0.42
VICE-CHANCELLORS				
MEAN	3.20	2.94	3.22	2.91
S. DEV.	0.34	0.37	0.33	0.42
CHANCELLORS				
MEAN	3.64	3.36	3.83	3.17
S. DEV.	0.36	0.19	0.26	0.30

The results of the analysis of variance among respondents grouped by position and the frequency of use of the classification sources are displayed in Table 22. Highly significant differences of frequency of use of informal, formal, and internal sources of information exist among the

TABLE 22

ANOVA AMONG RESPONDENTS BY POSITION FOR THEIR FREQUENCY OF USE OF INFORMATION FROM THE CLASSIFICATIONS

SOURCE	DEGREES FREEDOM	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
INFORMAL					
BETWEEN GROUPS	3	1.0706	0.3569	2.7239	0.05
WITHIN GROUPS	85	11.1360	0.1310		
TOTAL	88	12.2066			
FORMAL					
BETWEEN GROUPS	3	1.5604	0.5201	4.0701	0.01
WITHIN GROUPS	85	10.8628	0.1278		
TOTAL	88	12.4232			
INTERNAL					
BETWEEN GROUPS	3	2.1972	0.7324	5.0363	0.00
WITHIN GROUPS	85	12.3609	0.1454		
TOTAL	88	14.5581			
EXTERNAL					
BETWEEN GROUPS	3	0.6532	0.2177	1.4136	0.24
WITHIN GROUPS	85	13.0933	0.1540		
TOTAL	88	13.7566			

respondents grouped by position. The chancellors use these sources of information more often than do the vice-chancellors. For all sources, the chancellors use them more often than any other group and the vice-chancellors use them less often.

The mean frequency of use of the subclassifications by the respondents grouped by area of responsibility is given in Table 23. The results of the analysis of variance of the

TABLE 23

FREQUENCY OF USE OF INFORMATION FROM THE SUBCLASSIFICATIONS BY RESPONDENTS GROUPED BY AREA OF RESPONSIBILITY

	INFORMAL INTERNAL	INFORMAL EXTERNAL	FORMAL INTERNAL	FORMAL EXTERNAL
ACADEMIC AFFAIRS				
MEAN	3.33	2.78	3.32	2.85
S. DEV.	0.42	0.52	0.45	0.50
BUSINESS AFFAIRS				
MEAN	3.48	3.09	2.93	2.84
S. DEV.	0.43	0.44	0.60	0.49
STUDENT AFFAIRS				
MEAN	3.68	3.10	3.42	3.11
S. DEV.	0.29	0.39	0.36	0.40
DEVELOPMENT AND UNIVERSITY RELATIONS				
MEAN	3.59	3.37	3.15	3.00
S. DEV.	0.36	0.39	0.58	0.50

frequency of use of each subclassification of sources of information by groups based on area of responsibility are displayed in Table 24. Frequency of use of the

TABLE 24

ANOVA AMONG RESPONDENTS BY AREA OF RESPONSIBILITY FOR THEIR FREQUENCY OF USE OF INFORMATION FROM THE SUBCLASSIFICATIONS

SOURCE	DEGREES FREEDOM	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
INFORMAL-INTERNAL					
BETWEEN GROUPS	3	1.5963	0.5321	3.5127	0.02
WITHIN GROUPS	85	17.0665	0.2008		
TOTAL	88	19.9201			
INFORMAL-EXTERNAL					
BETWEEN GROUPS	3	2.8536	0.9512	4.7375	0.00
WITHIN GROUPS	85	17.0665	0.2008		
TOTAL	88	19.9201			
FORMAL-INTERNAL					
BETWEEN GROUPS	3	3.6616	1.2205	4.9538	0.00
WITHIN GROUPS	85	20.9426	0.2464		
TOTAL	88	24.6042			
FORMAL-EXTERNAL					
BETWEEN GROUPS	3	1.2331	0.4110	1.8360	0.15
WITHIN GROUPS	85	19.0291	0.2239		
TOTAL	88	20.2622			

subclassifications of information sources is significant for the use of informal-internal sources, informal-external sources, and formal-internal sources. Respondents in student affairs use informal-internal sources significantly more frequently than those in academic affairs. Informal-external sources are used significantly more frequently by respondents in development/university relations than those in academic affairs. Formal-internal sources are used significantly more frequently by respondents in student affairs than by respondents in business affairs.

Shown in Table 25 are the mean frequencies of use of the classification sources of information by groups based

TABLE 25

FREQUENCY OF USE OF INFORMATION FROM THE CLASSIFICATIONS BY RESPONDENTS GROUPED BY AREA OF RESPONSIBILITY

	INFORMAL	FORMAL	INTERNAL	EXTERNAL
ACADEMIC AFFAIRS				
MEAN	3.06	3.08	3.33	2.81
S. DEV.	0.39	0.31	0.38	0.44
BUSINESS AFFAIRS				
MEAN	3.28	2.89	3.21	2.97
S. DEV.	0.38	0.41	0.47	0.35
STUDENT AFFAIRS				
MEAN	3.39	3.26	3.55	3.10
S. DEV.	0.25	0.26	0.27	0.34
DEVELOPMENT AND UNIVERSITY RELATIONS				
MEAN	3.48	3.07	3.37	3.19
S. DEV.	0.31	0.43	0.42	0.39

upon area of responsibility. The analysis of variance of the frequency of use of each of the classification sources of information among the groups based upon areas of responsibility is given in Table 26. There are significant differences among the groups in their use of the various sources of information. Respondents in student affairs use informal and external sources significantly more than respondents in academic affairs. Informal and external sources are also used significantly more frequently by respondents in development/university relations than by respondents in academic affairs. Formal and internal sources are used significantly more often by respondents in student affairs than by respondents in business affairs. Respondents in student affairs use each of the four classification sources significantly more often than at least one of the other groups.

Factors Affecting Frequency of Use of Information Sources

Multiple regression analysis was computed for the four classifications of information sources using the factors sex, position, degree of dogmatism, propensity for risk, and the attitudes toward information from the various sources. This analysis was used to determine if any of the factors are significantly correlated with the frequency of use of the various classifications of information sources. The

TABLE 26

ANOVA AMONG RESPONDENTS BY AREA OF RESPONSIBILITY FOR THEIR FREQUENCY OF USE OF INFORMATION FROM THE CLASSIFICATIONS

SOURCE	DEGREES FREEDOM	SUM OF SQUARES	MEAN SQUARES	F RATIO	F PROB.
INFORMAL					
BETWEEN GROUPS	3	1.9175	0.6392	5.2804	0.00
WITHIN GROUPS	85	10.2891	0.1210		
TOTAL	88	12.2066			
FORMAL					
BETWEEN GROUPS	3	1.8893	0.6298	5.0816	0.00
WITHIN GROUPS	85	10.5340	0.1239		
TOTAL	88	12.4232			
INTERNAL					
BETWEEN GROUPS	3	1.5902	0.5301	3.4745	0.02
WITHIN GROUPS	85	12.9678	0.1526		
TOTAL	88	14.5581			
EXTERNAL					
BETWEEN GROUPS	3	1.4697	0.4899	3.3918	0.02
WITHIN GROUPS	85	12.2769	0.1444		
TOTAL	88	13.7466			

results of the multiple regression analysis are displayed in Table 27. Other than the attitudes toward information

TABLE 27

CORRELATION (R) BETWEEN THE CLASSIFICATIONS AND THE FACTORS SEX, POSITION, DOGMATISM, RISK, AND ATTITUDES TOWARD VARIOUS SOURCES

	INFORMAL	FORMAL	INTERNAL	EXTERNAL
SEX	-0.068	0.112	0.035	0.006
POSITION	0.028	-0.142	-0.022	-0.087
DOGMATISM	0.095	0.024	-0.067	0.181*
RISK	0.022	0.006	-0.011	0.037
INFORMAL	0.079	0.520**	-0.010	0.579**
FORMAL	0.198*	0.544**	0.234**	0.462**
INTERNAL	0.269**	0.566**	0.405**	0.374**
EXTERNAL	0.689**	0.395**	0.332**	0.683**

* CORRELATION COEFFICIENT SIGNIFICANT AT THE 0.05 LEVEL
** CORRELATION COEFFICIENT SIGNIFICANT AT THE 0.01 LEVEL

from informal, formal, internal, and external sources, only the factor degree of dogmatism is significantly correlated with the frequency of use of external sources of information. All of the attitudes measures are highly significantly correlated with frequency of use of all of the sources.

The factors attitude toward external information and attitude toward informal information are the most significant factors determining the frequency of use of informal information sources. Using SPSS^X Regression routine with the Forward option, these two factors were

found to have a correlation coefficient (R^2) of 0.57. The use of the other factors in the regression equation did not significantly increase the R^2 value. Determining the frequency of use of formal sources is mostly the result of the factors attitude toward internal information sources and attitude toward informal information sources. These two factors have a combined R^2 of 0.42. The use of the other factors in the regression equation did not significantly increase the value of R^2.

Attitude toward information from internal sources, attitude toward information from informal sources, and attitude toward information from external sources combined to give a R^2 of 0.26 when frequency of use of internal sources is the dependent variable. The other factors did not significantly increase the value of R^2 in the regression equation.

An R^2 of 0.57 for the regression equation for frequency of use of external sources was given by using the factors of attitude toward external sources, attitude toward informal sources, and degree of dogmatism. This is the only regression equation in which any factor other than an attitude toward an information source proved to be significant.

Table 28 contains the results of multiple regression analysis on the subclassifications of information sources using the factors of sex, position, degree of dogmatism,

TABLE 28

CORRELATION (R) BETWEEN THE SUBCLASSIFICATIONS AND THE FACTORS SEX, POSITION, DOGMATISM, RISK, AND ATTITUDES TOWARD VARIOUS SOURCES

	INFORMAL INTERNAL	INFORMAL EXTERNAL	FORMAL INTERNAL	FORMAL EXTERNAL
SEX	-0.068	-0.049	0.106	0.058
POSITION	0.039	0.010	-0.064	-0.152
DOGMATISM	0.014	0.136	-0.115	0.164
RISK	-0.013	-0.045	-0.007	0.017
INFORMAL	-0.076	0.187*	0.043	0.768**
FORMAL	0.065	0.254**	0.311*	0.510**
INTERNAL	0.192*	0.257**	0.476**	0.361**
EXTERNAL	0.356**	0.776**	0.238**	0.357**

* CORRELATION COEFFICIENT SIGNIFICANT AT THE 0.05 LEVEL
** CORRELATION COEFFICIENT SIGNIFICANT AT THE 0.01 LEVEL

propensity for risk, and attitudes toward information from various sources were significant.

The factors attitude toward information from external sources and attitude toward information from informal sources are the most significant factors explaining the variation in the frequency of use of informal-internal sources. They combined for an R^2 of 0.21. The other factors did not significantly increase R^2.

The variations in frequency of use of informal-external sources is best explained by the variations in the factor attitude toward information from external sources. The R^2 for this factor is 0.60. Formal-internal sources' frequency of use is most significantly explained by the factors

attitudes toward classifications of information sources. No factors other than the attitudes toward information from internal and informal sources significantly increased the R^2 of the regression equation. The combined R^2 for the two factors is 0.25.

The factors most significantly explaining the variations in the frequency of use of formal-external sources are attitudes toward information from informal sources, external sources, and formal sources, and the degree of dogmatism. They combine to give a R^2 of 0.68. This is the only subclassification which had a factor other than an attitude toward information sources to be significant in the regression equation.

Summary

Twenty-four hypotheses were tested using the results of this study. These hypotheses and results are as follows.

1. There is no difference in the attitudes toward information from internal-formal sources among administrators of different rank. This hypothesis is accepted.

2. There is no difference in the attitudes toward information from internal-informal sources among administrators of different rank. This hypothesis is accepted.

3. There is no difference in the attitudes toward

information from external-formal sources among administrators of different rank. This hypothesis is accepted.

4. There is no difference in the attitudes toward information from external-informal sources among administrators of different rank. This hypothesis is accepted.

5. There is no difference in the attitudes toward information from internal-formal sources among administrators having different areas of responsibility. This hypothesis is accepted.

6. There is no difference in the attitudes toward information from internal-informal sources among administrators having different areas of responsibility. This hypothesis is accepted.

7. There is no difference in the attitudes toward information from external-formal sources among administrators having different areas of responsibility. This hypothesis is accepted.

8. There is no difference in the attitudes toward information from external-informal sources among administrators having different areas of responsibility. This hypothesis is accepted.

9. There is no difference in the attitudes toward information from internal-formal sources between administrators of different sex. This hypothesis is

accepted.

10. There is no difference in the attitudes toward information from internal-informal sources between administrators of different sex. This hypothesis is accepted.

11. There is no difference in the attitudes toward information from external-formal sources between administrators of different sex. This hypothesis is rejected.

12. There is no difference in the attitudes toward information from external-informal sources between administrators of different sex. This hypothesis is accepted.

13. There is no difference in the frequency of use of information from internal-formal sources among administrators of different rank. This hypothesis is rejected.

14. There is no difference in the frequency of use of information from internal-informal sources among administrators of different rank. This hypothesis is accepted.

15. There is no difference in the frequency of use of information from external-formal sources among administrators of different rank. This hypothesis is accepted.

16. There is no difference in the frequency of use of

information from external-informal sources among administrators of different rank. This hypothesis is accepted.

17. There is no difference in the frequency of use of information from internal-formal sources among administrators having different areas of responsibility. This hypothesis is rejected.

18. There is no difference in the frequency of use of information from internal-informal sources among administrators having different areas of responsibility. This hypothesis is rejected.

19. There is no difference in the frequency of use of information from external-formal sources among administrators having different areas of responsibility. This hypothesis is accepted.

20. There is no difference in the frequency of use of information from external-informal sources among administrators having different areas of responsibility. This hypothesis is rejected.

21. There is no difference in the frequency of use of information from internal-formal sources among administrators of different sex. This hypothesis is rejected.

22. There is no difference in the frequency of use of information from internal-informal sources among administrators of different sex. This hypothesis is

rejected.

23. There is no difference in the frequency of use of information from external-formal sources among administrators of different sex. This hypothesis is rejected.

24. There is no difference in the frequency of use of information from external-informal sources among administrators of different sex. This hypothesis is rejected.

CHAPTER V

CONCLUSIONS AND IMPLICATIONS

Conclusions

Information is important to administrators. It is a source of power and it is essential to strategic decision-making. The advancement of computer technology in the last decade has tremendously increased the amount of information available to administrators. This new technology has also made available the use of complex management science models down to people at all levels in organizations. These models are information driven. The modern environment demands that college administrators make rational effective decisions in order for their institutions to function well. Logically, then, it would appear reasonable to expect college administrators to use management science models and information technologies very often.

This study attempted to determine college administrators' attitudes toward and frequency of use of different sources of information. Information technology and management science models make use of formal sources of information and they themselves then become formal sources of information. Ackoff [1967] stated that two major functions of information systems are condensation and screening. Information systems are to take large batches of

data, screen out the irrelevant data, and condense the relevant data into useful formats for the presentation to decision-makers.

Meile [1985] modeled information sources along two dimensions, degree of systemization (formal and informal) and location of source (internal to the organization and external). Formal information sources are the results of systematic studies. Systematic studies are performed by people within the organization who collect and summarize data, scholars outside the organization who report their findings in journals, and consultants (internal and external) who systematically study a problem area and make reports. Informal information sources are sources whose information which they provide is not systematically derived. These sources include colleagues, superiors, and subordinates who give their opinions, impressions, or suggestions. They also include general circulation newspapers and magazines which report data which is not systematically analyzed (according to accepted scholarly methods). Internal sources of information are located within the user's organization and external sources are outside the user's organization.

The normative view is that decision-makers should be making decisions based upon formal information. The results of this study reveal that high-level college administrators within the University of North Carolina system use informal

sources significantly more frequently than formal sources. This tends to confirm Keller's [1985] contention that college administrators do not consult or use scholarly research about higher education. Informal inputs to decisions are used more often than formal inputs by the respondents.

The attitudes toward information sources are not significantly different. The assumption that the users' attitudes toward sources would influence their frequency of use of those sources is intuitive. There exists high correlations between the attitudes and frequency of use. This does not prove causality. The attitudes may be caused by the frequency of use, or the frequency of use may be caused by the attitudes, or neither.

Female administrators have a significantly more favorable attitude toward formal-external sources than do males. There are no other significant differences among administrators by sex, position, or area of responsibility in their attitudes toward specific types of information sources (informal-internal, informal-external, formal-internal, and formal-external). Female high-level college administrators in the study have a significantly more favorable attitude toward formal information sources than do males. No significant differences exist among administrators by position or area of responsibility in the attitudes toward formal, informal, internal, or external

sources of information.

The administrators' degree of dogmatism and propensity for risk do not affect their attitudes toward sources of information, neither do the four more specific sources nor the four more general sources. Past studies show that people with high degrees of dogmatism and high propensities for risk use less information in decision-making. But these factors do not affect their attitudes toward information sources.

The sex of the administrator does not affect the frequency of use of the sources either in specific subclassifications or in general classifications. Administrators in student affairs use formal-internal sources significantly less frequently than administrators in academic affairs or business affairs. Administrators in development/university relations use informal sources significantly more frequently than do administrators in student affairs. Formal sources of information are used significantly more often by administrators in academic affairs and development/university relations than those in business affairs or student affairs. Student affairs administrators use internal sources significantly less frequently than development/university relations administrators.

In general, it may be concluded that sex, position, degree of dogmatism, and propensity for risk are not

significant determinants of frequency of use of various sources of information. The area of responsibility is a significant determinant as is the attitudes toward information. Administrators in academic affairs use formal and informal sources equally. They use internal sources more frequently than external. Business affairs administrators use informal sources more than formal and internal sources more than external. Student affairs administrators use internal sources more frequently than external sources and formal and informal sources about equally. Administrators in development/university relations use informal sources more frequently than formal and internal and external sources about equally.

Implications

The conclusions indicate that high-level college administrators do not have more favorable attitudes toward any particular source of information. They have favorable attitudes toward all sources. They do tend to use informal sources more than formal sources and internal sources more than external sources. Matheson [1979] reported that administrators had more favorable attitudes toward information than did teaching and support personnel. This study shows that for the highest ranking collegiate officers, the attitudes are favorable and are not different by rank.

Matheson showed that people with more education used information more frequently. Assuming that the college administrators are well-educated, this study confirms that result. The administrators reported high frequency of use of all sources of information. Matheson also reported positive correlations between attitudes toward information and frequency of use of information. This study also confirms that attitude toward information is a determinant of frequency of use. The implications are clear. Education directed toward improving the knowledge of the use of an information source resulting in a more positive attitude toward that information source should result in a greater use of that information source.

Studies have shown that using formal decision methods result in better decisions. Management science scholars and MIS scholars state that administrators should make more use of management science models and information systems. Educational administration scholars ask why administrators do not use the results of the scholars' research. This study implies that college administrators do not use formal information more often because they do not have a more favorable attitude toward formal information than informal information. Traditionally managers have spent most of their time in informal communications. Their attitudes toward information sources may help explain this behavior.

Limitations and Recommendations for Further Study

It is tempting to generalize findings of research to large populations. This study used a small population -- only the high-level administrators in the University of North Carolina system who responded to the questionnaire survey. The results apply only to these administrators. However, the results may also be applicable to university systems similar to the University of North Carolina. The study was limited to one system to attempt to control for other factors which might affect the administrators' attitudes toward information sources or frequency of use of information sources. Thus the study population faced similar organizational and environmental influences. Further study needs to be completed to determine whether these results are applicable to a more general population or whether the attitudes and frequency of use of various sources are independent of organizational or environmental factors.

There is a major assumption underlying this study. The assumption is that the frequency of use of various sources and attitudes toward the information from these sources are true measures of the value of the information in the decision-making process. Ackoff [1967] suggested that decision-makers do not actually use all of the information gathered. Further study should be done to determine the

relative importance which the decision-maker assigns to information and if there is a systematic assignment of importance by individuals or groups. This work is especially being done by expert MIS systems developers and researchers. Gallagher [1988] states that it is more important to develop knowledge systems for general use than in-house development of expert systems for a particular application. The use of these systems by managers will depend upon the managers' acceptance of these systems. This study shows that their acceptance (use) will not be accomplished until attitudes toward formal information become more favorable than attitudes toward informal information.

Meile's [1985] model of information sources was used in this study. The study shows that it is more relevant to consider information sources along the two dimensions, degree of systemization and location of the sources, than to look at the individual quadrants of the model. This model is new and more studies need to be completed to better validate the use of this model in understanding various sources of information. Meile used the model to analyze the effects of computer assisted communication (CAC) technology on the cost of making decisions and the source of decision-making information. He concludes that the implementation of CAC would make formal information less expensive and more available. Therefore greater use of formal information

would result. This study shows that there is more frequent use of informal information than there is of formal information. Further research (probably case studies) need to be completed on the impact of CAC on decision-makers.

Summary

Among high-level college administrators, frequency of use of various sources of information is determined primarily by their attitudes toward information from various sources. The area of their responsibility is also a factor, but in multiple regression, the area is overwhelmed by the attitudes. Their sex, position, degree of dogmatism, and propensity of risk are not significant determining factors of frequency of use of information sources (although degree of dogmatism did have some affect on a few sources). Sex, position, area of responsibility, degree of dogmatism, and propensity for risk are not significant factors in determining an administrator's attitudes toward information from various sources.

High-level college administrators have a favorable attitude toward all sources of information and frequently use information from all sources. The attitudes and frequency of use are not significantly different between the sexes, among positions, or among areas of responsibility. The exception is that females have a significantly more favorable attitude towards information from formal-external

sources and use formal sources more frequently than do males.

The administrators use informal sources more frequently than formal sources and internal sources more frequently than external sources. The implications are that attitudes toward information from formal sources need to be improved. The implementation and use of computerized executive support systems and knowledge systems may be hindered by the attitudes of the administrators.

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APPENDIX A

THE QUESTIONNAIRE

☐ MALE ☐ FEMALE

TITLE ☐ CHANCELLOR ☐ ASSOCIATE VICE-CHANCELLOR
☐ VICE-CHANCELLOR ☐ ASSISTANT VICE-CHANCELLOR

AREA OF RESPONSIBILITY ☐ ACADEMIC AFFAIRS ☐ STUDENT AFFAIRS
☐ BUSINESS AFFAIRS ☐ DEVELOPMENT
☐ OTHER _____ (PLEASE SPECIFY)

PART I. Following are twelve statements about information. Please respond by checking the block which indicates how much each statement is like you or unlike you.

1 = very like me 2 = like me 3 = unlike me 4 = very unlike me

		1	2	3	4
1.	While leafing through a magazine or newspaper you notice an article on educational administration and so you start to read the article.				
2.	If you have to make an important administrative decision, your first step would be to find an expert person or some good printed material (books, articles) to help you make your decision.				
3.	You believe that your own work would be improved if you could find the right associate on your campus to talk to.				
4.	An associate on your campus that you respect offers you a copy of a three page position paper which he/she has done and suggests that you might find it helpful. You decide to read it.				
5.	Colleagues often come to you for information on administrative matters.				
6.	You are aware that there are several journals and books that contain articles and information about educational administration.				
7.	Associates on your campus regularly send people to you who are looking for information.				
8.	You look forward to attending a meeting with your associates on campus to discuss administration topics or problems facing you.				
9.	You regularly discuss administrative problems and issues with your colleagues.				
10.	If you found a journal article or book that you felt would help one of your colleagues, you would recommend it or offer it to him/her.				
11.	You request a report from your institutional research department.				
12.	You would offer to research an issue or problem and put together a package of information to be distributed to associates on your campus.				

PART II. When you need information in order to make an administrative decision, there are many sources you can use. Please rate the following sources in terms of how often you use them to obtain information. Please check the appropriate block for

Never Rarely Sometimes Frequently

		N	R	S	F
1.	WORKSHOPS, COURSES, OR SEMINARS				
2.	CONVERSATIONS WITH COLLEAGUES				
3.	COMMITTEE REPORTS				
4.	CONVERSATIONS WITH ASSOCIATES ON CAMPUS				
5.	EDUCATION ADMINISTRATION JOURNALS OR BOOKS				
6.	NEWSPAPERS OR MAGAZINES				
7.	YOUR INSTITUTIONAL RESEARCH DEPT REPORTS				
8.	CONVERSATIONS WITH FACULTY OR STUDENTS				
9.	EXPERTS OUTSIDE YOUR CAMPUS				
10.	CONVERSATIONS WITH BUSINESS OR POLITICAL LEADERS				
11.	REPORTS FROM SUBORDINATES				
12.	CONVERSATIONS WITH STAFF PERSONNEL				

PART III. The following is a study of what the general public thinks and feels about a number of important social and personal questions. The best answer to each statement below is your personal opinion. Please check the block best describing how you feel in each case.

1 = strongly agree 2 = agree 3 = mildly agree
4 = mildly disagree 5 = disagree 6 = strongly disagree

		1	2	3	4	5	6
1.	The United States and the Soviet Union have just about nothing in common.						
2.	The highest form of government is a democracy and the highest form of democracy is a government run by those who are most intelligent.						
3.	Even though freedom of speech for all groups is a worthwhile goal, it is unfortunately necessary to restrict the freedom of certain political groups.						
4.	It is only natural that people would have a much better acquaintance with ideas they believe in than with ideas they oppose.						
5.	I'd like it if I could find someone who would tell me how to solve my personal problems.						
6.	In a discussion I often find it necessary to repeat myself several times to make sure I am being understood.						
7.	In an exciting discussion I generally become so absorbed in what I am going to say that I forget to listen to what the others are saying.						
8.	While I don't like to admit this even to myself, my secret ambition is to become a great person, like Einstein, King, Thatcher, or Shakespeare.						
9.	In the history of humankind there have probably been just a handful of really great thinkers.						
10.	There are a number of people I have come to dislike because of the things they stand for.						
11.	It is only when people devote themselves to an ideal or cause that life becomes meaningful.						
12.	Of all the different philosophies which exist in this world there is probably only one which is correct.						
13.	A person who gets enthusiastic about too many causes is likely to be a pretty "wishy-washy" sort of person.						
14.	To compromise with our political opponents is dangerous because it usually leads to the betrayal of our own side.						
15.	In times like these, people must be pretty selfish if they consider primarily their own happiness.						
16.	The worst crime people could commit is to attack publicly the people who believe in the same thing they do.						
17.	In times like these it is often necessary to be more on guard against ideas put out by people or groups in one's own camp than by those in the opposing camp.						
18.	A group which tolerates too many differences of opinion among its own members cannot exist for long.						
19.	There are two kinds of people in this world: those who are for the truth and those who are against the truth.						
20.	Most of the ideas which get printed nowadays aren't worth the paper they are printed on.						
21.	In this complicated world of ours the only way we can know what's going on is to rely on leaders or experts who can be trusted.						
22.	It is often desirable to reserve judgment about what's going on until one has had a chance to hear the opinions of those one respects.						
23.	In the long run the best way to live is to pick friends and associates whose tastes and beliefs are the same as one's own.						
24.	If people are to accomplish their missions in life it is sometimes necessary to gamble all.						
25.	Unfortunately, a good many people with whom I have discussed important social and moral problems don't really understand what's going on.						
26.	People on their own are helpless and miserable creatures.						
27.	Fundamentally, the world we live in is a pretty lonesome place.						

	1	2	3	4	5	6
28. The main thing in life is for a person to want to do something important.						
29. If given the chance I would do something of great benefit to the world.						
30. Most people just don't give a "damn" for others.						
31. It is only natural for a person to be rather fearful of the future.						
32. There is so much to be done and so little time to do it in.						
33. Once I get wound up in an interesting discussion I just can't stop.						
34. My blood boils whenever people stubbornly refuse to admit they're wrong.						
35. People who think primarily of their own happiness are beneath contempt.						
36. The present is all too often full of unhappiness. It is only the future that counts.						
37. A person who does not believe in some great cause has not really lived.						
38. Most people just don't know what's good for them.						

PART IV. Following is a series of situations that are likely to occur in everyday life. The person in each situation is faced with a choice between two courses of action, called X and Y. X is more desirable and attractive than Y, but the odds of attaining X is less than the odds of attaining Y. For each situation you will be asked to indicate the minimum odds of success you would demand before recommending that the more attractive or desirable alternative, X, be chosen. Read each situation carefully before giving your judgement. Place yourself in the position of the person in each of the situations. Please do not omit any.

1. A, an electrical engineer, who is married and has one child, has been working for a large electronics firm since graduating from college five years ago. A is assured of a lifetime job with a modest, though adequate, salary, and liberal pension benefits. On the other hand, it is very unlikely that A's salary will increase much before A retires. While attending a convention, A is offered a job with a small, newly founded company which has a highly uncertain future. The new job would pay more to start and would offer the possibility of a share in the ownership if the company survived the competition of the larger firms. You are advising A. Check the LOWEST odds of the new company's proving financially sound that you would consider acceptable to make it worthwhile for A to take the new job.

   ☐ 1 IN 10 ☐ 3 IN 10 ☐ 5 IN 10 ☐ 7 IN 10 ☐ 9 IN 10
   ☐ A should <u>not</u> take the new job no matter what the odds.

2. B, a 45-year-old accountant, has recently been informed by B's physician that B has developed a severe heart ailment. The disease would be sufficiently serious to force B to change many of B's strongest life habits -- reducing B's work load, drastically changing B's diet, giving up favorite leisure-time pursuits. The physician suggests that a delicate medical operation could be attempted which, if successful, would completely relieve the heart condition. But its success could not be assured, and in fact, the operation might prove fatal. You are advising B. Check the LOWEST odds that the operation will prove successful that you would consider acceptable for the operation to be performed.

   ☐ 9 IN 10 ☐ 7 IN 10 ☐ 5 IN 10 ☐ 3 IN 10 ☐ 1 IN 10
   ☐ B should <u>not</u> have the operation no matter what the odds.

3. C is married and has two children. C has a steady job that pays about $15,000 per year. C can easily afford the necessities of life, but few of the luxuries. C's father, who died recently, carried a $10,000 life insurance policy. C would like to invest this money. C is well aware of the secure "blue-chip" stocks and bonds that would pay approximately 9% on C's investment. On the other hand, C has heard that the stocks of a relatively unknown Company X might double their present value if a new product currently in production is favorably received by the buying public. However, if the product is unfavorably received, the stocks would decline in value. You are advising C. Check the LOWEST odds that the stocks will double their value that you would consider acceptable for C to invest in the stocks.

   ☐ 1 IN 10 ☐ 3 IN 10 ☐ 5 IN 10 ☐ 7 IN 10 ☐ 9 IN 10
   ☐ C should <u>not</u> invest in Company X stocks, no matter what the odds.

4. E is president of a corporation in the United States. The corporation is quite prosperous, and is going to expand by building an additional plant in a new location. The choice is between building another plant in the U. S., where there would be a moderate return on the initial investment, or building a plant in a foreign country. Lower labor costs and easy access to raw materials in that country would mean a much higher return on the initial investment. On the other hand, there is a history of political instability and revolution in the foreign country under consideration. In fact, the leader of a small minority party is committed to nationalizing, that is, taking over, all foreign investments. You are advising E. Check the LOWEST odds of continued political stability in the foreign country under consideration that you would consider acceptable for E's corporation to build a plant in that country.

   ☐ 1 IN 10 ☐ 3 IN 10 ☐ 5 IN 10 ☐ 7 IN 10 ☐ 9 IN 10
   ☐ E's corporation should <u>not</u> build a plant in the foreign country, no matter what the odds.

5. F is currently a college senior who is very eager to pursue graduate study in chemistry leading to the Ph. D. F has been accepted by both University X and University Y. University X has a world-wide reputation for excellence in chemistry. While a degree from University X would signify outstanding training in this field, the standards are so very rigorous that only a fraction of the candidates actually receive the degree. University Y, on the other hand, has much less of a reputation in chemistry, but almost everyone admitted is awarded the Ph. D., though the degree has much less prestige than the Ph. D. from University X. You are advising F. Check the LOWEST odds that F would be awarded a degree from University X that you would consider acceptable to make it worthwhile for F to enroll in University X rather than University Y.

☐ 9 IN 10 ☐ 7 IN 10 ☐ 5 IN 10 ☐ 3 IN 10 ☐ 1 IN 10
☐ F should not enroll in University X, no matter what the odds.

6. G, a competent chess player, is participating in a national chess tournament. In an early match G draws the top-favored player in the tournament as G's opponent. G has been given a relatively low ranking in view of G's performance in previous tournaments. During the course of G's play with the top-favored man, G notes the possibility of a deceptive though risky maneuver which might bring G a quick victory. At the same time, if the attempted maneuver should fail, G would be left in an exposed position and defeat would certainly follow. You are advising G. Check the LOWEST odds that G's deceptive play would succeed that you would consider acceptable for the risky play to be attempted.

☐ 1 IN 10 ☐ 3 IN 10 ☐ 5 IN 10 ☐ 7 IN 10 ☐ 9 IN 10
☐ G should not attempt the risky play, no matter what the odds.

7. H, a college senior, has studied the piano since childhood. H has won amateur prizes and given small recitals, suggesting that H has considerable musical talent. As graduation approaches, H has the choice of going to medical school to become a physician, a profession which would bring certain prestige and financial rewards; or entering a conservatory of music for advanced training with a well-known pianist. H realizes that even upon completion of H's piano studies, which would take many more years and a lot of money, success as a concert pianist would not be assured. You are advising H. Check the LOWEST odds that H would succeed as a concert pianist that you would consider acceptable for H to continue with H's musical training.

☐ 9 IN 10 ☐ 7 IN 10 ☐ 5 IN 10 ☐ 3 IN 10 ☐ 1 IN 10
☐ H should not pursue his musical training, no matter what the odds.

8. K is a successful business person who has participated in a number of civic activities of considerable value to the community. K would like to hold political office, but to do so would involve a serious financial sacrifice, since the party has insufficient campaign funds. K would also have to endure the attacks of political opponents in a hot campaign. You are advising K. Check the LOWEST odds of K's winning the election that you would consider acceptable to make it worthwhile for K to run for political office.

☐ 9 IN 10 ☐ 7 IN 10 ☐ 5 IN 10 ☐ 3 IN 10 ☐ 1 IN 10
☐ K should not run for political office, no matter what the odds.

9. L, a married 30-year-old research physicist, has been given a five-year appointment by a major laboratory. As L contemplates the next five years, L realizes that L might work on a difficult, long-term problem which, if a solution could be found, would resolve basic scientific issues and bring high scientific honors. If no solution were found, however, L would have little to show for L's five years in the laboratory, making it hard for L to get a good job afterwards. On the other hand, L could, as most of L's professional associates are doing, work on a series of short-term problems where solutions would be easier to find, but where the problems are of lesser scientific importance. You are advising L. Check the LOWEST odds of L finding a solution to the difficult, long-term problem that you would consider acceptable for L to work on the difficult, long-term problem.

☐ 1 IN 10 ☐ 3 IN 10 ☐ 5 IN 10 ☐ 7 IN 10 ☐ 9 IN 10
☐ L should not work on the difficult, long-term problem, no matter what the odds.

10. M is contemplating marriage to T, a person whom M has known for a little more than a year. Recently, however, a number of arguments have occurred between them, suggesting some sharp differences of opinion in the way each views certain matters. They decide to seek professional advice from a marriage counselor as to whether it would be wise for them to marry. On the basis of these meetings with a marriage counselor, they realize that a happy marriage, while possible, would not be assured. You are advising M. Check the LOWEST odds that the marriage would prove to be a happy one that you would consider acceptable for M to marry T.

☐ 9 IN 10 ☐ 7 IN 10 ☐ 5 IN 10 ☐ 3 IN 10 ☐ 1 IN 10
☐ M should not marry T, no matter what the odds.

THANK YOU VERY MUCH. PLEASE RETURN THE SURVEY (ENVELOPE ENCLOSED) TO

WESLEY FLAKE
ISOM DEPARTMENT
BRYAN SCHOOL OF BUSINESS AND ECONOMICS
UNCG
GREENSBORO, NC 27412-5001

APPENDIX B

COVER LETTER FOR THE ORIGINAL MAILING

THE UNIVERSITY OF NORTH CAROLINA
AT GREENSBORO
JOSEPH M. BRYAN SCHOOL OF BUSINESS AND ECONOMICS

Department of Information Systems and Operations Management
(919) 334-5666

January 27, 1989

Dear Colleague,

You can be of great help to me. I am a doctoral candidate at UNCG. My dissertation topic attempts to identify some of the attitudes of college administrators. The enclosed questionnaire is my major research instrument. Would you please take about 10 minutes to complete the questionnaire and return it in the enclosed envelope?

Your anonymity is guaranteed. Results will not be computed for individual persons or institutions. The questionnaire is coded to allow me to monitor returns but no identification will be entered into the data base.

As a college administrator you are well aware of the need for scholars to do research. Please assist me to achieve an acceptable questionnaire return rate by returning this questionnaire by Feb. 10, 1989. Your cooperation in helping a fellow educator is greatly needed and appreciated.

Thank you very much,

Wesley L Flake

Wesley L. Flake

APPENDIX C

COVER LETTER FOR THE FOLLOW-UP MAILING

THE UNIVERSITY OF NORTH CAROLINA
AT GREENSBORO
JOSEPH M. BRYAN SCHOOL OF BUSINESS AND ECONOMICS

Department of Information Systems and Operations Management
(919) 334-5666

February 21, 1989

Dear Colleague,

You can help me. In January I sent you a questionnaire. I know that you are very busy and receive many requests to complete and return surveys. However, this one requires only about ten minutes to complete and return. It contains questions about your attitudes and requires only that you read each item and check the block which best indicates how you feel. Your anonymity is guaranteed. No analysis or reports will be made for individuals or institutions. A self-addressed stamped envelope is included for you to return the questionnaire.

The analysis of the data provided by this questionnaire is needed for me to complete my doctoral dissertation. Over fifty percent of your colleagues have found time in their busy schedules to complete and return this instrument. Your input is needed just as much as theirs. Please follow their lead and help a fellow educator in his research.

Sincerely,

Wesley L. Flake

Wesley L. Flake

GREENSBORO, NORTH CAROLINA / 27412-5001

APPENDIX D

MEANS AND STANDARD DEVIATIONS OF THE RESPONSES TO EACH ITEM AND CATEGORY

MEANS AND STANDARD DEVIATIONS OF THE RESPONSES TO EACH ITEM IN PART I FOR ALL RESPONDENTS AND FOR FEMALES AND MALES

ITEM	TOTAL (n=89) MEAN	S.DEV	FEMALES (n=13) MEAN	S.DEV	MALES (n=76) MEAN	S.DEV
1	3.48	0.64	3.54	0.66	3.47	0.64
2	2.62	0.87	3.15	0.80	2.53	0.86
3	2.61	0.83	2.77	0.60	2.58	0.87
4	3.55	0.52	3.62	0.51	3.54	0.53
5	3.52	0.50	3.62	0.51	3.50	0.50
6	3.57	0.62	3.77	0.44	3.54	0.64
7	6.56	0.58	3.54	0.52	3.57	0.60
8	3.25	0.71	3.23	0.73	3.25	0.71
9	3.40	0.77	3.39	0.96	3.41	0.73
10	3.60	0.56	3.69	0.48	3.58	0.57
11	3.08	0.76	3.31	0.75	3.04	0.76
12	3.02	0.75	3.46	0.52	2.95	0.76

MEANS AND STANDARD DEVIATIONS OF THE RESPONSES TO EACH ITEM IN PART II FOR ALL RESPONDENTS AND FOR FEMALES AND MALES

ITEM	TOTAL (n=89) MEAN	S.DEV	FEMALES (n=13) MEAN	S.DEV	MALES (n=76) MEAN	S.DEV
1	3.00	0.72	2.92	0.64	3.01	0.74
2	3.79	0.46	3.69	0.63	3.80	0.43
3	3.23	0.69	3.39	0.65	3.20	0.69
4	3.56	0.58	3.46	0.66	3.58	0.57
5	2.79	0.68	2.85	0.56	2.78	0.70
6	2.73	0.70	2.62	0.65	2.75	0.71
7	3.01	0.79	3.23	1.01	2.97	0.75
8	3.36	0.61	3.39	0.51	3.36	0.63
9	3.01	0.59	3.23	0.60	2.97	0.59
10	2.57	0.81	2.62	0.77	2.57	0.82
11	3.66	0.48	3.92	0.28	3.62	0.49
12	3.58	0.54	3.46	0.52	3.61	0.54

MEANS AND STANDARD DEVIATIONS OF THE RESPONSES TO EACH ITEM IN PART III FOR ALL RESPONDENTS AND FOR FEMALES AND MALES

	TOTAL (n=89)		FEMALES (n=13)		MALES (n=76)	
ITEM	MEAN	S.DEV	MEAN	S.DEV	MEAN	S.DEV
1	1.89	1.12	2.15	0.90	1.84	1.16
2	3.51	1.49	3.69	1.38	3.47	1.52
3	2.03	1.37	2.00	1.53	2.04	1.35
4	4.29	1.22	4.08	1.12	4.33	1.24
5	2.56	1.62	2.23	1.48	2.62	1.64
6	2.71	1.20	2.92	1.19	2.67	1.20
7	2.54	1.16	2.62	1.33	2.53	1.14
8	2.34	1.37	2.77	1.74	2.26	1.29
9	3.23	1.64	3.77	1.64	3.13	1.63
10	3.02	1.46	2.69	1.49	3.08	1.46
11	3.87	1.46	3.15	1.52	3.99	1.42
12	1.49	0.79	1.23	0.83	1.54	0.77
13	2.99	1.42	2.77	1.42	3.03	1.42
14	2.17	1.14	2.54	1.27	2.11	1.11
15	3.42	1.44	3.54	1.33	3.40	1.46
16	2.15	1.08	2.23	1.09	2.13	1.09
17	2.28	1.04	2.46	0.88	2.25	1.07
18	2.01	1.17	2.00	1.08	2.01	1.19
19	1.94	1.23	2.15	1.35	1.91	1.21
20	2.36	1.29	1.92	0.76	2.43	1.35
21	2.27	1.29	2.15	1.07	2.29	1.33
22	4.40	1.34	4.39	1.66	4.41	1.29
23	2.46	1.09	2.23	0.93	2.50	1.11
24	3.52	1.53	3.54	1.71	3.51	1.51
25	2.98	1.31	3.23	1.36	2.93	1.30
26	1.69	1.04	1.92	1.38	1.65	0.98
27	1.85	1.10	1.77	0.83	1.87	1.15
28	3.35	1.42	2.62	1.12	3.47	1.44
29	4.60	1.23	4.15	1.41	4.67	1.24
30	2.25	1.20	1.77	0.60	2.33	1.26
31	3.23	1.30	3.08	1.04	3.25	1.34
32	4.09	1.50	4.69	1.38	3.99	1.50
33	3.38	1.24	3.39	0.96	3.38	1.29
34	3.18	1.34	3.31	0.86	3.16	1.41
35	2.83	1.11	3.08	0.86	2.79	1.15
36	1.90	0.93	1.85	0.90	1.91	0.94
37	3.00	1.38	2.85	1.52	3.03	1.37
38	2.35	1.12	2.15	1.07	2.38	1.13

MEANS AND STANDARD DEVIATIONS OF THE RESPONSES TO EACH ITEM IN PART IV FOR ALL RESPONDENTS AND FOR FEMALES AND MALES

ITEM	TOTAL (n=89) MEAN	S.DEV	FEMALES (n=13) MEAN	S.DEV	MALES (n=76) MEAN	S.DEV
1	4.93	1.70	5.23	1.92	4.88	1.67
2	6.46	2.16	6.46	2.47	6.46	2.13
3	7.49	2.39	7.62	2.40	7.47	2.40
4	7.96	2.18	7.92	2.47	7.96	2.14
5	5.26	2.37	4.85	1.91	5.33	2.44
6	4.18	2.20	4.46	2.26	4.13	2.21
7	5.53	2.53	4.69	2.29	5.67	2.55
8	6.01	2.33	7.00	2.42	5.84	2.29
9	4.80	2.14	5.39	2.57	4.70	2.06
10	7.21	2.33	7.85	2.12	7.11	2.36

MEANS AND STANDARD DEVIATIONS OF THE RESPONSES FOR THE COMPOSITE MEASURES FOR ALL RESPONDENTS AND FOR FEMALES AND MALES

ITEM	TOTAL (n=89) MEAN	S.DEV	FEMALES (n=13) MEAN	S.DEV	MALES (n=76) MEAN	S.DEV
DOGMATISM	2.79	0.52	2.77	0.45	2.80	0.53
PROPENSITY FOR RISK	5.98	1.09	6.15	1.02	5.96	1.11
ATTITUDES TOWARD INFORMATION FROM						
INFORMAL	3.23	0.44	3.22	0.45	3.23	0.44
FORMAL	3.27	0.40	3.49	0.37	3.23	0.40
INTERNAL	3.18	0.41	3.32	0.34	3.15	0.41
EXTERNAL	3.25	0.34	3.24	0.41	3.25	0.33
INFORMAL-INTERNAL	3.08	0.46	3.21	0.32	3.06	0.48
INFORMAL-EXTERNAL	3.47	0.43	3.51	0.52	3.46	0.41
FORMAL-INTERNAL	3.27	0.49	3.44	0.46	3.25	0.50
FORMAL-EXTERNAL	3.26	0.47	3.54	0.44	3.21	0.46
FREQUENCY OF USE OF INFORMATION FROM						
INFORMAL	3.27	0.37	3.21	0.43	3.28	0.37
FORMAL	3.07	0.38	3.17	0.41	3.05	0.37
INTERNAL	3.35	0.41	3.38	0.47	3.34	0.40
EXTERNAL	2.98	0.40	2.99	0.44	2.98	0.39
INFORMAL-INTERNAL	3.50	0.41	3.44	0.46	3.51	0.40
INFORMAL-EXTERNAL	3.03	0.48	2.97	0.46	3.04	0.48
FORMAL-INTERNAL	3.20	0.53	3.33	0.59	3.18	0.52
FORMAL-EXTERNAL	2.93	0.48	3.00	0.47	2.92	0.48

MEANS AND STANDARD DEVIATIONS OF THE RESPONSES TO EACH ITEM IN PART I FOR RESPONDENTS BY POSITION

ITEM	ASSISTANT VICE CHANCELLOR (n=20) MEAN	S.DEV	ASSOCIATE VICE CHANCELLOR (n=23) MEAN	S.DEV	VICE CHANCELLOR (n=40) MEAN	S.DEV	CHANCELLOR (n=6) MEAN	S.DEV
1	3.45	0.76	3.70	0.56	3.38	0.63	3.50	0.55
2	3.05	0.69	2.52	1.04	2.48	0.82	2.50	0.84
3	2.65	0.67	2.57	0.95	2.50	0.82	3.33	0.82
4	3.65	0.49	3.57	0.59	3.48	0.51	3.67	0.52
5	3.45	0.51	3.52	0.51	3.50	0.51	3.83	0.41
6	3.60	0.60	3.57	0.51	3.48	0.68	3.67	0.41
7	3.70	0.47	3.57	0.51	3.48	0.68	3.67	0.52
8	3.20	0.62	3.30	0.82	3.18	0.71	3.67	0.52
9	3.50	0.83	3.52	0.79	3.35	0.66	3.00	1.10
10	3.65	0.49	3.74	0.45	3.45	0.64	3.83	0.41
11	2.90	0.79	3.30	0.77	2.98	0.73	3.50	0.55
12	3.00	0.65	3.22	0.85	3.00	0.75	2.50	0.55

MEANS AND STANDARD DEVIATIONS OF THE RESPONSES TO EACH ITEM IN PART II FOR RESPONDENTS BY POSITION

	ASSISTANT VICE CHANCELLOR (n=20)		ASSOCIATE VICE CHANCELLOR (n=23)		VICE CHANCELLOR (n=40)		CHANCELLOR (n=6)	
ITEM	MEAN	S.DEV	MEAN	S.DEV	MEAN	S.DEV	MEAN	S.DEV
1	3.20	0.62	3.00	0.80	2.90	0.78	3.00	0.00
2	3.90	0.31	3.83	0.49	3.68	0.53	4.00	0.00
3	3.40	0.68	3.30	0.70	3.00	0.64	3.83	0.41
4	3.55	0.51	3.52	0.67	3.53	0.60	4.00	0.00
5	3.05	0.51	2.70	0.77	2.73	0.72	2.67	0.52
6	2.85	0.67	2.78	0.74	2.63	0.67	2.83	0.98
7	3.00	0.80	3.22	0.80	2.80	0.76	3.67	0.52
8	3.50	0.61	3.35	0.65	3.23	0.58	3.83	0.41
9	3.05	0.51	3.00	0.67	2.98	0.62	3.17	0.41
10	2.50	0.69	2.44	0.90	2.58	0.78	3.33	0.82
11	3.75	0.44	3.61	0.50	3.63	0.49	3.83	0.41
12	3.55	0.69	3.61	0.50	3.55	0.50	3.83	0.41

MEANS AND STANDARD DEVIATIONS OF THE RESPONSES TO EACH ITEM IN PART III FOR RESPONDENTS BY POSITION

	ASSISTANT VICE CHANCELLOR (n=20)		ASSOCIATE VICE CHANCELLOR (n=23)		VICE CHANCELLOR (n=40)		CHANCELLOR (n=6)	
ITEM	MEAN	S.DEV	MEAN	S.DEV	MEAN	S.DEV	MEAN	S.DEV
1	1.95	0.83	1.65	1.07	1.88	1.16	2.67	1.75
2	3.50	1.47	3.17	1.53	3.63	1.53	4.00	0.00
3	2.45	1.32	1.78	1.41	2.03	1.44	1.67	0.52
4	4.05	1.43	4.30	1.19	4.35	1.12	4.67	1.37
5	2.40	1.64	2.48	1.73	2.65	1.59	2.83	1.60
6	2.40	1.14	2.61	1.23	2.88	1.22	3.00	1.10
7	2.40	1.23	2.44	1.24	2.58	1.13	3.17	0.75
8	2.50	1.40	1.96	1.07	2.43	1.48	2.67	1.51
9	3.20	1.77	3.39	1.78	3.18	1.55	3.00	1.55
10	2.80	1.51	2.78	1.38	3.35	1.53	2.50	0.84
11	3.30	1.59	3.57	1.31	4.18	1.34	4.83	1.60
12	1.45	0.61	1.30	0.70	1.60	0.93	1.67	0.52
13	3.00	1.30	2.52	1.31	3.33	1.54	2.50	0.84
14	2.20	0.83	2.04	1.30	2.28	1.26	1.83	0.41
15	3.60	1.43	3.35	1.53	3.30	1.40	3.83	1.60
16	2.10	1.17	2.13	1.10	2.18	1.09	3.50	1.38
17	2.15	0.99	2.09	0.73	2.28	1.09	3.50	1.38
18	2.00	0.97	1.70	0.88	2.23	1.42	1.83	0.75
19	2.15	1.57	1.48	0.59	2.00	1.22	2.67	1.51
20	2.30	1.13	2.00	1.17	2.60	1.41	2.33	1.37
21	2.10	1.07	2.13	1.29	2.38	1.37	2.67	1.51
22	4.15	1.31	4.13	1.60	4.58	1.22	5.17	0.75
23	2.20	0.89	2.22	1.09	2.75	1.19	2.33	0.52
24	3.60	1.60	3.44	1.62	3.40	1.48	4.33	1.37
25	2.80	1.51	2.65	1.23	3.25	1.17	3.00	1.67
26	1.90	1.21	1.39	0.58	1.83	1.17	1.67	0.41
27	1.95	1.28	1.65	0.94	1.95	1.15	1.67	0.82
28	3.20	1.47	3.17	1.53	3.53	1.40	3.33	1.21
29	4.50	1.15	4.22	1.62	4.78	1.10	5.17	0.98
30	2.40	1.10	2.04	1.07	2.28	1.24	2.33	1.86
31	3.25	1.25	2.87	1.29	3.53	1.26	2.50	1.38
32	4.25	1.52	3.83	1.70	4.15	1.37	4.17	1.72
33	3.20	1.20	3.26	1.21	3.53	1.30	3.50	1.23
34	3.25	1.29	3.00	1.21	3.15	1.41	3.83	1.60
35	2.90	1.02	2.52	0.99	2.93	1.16	3.17	1.47
36	1.75	0.85	1.65	0.83	2.10	1.06	2.00	0.00
37	2.65	1.18	2.83	1.37	3.15	1.48	3.83	1.17
38	2.35	1.14	2.00	1.21	2.50	0.96	2.67	1.63

MEANS AND STANDARD DEVIATIONS OF THE RESPONSES TO EACH ITEM IN PART IV FOR RESPONDENTS BY POSITION

	ASSISTANT VICE CHANCELLOR (n=20)		ASSOCIATE VICE CHANCELLOR (n=23)		VICE CHANCELLOR (n=40)		CHANCELLOR (n=6)	
ITEM	MEAN	S.DEV	MEAN	S.DEV	MEAN	S.DEV	MEAN	S.DEV
1	4.40	1.85	5.22	1.81	4.88	1.51	6.00	1.67
2	5.40	2.21	6.87	1.55	6.53	2.38	8.00	1.10
3	6.45	2.31	8.44	1.95	7.33	2.52	8.50	2.07
4	7.10	2.75	8.17	1.85	8.20	2.03	8.33	1.97
5	5.30	2.52	4.74	1.84	5.48	2.66	5.67	1.63
6	4.45	2.37	3.87	2.24	4.00	2.09	5.67	2.07
7	5.50	2.33	5.13	2.05	5.80	2.85	5.33	2.94
8	6.25	2.27	5.61	2.27	6.00	2.40	6.83	2.56
9	5.10	2.47	4.70	1.99	4.58	2.14	5.67	1.63
10	6.85	1.90	7.00	2.58	7.40	2.23	8.00	3.46

MEANS AND STANDARD DEVIATIONS OF THE RESPONSES FOR THE COMPOSITE MEASURES FOR RESPONDENTS BY POSITION

ITEM	ASST. VICE CHANCELLOR (n=20) MEAN	S.DEV	ASSOC. VICE CHANCELLOR (n=23) MEAN	S.DEV	VICE CHANCELLOR (n=40) MEAN	S.DEV	CHANCELLOR (n=6) MEAN	S.DEV
DOGMATISM	2.75	0.53	2.57	0.41	2.91	0.55	3.00	0.42
PROPENSITY FOR RISK	5.68	1.31	5.97	0.87	6.02	1.07	6.80	0.99
ATTITUDES TOWARD INFORMATION FROM								
INFORMAL	3.33	0.45	3.29	0.43	3.15	0.46	3.22	0.20
FORMAL	3.36	0.35	3.32	0.43	3.18	0.42	3.33	0.33
INTERNAL	3.18	0.30	3.25	0.46	3.10	0.42	3.39	0.33
EXTERNAL	3.28	0.33	3.30	0.39	3.18	0.30	3.42	0.35
INFORMAL-INTERNAL	3.08	0.36	3.14	0.45	2.98	0.48	3.50	0.46
INFORMAL-EXTERNAL	3.47	0.49	3.58	0.42	3.41	0.40	3.44	0.40
FORMAL-INTERNAL	3.28	0.36	3.36	0.62	3.22	0.49	3.28	0.39
FORMAL-EXTERNAL	3.43	0.41	3.28	0.48	3.15	0.48	3.39	0.44
FREQUENCY OF USE OF INFORMATION FROM								
INFORMAL	3.31	0.36	3.25	0.40	3.20	0.34	3.64	0.36
FORMAL	3.20	0.36	3.09	0.35	2.94	0.37	3.36	0.19
INTERNAL	3.42	0.45	3.39	0.42	3.22	0.33	3.83	0.26
EXTERNAL	3.09	0.33	2.96	0.42	2.91	0.42	3.17	0.30
INFORMAL-INTERNAL	3.53	0.44	3.49	0.41	3.43	0.38	3.89	0.27
INFORMAL-EXTERNAL	3.08	0.37	3.01	0.54	2.96	0.47	3.39	0.49
FORMAL-INTERNAL	3.30	0.58	3.29	0.53	3.01	0.44	3.78	0.27
FORMAL-EXTERNAL	3.10	0.42	2.90	0.45	2.87	0.54	2.94	0.14

MEANS AND STANDARD DEVIATIONS OF THE RESPONSES TO EACH ITEM IN PART I FOR RESPONDENTS BY AREA OF RESPONSIBILITY

	ACADEMICS (n=26)		BUSINESS (n=30)		STUDENT (n=24)		DEVELOPMENT (n=9)	
ITEM	MEAN	S.DEV	MEAN	S.DEV	MEAN	S.DEV	MEAN	S.DEV
1	3.73	0.53	3.37	0.62	3.46	0.59	3.22	0.97
2	2.69	0.93	2.53	0.82	2.63	0.88	2.67	1.00
3	2.58	0.81	2.60	0.93	2.67	0.82	2.56	0.73
4	3.50	0.58	3.47	0.51	3.75	0.44	3.44	0.53
5	3.65	0.49	3.53	0.51	3.75	0.44	3.44	0.53
6	3.65	0.63	3.43	0.63	3.71	0.55	3.44	0.73
7	3.65	0.49	3.40	0.72	3.67	0.48	3.56	0.53
8	3.23	0.77	3.27	0.79	3.25	0.61	3.22	0.67
9	3.39	0.90	3.30	0.84	3.54	0.59	3.44	0.53
10	3.69	0.47	3.57	0.57	3.58	0.58	3.44	0.73
11	3.54	0.58	2.80	0.81	2.96	0.62	3.00	0.87
12	3.27	0.83	2.80	0.71	2.96	0.62	3.22	0.83

MEANS AND STANDARD DEVIATIONS OF THE RESPONSES TO EACH ITEM IN PART II FOR RESPONDENTS BY AREA OF RESPONSIBILITY

	ACADEMICS (n=26)		BUSINESS (n=30)		STUDENT (n=24)		DEVELOPMENT (n=9)	
ITEM	MEAN	S.DEV	MEAN	S.DEV	MEAN	S.DEV	MEAN	S.DEV
1	2.89	0.77	2.93	0.74	3.25	0.61	2.89	0.78
2	3.65	0.63	3.73	0.45	3.96	0.20	3.89	0.33
3	3.31	0.62	3.07	0.83	3.38	0.58	3.11	0.60
4	3.39	0.70	3.63	0.56	3.63	0.50	3.67	0.50
5	2.62	0.80	2.67	0.66	3.00	0.51	3.11	0.60
6	2.54	0.65	2.67	0.71	2.83	0.64	3.22	0.83
7	3.39	0.70	2.60	0.81	3.13	0.61	3.00	0.87
8	3.27	0.45	3.13	0.68	3.75	0.44	3.33	0.71
9	3.04	0.45	2.93	0.64	3.08	0.65	3.00	0.71
10	2.15	0.83	2.87	0.73	2.50	0.72	3.00	0.71
11	3.58	0.50	3.83	0.38	3.54	0.51	3.67	0.50
12	3.35	0.63	3.67	0.48	3.67	0.48	3.78	0.44

MEANS AND STANDARD DEVIATIONS OF THE RESPONSES TO EACH ITEM IN PART III FOR RESPONDENTS BY AREA OF RESPONSIBILITY

	ACADEMICS (n=26)		BUSINESS (n=30)		STUDENT (n=24)		DEVELOPMENT (n=9)	
ITEM	MEAN	S.DEV	MEAN	S.DEV	MEAN	S.DEV	MEAN	S.DEV
1	1.81	1.06	2.23	1.38	1.54	0.59	1.89	1.27
2	3.23	1.42	3.76	1.55	3.25	1.39	4.11	4.69
3	1.73	1.25	2.36	1.43	2.00	1.45	1.89	1.27
4	4.19	1.20	4.17	1.42	4.42	1.06	4.67	1.00
5	2.04	1.54	2.90	1.65	2.38	1.17	3.44	2.30
6	2.23	0.99	3.13	1.20	2.79	1.22	2.44	1.33
7	2.15	1.01	2.63	1.22	2.63	1.10	3.11	1.36
8	2.23	1.21	2.33	1.45	2.25	1.23	2.89	1.90
9	3.50	1.75	3.03	1.38	3.29	1.73	2.89	1.97
10	3.00	1.30	3.23	1.43	2.83	1.66	2.89	1.62
11	3.69	1.49	3.87	1.46	3.88	1.54	4.33	1.23
12	1.31	0.74	1.70	0.88	1.50	0.72	1.33	0.71
13	2.85	1.38	3.23	1.43	2.88	1.48	2.89	1.45
14	1.89	0.95	2.40	1.35	2.13	1.08	2.33	1.00
15	3.62	1.42	3.27	1.39	3.58	1.59	2.89	1.27
16	2.04	0.92	2.33	1.18	2.00	1.02	2.22	1.39
17	2.39	0.90	2.60	1.22	1.92	0.78	1.89	1.17
18	1.73	0.87	2.33	1.50	1.79	0.83	1.67	1.00
19	1.39	0.64	2.23	1.38	1.88	0.90	2.78	1.99
20	2.19	1.17	2.40	1.22	2.29	1.27	2.89	1.90
21	1.96	1.00	2.50	1.43	2.38	1.41	2.11	1.17
22	3.96	1.82	4.73	0.98	4.46	1.10	4.44	1.13
23	2.23	1.07	2.83	1.12	2.25	0.99	2.44	1.13
24	3.19	1.47	3.87	1.55	3.42	1.50	3.56	1.74
25	2.89	1.34	3.00	1.44	3.00	1.25	3.11	1.05
26	1.58	0.86	1.63	1.10	1.67	0.87	2.22	1.64
27	1.73	1.00	1.77	0.90	2.29	1.43	1.33	0.71
28	3.35	1.41	3.37	1.38	3.38	1.50	3.22	1.64
29	4.46	1.50	4.60	1.19	4.46	4.10	5.33	1.12
30	2.00	0.85	2.50	1.48	2.33	1.17	1.89	1.05
31	3.04	1.31	3.37	1.45	3.13	1.19	3.56	1.01
32	3.96	1.71	4.10	1.42	4.04	1.30	4.56	1.74
33	2.96	1.28	3.60	1.27	3.42	1.21	3.78	0.83
34	2.96	1.34	3.37	1.47	3.25	1.26	3.00	1.12
35	2.58	0.90	3.00	1.20	3.08	1.18	2.33	1.00
36	1.62	0.75	2.17	0.99	1.92	0.93	1.78	1.06
37	2.50	1.24	3.23	1.22	3.00	1.47	3.67	1.73
38	1.85	1.19	2.63	1.07	2.42	0.97	2.67	1.12

MEANS AND STANDARD DEVIATIONS OF THE RESPONSES TO EACH ITEM IN PART IV FOR RESPONDENTS BY AREA OF RESPONSIBILITY

	ACADEMICS (n=26)		BUSINESS (n=30)		STUDENT (n=24)		DEVELOPMENT (n=9)	
ITEM	MEAN	S.DEV	MEAN	S.DEV	MEAN	S.DEV	MEAN	S.DEV
1	5.00	1.72	5.00	1.82	5.08	1.61	4.11	1.45
2	6.46	2.02	6.83	2.28	6.71	2.07	4.56	1.67
3	7.31	2.13	8.50	2.13	6.83	2.70	6.44	2.19
4	7.31	2.07	8.33	2.22	8.25	1.82	7.78	3.03
5	4.42	1.92	5.30	2.09	5.96	2.55	5.67	3.43
6	4.04	1.89	4.20	2.07	4.63	2.37	3.33	3.00
7	4.69	2.33	6.33	2.77	5.21	2.13	6.11	2.67
8	5.73	1.99	6.60	2.40	5.71	2.66	5.67	2.00
9	4.54	2.30	5.07	2.13	4.83	1.95	4.56	2.40
10	6.96	2.41	7.50	2.57	7.13	1.94	7.22	2.49

MEANS AND STANDARD DEVIATIONS FOR THE COMPOSITE MEASURES FOR RESPONDENTS BY AREA OF RESPONSIBILITY

ITEM	ACADEMICS (n=26) MEAN	S.DEV	BUSINESS (n=30) MEAN	S.DEV	STUDENT (n=24) MEAN	S.DEV	DEVELOPMENT (n=9) MEAN	S.DEV
DOGMATISM	2.58	0.42	2.96	0.60	2.77	0.42	2.91	0.59
PROPENSITY FOR RISK	5.65	1.10	6.37	1.14	6.03	0.90	5.54	1.07
ATTITUDES TOWARD INFORMATION FROM								
INFORMAL	3.24	0.41	3.17	0.46	3.37	0.35	3.09	0.60
FORMAL	3.34	0.35	3.18	0.40	3.31	0.42	3.24	0.51
INTERNAL	3.29	0.39	3.06	0.45	3.21	0.34	3.17	0.40
EXTERNAL	3.19	0.34	3.24	0.33	3.29	0.35	3.33	0.32
INFORMAL-INTERNAL	3.26	0.37	2.93	0.56	3.10	0.37	3.04	0.42
INFORMAL-EXTERNAL	3.59	0.38	3.40	0.43	3.49	0.42	3.30	0.51
FORMAL-INTERNAL	3.33	0.55	3.18	0.51	3.32	0.44	3.23	0.42
FORMAL-EXTERNAL	3.35	0.46	3.18	0.42	3.31	0.49	3.19	0.63
FREQUENCY OF USE OF INFORMATION FROM								
INFORMAL	3.06	0.39	3.28	0.38	3.39	0.25	3.48	0.31
FORMAL	3.08	0.31	2.89	0.41	3.26	0.26	3.07	0.43
INTERNAL	3.33	0.38	3.21	0.47	3.55	0.27	3.37	0.42
EXTERNAL	2.81	0.44	2.97	0.35	3.10	0.34	3.19	0.39
INFORMAL-INTERNAL	3.33	0.42	3.48	0.43	3.68	0.28	3.59	0.36
INFORMAL-EXTERNAL	2.78	0.52	3.09	0.44	3.10	0.39	3.37	0.39
FORMAL-INTERNAL	3.32	0.45	2.93	0.60	3.42	0.36	3.15	0.58
FORMAL-EXTERNAL	2.85	0.50	2.84	0.49	3.11	0.40	3.00	0.50