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IDENTIFYING PREDICTORS OF INFORMATION UTILIZATION BY SECONDARY SCHOOL PRINCIPALS

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VITA

February 9, 1952 ............... Born - Jacksonville, Florida

1974 .......................... B.A., Eckerd College, St. Petersburg, Florida

1974-1978 ...................... Touring tennis professional

1980 .......................... M.A., University of Florida, Gainesville, Florida

1980-1981 ...................... Administrative Assistant to Educational Foundations and Research Graduate Studies Committee, The Ohio State University

1981-1983 ...................... Research Associate, Department of Educational Foundations and Research, The Ohio State University

PRESENTATIONS


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FIELDS OF STUDY

Major field: Educational Evaluation and Research

Studies in Educational Evaluation
Professor James Altschuld

Studies in Applied Statistics
Professors John Kennedy and Robert MacCallum

Studies in Measurement Theory
Professors Fred Damarin and Phillip Clark
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Chapter I
INTRODUCTION

Before the 1950's, the educational system in the U.S. was highly regarded, and professional educators ran the system without having to give accounts of their decisions to the general public. In the 1950's, however, dissatisfaction began to be voiced especially in regard to educating adequately students in the hard sciences (Popham, 1975). In the 1960's, as civil rights and the quality of the education afforded minorities became an issue, more criticism of the educational system was voiced. The pressure exerted by minorities on Congress, led to legislation that began to change the pattern of financial support for education, such that local control began to be challenged by federal control. In particular, Congress began to manifest greater control over local educational systems with the enactment of the Elementary and Secondary Act of 1965 (Popham, 1975). This legislation provided for thousands of federal grants to local agencies for the development of programs and materials for the disadvantaged, and more importantly, contained requirements for evaluations of how
these funds were spent. The profession of educational evaluation arose to help administrators fulfill these evaluation requirements (Popham, 1975; Stufflebeam & Webster, 1980).

The accountability movements of the early 1970's were a second important factor in increasing the need for professional evaluators in education (Popham, 1975; Stufflebeam & Webster, 1980). As economic recessions in the 1970's reduced the money available for schools, pressure emerged from taxpayers that forced educators to account for their financial expenditures. Some states developed accountability systems that tried to monitor the outputs of local school districts, and in some cases, were punitive in terms of funding if the local district did not produce the desired outputs. Other states implemented accountability systems that involved the whole system, not just outputs. That is, schools were made accountable for setting goals, choosing programs, analyzing feedback about programs, improving programs—a cyclical process. In other words, the focus had shifted from inputs or outputs singly to the relationships of inputs (goals, programs) and outputs (student achievement) (Bortner, 1979; Kippel, 1979).

Accountability and federal legislation represented an increased demand from those outside the educational system for the documentation of the effects due to programs spon-
sored by state or federal monies. Instead of trusting educators to make decisions about programs and funding on the basis of their experience or beliefs, accountability systems and federally mandated evaluations were implemented out of a belief that using more objective, scientific methods could lead to better decisions about the worth of programs and judgments about the success of the educational system. This emphasis on decisions based on objective data is reflected in many current definitions of evaluation (Popham, 1975, pg. 13; Stufflebeam & Webster, 1980, pg. 6).

MODELS OF EVALUATION

There is no uniform, agreed upon way to conduct an evaluation as evidenced by the references to numerous models of evaluation in the literature. This disagreement over models is reflected in the current debate between quantitative and qualitative approaches to conducting evaluations. The model of evaluation activities as consisting of applied science was the first response to the requirement to evaluate, which was written into many of the federal grants of the 1960's and 1970's. This conception came naturally to social scientists, who were the first evaluators (Glass & Ellett, 1980). It focuses on the operationalization and quantitative measurement of constructs, and the use of controlled experimentation to assess the effects
of interventions. When the experimental approach often proved unresponsive to weak treatments or interventions and troublesome to implement, given the difficulty service agencies have in adapting to the requirements of an experimental situation, some evaluators suggested that the qualitative methods of ethnographers and investigative journalists were better suited to their needs (Guba, 1978; Weiss & Rein, 1972). In this qualitative approach, evaluation is pursued as a descriptive case study, with emphasis on observation, so that the normal agency operation is not interrupted.

Although the applied science model and the qualitative, descriptive model are referred to frequently in the literature, they are not the only models. Popham (1975) classifies evaluation models into four categories. First, a goal attainment model of educational evaluation assesses the worth of a program by determining the degree to which the program's goals were achieved. The procedure involves identifying educational goals, specifying behavioral objectives which reflect these goals, and then, assessing students' performance on these objectives.

His second and third classes of models are based on judgments made on the basis of either intrinsic or extrinsic criteria. In these types of evaluations, the evaluators exercise control over the final judgment of the worth
of the entity being evaluated. Accreditation procedures are an example of evaluations classified as judgmental models emphasizing intrinsic criteria. Evaluators, who are typically representatives of an accrediting agency, visit and subsequently judge a school's program on the basis of previously derived criteria. These criteria are usually characteristics of the program (i.e., degree of training of school's faculty), and thus, represent intrinsic rather than extrinsic criteria. According to Popham (1975), the third class, judgmental models that emphasize extrinsic criteria (i.e., effects due to the program) is the most commonly used class of evaluation techniques, and includes the classic works of Scriven (1967) and Stake (1967). The use of controlled experimentation belongs in this class because the worth of a program is judged by its effect on important outcome measures.

Popham's last class of techniques is distinguished by the fact that the final assessment of merit is left up to the decision-maker. These are the decision-facilitation techniques. In these models, it is the evaluator's job to specify and provide the needed information to the decision-maker. Different decision-making stages require different types of information. For example, in the CIPP model Stakelebeam et al. (1971) discussed 1) planning decisions which determine objectives, 2) structuring decisions to design
programs, 3) implementing decisions to monitor and improve upon the program, and 4) recycling decisions which are reactions to the outcomes or effect produced by programs.

The dimension which Popham seems to have isolated in creating these four classes is the degree to which the evaluator has a role in judging the worth of the program being evaluated. In both the goal attainment and decision-facilitation models, the evaluator is more a technician who provides information which a decision-maker can use to judge the success of the program, or in the case of the decision-facilitation models, to improve the program. In both judgmental classes of techniques, the evaluator takes more responsibility for assessing the success of a program.

Stufflebeam and Webster (1980) also classify current evaluation models, but their classification is based on the extent to which evaluations are carried out for their true purpose, which is to assess the worth or success of a program. They identify pseudo, quasi, and true types of evaluations. Pseudo evaluations are politically inspired evaluations, which begin with a predetermined view of the worth of a program, and use evaluation to support that view with data. Quasi evaluations are activities that answer specified questions, and thus, may have legitimate uses apart from evaluation. These questions, however, may or may not be questions about the worth of a program. They include
under this category goal attainment studies, accountability studies, experimental educational research, standardized testing programs, and management-information systems. True evaluations are represented by those techniques that are designed to assess a program's worth. Under this category are such activities as accreditation, policy studies which assess the merit of competing policies, decision-oriented studies which are carried out to help educators plan and implement programs that meet educational needs, and connoisseur-based studies which depend on the evaluator's expertise and sensitivity in observing and qualitatively assessing the worth of a program.

The preceding discussion on types of evaluations suggests that evaluations can be classified in terms of evaluator role (i.e., the degree to which he or she takes the role of determining the worth of a program) and motives of the initiator or the intended use (i.e., pseudo, quasi, or true evaluations). These are two characteristics of the evaluation process which are important in classifying or describing existing types of evaluations, but there are many other dimensions on which evaluations could be described. The next section attempts to provide a more complete list of these characteristics.
A CLASSIFICATION SCHEME FOR EVALUATIONS

Because the evaluation literature is so large and diverse, it is important to have a framework from which to approach research on the evaluation process. The framework employed here is an organization and listing of the many characteristics that can be used to classify or describe a particular evaluation (Table 1), drawn from an extensive literature review. The classification scheme is divided into three major parts. The first part identifies those characteristics relevant to the origin of a particular evaluation (e.g., who wanted it and why). The second part represents characteristics that describe the implementation of an evaluation. The third section consists of characteristics of the product and the effect of the evaluation on the intended audience.

There are three kinds of characteristics that are relevant to the initiation of the evaluation: 1) the initiator can be classified as either internal or external to the agency operating the program (Bonoma, 1977), 2) the purpose or motives behind the initiation can be identified (i.e., initiated for political or public relations reasons, to further knowledge, to improve an existing program, Flaherty & Windle, 1981), and 3) the particular kind of information desired can be identified (i.e., planning, monitoring, or impact information, Stufflebeam et al., 1971).
Table 1
A Classification Scheme for Evaluations

I. SETTING THE STAGE

A. Initiator
   1. Internal
   2. External
      a. Higher level of administration
      b. State agency
      c. Federal agency, Congress

B. Motives of Initiator
   1. Public relations, self-aggrandizement
   2. Accountability
   3. To further knowledge
   4. To improve programs

C. Kind of Information Desired
   1. Planning
      a. Needs assessment
      b. Policy study
      c. Cost-benefit comparisons
   2. Monitoring
      a. Formative evaluation
      b. Implementation assessment
      c. Identification of important causal variables
   3. Impact
      a. Comparative worth
      b. Absolute worth
      c. Worth to different types or populations

II. EVALUATION IMPLEMENTATION

A. Characteristics of the Setting
   1. Type of program
   2. Public or private agency
   3. Resources available for evaluation
   4. Size and complexity of program
   5. Geographical area covered (local, national)
   6. Clarity of program goals

B. Characteristics of Participants
   1. Administrators
      a. Awareness and clarity of goals
      b. Perception of role
      c. Background in social science methods
      d. Open-mindedness
Table 1 (Continued)

2. Evaluators
a. Internal or external affiliation
b. Technical and social skills
c. Perception of role
d. Awareness of political and organizational realities

3. Program staff
a. Attitude toward evaluation

C. Characteristics of Interaction
1. Number of people involved
2. Degree of conflict experienced
3. Amount of communication
4. Degree of threat experienced by agency personnel

D. Characteristics of the Evaluation Design
1. Quantitative or qualitative data
2. Type of experimental design
3. Type of statistical analysis
4. Type of sampling
5. Quality of overall design

III. THE PRODUCT AND END RESULTS OF THE EVALUATION

A. Characteristics of the Report
1. Verbal or written
2. Technical in nature
3. Timely

B. Characteristics of the Findings
1. Positive or negative
2. Service abandonment implications
3. Inconclusive
4. Solution indicated

C. Dissemination of Information from the Evaluation

D. Utilization of Information from the Evaluation
Next, there are the set of factors that are relevant to the implementation of the actual evaluation. One class of these represents the intrinsic characteristics of the particular setting, such as the type of program being evaluated, the resources available to the evaluator, the size and complexity of the program, the clarity of the program's goals (Horst et al., 1974), and the geographic area covered by the program. A second class of implementation factors can be arranged under the heading of individual participant characteristics. Participants include administrators, evaluators, program staff, and clients. Relevant characteristics would include the participants' attitudes, personality traits, skills, and background (Gurel, 1975). The interaction between the participants can be characterized in terms of number of people involved, degree of conflict experienced, amount of communication that occurs (Glazer & Taylor, 1973), and the degree of threat experienced by agency personnel (Kilburg, 1980). A third set of factors that describe the actual implementation of the evaluation are those that pertain to the evaluation design (i.e., quantitative or qualitative data, type of experimental design, type of statistical analysis).

The third and last class outlined in Table 1 contains a delineation of factors related to the end result of an evaluation, that is, the report containing the information collected. The evaluation report itself can be described
in terms of its style (i.e., informal-formal, technical-non-technical), in terms of the characteristics of the findings themselves (i.e., positive, negative, inconsistent, inconclusive), and in terms of its dissemination (to what groups, in what manner). Most importantly for this study, the evaluation can be characterized in terms of the degree to which findings were utilized.

The purpose of presenting this classification scheme was to provide a conceptual framework from which to approach the present study, which was designed to explore the relationship between the characteristics of administrators (Section II.B.1. of Table 1) and their utilization of evaluations (Section III.D. of Table 1). As mentioned previously, program evaluation as a profession arose in response to mandates by Congress to evaluate federally funded programs (e.g., Head Start). It was hoped that future decisions about programs could be made on the basis of the objective information provided by evaluations. In contrast, pure research is more often motivated by a desire to increase knowledge irrespective of its application or need in the real world. Because evaluation is application-oriented, the utilization of evaluation findings is seen by evaluators as a critical criterion by which evaluations are judged (Cook, 1978; Glass & Ellet, 1980), and, thus, as an important topic for research in its own right.
PROBLEM STATEMENT

Are evaluation findings used? A reading of the literature suggests that non-use and mis-use of evaluation findings are more frequent than use (Glass & Ellett, 1980). Indeed, evaluators have expressed frustrations that their efforts have often contributed so little to actual administrative decision-making (Patton, 1978). Both research and casual observations by evaluators show that administrators often prefer to gather information about the performance of their programs through personal contacts rather than through an evaluator who provides more objective, systematically gathered information. The typical justification for the existence of evaluation as a profession is the promotion of rationality and objectivity in decision-making, yet administrators often prefer more subjective, informal, personal evaluations.

It is important to explore ways to integrate evaluation findings into administrators' processes of gathering information about their organizations because of the potential evaluations hold for improving administration. That is, an administrator's effectiveness in accomplishing desired goals may be improved by more and better sources of information. It is an empirical question as to whether evaluation use may lead to better functioning or more effective organizations, and this causal relationship has not
yet been firmly established. Most evaluators, however, would argue that providing a more efficient feedback loop between organizational performance and subsequent planning should lead to more effective organizations. They would hypothesize that the integration of evaluation information into administrative decision-making processes would lead to more effective administration.

A systematic study of the factors associated with the administrator's use and non-use of evaluation findings may constitute a first step towards this presumably desired integration. A recurrent theme in writings by evaluators is that the characteristics of administrators are important in explaining their patterns of information use in general, and their utilization of evaluation information in particular. Yet there have been few attempts to empirically isolate and relate characteristics of administrators to their use of evaluation (Cohen, 1977).

**FOCUS OF THE PRESENT STUDY**

The goal of the present study is a better understanding of factors relating to the administrator's use of evaluations. The focus is on the administrator at the program level, not the higher policy making level. Because the administrator and evaluator are often the primary actors in the evaluation process, they should try to understand one
another. In particular, the evaluator needs to be aware of the perceptions, background, and values of administrators, as well as their actual information-using and decision-making behaviors before he or she can assume a successful working relationship with administrators. It is realized that other participants (i.e., clients and staff) are also involved in the evaluation process, but since evaluation is often argued to be a management tool (Suchman, 1970), a description of the degree to which administrators rely on evaluations and the identification of administrator characteristics that relate to evaluation use are necessary first steps toward discovering how evaluations can be integrated into administrators' jobs.

More specifically, the focus here will be on high school principals, because they are the administrators in the educational system who are closest to the implementation of programs and the functioning of the school. The definitions of educational evaluation suggest that evaluations are designed to provide information to decision-makers so that they can improve or judge the worth of educational phenomena. Evaluative information that includes data about the performance of different aspects of the school should be of use to principals. In the past, however, evaluations have been imposed from the top down (e.g., mandated by federal grants), and often served a "ri-
tualistic" rather than "decisionistic" function (Alkin & Law, 1980). When they were used for decisions, they were in the form of summative evaluations (i.e., evaluations of the impact of a program) provided to superintendents and school boards, who used them in making funding decisions. Alkin and Law (1980) suggest that this kind of use may be changing. "It seems that we are going to move from the summative annual report to formative information flow. The constituency is changing in the sense of whom you communicate your program to. There will not be an upward reporting in the sense of the state or district. The information flow will spread within a school, from the school to the district and communicating to the community" (pg. 75). This prediction implies that principals are beginning to see the value of evaluation information at the school level. The upward flow of data may be changing to data collection initiated at the school level with the information spreading out from there (e.g., to teachers, to the central office). In conclusion, the present study, which is concerned with understanding evaluation utilization in a sample of high school principals, is important in light of this predicted shift from evaluation use only at higher levels of administration to use at the school level.

The objective of the present study is to explore the relationship between some hypothesized predictors (i.e.,
personality characteristic, role perceptions, and background variables) and a set of criterion variables (reliance on evaluations) in a sample of high school principals in Ohio. Data were collected by means of questionnaires containing the measures assessing the predictor and criterion variables. The predictor and criterion variables and the number of items used to assess them are listed in Tables 2 and 3. The hypothesized predictors of principals' use of and reliance on evaluative information are: a personality characteristic, open-mindedness; role perceptions, that is, the perception of oneself as an instructional leader and as having some autonomy in the administrative hierarchy; and a set of background variables consisting of level of training in social science methods and confidence in interpreting statistical data (Table 2). Seven measures assessing different aspects of evaluation or information utilization were developed for use as criterion variables and are listed in Table 3. Four of these measures assessed principals' reliance on information in their jobs. Two items assessed principals' attitudes toward the use of formal evaluations and one set of items was designed to measure the emphasis principals placed on the monitoring role. The hypotheses will be developed more fully in the next chapter.
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**Table 2**

Personality Characteristic

- Open-mindedness (7 items)

Role Perceptions

- Instructional leader (7 items)
- Autonomy in the Administrative Structure (5 items)

Background in Social Science Methods

- Level of Training in Five Social Science Content Areas (5 items)
- Confidence in Interpreting and Making Judgments About Statistical Data (4 items)
Table 3

Criterion Variables: Measures of Information Utilization

**Reliance on Different Sources of Information**

- Reliance on formal sources of information in monitoring and directing the school (7 items)
- Reliance on formal sources of information in reporting on the functioning of the school to others (7 items)
- Reliance on informal sources of information in monitoring and directing the school (6 items)
- Reliance on informal sources of information in reporting on the functioning of the school to others (6 items)

**Attitudes Toward the Use of Formal Evaluations**

- Preference for formal over informal methods of evaluation (1 item)
- Likelihood of initiating formal methods of evaluation (1 item)

**Attitudes Toward Information**

- Emphasis placed on the "monitoring role" (4 items)
Chapter II

REVIEW OF THE LITERATURE AND HYPOTHESES

Whether or not evaluation non-utilization is a "problem" depends on the particular definition of use involved. After investigating the non-utilization problem via interviews and surveys of administrators, several researchers concluded that use was being defined too narrowly as the direct influence of a particular evaluation's findings on a pending decision (Patton, 1978; Weiss & Bucuvalas, 1980). The definition of evaluation utilization that emerged as primary in their studies was less specific than the above definition implies.

Patton (1978, pg. 34) concludes "that what is typically characterized as under-utilization or non-utilization of evaluation can be attributed to a substantial degree to a narrow definition of utilization that fails to take into consideration the nature of actual decision-making in most programs. Utilization of research findings is not something that suddenly and concretely occurs at some one distinct moment in time. Rather, utilization is a diffuse and gradual process of reducing decision-maker uncertainty within an existing social context."
Cohen and Garet (1975) suggested that the assumptions underlying the narrow definition of utilization (i.e., the impact of a particular evaluation's findings on a discrete administrative decision) are inappropriate at the level of national policy decision-making. In the first place, decisions are typically not isolated and discrete at this level. They exist as part of a system of knowledge and beliefs (ideas about the causes of social problems, and about appropriate solutions). Thus, it is more important to study how research or evaluation affects systems of knowledge and beliefs, than to study how they affect individual decisions.

A second assumption underlying the definition of utilization as the impact of an individual study on a discrete decision is that the substitution of valid, scientific evidence for anecdotal, less systematically gathered evidence will provide more authoritative information for the decision-maker. Cohen and Garet (1975) point out that because most programs are only marginally different from existing programs, and because programs often pursue multiple goals simultaneously, the study of the effects of social interventions does not provide clear or conclusive evidence. Thus, the evidence provided by a single evaluation may not be clear enough to direct a particular decision. For example, the evidence provided by one evaluation of the Head
Start program was not conclusive enough to direct the decision as to whether or not the program should be continued.

One conclusion that can be drawn from the studies of utilization is that it may be more realistic to expect a diffuse impact from an evaluation than a discrete impact. It is important to realize that trying to define use in an either-or fashion, as with diffuse impact or specific impact, obscures the fact that use may be defined or occur differently at different levels of administration or different decision-making settings (i.e., Congress, federal agencies, state agencies, local agencies). It may be that the diffuse kind of impact is most relevant at the higher, policy-formulation stage of decision-making. Glasman (1972) hypothesized that the higher the decision-maker is in a hierarchy, the more their decisions will reflect value positions. That is, decisions at the higher levels often involve setting goals or policy direction, and thus, are outcomes of debates over which values are most important.

At lower levels of administration, for example at the local program administration level, Glasman (1972) suggested that decisions made will be based more on facts than values, and will have the characteristics of policy implementation decisions rather than policy formulation decisions. At these lower levels of program administration, evaluations may be more appropriately seen as having a dis-
crete impact than a diffuse impact. Administrators here may be more concerned with specific, concrete, programmatic decisions (i.e., with what kinds of programs are needed, how to improve existing programs, with whether a program is effective and should be continued). When the decisions to be made are more specific, the needed information is more specific, and the impact of the evaluation can be more focused. In conclusion, it is important to keep in mind that the administrator or decision-maker's position in a hierarchy may be an important predictor of the type of evaluation use (i.e., on a dimension of discrete to diffuse impact).

The problem of non-use of evaluation findings does not simply disappear when use is defined more broadly as diffuse impact. There is evidence that many decision-makers appear to be biased against the use of evaluations in favor of more accessible information. O'Reilly (1980) found that decision-makers used lower quality information that was more accessible over higher quality information (i.e., program evaluations) that was less accessible. He suggested that time constraints and frequent interruptions may have prevented decision-makers from seeking out higher quality information from less accessible sources. This finding has been replicated with scientists (Gerstberger & Allen, 1969), policymakers (Clausen, 1973) and managers (Mintzberg, 1973).
FACTORS RELATED TO EVALUATION NON-UTILIZATION

The failure to use evaluation findings is typically approached by listing extant reasons for non-utilization, rather than trying to organize them into a logical categorical system (Cox, 1977; Leviton & Hughes, 1981). One informative way to categorize the reasons previously given for evaluation non-utilization is by the participants involved. Lack of evaluation use has been approached as a manager or administrator problem, an evaluator problem, and as an interaction problem. In interviews with federal mental health administrators, Patton et al. (1977) found that the most important factor in utilization of evaluation findings seemed to be the commitment and involvement of the decision-maker to the evaluation. Following up on this factor, Dickey (1982) found that the decision-maker's attitude about a particular evaluation was significantly related to the perceived usefulness of the evaluation. The conclusion drawn by many of the writers who isolate the administrator's characteristics as the source of the problem is that it is important to influence decision-makers' understanding and willingness to balance scientific and extra-scientific considerations (Caplan, 1977). Managers or administrators may need to be trained in research methods and the interpretation of statistical results and persuaded of the utility of evaluations (Kilburg, 1980).
Horst et al. (1974) also view the non-utilization of evaluation findings as the result of factors relevant to management and organizational administration. They suggested that many of the reasons commonly given in the literature for the lack of evaluation use, such as that evaluations are not always planned to support decision-making, that the timing and format of evaluations aren't geared to users, and that evaluations don't produce conclusive results, are simply symptoms of non-use, not causes. They proposed that the real causes of non-use are that the program's goals aren't defined or aren't measurable, that there is no clear logic linking the funding of a program, the implementation of that program, and the outcomes of the program, and that those in charge of the program lack the ability or authority to act on evaluations. The authors conclude that non-utilization is not an evaluator problem, but an administrative or organizational problem.

Lack of evaluation use has also been approached as an evaluator problem resulting from evaluator misperceptions of the administrative decision-making process. DeYoung and Conner (1982) make the point that most evaluators perceive the administrative decision-making process as rational, when in reality decision-making is reactive and spontaneous. Cox (1977) argued that because of this misperception, evaluators often do not present evaluation findings to ad-
ministrators in ways that they prefer. For example, admin-
istrators are thought to prefer verbal and qualitative in-
formation, but evaluators often provide written and quanti-
tative information. The evaluator may also be hampered by
technical and methodological obstacles (i.e., unable to
randomly assign subjects to treatments, unable to find a
non-equivalent control group), that decrease the validity
of the evaluation, and thus, decrease utilization. If
findings can be attacked on methodological grounds, they
may be less likely to be used (Roecks & Estes, 1982). This
evaluator approach to the evaluation utilization problem
often leads to the conclusion that improving utilization
depends on training evaluators in organizational and politi-
cal realities, so that they can better adapt to the eva-
luatee (Cox, 1977).

Last, it has been argued that the gap that exists be-
tween social scientists and administrators in terms of val-
ues, language used, and reward systems is responsible for
non-utilization. In a study of federal administrators, Ca-
plan (1977) used a multivariate analysis to assess the rela-
tive importance of three prevalent theories about the
non-use of research findings. He found that non-utiliza-
tion was less influenced by technical or methodological
considerations and by constraints that operate on the deci-
sion-maker, than by the lack of interaction between social
scientists and administrators. Both Glazer and Taylor (1973) and Patton (1978), in recognizing the detrimental effect of this gap, advance user-focused models of evaluation which emphasize the continuous interaction between evaluators and decision-makers at all stages of the evaluation process. Krathwohl (1980) comments that in order for evaluations to be accepted and used, the conflict inherent in having different audiences (i.e., sponsor, administrator, staff, clients) with different values regarding what aspect of a program should be evaluated needs to be worked through. Polivka and Steg (1978) suggested that evaluation use does indeed occur when decision-makers interact weekly with evaluators.

In conclusion, the underutilization of evaluation findings has been explained in different ways, as a problem with administrators, as a problem with evaluators, and as a problem with their interaction. In attempting to relate characteristics of administrators to their use of evaluative information, the present study does not deny the importance of the situation and evaluators. Nevertheless, administrators appear to be the key actors in the initiation and use of evaluations. For this reason, it is important to discover the dimensions on which administrators who rely on evaluations differ from administrators who do not. Thus, the purpose of this study is to identify personality
characteristics, role perceptions, and background factors that predict administrators' evaluation use.

MEASURING EVALUATION UTILIZATION

As Conner (1981) observed, the central question is no longer whether or not evaluation utilization should be studied, but how should it be studied. Researchers who have studied utilization have taken two different tacks. First, some researchers have been primarily concerned with the different uses of evaluation findings. For example, Knorr (1977) interviewed administrators in Austrian federal and municipal government agencies and identified different uses to which the results of social science projects were applied. Similarly, King and Thompson (1981) surveyed administrators in Louisiana regarding the extent to which they used evaluations for different purposes.

Other researchers have been more concerned with identifying factors related to the use of evaluations. For example, Patton et al. (1977) used interviews with mental health administrators to identify key variables that may lead to increased use of evaluations. Similarly, Alkin et al. (1979) interviewed evaluators and program personnel of five completed educational evaluations to identify critical factors that relate to administrators' use of evaluation findings. Caplan (1977) interviewed federal administrators.
and analyzed the data quantitatively as well as qualitatively to find factors that predicted utilization. Weiss and Bucuvalas (1980) presented research reports to mental health agency administrators and then used correlational analyses to find relationships between their ratings of the usefulness of research studies and their ratings of the descriptive characteristics of the research. After factor analyzing the ratings of the descriptive characteristics of the research, they found that the factors of implementability, validity of the study, conformity with user expectations, and challenge to the status quo were positively and significantly related to judgments of usefulness.

The most systematic study of the factors that relate to evaluation utilization has been undertaken by Braskamp and associates (1982). They have studied evaluation utilization through simulations. Participants were usually administrators who were asked to read a simulated, written evaluation report and then to rate the evaluator on dimensions such as believability and expertise and the report on difficulty, credibility, usefulness, and satisfaction. The researchers studied characteristics of the receiver (evaluation audience), such as organizational position, professional position, perceived need for information, and locus of control, as they affected subjects' responses to the evaluation report. One finding was that those with a high-
er perceived need for evaluation information agreed more with the evaluator and were more satisfied with the information.

In his review of measures used to study the utilization of evaluations, Conner (1981) noted that most studies have used loosely structured interviews or questionnaires administered to administrators in positions to use evaluations. Most of the measures used to assess the degree of evaluation use have focused on actual evaluation projects or reports. Using judgments of the degree to which specific evaluation findings have been used as the measure of utilization has the advantage of specificity, but the disadvantage of non-generalizability. The present study broadens the conceptualization of the criterion variable such that the concern is no longer with the use of a particular evaluation's findings, but with the administrator's general use of information from different sources including evaluations.

**MEASURING INFORMATION UTILIZATION**

Use of evaluations by administrators can best be understood within the context of the more general topic of information utilization (Bigelow, 1975; Cox, 1977; Hawkins et al., 1978). As described in detail below, administrators may gather a number of different kinds of information
when making a decision, only one of which is from evaluation activities. Thus, it is important to study evaluation utilization in the context of the other sources of information that administrators are utilizing. Similarly, Hawkins et al. (1978, pg. 436) state that "the ways practitioners in various roles use information to form judgments must be thoroughly understood if evaluation information is to be integrated into the decision-making process". The measures of information utilization that will be used as dependent or criterion variables in the present study are described below.

As a way of placing information utilization within the context of the administrator's or principal's job, it is instructive to consider the functions that administrators serve. In a much-cited book on managerial work, Mintzberg (1973) suggested that managers play three kinds of roles: interpersonal, decisional, and informational. The interpersonal role consists of performing duties of a ceremonial nature, motivating subordinates, and making contacts with those outside the organizational unit. The decisional role involves initiating changes, responding to crises, and allocating resources. Most important for the present study is the informational role, which Mintzberg describes as keeping the manager at the "nerve center of his organizational unit" (1975, pg. 55). Processing information is a
critical aspect of the manager's job. As part of this informational role, the manager acts as a monitor (continuously scanning the environment), as a disseminator (sharing information with subordinates), and as a spokesperson (sharing information with influential people outside the organization).

Although as Mintzberg (1973) suggested, processing information is an important part of the administrator or manager's job, there may be individual differences in the kinds of information that they prefer to rely upon. Some administrators may monitor their organizations through verbal feedback from several trusted contacts, such as teachers or administrative staff. Others may monitor more systematically through formal evaluations.

The first set of criterion variables, reliance on different sources of information (Table 3), were designed to assess the degree to which principals rely on formal sources of information and the degree to which they rely on informal sources of information. Formal sources are those in which information or data is collected using systematic, often quantitative methods. Conversely, informal sources represent ad hoc, more haphazard, and often verbal information collection methods. The principals were asked the degree to which they relied on formal and informal sources of information in directing, and monitoring the school (i.e.,
two variables) and the degree to which they relied on formal and informal sources in reporting on the school's functioning to subordinates and superiors (i.e., two variables). Thus, the sources of information were categorized on two dimensions—whether they were formal or informal, and whether they were used in directing and monitoring the school or in reporting to subordinates and superiors about the school. The distinction between the two kinds of uses (directing and reporting) was included to discover if principals use information differently in different roles (as monitor versus disseminator or spokesperson).

Mintzberg (1975) proposed that many problems in managerial work arise because managers prefer or rely upon informal sources of information such as telephone calls, personal contacts, and meetings. Hawkins et al. (1978) concluded that the results from their study along with the findings of other studies suggested that reliance upon informal sources of information such as personal contacts is common among decision-makers. This stress on informally gathered information probably occurs because of the perceived recency of the information, and because the administrator experiences the information firsthand. The more formal the information source, the more systematically gathered and quantitative it is, and thus, the more the decision-maker is distanced from the actual sources. This
distance may lead them to question the accuracy or the recency of the information. The advantages of formal sources of information (i.e., achievement test data, surveys, program evaluations) are its apparent validity and reliability due to the fact that the methods used are more systematic.

In a study of central office school administrators, Sproull and Zubrow (1981) found that although "outsiders are frequently stressing that school system administrators use test scores for improving the performance of their schools" (pg. 74), administrators seem to prefer and rely on other types of information (personal observations, teacher reports) for monitoring organizational performance. They suggest that administrators may not be aware that these informal ways of collecting information may result in biased representations of organizational performance. Although many principals may prefer or rely on informal, personally gathered information, there are those who rely heavily on more systematically gathered, often quantitative information in monitoring the organization. In fact, Leithwood and Montgomery (1982) suggest that the more effective principals are those who reviewed achievement test results regularly, and when they observed slower than expected rates of progress, investigated the problem with teachers.
In light of the fact that principals' current levels of reliance on formal sources of information (such as program evaluations) may reflect funding and personnel inadequacies rather than principals' true attitudes toward formal methods of evaluation, two items assessed the principal's attitude toward the use of evaluations in an ideal setting in which funds and personnel for conducting evaluations were available. Thus, as can be seen in Table 3, attitudes toward the use of formal evaluations constitute a second category of criterion variables which assessed the preference for systematic or formal methods of evaluation over ad hoc, self-conducted methods of evaluation and the likelihood of initiating formal methods of evaluation if adequate funds and personnel were available.

If principals differ in their willingness to initiate evaluation activities, it may be that they value information differently. All principals may monitor their organization to some minimum degree, but they may differ in how much they use information in monitoring the organization. Thus, the third important dimension of information utilization, which will be used to describe the principals in this study, is the emphasis placed on monitoring behaviors. Patton (1978) noted that all administrators are not information users. In other words, they don't place great value on information, or emphasize monitoring. "Many, perhaps
most people, rely on the predispositions of their socializations and the pressure of peers to chart their daily course of action. But there are those people who can and do make information part of their decision-making frame of reference" (pg. 56). An information user, then, is a principal who values information and who tends to monitor the organization closely and solicit inputs from teachers and students. A non-information user is a principal who does not think that the monitoring role is important and does not seek information in monitoring the functioning of the organization.

In summary, several aspects of information utilization have been introduced. These dimensions as outlined above are; 1) the degree to which principals rely on informal sources of information and the degree to which they rely on formal, systematically gathered sources of information, 2) the degree to which principals prefer and would be likely to initiate evaluation activities, or formal methods of data collection, and 3) the importance they place on closely monitoring their school. That principals' information use is important to explore is suggested by research on effective principals, where effective is defined as producing an improvement in student cognitive outcomes at the school level. After identifying three important dimensions of principal behavior, that is, goals, factors, and strategies
together with subcategories under each dimension, Leithwood and Montgomery (1982) looked to research to isolate those subcategories on which effective school principals differed from less effective or "typical" principals. Collecting information was one of the subcategories listed under strategies. Leithwood and Montgomery concluded, in regard to this subcategory, that effective principals collect different kinds of information than "typical" principals. Effective principals monitored both teacher and student performance very closely, using achievement tests, teacher evaluations, personal observations and conversations to gain their information. On the other hand, "typical" principals were more inclined to collect information about immediate problems and the implementation of district policy decisions. Thus, this review suggested that an important relationship exists between the types of information that principals collect and their effectiveness in their job.

The measurement of evaluation utilization has been re-conceptualized from simply judgments made by administrators about the usefulness of a particular evaluation to measures of their information utilization. The criterion variables for this study assess the broad factors of reliance on more systematic, formal sources of information, reliance on personal, impressionistic sources of information, attitudes toward evaluation use in an ideal setting in which funds
and personnel are adequate to carry out evaluations, and the emphasis the principal places on monitoring the functioning of the school. The next section suggests some hypotheses about possible predictors of these measures of principals' information utilization.

**PREDICTORS OF INFORMATION UTILIZATION**

Given that principals will differ in the kinds of information on which they rely, the present study explored hypotheses regarding the personality characteristics, role perceptions, and background factors that might help to account for these differences. Three sets of predictors of the aspects of information use outlined above are explored.

**Open-mindedness**

A personality characteristic that is hypothesized to be an important predictor of the administrator's pattern of information utilization is that of open-mindedness. Dogmatism (the converse of open-mindedness) as a personality characteristic or cognitive style was first explored by Rokeach (1960). He developed a scale that was designed to assess where people fell on a continuum of open to close-mindedness. The scale was designed to measure dogmatism across all areas independent of the content of people's beliefs (i.e., political, religious, etc.). Rokeach's theory
and measure of dogmatism have several components. First, dogmatism involves a relatively closed system of beliefs and disbeliefs about reality. The content of the beliefs are not as important as the fact that they are rigidly held. The second aspect of this theory of dogmatism is that the dogmatic person depends on authority figures for the support or verification of his or her belief system. Last, the dogmatic person is intolerant of, or rejects others with opposing beliefs.

Rokeach's dogmatism scale is complex in that it contains items representing different aspects of his conceptualization. For example, there are items that assess the degree to which the person feels isolated and alone, since Rokeach thought that a dogmatic person would be likely to feel alienated and lonely. Another set of items concern the degree to which the person sees authority as absolute and is intolerant of disagreement with his or her beliefs. There are also a set of items that assess the person's time perspective, because Rokeach thought that open-minded or non-dogmatic people would be likely to be more present-oriented than dogmatic people.

Factor analytic studies of the dogmatism scale have shown that it is multidimensional, and that the dimensions correspond to the dimensions Rokeach was trying to assess (Goldstein & Blackman, 1978). Much of the research on dog-
Dogmatism, however, has used the total score on the scale rather than using scores on subscales identified by factor analyses. Since the total score represents a mix of items, Goldstein and Blackman (1978) suggest that the relationship between dogmatism and other variables might be clarified if the total score was not used.

Some of the research on dogmatism shows how this variable might be related to information utilization. A dogmatic person is likely to feel anxious when uncertain. Thus, the longer the information search is prolonged the more uncomfortable he or she should feel. Long and Ziller (1965) found that low dogmatism or open-mindedness is related to proclivities to reserve judgment in decision-making tasks. That is, low dogmatic subjects took longer than high dogmatic subjects in making decisions. They suggested that open-minded people are more willing to spend time searching the environment for information, whereas high dogmatic people depend more on information provided by authorities in making their decisions. In another study on the relationship of dogmatism to receptivity to information, Robbins (1975) asked subjects to form impressions of a person on the basis of positive and negative statements about the person. He found that the open-minded subjects used more information (i.e., statements) before making their judgments.
In conclusion, it is hypothesized that the first important predictor of information utilization is open-mindedness. A dogmatic principal is likely to be threatened by information that challenges his or her beliefs, or that produces uncertainty, and thus, would be less concerned with gathering information about the organization and using it in decision-making than an open-minded person.

Role perceptions

Mintzberg (1975) suggests that the "manager's effectiveness is significantly influenced by his insight into his own work" (pg. 60). That is, their performance depends on their understanding of the demands of the job, or their perceptions of the important roles they should play. The hypothesis here is that an administrator who sees himself or herself as a leader, or in charge of programs will be more likely to recognize the need for information, and the importance of the monitoring aspect of the informational role. A principal who does not see himself or herself as in charge of setting programmatic direction will be less likely to see the importance of a data-based foundation in making decisions.

Research on educational administrators suggests that effective principals do perceive their role differently than less effective principals. Leithwood and Montgomery
(1982) concluded that effective principals see themselves as instructional leaders whose job it is to provide the best program possible for students. They found, however, that less than 50% of the elementary school principals in their sample actually worked toward program improvement. Many see their role as providing only administrative leadership, meaning that they were concerned with keeping the staff happy and keeping the school running smoothly.

Similarly, March (1978) noted that many educational administrators believe that their time is misallocated. That is, they comment that they spend too much time "pushing papers" and too little time in program planning and curriculum development. Therefore, administrators may differ in terms of whether they have a proactive (i.e., setting programmatic direction) or a reactive (i.e., respond to pressures and demands as they arise) approach to their job. Caro (1971) proposed that evaluation, or objective information, will be perceived as useful if administrators are proactive, focusing more on program goals and experimenting with programs as a way of finding the best way to achieve the goals.

What characterizes a principal who acts as an instructional leader? Shoemaker and Fraser (1981) suggested that these principals are concerned with academic achievement and see to it that their convictions and philosophies about
achievement are carried out. They effectively communicate their convictions about instruction to teachers. The staff is willing to follow their direction. They also effectively communicate their expectations to the students. Thus, the core of assertive instructional leadership is successful communication of goals and the initiation of programs to support these goals.

Going hand in hand with the perception of the administrative role as setting programmatic direction is the perception of being a relatively autonomous decision-maker within the hierarchy of administration. Typically, it is not that administrators or principals do not have the discretionary power to act as programmatic leaders, but that they differ in their desire to take control of this power (Morris et al., 1982). A study by Davis and Stecher (1980) showed that administrators differ in their perception of their autonomy as a decision-maker. They classified 23 principals in terms of their administrative style, as either being compliance or non-compliance oriented. Compliance oriented principals saw themselves as less autonomous in their job responsibilities. They believed that decisions were made at higher levels of administration, and that they merely implemented these policies. Principals who were not compliance oriented viewed the school as an autonomous unit, and could easily identify decisions that
they had made themselves. Davis and Stecher went on to conclude that this perception of autonomy was related to different kinds of information utilization. Compliance-oriented principals found externally generated data (e.g., standardized achievement test data) more useful, while non-compliance-oriented principals found internally generated data (e.g., needs assessments, criterion-referenced tests) more useful.

In conclusion, a second important set of characteristics that should predict principals' information use is their perceptions of their role relative to their subordinates (their leadership role) and relative to their superiors (their autonomy). Principals who take the instructional leadership role, perceiving their role to be that of setting goals and improving the organizations' programs, and who perceive their level of administration as having some autonomy to make decisions, should value information and be motivated to gather and rely on more sources of information in making decisions. If principals see their role as simply complying with orders from above, or as keeping the staff happy (not leading them), it is hypothesized that their reliance on formal and informal sources of information will not be as great.
Background in social science methods

Even though a principal is open-minded and sees his or her role as that of a relatively autonomous decision-maker controlling program direction, he or she may not use systematically gathered information from evaluations if he or she has not had previous exposure to the logic of program evaluation, to research methods, and to measurement methodology. Glasman (1979) suggested that because principals are often not familiar with social science methods, they may not be sure about what to do with or how to interpret information from evaluations.

Familiarity may be important for several reasons. First, it may be that it takes a great deal of exposure to concepts such as reliability, validity, independent and dependent variables, experimental control, and sampling to be convinced of the advantages of formal, systematically gathered information over more informally gathered information. Second, if administrators have no background in research and measurement, they may have trouble understanding and interpreting the data presented to them. They may have no way of judging whether the data is good or bad. For these reasons, they may feel safer collecting information for themselves through personal contacts, rather than being faced with interpreting statistics and other concepts of which they are unsure.
The more exposure administrators have had to social science concepts and thinking, the more likely they are to rely on and have positive attitudes toward formal sources of information or "hard" data. In the area of education, House (1972) suggested that there is no real demand among teachers and administrators for evaluating their own programs. In fact, he thinks an anti-evaluation attitude prevails. Nations (1982) and Flaherty and Windle (1991), in articles discussing the problems with evaluations, emphasized that administrators' ignorance of the need for and usefulness of evaluation is a major constraint on subsequent use. It is hypothesized here that the more training and confidence the principal has in social science methods, the greater will be his or her reliance on and preference for formal sources of information.

SUMMARY

Much of the concern over the non-utilization of evaluations arose from the observation by evaluators that summative evaluations (i.e., judgments of a program's worth or impact) were not being directly translated into decisions about the continuation or discontinuation of a particular program. Consequently, most research on the utilization of evaluations operationalized this criterion variable as judgments by administrators regarding the usefulness of a
particular evaluation. Other researchers (Mintzberg, 1975; O'Reilly, 1980; Sproull & Zubrow, 1981) have conceptualized the problem more broadly in terms of administrators' tendencies to prefer informal, personal methods of evaluation and means of collecting information about the organization over formal sources of information (i.e., achievement test data, surveys, summative and formative evaluations). The present study approaches the problem of evaluation underutilization from the context of this larger problem outlined above as the administrator's tendency to rely on informal sources of information.

This study addresses the problem from an individual differences framework. That is, it is hypothesized that a personality characteristic, open-mindedness; role perceptions, of oneself as an instructional leader and as autonomous in the administrative hierarchy; and the background factors, training in social science methods and confidence in interpreting statistical data will be positively correlated with and explain a significant amount of the variance in the measures of information utilization. Specifically, the purpose of the study was to explore the factors that may account for individual differences in the following measures of information utilization (i.e., criterion variables): 1) reliance on formal sources of information in directing the school, 2) reliance on informal sources of
information in directing the school, 3) reliance on formal sources of information in reporting to others about the functioning of the school, 4) reliance on informal sources of information in reporting to others about the functioning of the school, 5) preference for formal methods of evaluation over more informal methods of evaluation, 6) likelihood of initiating formal methods of evaluation if adequate funds and personnel were available, and 7) the emphasis placed on the monitoring role.

The factors (predictor variables) that are hypothesized to account for these individual differences in principals' information use are; 1) open-mindedness, 2) two variables related to principals' perceptions of their roles, one assessing the degree to which principals perceive their role vis-a-vis their subordinates as instructional leader and another assessing the degree to which principals perceive their role vis-a-vis their superiors as exercising some autonomy over and above the implementation of district-ordered policies, and 3) two variables related to principals background in social science methods, the degree to which they have been trained in social science subject areas (i.e., program evaluation, research methods, measurement) and are confident in interpreting and making judgments about social science concepts (i.e., statistical significance, reliability). All of the predictor variables
are hypothesized to be positively correlated with the criterion variables, the measures of information use.

The predictor and criterion variables were assessed by items on a questionnaire that was sent to 181 high school principals in Ohio. The relationship between the predictor and criterion variables was explored by means of canonical correlation analysis, which is a data reduction technique which attempts to find combinations of the dependent or criterion variables that relate to combinations of the predictor variables.
Chapter III

METHODOLOGY

SUBJECTS

Subjects were high school principals located in medium to large Ohio school districts (i.e., schools listed in the Ohio Education Directory (1982) with over 1,000 students or with 2 or more high schools). There were 181 principals who fit the above criteria. The study was limited to high school principals primarily to avoid adding unwanted variance to the analysis due to the effect of type of school (i.e., elementary, junior high, high school). That is, principals of elementary schools may differ from principals of high schools in some systematic way, and these differences were not of interest. A second reason for choosing high school principals was the belief that they may have had more exposure to program evaluations than principals at other school levels because of the diversity of their programs and the variety of their students' needs. The more programs that exist the greater the necessity for making choices between them, and thus, the greater the possible need for and exposure to program evaluations.
Of the 181 respondents, 153 or 84% returned the questionnaire. Those who did not return the questionnaire generally indicated in the phone calls made to them a few days after the questionnaire had been sent that they were too busy to complete it.

**OVERVIEW OF PROCEDURES**

The study consisted of two major stages; instrument development and questionnaire mailing and follow-up. A self-report questionnaire was drafted that contained items representing the predictor and criterion variables discussed in the introduction, along with some items developed to describe the sample. The questionnaire was first reviewed and suggestions for changes made by the dissertation committee members. After pilot testing an initial draft on a small sample of local principals, the final instrument was typed and printed. This instrument along with a cover letter (Appendix A and B) and a stamped self-addressed envelope was mailed to each principal in the sample.

The cover letter described in general terms the purpose of the study and stressed that the validity of the study depended on obtaining a high return rate. The letter also explained that the researcher would be calling the principal soon to find out if there were any questions and if he or she would participate. It was explained that to
keep track of the communications with the respondents it had been necessary to number the questionnaires, but that these identification numbers would not be used in any analyses. Last, as an incentive, the letter stated that the researcher would be glad to send the principals a summary of the results if so desired.

High return rates for studies involving mailed surveys are notoriously difficult to obtain. The research on this topic suggests that talking to respondents personally leads to higher return rates. Several of the principals interviewed as part of the pilot test indicated that they would be more likely to complete a questionnaire if they could associate a voice with the questionnaire's sender. It may be that it is more difficult to ignore a request if personal contact with the sender is expected. Altschuld and Lower (in press) used a phone calling technique in a study similar to the one here and obtained a 96% return rate. Thus, to maximize the return rate, the present study incorporated phone calls to principals who received questionnaires.

Phone calls were made two to three days after the questionnaires had been sent, so that the majority of principals had received the questionnaire at the time of the call. The principal was asked if he or she had received the questionnaire, informed of how long it might take to
complete and that the researcher would send a summary of the results if he or she desired. Then they were asked if they would complete the questionnaire and return it. The questionnaires were mailed in batches of 30 to 40 at a time, three to four days apart, so that the phone calls could be made as the questionnaires were received. The first batch was sent at the beginning of April and the last batch sent toward the end of April.

Approximately two weeks after the mailing date, if the questionnaire had not been received, an attempt was made to call the principal again. At this time, they were reminded of the questionnaire and asked if they had been able to complete it yet. Approximately 20 of these follow-up calls were made.

**INSTRUMENT DEVELOPMENT**

The research hypotheses necessitated the development of measures to assess the following predictor and criterion variables. The three sets of predictor variables were 1) open-mindedness, 2) the degree to which the principal's perceived role is that of an instructional leader, and the degree of perceived autonomy the principal feels he or she has in making decisions (2 variables), and 3) background in social science methods (2 variables). The criterion variables can be grouped as 1) the principal's reliance on for-
mal sources of information (program evaluation, surveys, achievement test data), and on informal sources of information (personal contacts) (4 variables), 2) their preference for and likelihood of initiating formal evaluations (two variables), and 3) the emphasis placed on the monitoring role. Items were written to assess each of the above variables. Also, several items were written for use in describing the sample on relevant dimensions (age, education, experience). All the items were typed in a questionnaire format, and piloted on 4 high school principals in the Columbus, Ohio area. Based on their very useful comments, the items were revised and the final questionnaire was printed. A copy of the final questionnaire titled "THE USE OF EVALUATIVE INFORMATION" is presented in Appendix B.

DESCRIPTION OF THE QUESTIONNAIRE

The final questionnaire was four pages long. The first part was labeled "GENERAL INFORMATION". It contained some items designed for use in describing the sample, such as years of experience, highest degree obtained, existence of an evaluation department in the district office, frequency of principal's interaction with this department, and frequency of requests for evaluation from higher levels of administration. It also contained two of the predictor variables classified under background in social science
methods. All of these items were considered important for descriptive purposes, in describing the background and experience of this particular sample of principals.

The second part of the questionnaire was labeled "PERCEPTIONS AND ATTITUDES" and contained all the statements to which principals were asked to agree or disagree on a five point scale. These were the items that were used to assess role perceptions, open-mindedness, and monitoring emphasis. The last part was called "UTILIZATION OF EVALUATIVE INFORMATION" and contained the reliance on different sources of information question and the two attitude toward use of evaluations items.

RELIABILITY ANALYSES: GENERAL CONSIDERATIONS

Scores on all the predictor variables (i.e., open-mindedness, perceptions of oneself as an instructional leader and as autonomous in making decisions, level of training, and confidence in interpreting evaluation findings) were obtained by summing across a number of items. Five of the seven criterion variables (i.e., reliance on informal sources of information in directing the school, reliance on formal sources of information in directing the school, reliance on formal sources of information in reporting on the functioning of the school to subordinates and superiors, reliance on informal sources of information
in reporting to subordinates and superiors, and emphasis placed on the monitoring role) were assessed by sets of items. The other two criterion variables were single items (i.e., preference for formal over informal methods of evaluations, likelihood of initiating formal evaluations).

In order to use these a priori groupings of items in the subsequent canonical analyses, some evidence as to their reliability was necessary. Cronbach's alpha provides an estimate of the internal consistency of a set of items, or instrument, when administered only once (Nunnally, 1978). The reliability estimates for the predictor and criterion variables are presented in Tables 4 and 6, respectively. These estimates are discussed below in the sections describing the sets of items that were used to assess each of the predictor and criterion variables.

RELIABILITY ANALYSES FOR THE PREDICTOR VARIABLES

Open-mindedness

It was hypothesized that open-mindedness would be positively correlated with amount of information use, or conversely that dogmatism would be negatively correlated with information use. The instrument developed to assess open-mindedness (or its converse dogmatism, consisted of three items taken from Rokeach's (1960) Dogmatism Scale and five newly created items. Troldahl and Powell (1965) present a
list of 20 of the best items from the original dogmatism scale in terms of their item-total correlations. The items that were chosen reflect the theme of a rigid set of beliefs (i.e., Of all the different philosophies that exist there is probably only one that is correct). Because there were concerns as to how the respondents might react to these strongly-worded dogmatism items, especially that they may feel the items were too extreme, and thus, not credible, five new and more innocuously worded items were written. These items were written to assess rigidity of educational beliefs (i.e., My beliefs about which instructional programs work in schools won't change over the years; It's hard for me to accept others' viewpoints about educational practices). The response format for each item was a five point agree-disagree scale.

The reliability analysis on the eight items assigned to the open-mindedness scale indicated that Item 26 (Appendix B; Part II) should be dropped because the internal consistency of the items was higher when this item was deleted. After dropping this item, the reliability estimate for the remaining seven items was .62 (Table 4). A total score on this open-mindedness scale was calculated by summing across the responses to the seven items presented in Appendix C. Because many of the items were worded such that agreement represented dogmatism, for ease of interpretation
these items were reverse scored such that a high level of agreement reflected open-mindedness and a low level of agreement reflected dogmatism.
<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th># Items</th>
<th>Mean</th>
<th>SD</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of Training in Social Science Methods</td>
<td>151</td>
<td>5</td>
<td>15.8</td>
<td>3.90</td>
<td>.85</td>
</tr>
<tr>
<td>Confidence in Interpreting Evaluation Findings</td>
<td>151</td>
<td>4</td>
<td>13.6</td>
<td>3.46</td>
<td>.91</td>
</tr>
<tr>
<td>Open-mindedness</td>
<td>146</td>
<td>7</td>
<td>27.9</td>
<td>3.00</td>
<td>.62</td>
</tr>
<tr>
<td>Perceived Autonomy</td>
<td>146</td>
<td>6</td>
<td>24.0</td>
<td>3.47</td>
<td>.75</td>
</tr>
<tr>
<td>Perceived Leadership Orientation</td>
<td>146</td>
<td>7</td>
<td>28.2</td>
<td>8.64</td>
<td>.65</td>
</tr>
</tbody>
</table>

\(^a\)The number of respondents differ among scales because of missing data.
Role perceptions

It was hypothesized that certain role perceptions mediate information use. That is, the degree to which principals perceive themselves to be instructional leaders and to have some autonomy in making decisions should be positively correlated with the measures of information use. Even though these two constructs, perceptions of oneself as a leader and as autonomous relative to higher levels of administration, are closely related, they were assessed by two sets of items. It was thought that the conceptual distinction between the principal's perception of his or her role relative to subordinates (leadership) and relative to superiors (autonomy in making decisions) was important to maintain.

Originally nine items were written to assess principals' perceptions of themselves as leaders of the school. These items reflected ways in which assertive, leadership oriented principals differed from less effective, less assertive principals according to reviews by Leithwood and Montgomery (1982), Shoemaker and Fraser (1981), and Glatt-born (personal communication). A leader is someone who tries to influence other people, and the items reflected this proactive stance toward the job of principal. For example, principals were asked to agree or disagree on a five
point scale to statements that initiating programs for students and teachers, communicating and convincing teachers of the importance of certain goals, and monitoring student performance were important or frequently emitted behaviors.

The reliability analysis of these nine items indicated that the reliability of the scale would be increased substantially if Items 17 and 23 (Appendix B; Part II) were deleted. After deleting these items, the remaining seven items had a reliability of .65 (Table 4). A total score representing the degree to which the principals perceived themselves as leaders was obtained by summing across their level of agreement with these seven statements (Appendix D).

The autonomy items represent an attempt to assess the degree of control a principal feels he or she has within the context of the structure of the educational system. This dimension was suggested by a study of compliance and non-compliance oriented principals (Davis & Stecher, 1980), which is described in the introduction. A total score representing the degree to which the principals perceive themselves to have some autonomy within the educational system was obtained by summing across the six items shown in Appendix E (e.g., I have the power to make changes; I don't feel I have much control over my school's direction; I feel I have little autonomy in my job.). The reliability estimate for these six items was high, .75 (Table 4).
Background in social science methods and concepts

It was hypothesized that even when principals are open-minded and perceive themselves as instructional leaders with autonomy to make decisions, they may prefer informal sources of information if they have not had exposure to the logic of program evaluation, research methods, and statistics. That is, the amount of past exposure to social science methods and concepts should be positively correlated with principals' reliance on and initiation of formal sources of information.

For purposes of this study, this factor is broken into two variables (Appendix F). The first variable asks the principal for his or her level of training in terms of the courses or seminars that have been taken in content areas such as program evaluation, research methods, statistical analysis, and educational tests. The numbers (1=none, 2=a little, 3=some, 4=moderate, 5=extensive) were summed across all 5 areas listed to provide a level of training score. The reliability for this five item scale was .85 (Table 4).

The second question (Appendix F) approaches exposure more indirectly by asking how confident the principal would feel in interpreting the results from a program evaluation. A total confidence score was obtained by summing across the four parts of this question. The reliability for this four item group was .91 (Table 4).
Summary of reliability analyses for predictor variables

The reliability estimates for the five predictor variables reported in Table 4 range from .62 to .91. The purpose of obtaining these estimates was to discover the extent to which the variance in principals' scores on the five scales was attributable to systematic responses across the items in each scale. If the principals were not responding systematically to the items supposedly measuring one construct, for example open-mindedness, it would not make much sense to relate their responses on this scale to other variables. If the reliability estimate is judged to be high enough for a particular instrument or set of items, then it makes sense to use the total score on the instrument as a measure of the construct of concern.

Nunnally (1978) stated that the judgment about what is a satisfactory level of reliability depends on how the scale or instrument will be used. He suggested that in early stages of research, when instruments have just been developed, it is wasteful to strive for reliabilities above .80; that reliabilities of around .70 are sufficient. The estimates obtained for the predictor variables were judged to be satisfactory, given the limited number of items in each scale, for the measures of the predictor variables to be used in subsequent analyses (i.e., in exploring the relationship of the predictor and criterion variables).
CRITERION VARIABLES

Reliance on different sources of information

As described in the last chapter, many of the studies concerned with identifying factors that relate to administrators' use of evaluations operationalized the criterion variable, evaluation use, as administrators' judgments about the usefulness of a particular evaluation or evaluation report. Other researchers had conceptualized the evaluation use problem as part of a larger problem, the administrator's preference for personally gathered, often verbal information over systematically gathered, often quantitative data. Following this latter line of research, a question was included on the questionnaire that assessed principals' reliance on different sources of information (Appendix B; Part III; Question 4). Principals were asked to rate the degree to which they relied on thirteen sources of information in 1) directing, monitoring, and assessing the school, and 2) reporting to subordinates (teachers, staff) and superiors (superintendent, school board) about the school.

The thirteen sources of information were categorized either as formal or informal (Table 5). The seven formal sources of information represented different types of evaluations (i.e., formative and summative evaluations, cost-benefit evaluations, accreditation) typically undertaken by
trained evaluators and/or sources characterized by quantitative, data collection methods (achievement test data, surveys, records). The six sources classified as informal represented information the principal gathers himself or herself through personal observations and conversations or meetings with teachers, staff, parents, and community members. Thus, the ratings of reliance on the 13 sources of information were summed to produce two scores, one score reflecting reliance on informal sources of information, and another reflecting reliance on formal sources of information. Because the principal rated each of the 13 sources of information twice, once on the degree to which they relied on it in monitoring and directing the school and once on the degree to which they relied on it in reporting to superiors and subordinates about the school, responses to this question resulted in four scale scores.
Table 5

Items Assessing Reliance on Formal and Informal Sources of Information

Principals were asked to rate the extent to which they relied on each of the following sources of information 1) to monitor, assess, and direct the school's programs and policies and 2) to report to subordinates and superiors about the school. They rated their reliance on a 4 point scale (1=Not at all, 2=A little, 3=Moderately, 4=Extensively).

**Formal Sources of Information**

1. External reviews of the school (for compliance and accreditation purposes)
2. Achievement test data
3. Formal evaluations (using systematic methods of data collection and/or trained evaluators)
4. Evaluations of the relative costs and benefits of alternative programs
5. Surveys (questionnaires) of parent, teacher, student, or community attitudes or perceptions regarding the school
6. Evaluations of instructional programs with regard to the factors that contribute to success or failure
7. Records of student attendance, disciplinary actions taken, or other student behaviors

**Informal Sources of Information**

1. Personal observations of classrooms
2. Personal observations of school activities outside the classroom
3. Informal conversations with teachers and staff
4. Formal meetings or reports from teachers and other staff
5. Meetings with parents and community groups
6. Informal conversations with parents and community members
Reliability analyses for four reliance variables

The reliability estimate for the set of seven items reflecting reliance on formal sources of information in monitoring and directing the school was .69 (Table 6). The reliability was .77 (Table 6) for the seven items measuring reliance on formal sources of information in reporting to superiors and subordinates.

The reliability estimate for the set of six items assessing reliance on informal sources of information in directing the school was .68 (Table 6). The reliability for the set of six items measuring reliance on informal sources of information in reporting to subordinates and superiors about the functioning of the school was .70 (Table 6). As discussed earlier, a reliability estimate of around .70 is considered adequate for research purposes.

The reliability estimates for these four criterion variables range from .68 to .77. Thus, each of the four scales was judged to have sufficiently high reliability for the variables to be used in subsequent canonical correlation analyses (i.e., as criterion variables).
Table 6
Means, Standard Deviations, and Cronbach's Alpha
for Criterion Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>n</th>
<th># Items</th>
<th>Mean</th>
<th>SD</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliance on Informal Sources in Directing the School</td>
<td>136</td>
<td>6</td>
<td>19.3</td>
<td>2.46</td>
<td>.68</td>
</tr>
<tr>
<td>Reliance on Formal Sources in Directing the School</td>
<td>136</td>
<td>7</td>
<td>19.5</td>
<td>3.21</td>
<td>.69</td>
</tr>
<tr>
<td>Reliance on Informal Sources for Reporting on School</td>
<td>136</td>
<td>6</td>
<td>17.8</td>
<td>2.77</td>
<td>.70</td>
</tr>
<tr>
<td>Reliance on Formal Sources for Reporting on School</td>
<td>136</td>
<td>7</td>
<td>19.6</td>
<td>3.69</td>
<td>.77</td>
</tr>
<tr>
<td>Emphasis Placed on the &quot;Monitoring Role&quot;</td>
<td>146</td>
<td>4</td>
<td>15.7</td>
<td>1.64</td>
<td>.22b</td>
</tr>
</tbody>
</table>

*The number of respondents differ among scales because of missing data.

bThis scale was dropped from further analyses due to low reliability.
Attitude toward the use of evaluations

Two questions were asked to ascertain the principal's preference for systematic methods of evaluating programs and policies over ad hoc, impressionistic methods of evaluating and the likelihood that principals would initiate systematic methods of evaluating (Appendix G). Both of these questions are phrased hypothetically. That is, the phrase, "If you had adequate funds and personnel to evaluate any aspect of your school," sets up both questions. These questions were added as criterion variables to cover the possibility that principals responding that they relied minimally on formal sources of information might like to use formal methods of evaluating their school but might not have the resources to do so. Thus, these questions assess the preference for and likelihood of initiating formal methods of evaluating, if the principal had sufficient funds and personnel, that is, in an ideal setting. High numbers on the preference question indicated that the respondent would greatly prefer to evaluate programs or policies using systematic methods of data collection or trained evaluators. Low scores indicated that they would greatly prefer to evaluate aspects of their school informally, using their own and the staff's observations and judgments. The response categories for the question asking the princi-
pals how likely he or she would be to initiate evaluations of the school using systematic methods of data collection or trained evaluators ranged from "not likely at all" (1) to "very likely" (4). Because these two questions represent single item criterion variables, reliability estimates were not appropriate.

**Emphasis placed on the monitoring role**

This measure represented an attempt to assess the relative weight the principal put on information in his or her job. That is, some principals would feel most secure when they know as much as possible about the functioning of the school. The informational or monitoring role would be seen as an important part of their job. The perceived importance of monitoring or collecting information about the functioning of the school in carrying out the responsibilities of the principalship was assessed by a set of four statements (Appendix H), to which the principal responded on a five point Likert scale. Two of these items asked about the importance that was placed on monitoring students' and teachers' performance, and two of the items asked about the number of people consulted when making decisions. A principal who scored high on this scale would have been an information user.
The reliability of the a priori grouping of items assigned to this scale was unacceptably low (-.22, Table 6). Since this low reliability meant that the four items did not seem to be measuring a single construct, it would not be meaningful to use a total score obtained by summing across the four items in subsequent analyses. For this reason, this variable was dropped as a criterion variable and was not included in subsequent canonical analyses.

SUMMARY

Items contained on the final questionnaire were designed for use in describing the sample and for use as measures of the variables relevant to the research hypotheses. The items were pilot tested on a sample of four high school principals before the final questionnaire was assembled.

The questionnaire, along with a self-addressed, stamped envelope, and a cover letter, were sent to 181 high school principals in Ohio in April of 1983. Each principal was called a few days after mailing the questionnaires to obtain his or her agreement to participate. A second round of calls was made two weeks later to principals who had not returned the questionnaire. A high return rate was achieved using this technique. Of the 181 principals, 153 or 84% returned the questionnaire.
The reliability estimates for the predictor variables ranged from a .62 to a .91, and those for the criterion variables ranged from a .68 to a .77 (Tables 4 and 6), which were high enough to permit the use of the scales in subsequent canonical analyses. One criterion variable, emphasis on the monitoring role, was not entered into subsequent analyses because of its low reliability (.22, Table 6).
Chapter IV
RESULTS AND DISCUSSION

Data analyses were undertaken for three purposes. First, descriptive statistics were obtained to provide a profile of the principals on all meaningful single items in the questionnaire. Second, factor analyses were run to determine the grouping of the criterion variables to be used in the canonical analyses. Third, canonical analyses were used to explore the research hypotheses.

PROFILE OF THE SAMPLE

Means, standard deviations, and/or frequency distributions were obtained for the demographic items and for all meaningful items and/or scales relevant to the principals' background in, exposure to, and attitudes toward formal evaluations. (The means and standard deviations for variables not described here are presented with the reliability estimates for these variables in the last chapter, Tables 4 and 6).
Demographic Items

Age. The principals ranged from 31 to 63 years in age with a mean age of 47, and a standard deviation of 6.9.

Educational level. Of the 153 respondents, 123 (80.4%) had at least a Masters degree, 5 (3.3%) had obtained a Ph.D., 9 (5.9%) had an Ed.D., 8 (5.2%) were working on a doctorate, and 8 (5.2%) had an Ed.S. All respondents had obtained at least a Masters.

Years experience. The principals had from 2 to 28 years of experience as a vice-principal and/or principal. The mean was 13.5 years of experience, and the standard deviation was 5.25. The responses on this item appeared to be approximately normally distributed with relatively few principals having almost no experience or many years of experience.

Experience with Evaluations

Several items on the questionnaire addressed how active the school district and/or principal had been in undertaking program evaluations (See Appendix B; Part I; Questions 4, 5, and 6).

The first question in this set (Question 4) asked whether or not there was an evaluation department or central office staff member in the principal's school district who was responsible for program evaluation. Of the 153
principals who responded, 129 (84.3%) reported that there was such an evaluation department or central office staff member in their district with the remaining 24 principals (15.7%) indicating that there was no evaluation department in their district.

The second question (Question 5) asked the principal for the number of times he or she had worked directly with this department or central office staff member, or other external evaluators on an evaluation of his or her school in the last five years. There were only 8 principals (5.2%) who indicated that they had not worked on any evaluations in the last five years. There were 15 principals (9.8%) who had worked with evaluators "1 or 2 times" in the last five years; 20 (13.1%) had worked with the evaluation department or evaluators "3 to 5 times"; and 26 (16.3%) had worked with evaluators "5 to 10 times" in the last five years. The largest group of principals (76 or 49.7%) indicated that they had worked with this evaluation department or other evaluators "more than 10 times" in the last five years.

A third question (Question 6) asked the principals how frequently they had requests from higher levels of administration for evaluations of programs or policies in their schools. Only 3 (2%) of the principals had never had requests from higher levels of administration for evaluations
of their schools' programs or policies. There were 28 principals (18.3%) who reported that they had these requests "infrequently". The largest group of principals (77 or 50.3%) reported that they received requests for evaluations of their schools "somewhat frequently". The next largest group (45 or 29.4%) reported that they received these requests "very frequently".

**Summary.** The existence of such a large number of program evaluation departments at the district level together with the large number of principals who had worked with this department on numerous occasions, and the frequency of higher administration requests for evaluations indicate that most of the principals in this sample have been involved with program evaluations, at least at the district level. It can not be determined from these data whether principals' experience with program evaluations has originated because of demands made from higher levels of administration, or because the principals wanted and initiated program evaluation of their schools. However, most of the writings on this topic imply that evaluations are generally initiated at higher levels of administration and are not appreciated by program administrators (i.e., principals).
**Descriptive data on predictor and criterion variables**

**Attitudes toward the use of formal evaluations.** Three items on the questionnaire (Appendix B; Part III; Questions 2, 3, and 5) assessed principals' attitudes toward formal methods of evaluating, which were defined as those that used systematic methods of data collection and/or external, trained evaluators. Principals' responses to these items are reported in Table 7.

**Preference for formal methods of evaluating.** Respondents were asked to indicate their preference for evaluating formally (using systematic methods of data collection and/or trained evaluators) or informally (using own and staff observations and judgments) given that adequate funds and personnel were available for conducting the formal evaluations. As can be seen from Table 7, the largest group of principals (71 or 46.4%) equally preferred the informal and formal methods of evaluation. Of those principals who expressed a preference, 44 principals indicated that they preferred to evaluate their programs informally while 36 preferred to use more systematic methods of data collection or trained evaluators.

**Likelihood of initiating formal evaluations.** The principals were asked how likely they would be to initiate formal methods of evaluations of aspects of their schools if adequate funds and personnel were available to carry out
Table 7
Frequency Distributions of Attitudes Toward Use of Formal Evaluation Items

1. Indicate your preference for formal, compared to informal evaluations.

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greatly prefer informal</td>
<td>18</td>
</tr>
<tr>
<td>Somewhat prefer informal</td>
<td>26</td>
</tr>
<tr>
<td>Equally prefer</td>
<td>71</td>
</tr>
<tr>
<td>Somewhat prefer formal</td>
<td>21</td>
</tr>
<tr>
<td>Greatly prefer formal</td>
<td>15</td>
</tr>
</tbody>
</table>

2. How likely would you be to initiate formal evaluations if adequate funds and personnel were available?

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not likely at all</td>
<td>10</td>
</tr>
<tr>
<td>Somewhat unlikely</td>
<td>26</td>
</tr>
<tr>
<td>Somewhat likely</td>
<td>73</td>
</tr>
<tr>
<td>Very likely</td>
<td>42</td>
</tr>
</tbody>
</table>

3. Do formal evaluations have the potential to help you in your job?

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>138</td>
</tr>
<tr>
<td>No</td>
<td>9</td>
</tr>
<tr>
<td>Missing data</td>
<td>6</td>
</tr>
</tbody>
</table>
these evaluations (Question 3). The majority of principals indicated that they would be likely to initiate formal evaluations. Seventy-three principals (47.7%) indicated that they would be "somewhat likely" and 42 principals (27.5%) indicated that they would be "very likely" to initiate formal evaluations if adequate funds and personnel were available to carry out these evaluations.

**Potential of formal evaluations.** Nearly all (90.2%) of the principals agreed that formal evaluations had the potential to help them in their jobs (Question 5).

**Summary.** The data on the first two questions (Questions 2 and 3) suggest that approximately 20 to 30% of the sample would be unlikely to initiate formal methods of evaluation and would prefer informal means of evaluating their programs to formal methods. Thus, less than a third of the sample do not have positive attitudes toward the use of formal evaluations. The majority, however, report that they would be likely to initiate formal evaluations in an ideal setting with adequate funds and personnel. Thus, it seems that many principals may be open to and value evaluations but not have the resources to carry them out.

**Background in social science methods.** Two questions on the questionnaire (Appendix B; Part B; Questions 7 and 8) asked the principals for their level of training and familiarity with social science methods and concepts. Total
scores on these two items were used as predictor variables in subsequent analyses.

**Level of training.** Respondents were asked to rate the extent of their training in terms of courses, seminars, or workshops taken in the following content areas: 1) program evaluation, 2) research methods and strategies, 3) educational tests and measurement, 4) statistical analysis, and 5) management information systems. For each content area, they were asked to indicate if they had no training (1), "a little" training (2), "some" training (3), "moderate" training (4), or "extensive" training (5). The means, standard deviations, and frequency distributions for these five items are given in Table 8.

In general, there were relatively few principals who responded using the extreme ends of the response scale, that is, claiming that they had no or extensive training in these areas. The means for the five content areas hovered around 3, suggesting that principals had moderate amounts of training in these areas.

**Confidence in interpreting evaluation findings.** Principals were asked to rate the confidence they would have in making four kinds of judgments and interpretations of program evaluation findings that involved statistical data. For each different judgment or interpretation, they were asked to indicate their degree of confidence on a five
Table 8
Frequency of Responses, Means, and Standard Deviations
For Items Assessing Level of Training

<table>
<thead>
<tr>
<th>Level of Training in:</th>
<th>Response Categories&lt;sup&gt;a&lt;/sup&gt;</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Program Evaluation</td>
<td>3</td>
<td>23</td>
<td>48</td>
<td>56</td>
<td>23</td>
<td>3.5</td>
<td>.99</td>
</tr>
<tr>
<td></td>
<td>(2%)</td>
<td>(15%)</td>
<td>(31%)</td>
<td>(37%)</td>
<td>(15%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research Methods and Strategies</td>
<td>2</td>
<td>37</td>
<td>51</td>
<td>50</td>
<td>13</td>
<td>3.2</td>
<td>.96</td>
</tr>
<tr>
<td></td>
<td>(1%)</td>
<td>(24%)</td>
<td>(33%)</td>
<td>(33%)</td>
<td>(9%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educational Tests and Measurements</td>
<td>2</td>
<td>34</td>
<td>55</td>
<td>51</td>
<td>11</td>
<td>3.2</td>
<td>.92</td>
</tr>
<tr>
<td></td>
<td>(1%)</td>
<td>(22%)</td>
<td>(36%)</td>
<td>(33%)</td>
<td>(7%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Statistical Analyses</td>
<td>8</td>
<td>42</td>
<td>53</td>
<td>35</td>
<td>14</td>
<td>3.0</td>
<td>1.05</td>
</tr>
<tr>
<td></td>
<td>(5%)</td>
<td>(28%)</td>
<td>(35%)</td>
<td>(23%)</td>
<td>(9%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Systems Analysis of Management Information Systems</td>
<td>14</td>
<td>43</td>
<td>58</td>
<td>28</td>
<td>10</td>
<td>2.9</td>
<td>1.04</td>
</tr>
<tr>
<td></td>
<td>(9%)</td>
<td>(28%)</td>
<td>(38%)</td>
<td>(18%)</td>
<td>(7%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup>The response categories were:
1 = no training
2 = a little training
3 = some training
4 = moderate training
5 = extensive training
point scale (i.e., 1=Not at all, 2=A little, 3=Somewhat, 4=Moderately, 5=Very). The means, standard deviations, and frequency distributions for these four items are presented in Table 9.

If presented with statistical data from an evaluation of a school program, the principals indicated that they would have the most confidence in translating evaluation findings into decisions about the program ($M = 3.7$). They would be somewhat to moderately confident of their ability to interpret the meaning of the statistics ($M = 3.5$), to judge the reliability and validity of the measuring instruments ($M = 3.2$), and to judge the adequacy of the research design ($M = 3.2$).

**Summary.** It is not clear without a reference group whether the moderate levels of training and confidence reported above are typical of principals in general. This particular sample of principals appears to be more conversant in program evaluations and research and measurement concepts than expected. Indeed, there were surprisingly few principals who responded that they had no training in the content areas or had no confidence in interpreting statistical data.

**Reliance on different sources of information.** Principals were asked to rate the extent to which they relied on 13 sources of information in 1) monitoring, directing, and
Table 9
Frequency of Responses, Means, and Standard Deviations for Confidence Items

<table>
<thead>
<tr>
<th>Ratings of Confidence in:</th>
<th>Response Categories(^a)</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interpreting the Meaning of Statistics</td>
<td>2</td>
<td>20</td>
<td>51</td>
<td>61</td>
<td>18</td>
<td>3.5</td>
<td>.91</td>
</tr>
<tr>
<td>(1%)</td>
<td>(13%)</td>
<td>(33%)</td>
<td>(40%)</td>
<td>(12%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Judging the Reliability and Validity of Instruments</td>
<td>7</td>
<td>35</td>
<td>45</td>
<td>49</td>
<td>16</td>
<td>3.2</td>
<td>1.06</td>
</tr>
<tr>
<td>(5%)</td>
<td>(23%)</td>
<td>(29%)</td>
<td>(32%)</td>
<td>(10%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Judging the Adequacy of Research Designs</td>
<td>6</td>
<td>33</td>
<td>55</td>
<td>44</td>
<td>14</td>
<td>3.2</td>
<td>1.00</td>
</tr>
<tr>
<td>(4%)</td>
<td>(22%)</td>
<td>(36%)</td>
<td>(29%)</td>
<td>(9%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Translating Evaluation Findings into Decisions</td>
<td>2</td>
<td>12</td>
<td>41</td>
<td>72</td>
<td>25</td>
<td>3.7</td>
<td>.88</td>
</tr>
<tr>
<td>About School Programs</td>
<td>(1%)</td>
<td>(8%)</td>
<td>(27%)</td>
<td>(47%)</td>
<td>(16%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^a\)The response categories were: 1 = not at all confident
2 = a little confident
3 = somewhat confident
4 = moderately confident
5 = very confident
assessing the school's programs, and 2) reporting to subordinates and superiors about the school's functioning. The 13 sources of information had been classified into either formal or informal sources of information. Formal sources were those such as formal program evaluations, cost-benefit analyses, external reviews, surveys, and records that involved systematic methods of data collection or external evaluators. Informal sources were those such as personal observations and conversations or meetings with teachers and parents that represented more personal and verbal methods of information collection. For each of the 13 sources of information, principals were asked to indicate their degree of reliance on a four point scale (i.e., 1=Not at all, 2=A little, 3=Moderately, 4=Extensively). Two sets of means and standard deviations are presented in Table 10. One set contains the ratings of reliance on each source in directing the school. The second set contains the ratings of reliance on each source in reporting to subordinates and superiors about the school.

Because the means for the responses to the two questions are so similar, the general pattern across both sets of means will be discussed rather than each set separately. As can be seen from Table 10, in general, principals tend to rely more heavily on the sources categorized as informal methods of collecting information. The majority of the
Table 10
Means and Standard Deviations for Items Assessing Reliance on Different Sources of Information

<table>
<thead>
<tr>
<th>For Monitoring and Directing the School</th>
<th>For Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formal Sources</td>
<td>Informal Sources</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>3.6</td>
<td>.56</td>
</tr>
<tr>
<td>3.6</td>
<td>.56</td>
</tr>
<tr>
<td>3.2</td>
<td>.66</td>
</tr>
<tr>
<td>3.2</td>
<td>.63</td>
</tr>
<tr>
<td>2.9</td>
<td>.75</td>
</tr>
<tr>
<td>2.8</td>
<td>.75</td>
</tr>
<tr>
<td>3.2</td>
<td>.72</td>
</tr>
<tr>
<td>2.6</td>
<td>.73</td>
</tr>
<tr>
<td>2.5</td>
<td>.92</td>
</tr>
<tr>
<td>2.4</td>
<td>.81</td>
</tr>
<tr>
<td>2.5</td>
<td>.84</td>
</tr>
<tr>
<td>2.9</td>
<td>.69</td>
</tr>
<tr>
<td>3.4</td>
<td>.71</td>
</tr>
</tbody>
</table>

Note. Ratings were done on 4-point scales.
means for the six sources in this category were above three, whereas the majority of the means for the sources categorized as formal were under three. It should be noted, however, that the difference between the two means found by averaging across the six informal sources and the seven formal sources and subtracting was only .43 (taking the left hand side of Table 10 alone).

Of the informal sources, principals reported that they relied the most on their own personal observations in and out of the classroom in their job as principal. They report that they rely moderately on informal conversations and meetings with teachers and staff. Of these informal sources, the lowest average ratings were obtained on the items concerning meetings and informal conversations with parent and community leaders. It is not too surprising that they rely less on information from parents and community groups since they may not have regular contact with them.

Of the formal sources of information, the principals reported that they relied the most on external accreditation reviews and student records (i.e., attendance). Both of these sources received moderately high ratings. Principals reported that they relied less on formal evaluations, cost-benefit analyses, and surveys. External reviews and attendance records represent information sources that are
typically already integrated into decision-making patterns. That is, these sources may be relied upon because they are tied to funding decisions. The remaining five formal sources of information may not be as integrated into decision-making patterns.

In a study of central office administrators' information preferences, Sproull and Zubrow (1981) found that administrators prefer personal observations and teacher comments to achievement test scores in doing their jobs. The present study replicates this finding using principals instead of central office administrators. They interpreted this finding as indicating a preference for information that is immediate and personal, and suggested that administrators who seemed to be aware of what was going on in the schools acquired most of their information in an ad hoc, haphazard way. This interpretation holds for this study in that principals reported that they relied the most on personal observations. However, the finding that they also rely on external reviews and attendance records, which represent more formalized sources of information, suggests an alternative interpretation. That is, principals may have a preference for immediate and personal information, but at the same time, they may rely on more formalized sources of information if, for example, the politics or the financial aspects of a situation demanded it.
The pattern of the means on this question sheds some light on the issue regarding whether or not the initiative to evaluate had come from the central office or from the principals themselves on the relatively high number of evaluations on which the principals had worked (Part I; Question 5). Of the formal sources of information, principals in this sample reported that they relied the most on external accreditation reviews and student records (attendance), possibly because this information is often tied to specific consequences (e.g., funding). The sources they relied on the least were different kinds of program evaluations (summative and formative evaluations, cost-benefit analyses). Summative evaluations, in particular, are the types of evaluations most likely to be requested by central office or higher level administration because of the information they provide regarding the impact and success of programs. Thus, the high frequency with which principals worked with central office evaluation departments in evaluating their schools may not have been a function of principals' needs, but of higher administration demands.
RELATIONSHIP BETWEEN PREDICTOR AND CRITERION VARIABLES

In part, this study was designed to explore the relationship between a set of hypothesized predictors and a set of variables assessing aspects of principals' information utilization. To reiterate, the predictors are open-mindedness, (i.e., high scores suggest open-mindedness and low scores imply dogmatism), the principals' perceptions of themselves as instructional leaders and as being autonomous in decision-making, the level of training in social science methods, and confidence in interpreting evaluation findings. These predictor variables were hypothesized to be positively correlated with the measures of information utilization (i.e., criterion variables).

The predictor variable, open-mindedness, was assessed by a set of seven statements to which the principal agreed or disagreed on a five point scale. Total scores on the two predictor variables representing role perceptions (i.e., instructional leadership and autonomy) were obtained by summing across the level of agreement with seven statements and six statements respectively. The last two predictor variables, categorized under background in social science methods, were obtained by summing across the principal's ratings of his or her level of training in five social science methodological content areas and by summing across his or her ratings of confidence in making four
kinds of judgments about the quality of statistical findings from an evaluation.

The criterion variables were designed to assess different aspects of principals' information utilization. Prior to running the canonical correlation analyses, which analyzes the relationship between a predictor and a criterion set of variables, a factor analysis was performed on the six criterion variables to elucidate how these variables could best be grouped in the canonical analyses. If the six variables all loaded highly on one general factor, then all six would be entered in as criterion variables in one canonical analysis. If two factors were obtained, then two separate canonical analyses would be performed; one on the predictors and the criterion variables that had loaded highly on the first factor, and a second canonical analysis on the predictors and the criterion variables that had loaded highly on the second factor.

The variables entered into the factor analysis were:
1) reliance on formal sources of information in directing the school,
2) reliance on informal sources of information in directing the school,
3) reliance on informal sources of information in reporting to subordinates and superiors concerning the functioning of the school,
4) reliance on formal sources of information in reporting to subordinates and superiors,
5) preference for formal over informal methods,
of evaluating, and 6) likelihood of initiating formal methods of evaluating. The statistical package used for this analysis (SPSS) ignored all cases which had missing data on any of the six variables. A principal axes factor analysis was performed and three factors were extracted based on the eigenvalues and the relative interpretability of the two and three factor solutions. These factors were rotated to simple structure using the oblique method, since the factors were correlated. The eigenvalues, factor correlations, and factor loadings are presented in Table 11.

The analysis revealed three distinct factors. The two variables with high loadings on Factor I are reliance on formal sources of information in directing the school and reliance on formal sources of information in reporting about the functioning of the school to subordinates and superiors. As discussed previously, total scores on these two variables were obtained by summing across the principals' ratings of their reliance on seven more systematic, objective methods of data collection. The variables that load highly on Factor II are principals' reliance on informal sources of information in directing the school and their reliance on informal sources of information in reporting on the school's functioning to subordinates and superiors. Total scores on these two variables were obtained by summing across the principals' ratings of their reliance
Table 11

Eigenvalues, Factor Intercorrelations, and Factor Loadings for Factor Analysis of Criterion Variables

<table>
<thead>
<tr>
<th>Factor</th>
<th>Eigenvalue</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2.83</td>
</tr>
<tr>
<td>2</td>
<td>1.48</td>
</tr>
<tr>
<td>3</td>
<td>0.75</td>
</tr>
<tr>
<td>4</td>
<td>0.50</td>
</tr>
<tr>
<td>5</td>
<td>0.33</td>
</tr>
<tr>
<td>6</td>
<td>0.10</td>
</tr>
</tbody>
</table>

Factor Intercorrelations

<table>
<thead>
<tr>
<th></th>
<th>Factor I</th>
<th>Factor II</th>
<th>Factor III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor I</td>
<td>1.00</td>
<td>0.56</td>
<td>0.41</td>
</tr>
<tr>
<td>Factor II</td>
<td>1.00</td>
<td>1.00</td>
<td>0.06</td>
</tr>
<tr>
<td>Factor III</td>
<td>1.00</td>
<td></td>
<td>1.00</td>
</tr>
</tbody>
</table>

Factor Loadings

<table>
<thead>
<tr>
<th></th>
<th>Factor I</th>
<th>Factor II</th>
<th>Factor III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliance on Informal Sources in Directing</td>
<td>0.03</td>
<td>0.82</td>
<td>-0.08</td>
</tr>
<tr>
<td>Reliance on Formal Sources in Directing</td>
<td>0.96</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Reliance on Informal Sources in Reporting</td>
<td>-0.02</td>
<td>0.80</td>
<td>0.07</td>
</tr>
<tr>
<td>Reliance on Formal Sources in Reporting</td>
<td>0.93</td>
<td>-0.01</td>
<td>0.00</td>
</tr>
<tr>
<td>Preference for Formal Sources</td>
<td>-0.02</td>
<td>-0.02</td>
<td>0.71</td>
</tr>
<tr>
<td>Likelihood of Initiating Formal Methods</td>
<td>0.03</td>
<td>0.02</td>
<td>0.70</td>
</tr>
</tbody>
</table>
on six less systematic, more informal methods of information collection. The variables that load highly on Factor III are the single items that assess preference for formal over informal methods of evaluating, and the likelihood of initiating formal methods of evaluating if adequate funds and personnel were available to carry out the evaluations. These two items were both worded hypothetically. That is, they asked if funds and personnel were available to carry out formal evaluations, would you as a principal prefer formal evaluations over more informal methods of evaluating, and would you initiate formal methods of evaluating in your school. This wording may explain why these two items did not load on the first factor defined by the principals' reliance on formal sources of information. Factor III may represent not what principals presently rely on, but what they might do in an ideal or abstract sense.

Based on the results of this factor analysis of the criterion variables, it was decided that three separate canonical correlation analyses would be run. The same predictor variables would be used in all three analyses, but the criterion set of variables would be different in each of the three canonical analyses. The first canonical analysis was performed on the predictor variables with the two variables assessing reliance on formal sources of information entered as the criterion variables. The second canon-
ical analysis was performed on the predictor variables and the two criterion variables assessing reliance on informal sources of information. The third canonical analysis was run to analyze the relationship between the predictor variables and the third set of criterion variables, preference for formal over informal methods of evaluating and likelihood of initiating formal methods of evaluating. A summary of the results (i.e., canonical correlation, redundancy, and tests of significance) of the three canonical variate analyses just described are presented in Table 12. The statistical package used to run these canonical analyses (SPSS) deleted any cases that contained missing data on any of the variables entered into each analysis.
Table 12
Summary of Three Canonical Variate Analyses
Performed on the Predictor Variables and Three Sets of
Criterion Variables

<table>
<thead>
<tr>
<th>Variate</th>
<th>Canonical Correlation</th>
<th>Canonical Correlation$^2$</th>
<th>Wilk's Lamda</th>
<th>F</th>
<th>p&lt;</th>
<th>Trace</th>
<th>Redundancy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reliance on Formal Sources as Criterion$^a$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>.59</td>
<td>.34</td>
<td>.618</td>
<td>7.02</td>
<td>.001</td>
<td>.93</td>
<td>.31</td>
</tr>
<tr>
<td>2</td>
<td>.24</td>
<td>.06</td>
<td>.940</td>
<td>2.03</td>
<td>.09</td>
<td>.07</td>
<td>.003</td>
</tr>
<tr>
<td>Reliance on Informal Sources as Criterion$^a$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>.49</td>
<td>.25</td>
<td>.734</td>
<td>4.31</td>
<td>.001</td>
<td>.68</td>
<td>.17</td>
</tr>
<tr>
<td>Preference for and Initiation of Formal Sources as Criterion$^b$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>.21</td>
<td>.05</td>
<td>.923</td>
<td>1.12</td>
<td>.40</td>
<td>.46</td>
<td>.002</td>
</tr>
</tbody>
</table>

$^a n = 136$

$^b n = 144$
First canonical analysis

It was hypothesized that the predictor variables (i.e., open-mindedness, perceptions of oneself as instructional leader and autonomous in the hierarchy, level of training, and confidence in interpreting evaluation findings) would explain a significant amount of the variance in principals' reliance on formal sources of information in directing and monitoring the school and their reliance on formal sources of information in reporting to subordinates and superiors. To test this hypothesis, a canonical correlation analysis was performed on the predictor and criterion variables just described.

In canonical correlation analysis, a linear combination of the predictor variables and another linear combination of the criterion variables are formed. Coefficients for all variables in the analysis are chosen such that the linear combination of the predictor set is maximally correlated with the linear combination of the criterion variables. These linear combinations are called variates. Next, a second pair of linear combinations or variates is located which have the second highest correlation and which are uncorrelated with the first pair (Levine, 1977). The purpose of the analysis is to locate the statistically independent patterns of linkages between the predictor and criterion variables.
Levine (1977) describes the issue of significance in canonical analysis as the problem of identifying the exact number of independent relationships that exist between the predictor and criterion sets of variables. There are two parts to this test of significance: a test of whether there is any significant relationship between the sets and subsequently, the determination of the number of significant solutions. In this analysis, the overall test of whether there were any significant links between the predictor and criterion variables was significant (Wilk's Lambda = .618, Approximate F = 7.02, p < .0001). The significance tests for the exact number of solutions indicated that only one solution was significant at the .05 level (Wilk's Lambda = .618, Approximate F = 7.02, p < .000, Table 12). The canonical correlation for this first significant solution, which is the correlation between the linear composite of the predictor set of variables and the linear composite of the two criterion variables, reliance on formal sources of information in directing the school and reliance on formal sources of information in reporting to subordinates and superiors, was .59. Thirty-one percent of the variance in the criterion set of variables was accounted for by the first canonical variate from the predictor set of variables (see redundancy in Table 12).
The new linear combinations of the predictor and criterion variables that are formed such that the correlation between them is maximized are called canonical variates. Thus, the analysis extracts a predictor set variate and a criterion set variate. The significance of the first solution, or the first canonical correlation requires interpretation. If the canonical variate formed from the predictor variables and that formed from the criterion variables represent the particular combinations of the original variables that are most related, then it is important to discover the substantive content of these new variates. Levine (1977) suggested interpreting the content of the variates using structure coefficients, which are zero order correlations of the original variables with their respective canonical variate. Using the structure coefficients rather than the weights which represent the direct contribution of each variable to its respective linear combination avoids the problem of multicollinearity.

The structure coefficients for all predictor and criterion variables are presented in Table 13. Inspecting the structure coefficients for the criterion side indicated that both principals' reliance on formal sources of information in directing the school and their reliance on formal sources of information in reporting on the school's functioning to subordinates and superiors are highly correlated.
with the criterion set canonical variate (.99 and .94 respectively). Thus, the canonical variate formed from these two criterion variables derives its meaning from both of them equally. These high correlations can also be interpreted to mean that the two criterion variables are measuring the same construct, reliance on formal sources of information.

The structure coefficients for the predictor side indicate that all of the predictor variables are positively correlated with the linear composite formed from the predictor variables. The set of items assessing the principal's perception of himself or herself as instructional leader was most highly correlated with the linear composite constructed from the predictor variables (.82). The structure coefficient for the measure assessing the other role perception, perception of self as autonomous in decision-making was slightly lower, .58. As expected the measures assessing the principal's background in social science methods were positively correlated with the predictor variate and thus, with reliance on formal sources of information. Specifically, the principal's level of training in the five social science content areas was correlated .68 with the predictor set variate, and the correlation of confidence in interpreting evaluation findings and the variate was .55. The structure coefficient for open-mindedness was .45.
Table 13
Structure Coefficients for Canonical Analysis of Reliance on Formal Sources as a Function of the Predictor Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Predictor Set</td>
<td></td>
</tr>
<tr>
<td>Instructional Leadership</td>
<td>.82</td>
</tr>
<tr>
<td>Autonomy</td>
<td>.58</td>
</tr>
<tr>
<td>Open-mindedness</td>
<td>.45</td>
</tr>
<tr>
<td>Level of Training</td>
<td>.68</td>
</tr>
<tr>
<td>Confidence</td>
<td>.55</td>
</tr>
<tr>
<td>Criterion Set</td>
<td></td>
</tr>
<tr>
<td>Reliance on Formal Sources in</td>
<td></td>
</tr>
<tr>
<td>Directing the School</td>
<td>.99</td>
</tr>
<tr>
<td>Reliance on Formal Sources in</td>
<td></td>
</tr>
<tr>
<td>Reporting to Superiors and</td>
<td>.94</td>
</tr>
<tr>
<td>Subordinates</td>
<td></td>
</tr>
</tbody>
</table>

Note. The canonical correlation for this analysis was .59.
Summary. As predicted, the predictors were positively correlated with principals' reliance on formal sources of information. The structure coefficients indicate that the more the principals perceived themselves as instructional leaders, the more autonomous they perceived themselves to be, the more open-minded they were, the greater their training in social science methods, and the greater their confidence in their ability to interpret statistical data from evaluation, the more they relied on formal sources of information in their jobs.

Second Canonical Analysis

It was hypothesized that the predictor variables would account for a significant amount of the variance in the criterion variables: reliance on informal sources of information in directing the school and reliance on informal sources of information in reporting on the school to subordinates and superiors. To explore this hypothesis, a canonical correlation analysis was performed on the predictor and criterion variables just mentioned.

The overall test of whether there were any significant relationships between the predictor and criterion sets of variables was significant (Wilk's Lambda = .73, Approximate F = 4.3, p < .000). The significance tests for the exact number of solutions indicated that only one solution was
significant (Wilk's Lambda = .73, Approximate F = 4.3, p < .0001, Table 12). The canonical correlation for this first significant solution was .49. The redundancy, or amount of variance in the two criterion variables assessing reliance on informal sources of information accounted for by the canonical variate from the predictor set of variables, was .17 (Table 12).

The structure coefficients for all predictor and criterion variables are presented in Table 14. The structure coefficients for the criterion variables indicated that the criterion variable, reliance on informal sources of information in directing the school, is correlated more highly with the criterion set variate (.99) than is reliance on informal sources of information in reporting on the school's functioning to subordinates and superiors (.60). Thus, reliance on informal sources of information in directing the school carries slightly more weight in the relationship with the predictor variables.

As in the first canonical analysis, the structure coefficients for the predictor side of the equation indicate that all of the variables are positively correlated with the predictor set variate. In particular, the instructional leadership scale again exhibits the highest correlation with the predictor set variate (.81). The items measuring autonomy in the administrative hierarchy
Table 14
Structure Coefficients for Canonical Analysis of Reliance on Informal Sources as a Function of the Predictor Variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Predictor Set</strong></td>
<td></td>
</tr>
<tr>
<td>Instructional Leadership</td>
<td>.81</td>
</tr>
<tr>
<td>Autonomy</td>
<td>.65</td>
</tr>
<tr>
<td>Open-mindedness</td>
<td>.60</td>
</tr>
<tr>
<td>Level of Training</td>
<td>.55</td>
</tr>
<tr>
<td>Confidence</td>
<td>.38</td>
</tr>
</tbody>
</table>

| Criterion Set                     |              |
| Reliance on Informal Sources in   |              |
| Directing the School              | .99          |
| Reliance on Informal Sources in   |              |
| Reporting to Superiors and        |              |
| Subordinates                      | .60          |

*Note.* The canonical correlation for this analysis was .49.
are also highly correlated with the linear composite of the predictor variables (.65) as is open-mindedness (.60). The two variables with the lowest structure coefficients are level of training (.55) and confidence in interpreting statistical data (.38).

Summary. All of the predictor variables are positively correlated with principals' reliance on informal sources of information. However, the predictor variables' relative strengths in the relationship with the criterion variables changed slightly from the first canonical analysis. It was not predicted, but as might be expected, the variables assessing the principal's background in social science methods were more important in the relationship with reliance on formal sources of information than in the relationship with reliance on informal sources of information. Open-mindedness has a slightly stronger relationship with reliance on informal sources of information than reliance on formal sources of information. This finding makes some sense in light of the fact that most of the informal sources involved interactions with others and obtaining their perceptions, with the exception of personal observations. Obtaining information verbally from others may require a certain amount of trust or openness to others' perceptions and judgments. As in the first canonical analysis, the instructional leadership measure was the strongest predictor of the criterion variables.
Third canonical analysis

A canonical analysis was performed using the same set of predictor variables as described in the first two canonical analyses and the two criterion variables: preference for formal over informal methods of evaluation and likelihood of initiating formal evaluations if adequate funds and personnel were available to carry them out.

The overall test of whether any significant relationships existed between the predictor and criterion sets of variables was not significant (Wilk's Lambda = .92, Approximate F = 1.11, p < .348, Table 12). Only .2 percent of the variance in these two single item criterion variables was accounted for by the set of predictor variables (see redundancy in Table 12). Thus, no significant relationships were found between level of training, confidence in interpreting evaluation findings, open-mindedness, perception of oneself as instructional leader and as autonomous in the administrative hierarchy and the two criterion variable, preference for and likelihood of initiating formal methods of evaluating.

Summary of findings in canonical analyses

The major hypothesis of the study was that the more open-minded a principal was, the more he or she perceived himself or herself to be an instructional leader, the more
he or she perceived himself or herself to be autonomous in the administrative hierarchy, and the more training and confidence he or she had in interpreting social science concepts, the more he or she would rely on information in general, and formal evaluations in particular in their jobs.

Three canonical correlation analyses were performed on the predictor variables and the three sets of criterion variables. The predictor variables did explain a significant amount of the variance in two of the three sets of criterion variables. A canonical correlation of .59 was found between the predictor variables and the two criterion variables assessing reliance on formal sources of information (i.e., the first canonical analysis). The structure coefficients ranged in size from .82 between the instructional leadership scale and the predictor set variate and a .45 between the open-mindedness scale and the predictor set variate.

A canonical correlation of .49 was found between the predictor variables and the two criterion variables assessing reliance on informal sources of information (i.e., the second canonical analysis). The pattern of the structure coefficients was slightly different than in the first canonical analysis. The instructional leadership items again had the highest structure coefficient, .81, but in this
analysis the two background in social science methods variables had the lowest structure coefficients. That is, the level of training variable was correlated .55 with the predictor set variate and the confidence in interpreting statistical data variable had a structure coefficient of .38. No significant relationships were found between the predictor set variables and the two criterion variables assessed by single items, the preference for formal methods of evaluating over informal methods and the likelihood of initiating formal evaluation methods.

SUMMARY OF RESULTS

The descriptive analyses indicated that many of the principals had worked with central office evaluation units on evaluations of their schools, that they had moderate amounts of training in program evaluation and related areas, and that many had positive attitudes toward initiating formal evaluations of aspects of their schools. Thus, program evaluation seems to be a concept many of the principals in this sample are familiar with and positive about. The data also show that summative and formative evaluations and cost-benefit analyses are less integrated into principals information utilization patterns than are less systematic methods of evaluation. That is, principals reported that they rely most extensively on personal observation and
conversations with teachers in monitoring the school and less on formal types of program evaluations.

The canonical analyses revealed that in general, principals who report that they rely more on both formal and informal sources of information tend to perceive themselves as instructional leaders and as autonomous, to be more open-minded and to have more extensive backgrounds in the social science methods, than principals who rely less on these sources of information.
Chapter V

CONCLUSIONS AND RECOMMENDATIONS

Evaluators are concerned with providing administrators with information that is of use to them. In the past, however, evaluators have not perceived that administrators have considered and used information from evaluations in making decisions. A review of the research in this area suggests that evaluator perceptions are accurate. Administrators seem to prefer information they personally and informally gather to information that evaluators typically provide. The present study investigated the characteristics of administrators (i.e., high school principals) that are related to the degree that they rely on formal and informal sources of information in their jobs. The data generally support the existence of a number of dimensions which distinguish between principals who are information users (of both formal and informal sources of information) and those who rely less on information. Principals who rely more extensively on information in their jobs are also more likely to perceive themselves as instructional leaders, perceive themselves as having some autonomy in the ad-
ministrative hierarchy, be open-minded and report having had greater training in and more familiarity with social science methods and concepts than those who rely less on information in their jobs.

**INSTRUCTIONAL LEADERSHIP**

A central finding of the study was that the measure designed to assess principals' perceptions of themselves as an instructional leader was the strongest predictor of both principals' reliance on informal sources of information (personal observations and observations of staff) and formal sources of information (external reviews, summative evaluations, achievement test data). Principals who perceive themselves as goal oriented and as initiating programs to achieve goals rely more on both formal and informal sources of information than principals who see themselves as less proactive and goal-focused.

Leadership is critical to the success of organizations. Recognizing this, many social and organizational psychologists have been involved in research attempting to understand the leader phenomenon. Forsyth (1982, pg. 209) defined leadership as "the reciprocal process in which an individual is permitted to influence and motivate others to facilitate the attainment of mutually satisfying group and individual goals". A common theme across most definitions
of leadership is the reference to attempts to influence people to exert more effort or to change their behavior.

In general, two kinds of leaders have been identified in research on this topic. Some leaders are relationship-oriented and are concerned with rapport, cohesiveness, and worker satisfaction. Others are more task-oriented, which means they tend to direct and define the group's goals, monitor communication and reduce goal ambiguity. More specifically, Lord (1977) describes the actions that task-oriented leaders perform as defining problems for the organization, establishing communication networks, providing evaluative feedback, planning, and facilitating goal attainment by proposing solutions. The items used to assess instructional leadership in this study are most closely related to the behaviors of the task-oriented leader. The principals agreed or disagreed with statements regarding the importance of communicating goals to faculty, communicating concern for academic achievement to students, initiating programs for students and teachers, and monitoring students' academic performance.

Researchers studying the characteristics of effective schools have identified principals' instructional leadership as a key characteristic of effective schools. That is, principals who take instructional leadership roles, who actively lead the school toward explicit goals, tend to be
associated with effective schools. (School effectiveness is usually defined in terms of achievement test performance of the students in the school.) As in the present study, these leaders more closely resemble task-oriented rather than relationship-oriented leaders, primarily because of their goal attainment focus. One limitation of this research on effective schools is that it fails to explain the specifics of how leadership could affect student achievement (Bossert et al., 1982). The research does not specify what principals who are active leaders are doing that leads to higher achievement in their students, or more effective schools.

The finding in this study that principals who perceive themselves as instructional leaders tend to rely more on information in their jobs suggests the possibility that reliance on information may mediate the relationship between leadership role and school effectiveness. Instructional leadership was included as a predictor in the present study because principals who take a proactive stance and actively implement and initiate programs to improve the school were hypothesized to be more concerned with monitoring progress toward desired goals. Their goal focus should motivate them to acquire information about school performance. Thus, it may be that this tendency to acquire more information is an important aspect of an instructional leader's
behavior that relates to his or her success at raising the level of student achievement in the school.

More research is needed on the specific behaviors that characterize principals who act as instructional leaders, such as the ways in which they make goals explicit to teachers and students, the means they employ to try to direct the school toward goals, the amount and kind of communication they have with the staff and the amount of time they spend in planning. Similarly, more work is needed on the specific behaviors that characterize principals who are information users. Then, the network of relationships between behaviors of leaders, behaviors of information users, and effective schools could be explored.

**AUTONOMY**

A second finding of this study is that principals who perceive themselves as autonomous in their decision-making power are more likely to rely on both informal and formal sources of information than principals who do not perceive themselves as autonomous. Principals who feel as if they have the power to affect changes in the school and who do not believe that they are controlled by policies implemented at higher levels of administration are more likely to exercise their authority in implementing policies and programs, and are more likely to need and rely on information
regarding how these programs and policies are doing. On the other hand, principals who do not feel they have the autonomy to make decisions, or to effect changes in the school are less likely to be in need of or rely on information.

Crowson and Porter-Gehrie (1980) observed that school principals can play a key role in the decision-making that leads to the implementation of educational policy, but they tend to vary in the degree to which they exercise this autonomy. They suggested that the principal is called on to play a difficult role, one that balances the demands of directives from above with sensitivity to the needs of the staff. Indeed, "more than any other position in the American school hierarchy the principalship represents the pivotal exchange point, the most important point of connection between teachers, students, and parents on the one hand and the educational policy-making structure—superintendent, school board, taxpayer—on the other" (Crowson & Porter-Gehrie, 1980, pg. 63). Because of this position, role ambiguity is common. It is difficult to balance leadership against the demands for paperwork from higher levels of administration.

The correlations between principals' perceptions of themselves as instructional leaders and as autonomous (as having some power in making decisions) was .41. Therefore,
to a moderate extent, principals who tend to direct their schools toward certain goals and behave as leaders also tend to perceive that they have some autonomy to make decisions, that they are not simply following directives from above. That is, some principals may identify with leading, initiating, and exercising power more than others. More research needs to be done on this dimension and its consequences, especially its effects on interactions between principals and their staff and between principals and higher level administrators.

**OPEN-MINDEDNESS**

Cognitive styles are consistent patterns of organizing and processing information. Dogmatism can be defined as a cognitive style because it represents a consistent way of responding to information. A dogmatic person is rigid about his or her beliefs and threatened by new information that may challenge these beliefs. Conversely, an open-minded person is likely to seek out new information and to be flexible in his or her beliefs. The present study hypothesized that open-mindedness should be positively correlated with principals' reliance on information in their jobs.

Open-mindedness as a predictor variable had a higher structure coefficient in the canonical analysis performed
on the two reliance on informal sources of information variables (i.e., criterion variables), than it did in the canonical analysis with the two reliance on formal sources of information variables. It may be that open-mindedness is a particularly relevant characteristic in those principals who prefer to acquire information about the functioning of the school informally, through personal observations and conversations with teachers and staff. A reliance on informal sources of information demands a certain amount of interaction and communication with others, whereas a reliance on formal sources of information ("hard" data) does not to the same level. It may be that open-minded people are more comfortable communicating and interacting with others than are dogmatic people, and tend to solicit and listen to others' opinions more. Dogmatic people may be particularly threatened by other people's perceptions and observations. Thus, open-mindedness could be more important in the relationship with reliance on informal sources of information because seeking out teachers' and staff perceptions and opinions may be an approach to information-gathering with which open-minded principals are particularly comfortable.

The difference in structure coefficients just discussed is not definitive (i.e., sizeable) enough to draw any firm conclusions. Future research may be needed to ex-
plore the relationship between open-mindedness and relative trust in formal versus informal sources of information in monitoring the school. A hypothesis worth investigating is that dogmatic people are less threatened by quantitative information, or "hard" data than by obtaining information from other people (such as teachers) who can convincingly argue their position.

**BACKGROUND IN SOCIAL SCIENCE METHODS**

As hypothesized, it was found that principals with more training in the five social science methodological content areas and more confidence in their ability to make judgments about and interpret statistical data were more likely to rely on formal sources of information (as reported in the first canonical analysis). The level of training and confidence variables had lower, but moderately large structure coefficients in the second canonical analysis performed on the predictor variables and the two criterion variables assessing reliance on informal sources of information.

One implication that could be drawn from these findings is that more training in social science methods might lead principals to rely more on formal sources of information in their jobs. But it is an empirical question whether relying more on formal sources of information leads to
more effective schools. It may be that the biggest advantage of a background in social science methods is that exposure to the different methods used to collect data and do research engenders an appreciation for the variety of ways to collect information. Sproull and Zubrow (1981) reported that when they asked the administrators in their sample to describe the overall performance information system that they used to monitor the organization, few respondents seemed to be aware of the sources from which they drew. That is, they did not seem to have a conceptual framework for how they acquired information about the organization. The person with a background in social science methods may develop a more conscious and articulated approach to the information collection process. Again, whether such an articulated approach leads to more effective schools is an open topic for empirical research.

RECOMMENDATIONS FOR FUTURE RESEARCH

Based on the findings of the study, the following recommendations for future research are offered.

1. Because of the high number of variables of interest in this study and the limited amount of space on the questionnaire, only limited numbers of items could be used to assess each construct or variable. No variable was assessed by more than seven items. Thus, one direction fu-
ture research on this topic could go is that of improving the measurement of the variables. Lengthier versions of the scales used to assess the predictor and criterion variables could be developed. In particular, it is likely that the perception of oneself as an instructional leader is a multi-dimensional construct, and a longer instrument could reflect this multi-dimensionality. Also, some of the constructs might be assessed in other ways than self-report. For example, leadership and open-mindedness could be assessed by ratings by teachers or by rating by an observer.

Another direction in which research could proceed would be more in-depth studies of the relationship between one predictor variable, such as instructional leadership, and information utilization behaviors. Interviews and questionnaires could be used for this purpose.

2. Given that principals' ratings of their level of training in social science methods were related to their reliance on formal sources of information, it may be that more research is needed on the effects of different kinds of graduate programs in educational administration on the kinds of information principals prefer to use in their jobs. Do some principals have more articulated conceptualizations of how to acquire information about the school than others, as a result of their graduate programs' curricula? Graduate schools might be categorized in terms of
the degree to which their curricula include evaluation methodologies and other related social science topics and their graduates categorized in terms of whether they have a conceptual framework for monitoring the organization, and the variety of information on which they rely. The relationship between kind of graduate program and the principal's approach to monitoring the school's performance could then be examined.

3. In light of the suggested mediating effect, discussed earlier, of principals' information use on their schools' effectiveness, it is of critical importance to explore the effect of increasing principals' exposure to social science methods and increasing their reliance on formal sources of information on measures of their schools' effectiveness.

4. On the average, the data here show that principals seem to rely more on readily accessible information available through personal observations and conversations than on more often quantitative data such as provided by achievement test data, program evaluations, and surveys. However, approximately two-thirds of the principals had positive attitudes toward formal methods of evaluating their school as evidenced by responses to the preference for formal methods of evaluating and likelihood of initiating formal methods of evaluating items. This discrepancy should be explored
in greater depth. In particular, do principals only depend on informal sources of information because formal sources are not readily available? How much trust would they place in formal sources of information compared to informal sources of information? What are the perceived advantages and disadvantages of formal sources compared to informal sources? It is important to understand more about principals' perceptions of the relevance of different sources of information if formal systems of data collection are to be accepted and integrated into their patterns of information use.

5. Since other data indicate that central office administrators also prefer informal sources of information to formal sources (Sproull & Zubrow, 1981), the questions addressed above should be investigated in a sample of central office administrators as well as of principals.

6. The descriptive data suggested that principals interact frequently with central office and other evaluators and have frequent requests for evaluations from higher levels of administration. Further research is needed on how evaluation information being collected from principals is used. In particular, the kinds of requests for information that are made by central office administration and evaluation units should be described. Also, the kind and amount of interaction and communication that takes place between
central office evaluation units or evaluators and principals could be important to document because it may be that the power and initiative of these central office evaluators is a critical factor relating to principals' reliance on formal sources of information. That is, the more these offices function to guide improvement by making formal sources of data available to principals, the more principals might rely on these formal sources of information in their jobs. The more these evaluators function to meet federal and state requirements, the less relevant the information would be to principals, and the less they would rely on formal sources of information.
Appendix A
The Ohio State University

Dear Principal:

For the last two years, evaluators in the College of Education at The Ohio State University have been conducting a program of research designed to improve our knowledge of the principalship. This year the focus of the project is on the ways in which principals collect and use information in monitoring the performance of their schools. As part of this study, you were chosen from among secondary school principals in Ohio to receive the enclosed survey. We would sincerely appreciate your completing and returning it to us by ___________. For your convenience, we have enclosed a self-addressed, stamped envelope for the completed survey. The survey should only take 15-20 minutes to complete.

Shortly, we will be calling you to answer any questions or concerns that you may have, and hopefully, to obtain your cooperation in the study. Although the survey is numbered to enable us to communicate with participants and to obtain the highest possible response rate (which is critical to the success of the project), we will keep all responses strictly confidential. Therefore, once we have received the completed survey from you, all identification numbers associated with your survey will be erased. No individuals will be identified with their responses, and no comparisons between schools will be made. All data presented in future reports or publications will be reported for the total sample.

Because we hope this study will provide results of interest to principals, we will gladly send you a summary of the results if you indicate your interest in the space provided at the end of the survey. We hope you will participate in the study because we, as educational evaluators, sincerely need to understand your perceptions of your job in order to work more effectively with you in the future.

Thank-you for your time and consideration.

Sincerely,
Wendy Folkskey, Ph.D. Candidate
James Altschuld, Assistant Professor of Educational Evaluation
Virgil Blanke, Professor of Educational Administration
Appendix B

THE USE OF EVALUATIVE INFORMATION

Purpose of the Study: To provide a better understanding of the program evaluation process in public school systems in Ohio.

PART I: GENERAL INFORMATION

(1) Age ______ (2) Number of years experience as a principal or vice-principal ______

Instructions: Please respond to the following items by circling the number preceding the appropriate response.

(3) What is the highest degree you have obtained?
1. B.A. or B.S.
2. M.A. or M.S.
3. Ph.D.

6. Ed.D.
5. Other (please specify ____________________________)

(4) Is there an evaluation department or central office staff member in your school district who is responsible for program evaluation?
1. Yes
2. No

(5) How often have you worked directly with this department, central office staff member, or other external evaluators in evaluating some aspect of your school in the last five years?
1. Never
2. 1 or 2 times
3. 3 to 5 times
4. 5 to 10 times
5. More than 10 times

(6) How often do you have requests from higher levels of administration (such as the superintendent's office, school board, state office) for evaluations of programs, policies, curriculum, or other activities in your school?
1. Never
2. Infrequently
3. Somewhat frequently
4. Very frequently

(7) How would you describe the extent of your background or training in the following content areas? This training may have been obtained through college or graduate level courses, seminars, workshops, inservice programs, or your own reading. Circle one number for each of the items below.

<table>
<thead>
<tr>
<th>Level of Training</th>
<th>None</th>
<th>A little</th>
<th>Some</th>
<th>Moderate</th>
<th>Extensive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program evaluation</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Research methods and strategies</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Educational tests and/or measurement</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Statistical analysis</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Systems analysis or management information systems</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

(8) Imagine that you were given the statistical data from an evaluation conducted by an external evaluator, which examined the effectiveness of a newly-developed program in your school. How confident would you be in making the following judgments and interpretations regarding the findings of this evaluation? Circle one number for each of the items below.

<table>
<thead>
<tr>
<th>How confident would you feel?</th>
<th>Not at all</th>
<th>A little</th>
<th>Somewhat</th>
<th>Moderately</th>
<th>Very</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpreting the meaning of the statistics (i.e., statistical significance of program effects)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Judging the reliability and validity of the measuring instruments or scales</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Judging the adequacy of the research design for assessing the program</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Translating evaluation findings into decisions about the new program</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
PART II: PERCEPTIONS AND ATTITUDES

Instructions: Below are statements that reflect different perceptions that principals may have about their job. For each statement, circle one number to indicate whether you:

1 = Strongly Disagree (SD)
2 = Disagree (D)
3 = Neither Agree nor Disagree (N)
4 = Agree (A)
5 = Strongly Agree (SA)

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>In general, there is agreement between the teachers and administration about the goals of my school.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(2)</td>
<td>At every opportunity, I communicate to the students the importance of academic achievement.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(3)</td>
<td>I often use staff meetings as a time to communicate program priorities and school goals to the faculty.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(4)</td>
<td>When a problem arises in the school, I talk to as many teachers and students as possible to obtain their perceptions about it.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(5)</td>
<td>I have initiated innovative programs and/or policies in my role as principal.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(6)</td>
<td>I try to arrange for release time for teachers so that they can improve their courses.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(7)</td>
<td>My beliefs about which instructional programs work in schools probably won't change much over the years.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(8)</td>
<td>I have the power to make changes that I think are important in my school's policies and programs.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(9)</td>
<td>Most of my information about my school's functioning comes from just a few trusted individuals (teachers, students).</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(10)</td>
<td>An important aspect of my role as principal is to monitor the effectiveness of teachers in the school.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(11)</td>
<td>There are two kinds of people: those who are for the truth and those who are against it.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(12)</td>
<td>I regularly analyze achievement test scores to identify strengths and weaknesses of the school's students.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(13)</td>
<td>I don't feel I have much control over my school's direction compared to the control exercised at the district and/or state level.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(14)</td>
<td>It is hard for me to accept others' viewpoints about educational practices.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(15)</td>
<td>I have personally made important decisions that have affected the performance of my school.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(16)</td>
<td>I'm always interested in hearing about new theories in education.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(17)</td>
<td>I typically leave decisions regarding curriculum and program planning to the faculty.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(18)</td>
<td>When important decisions in the school are to be made, collecting information from many different sources prevents me from having a biased view.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(19)</td>
<td>I feel I have little autonomy in my job as principal in terms of making important decisions about my school's policies and programs.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(20)</td>
<td>Of all the different philosophies that exist, there is probably only one that is correct.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(21)</td>
<td>Closely monitoring the academic performance of students is critical to my effectiveness as principal.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>(22)</td>
<td>It is often unclear to me how much responsibility for my school's direction I should assume as principal.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
I try to avoid interfering with the teacher's job of teaching.

Most of the ideas about education proposed by professional educators aren't worth the paper they're printed on.

I often personally initiate programs that contribute to the professional development of teachers.

If I believed in an educational program, it wouldn't matter too much to me what other educators and teachers thought about it.

Higher levels of administration try to provide financial support for most changes I want to initiate at my school.

Even when funds are available at the district level, it is difficult for me to obtain financial support for improving existing programs in my school.

I generally feel secure in making decisions regarding my school's programs and policies, knowing that higher level central office staff will support me.

PART III: UTILIZATION OF EVALUATIVE INFORMATION

How often are you directly involved in evaluating the following components of your school? For each item, circle the appropriate number according to the scale to the right.

Frequency of evaluation

<table>
<thead>
<tr>
<th>Frequency of evaluation</th>
<th>Never</th>
<th>Once every 3-5 years</th>
<th>Once every 2 years</th>
<th>Once every year</th>
<th>More than once a year</th>
</tr>
</thead>
<tbody>
<tr>
<td>School departments (e.g., math, science)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Special programs (e.g., for the gifted, handicapped)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Student policies (e.g., discipline, drugs)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Staff policies (e.g., inservice)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Specific course offerings</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Other (specify)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

If you had adequate funds and personnel to evaluate any aspect of your school, would you prefer to evaluate informally (using your own and staff observations and judgments) or formally (using systematic methods of data collection or external, trained evaluators)? Circle the number that indicates your preference.

1. Greatly prefer to evaluate informally rather than formally.
2. Somewhat prefer to evaluate informally rather than formally.
3. Equally prefer to evaluate informally and formally.
4. Somewhat prefer to evaluate formally rather than informally.
5. Greatly prefer to evaluate formally rather than informally.

If you had adequate funds and personnel, how likely would you be to initiate formal evaluations (using systematic methods of data collection and/or external, trained evaluators) of aspects of your school (programs, policies, etc.)? Circle one number.

1. Not likely at all
2. Somewhat unlikely
3. Somewhat likely
4. Very likely
(4) Principals often use a number of different sources of information to assess the performance of their schools. Use the scale on the left to rate the extent to which you rely on each of the following sources of information to monitor, assess, and direct your school’s programs and policies; then use the scale on the right to rate the extent to which you use each source of information to report to subordinates (teachers, staff) and superiors (superintendent, school board) about the school.

<table>
<thead>
<tr>
<th>Source of Information</th>
<th>Degree to which you rely on each to monitor, assess, and direct your school</th>
<th>Degree to which you rely on each to report to subordinates and superiors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal observations of classrooms</td>
<td>1  2  3  4</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>Personal observations of school activities outside the classroom</td>
<td>1  2  3  4</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>External reviews of the school (for compliance or accreditation purposes)</td>
<td>1  2  3  4</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>Informal conversations with teachers and other staff</td>
<td>1  2  3  4</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>Formal meetings with or reports from teachers and other staff</td>
<td>1  2  3  4</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>Achievement test data</td>
<td>1  2  3  4</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>Meetings with parents and community groups</td>
<td>1  2  3  4</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>Informal conversations with parents and community members</td>
<td>1  2  3  4</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>Formal evaluations (using systematic methods of data collection and/or trained evaluators) of programs and policies</td>
<td>1  2  3  4</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>Evaluations of the relative costs and benefits of alternative programs</td>
<td>1  2  3  4</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>Surveys (questionnaires) of parent, teacher, student, or community attitudes or perceptions regarding the school</td>
<td>1  2  3  4</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>Evaluations of instructional programs with regard to factors that contribute to success or failure</td>
<td>1  2  3  4</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>Records of student attendance, disciplinary actions taken, or other student behaviors</td>
<td>1  2  3  4</td>
<td>1  2  3  4</td>
</tr>
<tr>
<td>Other (specify ________________________)</td>
<td>1  2  3  4</td>
<td>1  2  3  4</td>
</tr>
</tbody>
</table>

(5) Do you think formal program evaluations (that use systematic methods of data collection and/or trained evaluators) have the potential to help you in your job as principal?
1. Yes
2. No

(6) Please briefly explain the reasons for your answer to #5 in the space below.

(7) Would you like to receive a summary of the results of this study?
1. Yes
2. No

Thank you for taking the time to assist in this research effort. Please return the completed survey in the self-addressed, stamped envelope as soon as possible.
Appendix C

ITEMS USED TO ASSESS OPEN-MINDEDNESS

1. My beliefs about which instructional programs work in schools probably won't change much over the years.

2. Most of my information about my school's functioning comes from just a few trusted individuals (teachers, students).

3. There are two kinds of people: those who are for the truth and those who are against it.

4. It is hard for me to accept others' viewpoints about educational practices.

5. I'm always interested in hearing about new theories in education.

6. Of all the different philosophies that exist, there is probably only one that is correct.

7. Most of the ideas about education proposed by professional educators aren't worth the paper they're printed on.

Response options: 1 = Strongly disagree
                  2 = Disagree
                  3 = Neither agree nor disagree
                  4 = Agree
                  5 = Strongly agree

Note: Items 3, 6, and 7 are adapted from Rokeach's (1960) Dogmatism scale. Items 1, 2, 3, 4, 6, and 7 were reverse scored prior to obtaining total scores so that high scores represent open-mindedness rather than dogmatism.
Appendix D

ITEMS USED TO ASSESS INSTRUCTIONAL LEADERSHIP

1. In general, there is agreement between the teachers and administration about the goals of the school.

2. At every opportunity, I communicate to the students the importance of academic achievement.

3. I often use staff meetings as a time to communicate program priorities and school goals to the faculty.

4. I have initiated innovative programs and/or policies in my role as principal.

5. I try to arrange for release time for teachers so that they can improve their courses.

6. Closely monitoring the academic performance of students is critical to my effectiveness as principal.

7. I often personally initiate programs that contribute to the professional development of teachers.

Response options: 1 = Strongly disagree
2 = Disagree
3 = Neither agree nor disagree
4 = Agree
5 = Strongly agree

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Appendix E

ITEMS USED TO ASSESS AUTONOMY

1. I have the power to make changes that I think are important in my school's policies and programs.

2. I don't feel I have much control over my school's direction compared to the control exercised at the district and/or state level.

3. I have personally made important decisions that have affected the performance of my school.

4. I feel I have little autonomy in my job as principal in terms of making important decisions about my school's policies and programs.

5. It is often unclear to me how much responsibility for my school's direction I should assume as principal.

6. I generally feel secure in making decisions regarding my school's programs and policies, knowing that higher level central office staff will support me.

Response options: 1 = Strongly disagree
2 = Disagree
3 = Neither agree nor disagree
4 = Agree
5 = Strongly agree

Note: Items 2, 4, and 5 were reverse scored prior to obtaining total scores so that high scores represent autonomy.
Appendix F

VARIABLES ASSESSING BACKGROUND IN SOCIAL SCIENCE METHODS

Level of training

The principals were asked to describe the extent of their background or training in the following content areas. This training may have been obtained through college or graduate level courses, seminars, workshops, inservice programs, or their own reading.

Program evaluation

Research methods and strategies
Educational tests and/or measurement

Response options:
1 = None
2 = A little
3 = Some
4 = Moderate
5 = Extensive

Statistical analysis

Systems analysis or management information systems
Confidence in interpreting evaluation findings

Principals were asked to imagine that they were given the statistical data from an evaluation conducted by an external evaluator, which examined the effectiveness of a newly created program in the school. Then they were asked how confident they would be in making the following judgments and interpretations about the findings of the evaluation.

Interpreting the meaning of the statistics

Judging the reliability and validity of the measuring instruments or scales

Judging the adequacy of the research design for assessing the program

Translating evaluation findings into decisions about the new program

Response options:
1 = Not at all
2 = A little
3 = Somewhat
4 = Moderately
5 = Very
Appendix G

ITEMS ASSESSING ATTITUDES TOWARD EVALUATIONS

Preference

If you had adequate funds and personnel to evaluate any aspect of your school, would you prefer to evaluate informally (using your own and staff observations and judgments) or formally (using systematic methods of data collection or trained evaluators)?

The response options were:
1. Greatly prefer to evaluate informally rather than formally.
2. Somewhat prefer to evaluate informally rather than formally.
3. Equally prefer to evaluate informally and formally.
4. Somewhat prefer to evaluate formally rather than informally.
5. Greatly prefer to evaluate formally rather than informally.

Likelihood

If you had adequate funds and personnel, how likely would you be to initiate formal evaluations (using systematic methods of data collection and/or trained, external evaluators) of aspects of your school (programs, policies, etc.)?

The response options were:
1. Not likely at all
2. Somewhat unlikely
3. Somewhat likely
4. Very likely
Appendix H

ITEMS USED TO ASSESS EMPHASIS ON MONITORING

1. When a problem arises in the school, I talk to as many teachers and students as possible to obtain their perceptions of it.

2. I regularly analyze achievement test scores to identify strengths and weaknesses for the school's students.

3. An important aspect of my role as principal is to monitor the effectiveness of teachers in the school.

4. When important decisions in the school are to be made, collecting information from many different sources prevents me from having a biased view.

Response options:  
1 = Strongly disagree  
2 = Disagree  
3 = Neither agree nor disagree  
4 = Agree  
5 = Strongly agree
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