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ORGANIZATIONAL FACTORS WHICH DISCRIMINATE BETWEEN USERS AND NONUSERS OF AN EDUCATIONAL INNOVATION

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THE UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

ORGANIZATIONAL FACTORS WHICH DISCRIMINATE

BETWEEN USERS AND NONUSERS

OF AN EDUCATIONAL INNOVATION

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

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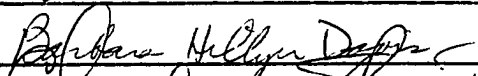for the degree of

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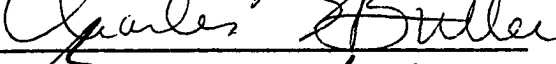
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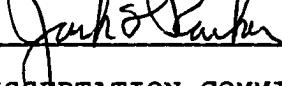
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CHAPTER I

INTRODUCTION

One of the realities that seems to underlie our society is that change is inevitable. Sometimes change occurs slowly, sometimes quickly, but it is always present. In the words of Herodotus, "There is nothing permanent except change." Managing change is very much a part of the role of those involved with educational institutions.

In The Change Agents' Guide to Innovation in Education, Ronald Havelock (1973) states:

> The executive leadership of an organization has two responsibilities, one is maintenance of the system the way it is, and the other is changing the system so that it performs better. Much of his time and energy must be spent on keeping things going, keeping people motivated, making sure that the work of the organization gets done at least as well as it has in the past. But if he is on top of his job, the good leader will also spend some of his time working to change his system, he will be looking for better ways to do things, new solutions to old problems, and new problems that he and his staff should be concerned about. Hence, he has a real and continuing need to know about change and the process of change.

Educators must know about the change process and be able to manage it effectively.

Lewis Mayheu, in Changing Practices in Education for the Professions, (1971), analyzes the elements affected by change as content, organization, time, calendar and people. The administrator should determine the effect desired, assess the elements affected, and plan the process for achieving that effect. This sometimes seems as much an art as a science.

In The Change Agent, Lyle Schuller (1972) observed that "anyone interested in planned social change would be well advised to recognize two facts of life. First, despite the claims of many, relatively little is known about how to achieve predictable change. Second, much of what we know will not work." For any administrator, information which will increase his/her effectiveness is a desired commodity. Information which is effective in the highly complex area of planning and facilitating change could be invaluable.

Havelock (1973) lists six goals for the administrator who would be a change agent. Several of these goals are relevant to the purposes of this study. One can summarize the six goals as: 1) know the process of change; 2) know who in the system has the resources relevant to various change efforts; 3) maintain a high level of awareness of new practices potentially worthy of adoption by the system; 4) build a staff with diversity of views and approaches and

encourage dialogue; 5) maintain a total system view of change and its effects; and 6) work constantly to build the internal self-renewal capability of the staff and of the organization as a whole.

The people involved in schooling, and particularly teachers, are critical elements in any change process at the school level. Their attitudes are important to the total school program, and become primary when new programs, practices or organizational structure are implemented.

Teachers are the people most directly responsible for implementing new programs, and their concerns become one of the elements to be taken into account by the school administrator. Teachers' attitudes make up a large part of the overall school climate and are a major factor to be considered in planning for educational and/or organizational change.

Teachers' attitudes toward specific new programs or innovations often determine whether or not the new program is in fact implemented. Their attitudes also provide information to the administrator which could help determine how he/she could assist the teacher in the change process.

These two areas, organizational or climate factors which promote or inhibit change, and teachers' concerns about innovative programs, are of great importance to those who are responsible for planned change in educational programs. Educators may know "relatively little" about how to

achieve predictable change, but must understand what is known and build on that knowledge if the goal is to be able to plan change in education. Policy makers and program directors need all the information they can get about teachers' concerns about and use of new programs and about their general attitudes which affect their performance.

Over the past twenty years, researchers have begun to interest themselves in questions relating to the types of innovations being attempted, the concerns of teachers about new programs, the process for implementation of an innovation, the time required to implement new programs, and the organizational conditions helpful for successful implementation of an innovation.

ORGANIZATIONAL CLIMATE RESEARCH

Organizational climate research has attempted to discover and measure those elements which account for improved student achievement. Studies of organizational climate were influenced by the human relations school. Halpin and Croft (1963) devised an instrument to assess staff satisfaction which measures faculty morale, camaraderie, closeness and good feeling. Recent studies using this measure of school climate have not been able to relate that concept of school climate to student achievement. Halpin and Croft, along with Finlayson (1973), Conron and Beauchamp (1976), Fox, Lippett and Schmuck (1964), and Jung, Ritva and Edmond (1970), added substantially to the knowledge of the school

as a social system, but added little knowledge of the relationship between staff attitudes and student achievement.

Studies that began to look at student outcomes in relationship to school learning climates found significant results. Contrary to the Coleman Report (1966) which indicated that schools could not overcome the problems related to home environment, studies began to produce mounting evidence that schools do make a difference.

Identifying the school climate can be a major factor in improving student achievement and becomes essential data for people responsible for school programs. Much of the research on achieving schools identified school climate variables which account for a large percent of the variance between high and low-achieving schools. Brookover and Schneider (1975), and Brookover and Lezotte (1977), identified high staff expectations and dynamic principal leadership among the critical elements for high achieving schools. This, and other research (Fox, Rutter, Maughan, Mortimore and Onston, 1979), view schools as social systems, and school learning as a social process. Schools have both enhancing and impeding patterns and practices which make up the overall learning climate. Schools with a large number of impeding patterns produce low achievement and those with a large number of enhancing patterns produce high achievement (Geraldine Lake, 1980).

INNOVATION ADOPTION RESEARCH

A problem closely associated with this area of research has been how to successfully implement and operationalize new programs. Each year, school districts all over the country spend millions of dollars introducing new programs into their curricula. Often they have had little evidence regarding the attitude of school personnel toward the innovation, employ questionable methods for monitoring problems related to the implementation, and utilize inadequate tools for measuring the success of the innovation. Indeed, whether the innovations were, in fact, implemented at all is generally not known, since evaluation of the degree of implementation or the level of proficiency of the personnel responsible for the innovation is not often studied.

The intent of this study was to explore the potential for using an individual teacher's profile provided by a school climate survey to identify his or her potential to implement new programs to improve student achievement.

As more attention is paid to the attitudes of teachers and their effect on the implementation of an innovation, research should begin to provide information about this relationship, which should be beneficial to a large audience in the educational community.

NEED FOR THE STUDY

Change is a "given" in education today, and schools are called upon to respond to numerous demands for changes

in programs, processes and outcomes. Administrators, who are responsible for meeting these demands, have a great need for information which will make it possible to plan for and to manage change in the most effective ways. A part of what administrators need to know is whether their schools have a climate which will facilitate innovations or change.

This study was designed to explore the potential for using an individual teacher's profile provided by a school climate survey to identify his or her potential to effectively implement new programs. Such information would be valuable to the educators responsible for school programs and student achievement.

PURPOSE OF THE STUDY

The purpose of the study was to test the hypothesis that users and nonusers of an innovation can be identified by their response to organizational factors as measured by a school climate survey.

One of the purposes for this identification was to provide those responsible for new programs with information that could be used in selection of personnel, training of personnel, and for providing interventions for specific teachers to ensure implementation of a new program.

STATEMENT OF THE PROBLEM

The problem of this study was to determine which school climate factors would identify teachers who could be

expected to adopt an innovation. More specifically, the study was designed to determine the extent to which a self report instrument of teachers' attitudes toward seven organizational factors which impact school climate could be used by program planners to identify schools with a climate conducive to successful implementation of new programs, to identify teachers who would be expected to adopt successfully a new program and to identify teachers who would not be expected to adopt a new program.

HYPOTHESES

H_O1 There are no significant differences among schools on school climate factors related to change.

H_O2 There are no significant differences within schools among school climate factors related to change.

H_O3 There is no sigificant difference in attitude toward <u>School Based Staff</u> between users and nonusers of an innovation.

H_O4 There is no significant difference in attitude toward <u>Communication</u> between users and nonusers of an innovation.

H_O5 There is no significant difference in attitude toward <u>Innovative Experience</u> between users and nonusers of an innovation.

H_O6 There is no significant difference in attitude toward <u>Central Administration</u> between users and nonusers of an innovation.

H_O7 There is no significant difference in attitude toward School/Community Relations between users and nonusers of an innovation.

H_O8 There is no significant difference in attitude toward Organizational Climate between users and nonusers of an innovation.

H_O9 There is no significant difference in attitude toward Students between users and nonusers of an innovation.

H_O10 There is no combination of school climate factors that will classify users and nonusers of an innovation better than chance classification.

LIMITATIONS OF THE STUDY

The investigation was limited to a large urban system and to sixteen kindergarten through fifth grade schools located in that school system. Every school was designated as a Title I school, and was selected on the basis of comparable size of the teaching staff and of the economic level of the students. The sample for analysis was the teaching staffs at each of the fifteen schools.

Therefore, generalization of the results should be limited to schools with similar characteristics.

DEFINITION OF TERMS

School Climate: The attitudes, beliefs, norms, expectations, behaviors and values held by the members of a school

	social system that serve to enhance or impede student learning.
Learning Climate:	Essentially the same as the School Climate for the purposes of this study.
Innovation:	Any program or practice new to the teacher, school or school district responsible for its implementation.
Innovation Adopter:	A person expected to adopt a new program and implement it as prescribed.
Innovation User:	A person who adopts a new program as described.
Innovation Nonuser:	A person who, though expected to adopt a new program, does not in fact implement the program as prescribed.

DESIGN AND PROCEDURE OF THE STUDY

The study was designed to indicate whether there were significant differences within and between schools, related to school climate factors, and whether there were signficant differences between known users and nonusers of an innovation on school climate factors. If such differences exist, the study would identify these factors which discriminate and test whether the factors could be used to identify or categorize a teacher as a potential user or nonuser of a new program.

The investigation employed the use of two self-reporting instruments which were completed by each teacher in the study. One instrument (School Climate Survey/"Trouble Shooting" Checklist) provided information about the attitudes of teachers toward seven factors related to school climate. The other instrument (Stages of Concern Questionnaire) provided the data on the teachers' stages of concern about an innovation. The innovation used in the study was the Proscriptive Reading Inventory, which was being implemented in all kindergarten through fifth grade schools in the district.

PROCEDURE

A review of the literature related to the major elements of the study and to the specific problem under investigation was made. An examination was made of Eric, Dissertation Abstracts, indices and bibliographies pertaining to school climate, the implementation of new programs, factors related to change, as well as the role of the administrator and program planners in educational change process. Books, articles, papers and published materials were consulted.

The author worked with the fifteen building principals to provide every teacher with a School Climate Survey form. The district research department administered the Stages of Concern Questionnaire to all elementary teachers, and the results for this study were provided by the Research

Director. All teachers in the sample schools were to parti-
cipate in the study. The only identification used were the
last four digits of the participants' social security numbers,
which allowed the matching of each teacher's School Climate
Survey results to his or her Stages of Concern Questionnaire
without identifying individual teachers.

DATA COLLECTION INSTRUMENT

The first instrument utilized in this study was the
School Climate Survey which was modified from the Trouble
Shooting Checklist School-Based Settings (Manning, 1976).
The instrument was modified to eighty-six items describing
school characteristics (See Appendix A).

The second instrument, selected to measure adoption
of an innovation, was the Stages of Concern Questionnaire,
developed by Hall, George and Rutherford (1979), a self-
report inventory (See Appendix B). The report of the reli-
ability and validity of the instruments is provided in
Chapter III.

TREATMENT OF THE DATA

The self-report surveys were scored by using a computer
program which was developed based on the scoring instruction
in the respective manuals. Using the two surveys, compari-
sons were made among factors within each school and among
factors between schools on each of the seven school climate
facts. Analyses of variance were used to make the compari-
sons.

A discriminate analysis of the <u>School</u> <u>Climate</u> <u>Survey</u> data was used to determine which factor(s), if any, were identified with users and nonusers of an innovation as determined by the <u>Stages</u> <u>of</u> <u>Concern</u> <u>Questionnaire</u> data.

Those factors identified by the discriminate analysis were then used to classify previously unclassified groups of teachers as either users or nonusers of the innovation.

ORGANIZATION OF THE STUDY

The study consists of five chapters. Chapter I includes the statement of the problem, a description of the study, the need for the study, and the treatment of the data.

Chapter II consists of a review of the research related to the study. The design of the study and the procedure utilized is included in Chapter III.

Chapter IV is designed to include a presentation of the data and the analysis. Chapter V contains a summary of the study conclusion based on the finding of the study and suggestions and recommndations for further research.

CHAPTER II

REVIEW OF RELATED LITERATURE

A concern for increased effectiveness in education
evidences itself in many ways. Whether it is couched in
terms of the back-to-basics movement or the movement toward
accountability, the public and educators have certain expec-
tations in terms of student achievement. One effect of this
concern is often a refocusing of attention to the basic
questions of what makes a good school. The result of this
changing focus has been research which has made an attempt
to provide the answers to those basic questions; research
which led to an analysis of factors related to achieving
quality in school programs. Educators today can benefit
from the data gathered from such a variety of studies and
from the diverse points of view reflected in those studies.

Over the years, the educational community has focused
attention on many different aspects of schooling and on a
wide variety of factors related to student achievement. One
of the advantages of viewing such varied lines of research
is the possibility of gaining a new perspective and the
potential for making connections that may not have been

fully explored before. For the purpose of this investigation, the review of the literature has been organized to bring together the findings from two different lines or areas of research in order to provide insight into the question of effective implementation of new school programs.

The first area of research involves the study of school climate and the second involves the study of new programs or innovations. The literature reviewed in each of these areas points to the usefulness of such research to educators who have a leadership role in developing quality school programs. This study investigated the potential for successfully introducing new programs or innovations into the school curriculum.

SCHOOL CLIMATE

The term "school climate" is used in a multitude of ways and refers to a variety of aspects of school environment. Researchers, defining climate differently, have examined the relationship of climate to a number of outcomes. Early studies focused on particular dynamics of climate such as the relationship of socio-economic composition of the school's student body to student aspirations and achievement. Others studied student and/or staff satisfaction, organizational management and leadership styles.

The most commonly held definition of climate has been the organizational climate (Halpin and Croft, 1963), where the emphasis is on the affective, satisfaction-based adult

relationships in an organization. This formulates organizational climate based on the degree of open versus closed authoritarian relationships among staff. Their conception of climate has been very influential in much of the research on climate in the '60's.

Another variation of the affective, adult satisfaction-based studies identified climate as social climate, (Fox, et al, 1970). In a research report to the U. S. Department of Health, Education and Welfare, Fox, Lippett and Schmuck (1964), measured the social environment directly utilizing student and teacher measures of sociometric data, attitudes toward school and learning, and levels of socio-economic status to formulate a classroom social environment based on the theory of reference group influence. Their findings indicated that the classroom climate varied widely and has strong effects on student self-concept, satisfaction with school, and utilization of intelligence.

Much of the research on the climate of schools centered on Getzel's and Thelen's (1960) theoretical model of the classroom as a social system. The model implies that school learning is affected by the physical environment and individual characteristics that interact in classrooms.

McDill, Meyers and Rigsby (1967), were among the first to focus on the school learning climate as one factor in the social system. The conclusion of one of their studies was that the difference in achievement between public and

parochial school eighth grade students could be accounted for by a number of school learning climate factors.

Another of the factors in school learning climate thought to be related to school effectiveness is teacher expectations. Many studies have been done relating expectations to student achievement. This involves the self-fulfilling prophecy in which teachers communicate expectations of achievement through overt and covert means. The students conform to the expected level of performance, and the teacher perceives the performance as indicative of the actual ability level. Studies by Persell (1977) and Brophy and Good (1974) describe the concept as either a positive or negative phenomenon. This concept seems to be extremely influential in student achievement, and is usually included in studies of school learning climate.

Another construct, the sense of futility, identified by Brookover as "a student sense of academic futility," seems to account for a great amount of school-to-school and pupil differences. In some studies by Brookover and Schneider (1975), this variable accounted for more than 50% of the variance in achievement between school and student achievement.

In other studies, this sense of hopelessness has been identified although given various names. The Coleman Report (1966) and Glasheen, Hadley, and Schneider's (1977) study of climate identified the variable as "sense of control," while

others, including Chen and Fresko (1978) used internal-external locus of control. Whatever it is called, the feeling of the student that he/she cannot control his/her destiny seems to strongly inhibit achievement and is a major aspect of the school learning climate.

The attempts to connect school climate to student achievement brought about a number of contradictory studies. The most important study of schools and the factors related to achievement was the Equality of Educational Opportunity Study (Coleman, et al, 1966). Perhaps the major impact of the Coleman report was the finding that the most important factor in explaining achievement differences was the student's background. This was translated by the general public as, schools don't make a difference in student success.

Since that time, there have been confirmations of Coleman's results, but there have been a growing number of studies which contradict the report. Studies which analyze learning climate as compared to organizational climate, largely demonstrate that schools, and school learning climates in particular, have a significant impact on achievement.

In a study of differences between high and low achieving schools, the Maryland State Department of Education (1978), sought to determine if economic and social characteristics account for the differences in achievement. The

study questioned whether differences in socio-economic status and race could account for the difference in achievement or whether there were distinctive differences in the schools themselves that accounted for the variance in achievement. It was found that socio-economic status and race could not account for the differences.

The results of three studies in England and Ireland (Rutter et al, Madaus et al, and Brimer) confirmed American findings that differences in classroom learning climate account for achievement differences, independent of the characteristics of the student's family background.

Research by Brookover and his associates measured school learning climate in a study of high and low-achieving schools matched for social-economic factors, race, and rural/urban characteristics (Brookover and Schneider, 1975). The study demonstrated that the school's social-psychological variables could explain the achievement differences in those schools.

In a survey of studies of the relationship between school learning climate and levels of achievement done by Lezotte, Miller, Hathaway, Passalacqua and Brookover (1980), the writers concluded that when climate is defined and measured as an affective human relations measure of morale or as a measure of organizational climate, climate correlates negatively with or has no impact on achievement.

Also, when a composite of socio-economic levels and race of the student body is used as a proxy for climate, achievement is apparently unrelated to the climate.

In a later study, Brookover et al (1979), studied the relationship between school inputs, structure, and climate to school achievement, self-concept, and student self-reliance. Achievement was measured by the Michigan Educational Assessment Program which used content specific, criterion referenced tests. Brookover found that school learning climate explained school achivement as well as the racial or socio-economic level of the students. Also, 80% of the variance in achievement between black schools and white schools was accounted for by the school learning climate and social structure.

Brookover's study clearly showed that factors of the climate, i.e., the expectations for success, the evaluations of students' abilities to learn, the students' perception of teacher expectations and evaluation, and the students' feelings of futility, varied from school to school and accounted for wide differences in achievement about individual student characteristics. Rather than the assumed innate abilities of students, the study supports the contention that what occurs within the school social system significantly influences school performance.

In another study by Brookover and Lezotte (1977), which examined elementary schools with improving and declining

achievement, they again found organizational climate factors which identified achieving schools. The factors included strong principal leadership, faculties that identified and accepted the basic objectives of the school, and had strong commitment to high levels of student achievement and accepted accountability for achieving goals. The levels of expectations and evaluations of student ability were also significantly higher in improving schools than in the declining schools. The achieving schools were also identified by creative conflict, by a general feeling of dissatisfaction with the school setting and by conflict between the principal and the staff or sub-groups of faculty members. The declining schools, on the other hand, were characterized by staffs that were content, satisfied, and had congenial relations with each other. This is possibly an area where study is needed.

Several studies surveyed in School Learning Climate and Student Achievement (Lake, 1980), indicated that the climate of a building is established by the staff and is therefore capable of change. And, as staffs change, the climate of a school, and the level of student achievement will change also. Accepting these conclusions, persons responsible for program development and implementation must take into account the total school. In the context of the innovation or program to be implemented, innovators must attend to the attitudes of individuals, as well as the collective attitudes of staff.

INNOVATIONS

Research in the area of adoption of innovation has primarily focused on three major areas: the adoption-diffusion process; the identification of characteristics of innovations which make an innovation easily adopted; and, the identification of characteristics of organization which adopt innovations effectively.

As the development of new educational products and processes increases, the number of innovations for possible adoption is rapidly increasing. It is becoming more important to identify factors within an organization which will influence the adoption of innovations.

Research which provides information about institutions, about personnel, about the progress of the innovation from its introduction through its period of implementation has been slow to develop. Research which can identify problems, specify needed interventions, and other data to help insure the successful adoption of a new program of school improvement is seen as critical in the process.

J. Giaquinta (1973), in The Process of Organizational Change in Schools, characterized the majority of the research as "show and tell." He charged that there has been a lack of sophistication in the reserach methodologies utilized in the area of innovation. Klees (1978), described the problem as poor conceptualization of the change process.

The failure of educators to conduct studies to test theories of change or identify components of success or failure has been pointed out by Berman and McLaughlin (1978), in their review of federal programs designed to support education change.

While many educators and researchers are critical of the literature, most see the work that is available as prerequisite to the current direction of studies which is leading to the formulation of new theories and basic principles of implementation of the innovation.

In studies over the past twenty years, the majority of the research has focused on the concerns of teachers about an innovation, the process for implementing innovations, the product or outcome of innovation, and the conditions helpful to successful implementation of an innovation.

Promising theories have been developed into models, which are beginning to be reflected in the research literature and which are being looked to for practical guidance to those implementing new educational programs. Viewing the process of innovation from the viewpoint of adoption behavior, the rate of adoption, and the organizational variables involved in successful adoption does provide information concerning critical points in the change process.

A number of studies have developed models related to the rate of adoption based on the premise that individuals and organizations tend to become involved with an innovation

at a fairly predictable rate over a long period of time. Plotting these predictable rates has resulted in several variations of a "diffusion curve" model. Havelock (1969), identified six levels of individual user involvement ranging from slight involvement at the stage of beginning awareness, to full commitment at the state of "automatic" use. Information seeking behavior and efforts to put the innovation into practice reflected a high involvement stage. The routine use of the innovation once again is represented by a decrease in involvement. Havelock described the process as depicted by a normal "S" curve.

Rogers (1962), Carlson (1965) and Zaltman and Duncan (1977), described the adoption process as depicted by a normal curve. After the innovation is introduced, a few individuals find out about the new program, product or process, and try the innovation. These people, called "early adopters," communicate their experience to other potential users, who then decide to try it out. This "early majority" then communicate their experience to others. Exponential gains in adoption are predicted after approximately twenty percent of the potential users have adopted the innovation.

These research studies show very real differences in early adopters and later adopters, and recommend different diffusion and implementation strategies for each person based upon their level of involvement. The awareness level,

which calls for general information sharing, is treated differently than the information seeking level, which calls for detailed "how-to" information. Early diffusion/innovation efforts call for intensive promotion and resources to be made available in the early stages to induce the group to adopt the innovation. Later, when at least twenty percent of the group have become "users," a new strategy involving plentiful, clear, accurate information, ready availability of trial materials, and provision of demonstrations and knowledgeable consultants, is in order.

Research has shown that individuals and groups vary widely in their willingness to adopt new products and practices. Studies have also shown promising strategies to be used for the appropriate audiences and at appropriate times. Research has also focused on specific adoption behaviors of individuals and groups involved in the process of the adoption of an innovation. Several stages or phases of adoption behavior have been identified as representing typical patterns of activity.

Rogers and Shoemaker (1972) proposed five phases of behavior in the adoption process. They are: awareness, interest, evaluation, trial, and adoption. Awareness refers to the point at which the user knows the innovation exists. Interest is reflected by the user seeking more detailed information about the innovation. Evaluation involves serious consideration of the program, and an attempt to

assess its probable value. During the trial period, the program is used on a small-scale experimental basis. If the trial period is successful, then adoption results.

In earlier publications, Miles (1964) and Farr (1969), developed similar models to describe the process of implementing an innovation. Miles identified four phases of educational change: 1) Design of the innovation; 2) Local Awareness and Interest; 3) Local Evaluation; and 4) Local Trial. Farr grouped the behaviors into two phases -- the information stage and the evaluation stage.

Hall and Loucks (1977) have developed an implementation model based on a set of seven scales. The scales are progressive and range from "Non-use" to "Renewal." An adopter has progressed through each level of use to become a "user" of the innovation.

All of the research emphasizes that different behavior is exhibited and concerns expressed about the new practice or program at each level of the adoption process. The research indicates that intervention strategies must be matched to the users and their particular level of use.

Research into organizational variables related to the successful implementation of an innovation has proven fairly consistent in its identification of factors related to successful adoption. A review of the major studies provides several factors in the ability of an organization to innovate (Gross, 1971). These factors include: a perceived

need to change; acquisition of a well-packaged program which responds to the need; some level of commitment; and administrative ability. Sarason (1971) and others have identified organizational variables which influence the implementation of innovation including financial resources, human resources, the planning process, communication channels and patterns, and training.

Practitioners, or users of innovations have been the subject of over fifty percent of the studies on innovation. Beuhe and Bernal (1979) conducted a study to determine the extent to which educational changes can be accurately explained and forecast. The results indicated that perception concerning the need for the proposed change were the single most powerful explanatory variable. It also concluded that change can be predicted through a study of participants' perceptions before adoption. Building on the study in the area of teachers' concerns related to new programs, studies conducted in the late 1960's by Francis Fuller and others, has developed a body of literature which provides a basis for characterizing the various concerns of teachers.

Fuller identified three phases of teacher concerns and, in 1970, proposed a model for personalized teacher education. Her continued research on the dynamics of teachers' concerns (Fuller, Parson, and Watkins, 1973), and on the assessment, arousal and resolution of concerns (Fuller

and Manning, 1972, Fuller and Brown, 1975), provided the basis for the work done by the Research and Development Center for Teacher Education located at the University of Texas at Austin.

The Center has conducted extensive research based on the results of studies related to teachers' concerns. The studies demonstrated that the concerns of the innovation adopters changed in what seemed to be a logical progression as they became increasingly skilled in using the innovation.

Seven stages of concern were identified and became one of the two dimensions of the Concerns-Based Adoption Model developed by the Center for describing the dynamics of an individual innovation adopter. This dimension, called Seven Stages of Concern about the Innovation or Stages of Concern (SoC), is the survey of the concerns dimension that is most relevant to this study (Appendix A).

The second dimension, Levels of Use of the Innovation (LoU), focuses on knowledge, skill, and behavioral aspects of the individual's involvement with a change. Levels of use as a variable has been defined (Hall, Loucks, Rutherford, and Newlove, 1975), and a specially designed interview procedure has been developed to measure it (Loucks, Newlove, and Hall, 1976).

The concerns measure can be used as a diagnostic tool for assessing where the individual members of an organization are in relation to the adoption of an innovation

(Measuring Stages of Concern about the Innovation: A Manual for Use of the SoC Questionnaire, Hall, George and Rutherford, 1979). The data can then be used by program managers in developing a plan for interventions to facilitate the change effort.

In conjunction with the development of the Concerns-Based Adoption Model, the Center developed the School Climate Survey/ "Trouble Shooting" Checklist, which was designed to aid in predicting and diagnosing an institution's state of readiness for change (Appendix B). It was developed to assist educational change agents, faculty, and administrators concerned with change, in their assessment of organizational variables predictive of an institution's potential for successfully adopting innovations.

The School Climate Survey/"Trouble Shooting" Checklist is designed to aid the user in estimating the effects of particular variables on the adoption-diffusion process by providing a systematic, organized description of particular strengths and weaknesses within a school. The survey diagnoses an institution's state of readiness and predicts the potential for staff to move through the stages of concern and levels of use to full implementation of the innovation.

The School Climate Survey/"Trouble Shooting" Checklist provides an overall norm-referenced, predictive score which estimates the likelihood of a school to successfully adopt and implement an innovation and provides a seven scale

diagnostic profile which focuses on the strengths and weak-nesses of a school's environment in relation to the adoption and implementation of innovations.

Organizations have some built-in resistance to change both in their formal structure and the established group norms that often persist beyond the changing individual membership of the social organization (Lake, 1980). The more we know about the change phenomenon as it relates to individuals and organizations, the more likely that our efforts to bring about change will be successful. Research which continued to expand our knowledge base and to provide practical information to educators will make the difference in our ability to manage changes.

Oscarson (1979) conducted a study to identify methods most influential in determining the acceptance and use of educational innovations. The study determined personal characteristics which would help to identify adoption-prone teachers. The results suggested that: 1) adoption-prone teachers had similar characteristics across content areas; and 2) gave additional insight into characteristics of adoption-prone teachers. The results suggest that large scale adoption of innovative practices could be enhanced by involving adoption-prone groups.

The identification of characteristics of individual teachers who would tend to enhance the implementation of innovative programs is just beginning to be explored and to

be appreciated as extremely important information. These educators, whatever they may be termed, are essential to the process of change. Equally as important, is the ability to identify teachers who are not prone to implement new programs. Both pieces of information help administrators to 1) determine the potential for a new program in a particular setting; 2) decide the factors that may need to be dealt with prior to the implementation of new programs; and 3) determine strategies for intervention with individual teachers to enhance the potential success of a program. The focus on the individuals who are responsible for the implementation and the success or failure of an innovation or new program has produced new insights into the process of change. Educators are just beginning to put together the bits and pieces of information related to a complicated process and to make it work for students.

It is upon the research on school climate and innovations that the foundation for this study has been established.

CHAPTER III

DESIGN AND PROCEDURE

This study was designed to investigate the possibility
of utilizing an instrument which identifies the attitudes of
teachers about characteristics of their schools and school
community (School Climate Survey) to differentiate them as
users or nonusers of an innovation as measured by the Stages
of Concern Survey. It was believed that a study of this
nature would contribute to an understanding of the change
process and enable educators to introduce and maintain
programs more successfully. It would also allow the use of
one instrument which would provide information previously
provided by two or more instruments. School climate factors
predictive of success for implementation of new programs and
the identification of individual teachers likely to be users
or nonusers of the new program were seen as important and
perhaps critical data for persons responsible for school
curriculum.

A major consideration regarding the design of the study
was the decision to focus on teacher attitudes rather than
on students, administrators, parents or other groups repre-
sented in the school community. This decision was based

upon the research that supports the premise that, 1) teacher attitude has great impact on student achievement, and 2) knowledgeable intervention with teachers during the process of implementation of new programs enhances the chance of success of the programs.

This study was limited to teachers in a large urban school system. This system was the focus of the study because of the access provided by the presence of a Teachers Corps Project which lent itself to the exploration of methods for the improvement of education through the training of the adults in the school community. Also, the school system was entering into a series of new programs or innovations to be implemented in a two-year time frame, which was a necessary condition for this study.

Within a ten-year period, the school system had undergone a number of traumatic changes, including a court-ordered busing plan and a loss of about twenty thousand students. The perception in the community was that there had been subsequent loss in academic standards and deterioration of student behavior and achievement.

The school board and a new superintendent were making concrete attempts to modify this image and to improve the quality of the schools. Both the Central Office personnel and the administrators of the schools involved in the study were open to seeking ways to improve the school climate and to implement improved programs. This cooperative environment contributed greatly to this study.

In the following sections of this Chapter are the identification of the population and sample, descriptions of the instrument used to measure the attitudes of teachers about the organization, the instrument used to measure teachers' degree of adoption of an innovation, the procedure of the study, and the statistical procedure utilized.

The Population and Sample

The site for this study was the Oklahoma City Public School District. Fifteen schools were included in the study. All of the schools were Elementary and Fifth Year Centers which included kindergarten through the fifth grades.

Six of the schools were participants in a Teacher Corps Project. These schools were located in a defined geographical area which had a natural balance of racial groups. For these reasons, they were not included in a school desegregation plan that affected the rest of the district.

To extend the generalizability of the study beyond the limited scope of the Teacher Corps Project area, the additional nine schools in the study were selected from the remaining forty elementary schools in the district. After matching the student populations of the remaining schools to the Teacher Corps Project schools based on racial makeup and percent of low income students, the nine schools were randomly selected for the study.

All of the schools served a multi-racial population and all were designated as Title I schools based on the economic level of the student population. The schools were located in all quadrants of the school district. The teacher population of the fifteen schools in the study was two hundred and forty-one. All of the teachers in each of the sixteen schools participated in the study.

THE INSTRUMENTS

Stages of Concern About the Innovation

The instrument selected to measure adoption of an innovation was the Stages of Concern Questionnaire (SoCQ) developed by Hall, George and Rutherford (1979). The SoCQ is a self-report inventory consisting of thirty-five items designed to assess the concerns respondents have about adopting an innovation. They are asked to consider a specific innovation and respond on a seven-point scale as to whether each item is true or not true of them. They are given scores on seven stages of concern. Respondents are categorized as being at the 1) awareness, 2) informational, 3) personal, 4) management, 5), consequence, 6) collaboration, or 7) refocusing level in their concerns. A copy of the SoCQ is included in Appendix A, with a more extensive description of the levels or stages of concern.

The ability of the SoCQ to describe adoption of an innovation is well documented by its use in a longitudinal

study of an implementation effort. Rutherford and Loucks (1979) found that users and nonusers had clearly differentiated SoCQ profiles. Their level of use was established by the interview system described by Loucks, Newlove and Hall (1975). Then, their SoCQ profiles were plotted at intervals during an eighteen-month implementation effort. Nonusers had consistently higher SoCQ scores on the awareness scale which indicates no interest in the innovation. Nonusers were consistently low on the consequence and collaboration scales which indicated no concern about the impact of the innovation on their students and no concern about what other teachers were doing with the innovation.

The nonuser pattern is the same pattern identified in the SoCQ Manual as the profile depicting doubt and potential resistance to the innovation (Hall, George and Rutherford, 1979). The profile describes a person who has little or no concern about the innovation and an overall lack of commitment to it. Figures I through V (Appendix A) depict the profiles of a typical user and a typical nonuser of an innovation.

The SoCQ has been used in a variety of educational settings other than the one just described. Its reliability and validity have been well established. This data on user/nonuser profiles was used to establish the profiles of the teachers in this study.

Reliability

Reliability data reported in the SoCQ Manual were based on internal consistency coefficients computed with the Kuder-Richardson Formula 20. Alpha coefficients for each of the stages are reported in Appendix A. In addition, test/ retest data with a two-week interval resulted in the coefficients reported.

Validity

Several studies (Loucks, et al, 1975) have focused on the validity of the SoCQ. The first was a test of construct validity which correlated the scales with themselves; the result was higher correlations (.68 to .82) between adjoining scales than between distant scales (.19 to .43). Thus, the scales indicated an order consistent with the hypothesized Stages of Concern. Another study compared sets of scales selected by expert reviewers with the factor structure. These correlations (.67 to .96) indicated high congruence for the seven independent constructs. Comparison with external criteria has been done by relating SoCQ scores to open-end statements of concern. A multiple R of .52 was obtained which was significant at the .02 level for the sample. A similar study compared SoCQ scores to interviews rated by trained raters. This resulted in a correlation matrix which supported the validity of the SoCQ.

Empirical validity has become apparent as the SoCQ has been used in longitudinal studies of the implementation of

innovations by the Research and Development Center at the University of Texas. Persons who have been exposed to training workshops have shown significantly higher scores on the upper SoCQ scales than those who did not have workshops, indicating the usefulness of informed intervention. Also, faculty members progressing through a systematic implementation effort have demonstrated a shift in concerns in the expected direction.

School Climate Survey/"Trouble Shooting" Checklist

One of the purposes of this study was to identify the attitudes of teachers about the characteristics of their schools, particularly those that relate to readiness for adopting an innovation. The instrument chosen for measuring potential for successfully adopting and implementing educational innovations was the School Climate Survey/"Trouble Shooting" Checklist (Manning, 1976). The School Climate Survey/"Trouble Shooting" Checklist consists of one hundred Likert-type items describing school characteristics. The respondent is asked to rate on a five-point scale whether or not an item is descriptive of a particular school. There are seven scales focusing on organizational variables which affect the adoption process. The School Climate Survey/ "Trouble Shooting" Checklist is a diagnostic and predictive instrument designed to aid in estimating the effects of particular variables on the adoption/implementation process

without focusing on a specific innovation. The School Climate Survey/"Trouble Shooting" Checklist is used with new programs and practices in general and can be adopted to a specific innovation. The scales of the instrument are more fully explained in Appendix B.

Reliability

The reliability of the School Climate Survey/"Trouble Shooting" Checklist was established through two studies of internal consistency. A study (Manning, 1976) was conducted to test the relationship of each item to its assigned function of describing an innovative institution or a non-innovative institution. Items classified as innovative resulted in an alpha of .95 and those classified as non-innovative had an alpha of .87. In a second study, items were related to their respective scales. The seven scales had reliability coefficients of R .79 or R . 92 with the total scale at .97.

Validity

Content validity was established by developing items from the research on school change and organization development. Items were then reviewed by panels of change agents, professional researchers and organization development specialists on school change and organization development.

Criterion validity was studied by comparing scores from the School Climate Survey/"Trouble Shooting" Checklist

with subjective ratings of the variables measured by the seven scales. The approach required that the same raters use two methods to rate the same institution. Correlation coefficients ranged from .64 to .78 except for Scale V (.48) and Scale VII (.05). It should be pointed out that respondents were identified as external change-agents.

An items analysis of the data of a study conducted by this writer revealed that many items were not eliciting a response other than "no information." These were reviewed by a panel of evaluators and Teacher Corps staff members. Items were judged on the criterium of amount of response and the factor being measured. If the item measured an important factor, it was retained regardless of the response. Eleven items were deleted; no scale was reduced more than two items. The resulting Survey consisted of eighty-nine items and is included in Appendix B.

PROCEDURE OF THE STUDY

Data Collection

The School Climate Survey/"Trouble Shooting" Checklist was used as a part of the district's Teacher Corps Project in six of the schools in this study. Permission was requested and received to extend the use of the instrument with the faculty of the additional nine schools selected for the study.

Data were collected on the School Climate Survey/ "Trouble Shooting" Checklist by the investigator who contacted principals of each school and delivered and collected the surveys. The principals distributed the surveys to teachers in each building and supervised their return. Teachers were not to put their names on any of the instruments used in the study, but were asked to use the last four digits of their Social Security Numbers to make it possible to compare their School Climate Survey results with their Stages of Concern results.

The Stages of Concern Questionnaire (SoCQ) was administered through the cooperation of the Research Department of the school district. The particular innovation which was the focus of the SoCQ study was the Prescriptive Reading Program which was being implemented in all of the elementary and fifth year centers in the district. The profiles of the teachers on the SoCQ were made available to this writer for the purposes of this study.

Data Analysis

Data analysis proceeded through several steps. First, the groups of users and nonusers were identified based on the Stages of Concern Questionnaire. The second step was to find the combination of variables from the School Climate Survey/"Trouble Shooting" Checklist that distinguished between the groups, and the determination of

variables which contributed most to differentiation between the groups. And finally, to test the adequacy of the discrimination, the variables identified were used to classify a new set of SoCQ profiles as users or nonusers of the innovation.

IDENTIFICATION OF USERS AND NONUSERS

Profiles from the SoCQ were used to sort subjects into three groups; those who were clearly users; those who were clearly nonusers; and those who could not be easily classified. Scores on the concerns, consequence and collaboration scales were used as criteria for nonusers with selection based on scores that fall within one standard error of measurement on all three scales. The user group was selected in the same way based on the user profile identified by Rutherford and Loucks (1979). All other profiles remained in the unclassified group. When the School Climate factors which identified the known users and nonusers of an innovation were identified, they were then used to classify all previously unclassified profiles.

ANALYSIS OF VARIABLES

The School Climate Survey/"Trouble Shooting" Checklist scores of the users and nonusers were used in a discriminant analysis to form a linear combination of variables that discriminates between the two groups. Computation and plotting of the discriminant score of each person in the

user and nonuser groups show the clustering within the two groups along the continuum representing the discriminant function.

CLASSIFICATION

Characteristics of users and nonusers of an innovation, as identified by the stepwise procedure, were used to predict likely users and nonusers from new cases whose stages of concern had no clearly visible pattern. The set of SoCQ profiles that were not classified as users or nonusers were given a discriminant score using the discriminant coefficients derived from the known users and nonusers. Classification equations were used to yield a probability of group membership for the unclassified profiles. All computations for the analysis and classification were done with a Discriminant Analysis (Klecka, 1970) computer program.

STATISTICAL PROCEDURES

Identifying each person's Stages of Concerns Profile and matching them with their scores on the School Climate Survey/"Trouble Shooting" Checklist was achieved by using the last four digits of their Social Security Numbers and the school site code developed by the district.

The School Climate Survey/"Trouble Shooting" Checklist was scored using a program developed from the directions in the Trouble Shooting Checklist Manual (Manning, 1976). Each person received scores on the seven scales reported as

T-scores based on the mean and standard deviation of the norms established the previous fall in the Teacher Corps Project area schools. The seven scale scores from the School Climate Survey/"Trouble Shooting" Checklist are the dependent variables of the study.

The method for data analysis was based upon correlational techniques utilized by the STRATA computer program for the description of groups. Two F statistics were added to the analysis of variance tables to test for equality of means when the group variances are not assumed to be equal. Also, the Levene test for equality of variance was added to the computer program. These additions were based on work by Brown and Forsythe (1974).

Discriminant analysis was used to statistically distinguish between users and nonusers of the innovation (Prescriptive Reading Program). The dependent variables used were the seven scales of the School Climate Survey/ "Trouble Shooting" Checklist. By using discriminant analysis, one or more linear combinations of the discriminating variables were formed. This technique provided a statistical test for measuring the success with which the discriminating variables actually discriminate when combined into the discriminant functions. Once a set of variables was found which provided satisfactory discrimination for cases with known group memberships, a set of classification functions were derived which permitted the classification on new cases with unknown membership.

INTERPRETATION

Results of the analysis show the variables from the School Climate Survey/"Trouble Shooting" Checklist that contribute most toward discriminating between users and non-users of an innovation as measured by the Stages of Concern Questionnaire. Results of the classification procedure aided in describing each school site in terms of its readiness for innovation. Specifically, it distinguishes between schools and between individuals within schools. It was possible to show the staff members who have a probability to become users of an innovation, and to determine schools where the probability of successful implementation of new programs would be high.

CHAPTER IV

PRESENTATION, ANALYSIS AND
INTERPRETATION OF DATA

INTRODUCTION

This study was concerned with the identification of
the readiness of schools to implement new programs and
practices (innovation) and the identification of individuals
who are receptive to the change process. Specifically, the
purpose was to study the possibility of utilizing an instru-
ment which measures a school staff's potential for success-
fully adopting and implementing innovations (School Climate
Survey/"Trouble Shooting" Checklist) to identify staff
members' potential as either users or nonusers of an innova-
tion.

The major purpose of this chapter is to present,
analyze and interpret the data derived from the investiga-
tion. The general format is to report the data and the
results of the data analysis in condensed form. Tables were
selected to illuminate and clarify the discussion and to
provide statistical evidence for assertions made in the
discussion. Supportive data and descriptive statistics for

the study are presented in Appendix C. Statistical analyses were performed using the SPSS: Statistical Package for the Social Sciences (Hull, 1981), and the BMDP: Biomedical Computer Programs (Dixon, 1981) statistical programs.

Data analysis proceeded through several steps to test each of the ten hypotheses. First, mean scores were calculated and comparisons were made for schools on the scales of the School Climate Survey/"Trouble Shooting" Checklist. Second, the groups of users and nonusers were identified and compared based on the data from the Stages of Concern Questionnaire. The third step was to find the combination of variables from the School Climate Survey/"Trouble Shooting" Checklist that distinguished between the two groups, and to determine the variables which contributed most to differentiation between the groups. And finally, to test the adequacy of the discrimination, a new set of Stages of Concern Questionnaire (SoCQ) profiles was classified using the School Climate Survey factors found to discriminate between users and nonusers of the innovation.

This chapter is divided into seven sections. The sections are organized in the following order: Introduction; Differences Between Schools and Between Scales on the School Climate Survey; Identification of Users and Nonusers of an Innovation; Comparison of Attitudes of Users and Nonusers; Classification of Users and Nonusers by the School Climate Survey; Classification of Previously Unidentified Users; and a Discussion of the Findings.

Differences Between Schools and Between Scales
School Climate Survey/"Trouble Shooting" Checklist

To test the hypotheses of differences between schools and differences between scale scores on the School Climate Survey/"Trouble Shooting" Checklist, several analyses were completed during the course of its use in the schools in the study. A profile was made for each school on all of the seven scales. The data were then analyzed using an analysis of variance. The analyses compared the mean score on each scale across the fifteen schools in the study.

The hypotheses tested are stated in the null form as follows:

H_O1 There are no significant differences between schools on school climate factors related to change.

H_O2 There are no significant differences within schools between school climate factors related to change.

DIFFERENCES AMONG SCHOOLS

The results of the analyses of variance testing the hypothesis of no differences among schools are presented in Table 1. Differences among schools are indicated in Table 1 on Scale I, School Based Staff; Scale II, Communication; Scale III, Innovative Experiences; Scale IV, Central Administration; Scale V, School/ Community Relations; Scale VI, Organizational Climate; and Scale VII, Students. The error

of measurement allows identification of differences that
are of practical significance.

TABLE 1

School Climate Survey

Analysis of Variance By Scale

Scale 1:   School Based Staff

Source	df	s.s.	m.s.	F	P
School	14	812.11	58.01	3.54	0.00
Error	202	3305.16	16.36		
Total	216	4115.34			

Scale 2:   Communication

Source	df	s.s.	m.s.	F	P
School	14	2524.13	180.29	6.17	0.00
Error	202	5900.10	29.20		
Total	216	8424.23			

Scale 3:   Innovative Experiences
(New Programs)

Source	df	s.s.	m.s.	F	P
School	14	2399.11	171.36	3.35	0.00
Error	202	10325.09	51.11		
Total	216	12724.21			

Scale 4:   Central Administration

Source	df	s.s.	m.s.	F	P
School	14	1567.93	111.99	3.72	0.00
Error	202	6071.70	30.05		
Total	216	7639.64			

Scale 5:   School/Community

Source	df	s.s.	m.s.	F	P
School	14	1111.13	79.36	3.90	0.00
Error	202	4104.90	20.32		
Total	216	5216.04			

Scale 6:   Organizational Climate

Source	df	s.s.	m.s.	F	P
School	14	762.10	54.43	1.98	0.02
Error	202	5534.31	27.39		
Total	216	6296.42			

Scale 7:   Students

Source	df	s.s.	m.s.	F	P
School	14	2660.65	190.04	5.18	0.00
Error	202	7406.82	36.66		
Total	216	10067.48			

Analysis of Variance for Scale Score
For All Scales

Source	df	s.s.	m.s.	F	P
School	14	8067.35	576.24	9.42	0.00
Error	1504	91976.92	61.16		
Total	1518	100044.27			

Thus the first hypothesis of no significant difference among schools on school climate factors related to change may be rejected.

DIFFERENCES BETWEEN SCALES

Differences between scales were tested in several ways. The Standard Error of the Mean was calculated for each mean score. The results indicated that the average score for items was lower than the norm which was established at 50 by the use of T scores. Another indication of differences between scales was the difference between the highest and lowest mean scale score (Table 2).

Differences between scales were also determined by using a repeated measures anova. The results presented in Table 3 indicate that the scales are not significantly equivalent and that significant differences are shown by the analysis of variance.

TABLE 2

School Climate Survey
Reliability Analysis for Scales

	Mean	Variance	Std. Dev.	Variables	
Scale	290.71	915.22	30.25	7	
	Mean	Minimum	Maximum	Range	Variance
Items	41.53	31.87	47.33	15.46	34.99

TABLE 3

School Climate Survey
Analysis of Variance Across Scales
For All Schools

Source of Variation	df	s.s.	Mean Square	F	P
Scales	6	45558.83	7593.13	374.96	0.00
Error	1296	26244.30	20.25		
Total	1302	71803.13			

The second hypothesis of no significant differences between school climate factors related to change can be

rejected based upon the significant differences detected by the analysis of variance.

Identification and Comparison of Users and Nonusers

The second stage of analysis was to identify sets of users and nonusers of an innovation using the results of the Concerns Questionnaire (CQ). The scores of these two groups were then analyzed to test the hypotheses of no significant difference between the two groups in attitudes measured by the School Climate Survey. Stated in null form the hypotheses are:

$H_O 3$ There is no significant difference in attitude toward <u>School Based Staff</u> between users and nonusers of an innovation.

$H_O 4$ There is no significant difference in attitude toward <u>Communication</u> between users and nonusers of an innovation.

$H_O 5$ There is no significant difference in attitude toward <u>Innovative Experience</u> between users and nonusers of an innovation.

$H_O 6$ There is no significant difference in attitude toward <u>Central Administration</u> between users and nonusers of an innovation.

$H_O 7$ There is no significant difference in attitude toward <u>School/Community Relations</u> between users and nonusers of an innovation.

H_O8 There is no significant difference in attitude toward <u>Organizational Climate</u> between users and nonusers of an innovation.

H_O9 There is no significant difference in attitude toward <u>Students</u> between users and nonusers of an innovation.

IDENTIFICATION OF USERS AND NONUSERS OF AN INNOVATION

Profiles from the Concerns Questionnaire (CQ) were used to sort subjects into three groups, those clearly users, those clearly nonusers, and those that could not be easily classified. The criteria for grouping were the scores on the Personal and Management Scales of the CQ. The change from high concerns on the Personal Scale to high concerns on the Management Scale marks the beginning of "use" of an innovation (Herd and Louck, 1980). Teachers who had a Personal Scale score eight percentile points higher than their Management Scale score were placed in the nonuser group and are referred to as "Personal." Those who had a Management Scale score eight percentile points higher than their Personal Scale were placed in the user group and are referred to as "Management." All others were placed in the group labeled unclear. Percentile scores were used because they are used in all the studies received and in the manual produced by the CQ developers.

The eight point difference was established by comput-
ing the difference score between Personal and Management
percentiles and ranking the subjects by their difference
scores. Approximately one-third with the greatest differ-
ence scores in the direction of the Personal Scale were
assigned to the Personal Group. Another one-third with the
greatest difference scores in the direction of the Manage-
ment Scale were assigned to the Management Group.

DIFFERENCES BETWEEN USERS
AND NONUSERS OF AN INNOVATION

T-tests were computed to compare the mean scale
scores of the group of Users of the innovation with the
group of Nonusers using the SPSS computer statistical pack-
age (Hull and Nie, 1981). Results are presented in Table 4;
they indicate significant differences in mean scores on five
of the seven scales. The two with differences no larger
than might be expected by chance are attitudes toward School
Based Staff and attitudes toward Communication. The direc-
tion of the difference shows the Nonusers, or those with
high personal concerns, reported more positive attitudes on
the School Climate Survey.

TABLE 4

COMPARISON OF USERS AND
NONUSERS ON SCHOOL CLIMATE SCALE SCORES
df = 1,66

Scale		Nonusers N=32 (High Personal)		Users N=36 (High Management)			
		Mean	SD	Mean	SD	t	P
I	School Based Staff	38.6	5.4	37.6	5.0	0.49	.5893
II	Communication	48.6	6.3	46.1	6.2	6.76	.1077
III	Innovative Experience	51.3	7.6	45.9	7.1	88.36**	.0035
IV	Central Administration	34.8	5.4	31.5	5.7	34.81*	.0169
V	School/ Community	39.7	4.6	37.1	4.2	33.64*	.0178
VI	Organizational Climate	49.4	4.7	45.8	5.9	54.76**	.0082
VII	Students	49.0	6.7	45.5	6.7	20.25*	.0354

$*$ p .05 $**$ p .01

The hypotheses of no significant difference between users and nonusers of an innovation in attitude toward School Based Staff and Communication fail to be rejected.

There are no significant differences between users and nonusers of an innovation and hypotheses 3 and 4 are accepted. The hypotheses of no significant differences between users and nonusers in attitudes toward Innovative Experience, Central Administration, School/Community Relations, Organizational Climate, and Students can be rejected. H_O5 through H_O9 are rejected based on these findings.

Classification of Users and Nonusers by the School Climate Survey

An hypothesis was developed to test the idea that teachers' attitudes about their school as an organization could be used to predict whether they will become users or nonusers of an innovation. Stated in null form the hypothesis is:

> H_O10 There is no combination of school climate factors that will classify users and nonusers of an innovation better than chance classification.

To test the hypothesis, a discriminant analysis was run using BMDP7M, Stepwise Discriminant Analysis (Dixon, 1981). Discriminant Analysis, although fairly new as a tool in behavioral research, can be used in two main ways: (1)

as a classification and diagnosis method, and (2) to study relationships among variables in different populations or samples. If one has two or more measures which have in the past successfully predicted group membership, they can be combined into a discriminant function and future individuals can be classified with them. This amounts to predicting group membership with a set of measures entered into a regression equation.

Discriminant analysis is a regression equation with a dependent variable that represents group membership. The function maximally discriminates the members of the group; it reveals to which group each member probably belongs. Therefore, if there are two or more independent variables, and the members of two groups, the discriminant function gives the "best" prediction, in the least-squares sense, of the "correct" group membership of each member in the sample. The discriminant function then can be used to assign individuals to groups on the basis of their scores on two or more measures.

In this study, the relevant groups were (1) users and (2) nonusers of an innovation or new program. The independent variables used to determine group membership were the seven scales of the School Climate Survey/"Trouble Shooting" Checklist. Having identified users and nonusers with the stages of concern questionnaire and a comparison of each member of each group with their score on the School Climate

Survey Scales made, stepwise analysis was completed to find the variables with the most ability to discriminate between users and nonusers of an innovation.

In Table 5 is shown the rankings of variables for the first and second step. New Programs and Organizational Climate were the discriminators between users and nonusers. Lowering the F to enter improved the classification of teachers slightly.

Before the first step, five of the seven F ratios were significant (Table 5). On the first analysis, one scale, New Programs, accounted for most of the variance. This indicated that the scales are interrelated so that the New Programs scale contributes most to the prediction. Although other scales do not add to the predictive value, a second step was used to force another scale. When the F to enter was lowered from 4.00 to 3.90, one additional scale, Organizational Climate, was identified.

Thus two factors, New Programs and Organizational Climate, accounted for most of the variance. Their efficiency for classifying users and non users was compared with the Stages of Concern classification, and presented in Table 6.

TABLE 5

RANK ORDER OF SCALES OF THE SCHOOL CLIMATE SURVEY
SHOWING THEIR DISCRIMINATION BETWEEN GROUPS
OF TEACHERS WITH PERSONAL AND MANAGEMENT CONCERNS

FIRST RANKING		RANKING AFTER REMOVAL OF "NEW PROGRAMS"	
Rank Scale	F to Enter	Scale	F to Enter
1 New Programs	9.4	1 Organizational Climate	1.9
2 Organizational Climate	7.4	2 School/Community Relations	1.2
3 Central Administration	5.9	3 Students	1.1
4 School/Community Relationships	5.8	4 School Staff	0.1
5 Students	4.5	5 Central Administration	0.0
6 Communications	2.6	6 Communications	0.0
7 School Staff	0.7		

TABLE 6

Chi Square Analysis of
Correct and Incorrect Classification
of Teachers Based on Discriminant
Analysis of Stages of Concern Questionnaire
and School Climate Survey Responses

Stages of Concern Questionnaire	School Climate Survey				Total
	Personal		Management		
Personal	O	21	O	11	32
	E	15.5	E	16.5	
Management	O	12	O	24	36
	E	17.5	E	18.5	
Total		33		35	68

Chi-Square = 7.07   p   .01

The School Climate Survey scales resulted in more correct classifications than were expected by chance. This results in a Chi Square for classification of 7.07 with probability less than .01. Thus the hypothesis of no combination of school climate factors that will classify users and nonusers can be rejected.

Classification of Unclear Group

The next step in analysis was to test the classification function by classifying a group not pre-identified as users (Management concerns high), or nonusers (Personal concerns high). A discriminant score was computed for each person using the discriminant coefficients or weights derived from the known users and nonusers. Twenty-seven previously unclassified cases were thus classified using their School Climate Survey scores into a group of 12 nonusers and 15 users. The purpose of this classification was to illustrate the utility of using the School Climate Survey, particularly Scale 3, New Programs, and Scale 6, School Climate, to classify teachers as probable users or nonusers of a new program which is being considered for implementation or adaption.

Summary of Results

The expectation of no significant differences among schools on school climate factors related to change was not confirmed, and hypothesis one may therefore be rejected. In fact, differences of practical significance were shown on Scales III, IV, V, VI and VII, or five of the seven scales in the School Climate Survey.

The expectation of no significant differences within schools on school climate factors related to change was not confirmed, and therefore, hypothesis two may be rejected. Mean scale scores indicate significant differences from the norm and among scales for individual schools.

The expectation of no significant differences between users and nonusers on each of the seven attitude scales measured by the School Climate Survey was not confirmed. The T-test generated by the analysis of variance, shown in Table 4, indicates that hypotheses three and four cannot be rejected and hypotheses five through nine are rejected.

Hypothesis ten, which states that there is no combination of school climate factors that will classify users and nonusers of an innovation better than chance, was also rejected. The discriminant analysis identified two factors, Innovative Experience and Organizational Climate, which resulted in a correct classification of approximately 66% of the cases presented.

CHAPTER V

This study was designed to investigate the use of a
measure of school climate to distinguish between schools and
between individuals within schools, on school climate fac-
tors related to readiness for innovation or change. The
same measure was tested to determine the possibility of
utilizing one or more of the school climate factors to
identify staff members as users and nonusers of an innova-
tion.

Findings, Recommendations and Implications

Teachers in the study completed two surveys, one on
school climate and one on their concerns about a new reading
program being implemented in the schools. The analysis of
the two surveys provided an evaluation of the potential of
one of the instruments (School Climate Survey) to be used as
a means of discrimination between users and nonusers of the
new program. The study also made use of a discriminant
analysis to determine which scales, if any, of the School
Climate Survey could be used as predictor(s) of those tea-
chers who would probably be users of a new program. The

results did identify two scales which could be used to predict members of the user group and the nonuser group with significant accuracy.

Findings

The research hypotheses related to differences between schools and between factors within schools on school climate factors were enumerated as follows:

H_O1 There are no significant differences among schools on school climate factors related to change.

H_O2 There are no significant differences within schools among school climate factors related to change.

The analyses of variance comparing schools with each other on the scales of the School Climate Survey resulted in the identification of significant differences among schools on seven scales. Significant differences among scales occurred in five of the schools in the study when compared with the norm established by the use of T scores. An analysis of variance also indicated significant differences among scales for all schools.

The first hypothesis of no significant difference among schools was rejected.

The second hypothesis of no significant difference among school climate factors within schools was rejected.

The research hypotheses related to differences between users and nonusers of an innovation on attitudes measured by the School Climate Survey was tested. Hypotheses three through nine were stated as follows:

H_O3 There is no significant difference in attitude toward <u>School Based Staff</u> between users and nonusers of an innovation.

H_O4 There is no significant difference in attitude toward <u>Communication</u> between users and nonusers of an innovation.

H_O5 There is no significant difference in attitude toward <u>Innovative Experience</u> between users and nonusers of an innovation.

H_O6 There is no significant difference in attitude toward <u>Central Administration</u> between users and nonusers of an innovation.

H_O7 There is no significant difference in attitude toward <u>School/Community Relations</u> between users and nonusers of an innovation.

H_O8 There is no significant difference in attitude toward <u>Organizational Climate</u> between users and nonusers of an innovation.

H_O9 There is no significant difference in attitude toward <u>Students</u> between users and nonusers of an innovation.

Analysis of variance was computed to compare the mean scale scores of the group of users of the innovation with the group of nonusers. The results indicated significant differences in mean scores on five of the seven scales. Based on the data, hypotheses three and four were accepted and hypotheses five through nine were rejected.

The research hypothesis developed to test the ability to use teacher attitudes about their school as an organization to predict whether they will become users or nonusers of an innovation was stated as follows:

H_O10 There is no combination of school climate factors that will classify users and nonusers of an innovation better than chance classification.

A discriminant analysis was run using BMDP7M, Stepwise Discriminant Analysis. Two scales, Innovative Experience and Organizational Climate, discriminated between users and nonusers of the innovation with 66% accuracy.

Conclusions

The School Climate Survey was shown to be a viable instrument to show differences among schools on the seven characteristics of school climate measured. The instrument also can be used to profile strengths and weaknesses of school staffs on each of the seven characteristics as demonstrated by the differences among scale scores for individuals.

Some scales of the School Climate Survey proved to be useful in showing differences between teachers whose concerns about the use of new programs and practices were related to personal concerns (nonuser) and those whose concerns were related to management (users). Of the seven scales, two, Innovative Experience and Organizational Climate, identified users and nonusers with better than chance classifications.

Teachers in the study were identified as users or nonusers of a new program, Reading Inventory, based upon their responses to the Stages of Concern Questionnaire. The scores on the Stages of Concern Questionnaire of the teachers in each of these two categories were then compared to their scores on the seven scales of the School Climate Survey. It was determined that two scales of the School Climate Survey were related and in approximately two-thirds of the cases, predictive of users and nonusers of the new program.

The relationships found in this study provides evidence to support the importance of school climate factors on program implementation. It indicates the ability of schools to identify critical factors of school climate which enhance or impede the implementation of new programs.

The study also demonstrates the predictive value of the School Climate Survey in the implementation of new programs by identifying probable users and nonusers of a new program.

Implications

Studies relating school climate to student achievement and to "achieving" schools have been compelling in their identification of critical aspects of school climate which effect such achievement. The importance of the school climate on school programs is now recognized, and efforts to translate this knowledge into information relating to specific administrative and teacher behaviors are now becoming the focus of much research.

In the related area of innovation adoption, the question of how to successfully implement new programs has also become the focus of research. The import of school climate and of teacher attitude on school programs is proving fertile ground for researchers interested in improving the effectiveness of schooling.

It was the potential of examining the school environment in order to improve achievement that this study was designed to explore. The programs provided to students can be effective or non-effective in and of themselves, but often it is the implementation which determines effectiveness. School administrators depend upon the classroom teacher to adapt the program and implement it as recommended.

The study supports a position for the use of more research-based decision making and systematic planning in the selection and implementation of new programs. The demand for educational accountability and for increased

student achievement requires that educational professionals justify the processes and products utilized in the schools.

Educational leaders must use any tool or technique at their disposal to enhance the educational effectiveness of their programs and to improve the achievement of students. This study demonstrates the ability to identify factors which promote a good school climate and enhance learning. It is also shown that some of those same school climate factors also identify teachers who are unlikely or likely to implement new programs.

It would be a reasonable expectation that administrators would (1) collect the information made available by the surveys and (2) make use of the information in ways designed to move the program forward.

As more research is conducted in the area of increasing school effectiveness, one can expect that the number and variety of tools such as those in this study will be greatly increased and the effective use of such tools and information will increase correspondingly.

Recommendations

Every piece of information which can be used to enhance the education of children through improved performance of the education personnel in the schools is of interest and concern to all educators. This study has attempted to provide such data in such a way as to make it useful to practitioners.

Other areas of study which would relate to or extend the dimensions of this study would cover several areas. Since this study was centered on the implementation of a reading program at the elementary level, other studies using different innovations or new programs should be conducted.

The use of school climate instruments at various grade levels might be another area of study. Especially, studies at the secondary level would be helpful to determine the applicability of the conclusions of this study to a different instructional level.

Studies relating to follow-up work with teachers identified as users or nonusers of a new program would greatly extend the implications of this study. Particularly useful would be studies which focus on interventions useful in moving teachers identified as nonusers of a program into the user category.

Another area of research would provide more data on factors involved in teacher attitudes toward new programs and how attitudes change as the implementation of a new program progresses.

Finally, more complete research into strategies for changing attitudes to enhance school climate would be helpful. Interventions stategies to be used before, during and after the implementation of a new program is the specific type of information needed. Identifying a problem area is only the beginning of a process of managing educational change.

This study indicates that the use of the School Climate Survey would seem to provide information that can be useful to those concerned with school programs. But, it also stimulates the need for more research, more information and more specific data to help in our understanding and in our ability to make sound educational decisions.

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APPENDICES

APPENDIX A

STAGES OF CONCERN ABOUT THE INNOVATION

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Stages of Concern About the Innovation

		USER	NONUSER
0	**AWARENESS:** Little concern about or involvement with the innovation is indicated.	Low	High
1	**INFORMATIONAL:** A general awareness of the innovation and interest in learning more detail about it is indicated. The person seems to be unworried about herself/himself in relation to the innovation. She/he is interested in substantive aspects of the innovation in a selfless manner such as general characteristics, effects, and requirements for use.	Low	High
2	**PERSONAL:** Individual is uncertain about the demands of the innovation, her/his inadequacy to meet those demands, and her/his role with the innovation. This includes analysis of her/his role in relation to the reward structure of the organization, decision making, and consideration of potential conflicts with existing structures or personal commitment. Financial or status implications of the program for self and colleagues may also be reflected.	Low	High
3	**MANAGEMENT:** Attention is focused on the processes and tasks of using the innovation and the best use of information and resources. Issues related to efficiency, organizing, managing, scheduling, and time demands are utmost.	High	Low

4 CONSEQUENCE: Attention focuses on impact of the
   innovation on students in her/his immediate
   sphere of influence. The focus is on relevance
   of the innovation for students, evaluation of
   student outcomes, including performance and
   competencies, and changes needed to increase
   student outcomes.   High   Low

5 COLLABORATION: The focus is on coordination and
   cooperation with others regarding use of the
   information.   High   Low

6 REFOCUSING: The focus is on exploration of more
   universal benefits from the innovation, including
   the possibility of major changes or replacement
   with a more powerful alternative. Individual has
   definite ideas about alternatives to the proposed
   or existing form of the innovation.   High   Low

Guidelines for Interpretation of the
SoC Questionnaire Data

The following guidelines emphasize the interpretation of full SoC profiles based on percentile scores, and are also useful when interpretation is limited to high and second high scores. The guidelines are abstracts of statements that have been discussed at length earlier in this section and are presented here in abbreviated form to facilitate interpretations. Divided into four parts, the guidelines include:

1. Establish a Holistic Perspective;

2. Look at High and Low Stage Scores;

3. Look at Individual Item Responses;

4. Look at the Total Score.

1. Establish a Holistic Perspective.

The goal of interpreting the SoC Questionnaire data is the development of an overall perspective and description of the relative intensity of the different Stages of Concern about a particular innovation for the respondent(s). The interpreter needs to strive to develop a gestalt based on all the Stages of Concern scores. In developing an interpretation, the interpreter needs to explore alternative interpretations, and check them out against other parts of the SoCQ data. The focus for interpretation should be on what stages are high and low, and what the person seems to be indicating about her/his concerns. Developing this holistic description requires practice and thought. It cannot be done mechanistically.

2. Look at the High and Low Stage Scores.

Look at the relative highs and lows for that individual, not how high or low the individual is in relation to some other SoCQ data.

Stage 0: High 0 -- Indicates either an experienced user who is more concerned about things not related to the innovation, or a nonuser who is just becoming aware of the innovation.

Low 0/high other stages -- Suggests intense involvement with the innovation.

Low 0, 1, 2, and 3 -- Indicates an experienced user who is still actively concerned about the innovation.

Caution -- If the Stage 0 percentile is particularly high relative to the other scores, the other stage scores may have little significance. If there is an overall high response tendency, the high Stage 0 score may not reflect unconcern about the innovation.

Stage 1: High 1 -- Want more information about the innovation.

Low 1 -- Feel that they already know enough about the innovation.

Stage 2: High 2 -- Have intense personal concerns about the innovation and its consequences for them. While these concerns reflect uneasiness regarding the innovation, they do not necessarily indicate resistance.

Low 2 -- Feel no personal threat in relation to the innovation.

Stages 1 and 2 generally go together, but when they fall apart, check them closely.

High 1/Low 2 -- Need more information about the innovation. These respondents are generally open to and interested in the innovation.

Low 1/High 2 -- Have self concerns, tend to be more negative toward the innovation and generally not open to information about the innovation per se.

Stage 3: High 3 -- Have logistics, time, and management concerns.

Low 3 -- Have minimal to no concerns about managing use of the innovation.

Stage 4:   High 4 -- Have concerns about the conse-
quences of use for students.

Low 4 -- Have minimal to no cncerns about
the relationship of students to
use of the innovation.

Stage 5:   A high 5 score is complex:

High 5 -- Have concerns about working with
others in relation to the innova-
tion. A high 5 with all other
stages being low is likely to be
an administrator, coordinator, or
team leader -- one who perceives
herself/himself to be in a leader-
ship role; coordinating others is
the priority.

High 5 with some combination of 3, 4, and 6
also being high -- Have concern
about a collaborative effort in
relation to the other high stage
concerns.

High 5 with 1 being high -- Have concerns
about looking for ideas from others,
reflecting more a desire to learn
from what others know and are doing,
rather than concern for collabora-
tion.

Stage 6:   High 6 with low 1 -- Not interested in learn-
ing more about the innovation. The
person is likely to feel that she/he
already knows all about it and has
plenty of ideas.

High 6, high 3, low 0, 2, and 2 -- Is a user
who tends to be positive in atti-
tudes toward the innovation, but
has many logistics issues to take
care of. The high 6 indicates that
the person has ideas about how to
improve use of the innovation.

Tailing-up 6 for nonusers -- Has ideas about
how to do things differently and
is likely to be negative toward
the innovation.

3. Look at the Individual Item Responses.

Look at the individual item raw score distributions.
Check for patterns, trends, and irregularities. Watch the
flow of item scores from left to right. Do they increase or
decrease by stages?

A. If it appears by the raw scores that the
respondent Q-sorted according to stages,
more credence can be given to the profile.

B. Lack of sorting suggests general confusion
about the innovation or lack of a clear
focus (perhaps the respondent did not read
the items closely).

C. Nonusers do not always peak clearly on one
or two stages. However, if the items for
Stages 0, 2, and 2 are relatively high and
Q-sorted, then the respondent is likely to
be a nonuser.

D. If there are not clear peak stages, then the
person have multiple stages of concern or no
clearly focused concerns.

4. Look at the Total Score.

The total score, to some degree, reflects the amount
of involvement the person has with the innovation. However,
the total score should not be given very large significance
in the overall interpretation.

A. A low total suggests low intensity of concerns
and a comfortableness with the innovation.

B. A high total percentile suggests definite feelings
and involvement with the innovation. These may
be either negative or positive.

COEFFICIENTS OF RELIABILITY FOR THE
STAGES OF CONCERN QUESTIONNAIRE

	Stage						
	0	1	2	3	4	5	6
Internal Reliability, N-830, Alphas	.64	.78	.83	.75	.76	.82	.71
Test-Retest N 132, Pearson-r	.65	.86	.82	.81	.76	.84	.71

Figure I. Nonuser Profile

<u>Intense Awareness, Informational</u>
<u>and Personal Concerns Profile</u>

SoC STAGES

RELATIVE INTENSITY

SOC STAGES
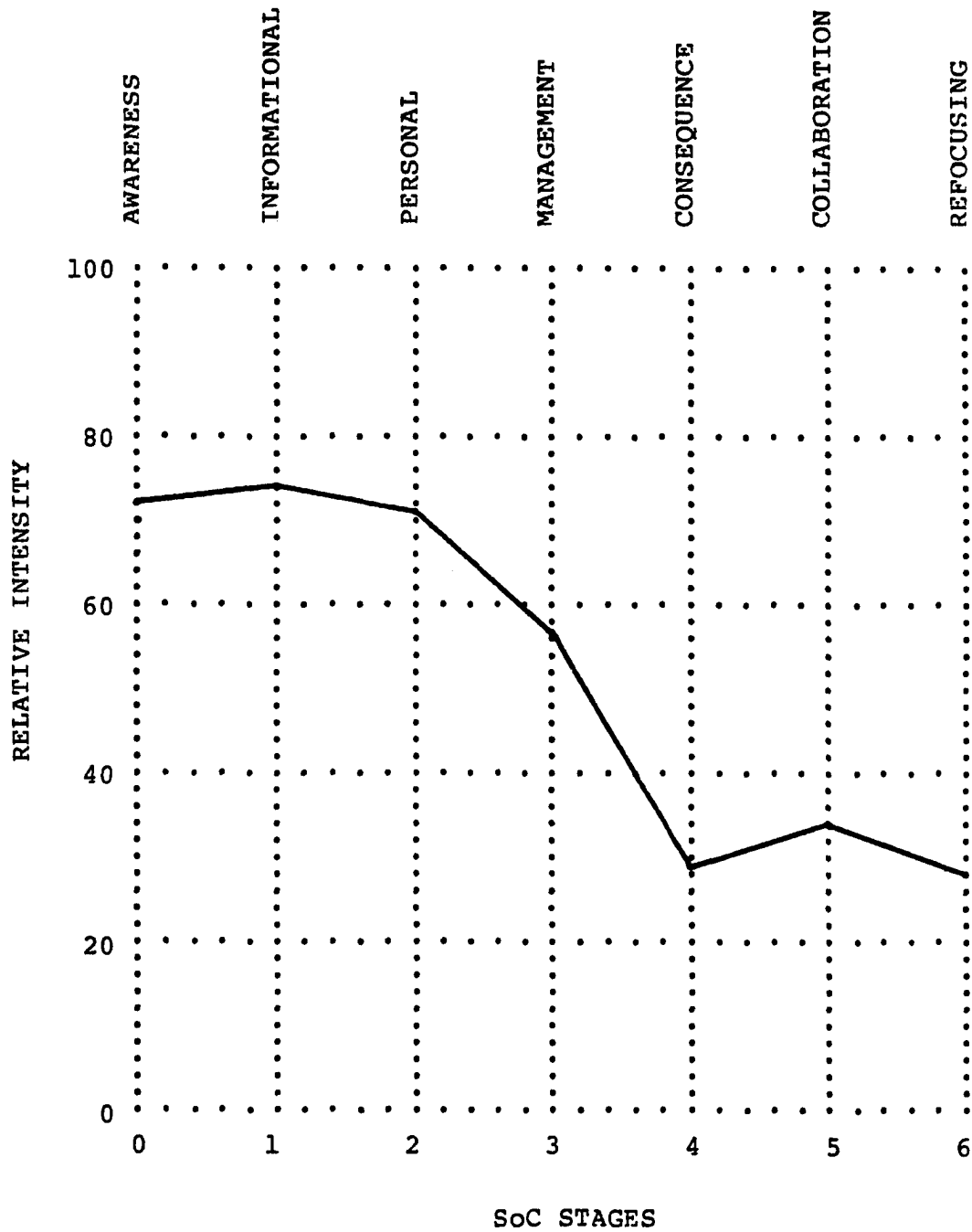
Figure II. User Profile

Intense Management Concerns Profile

-93-
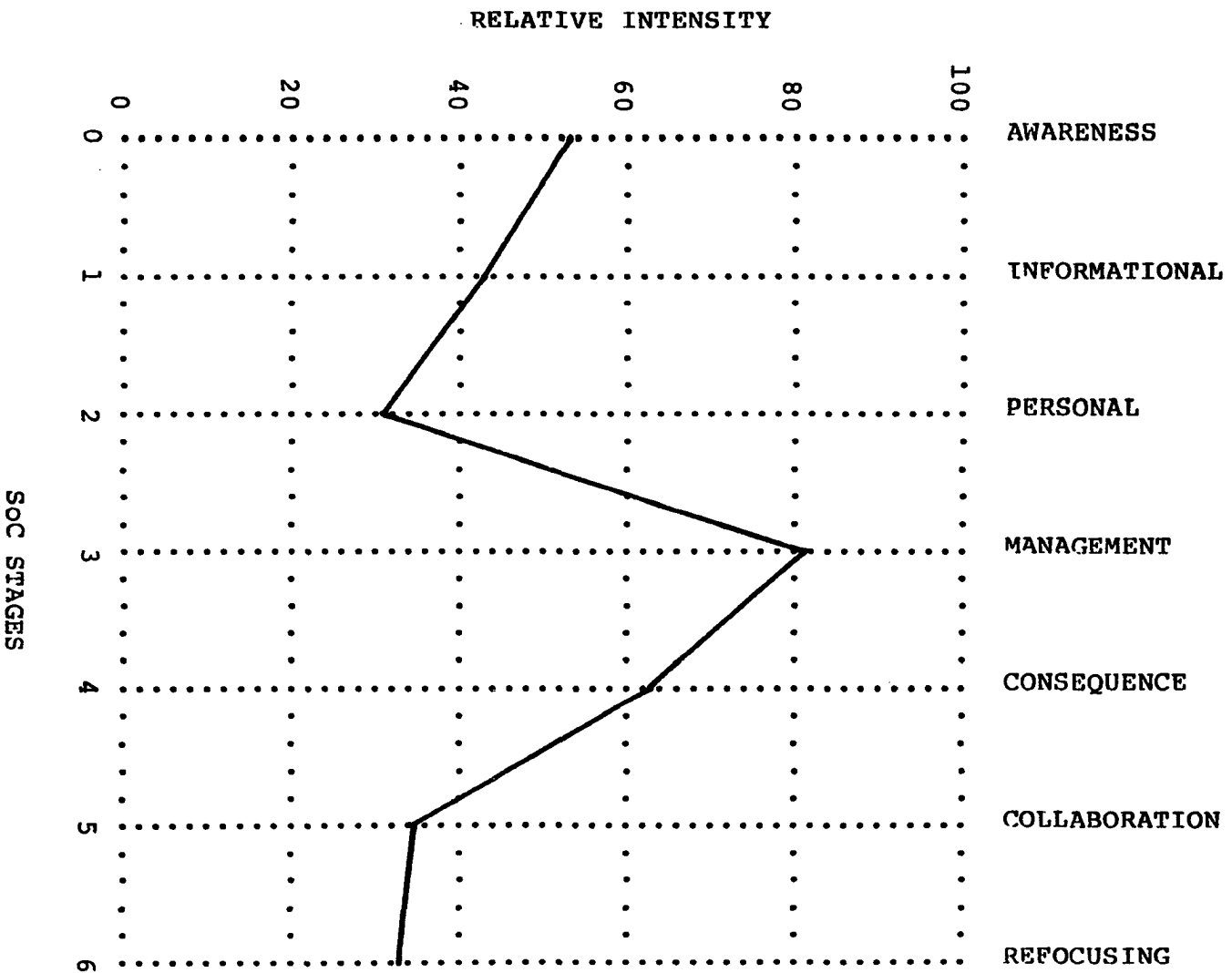
Figure III. User Profile

Consequence Concerns Profile
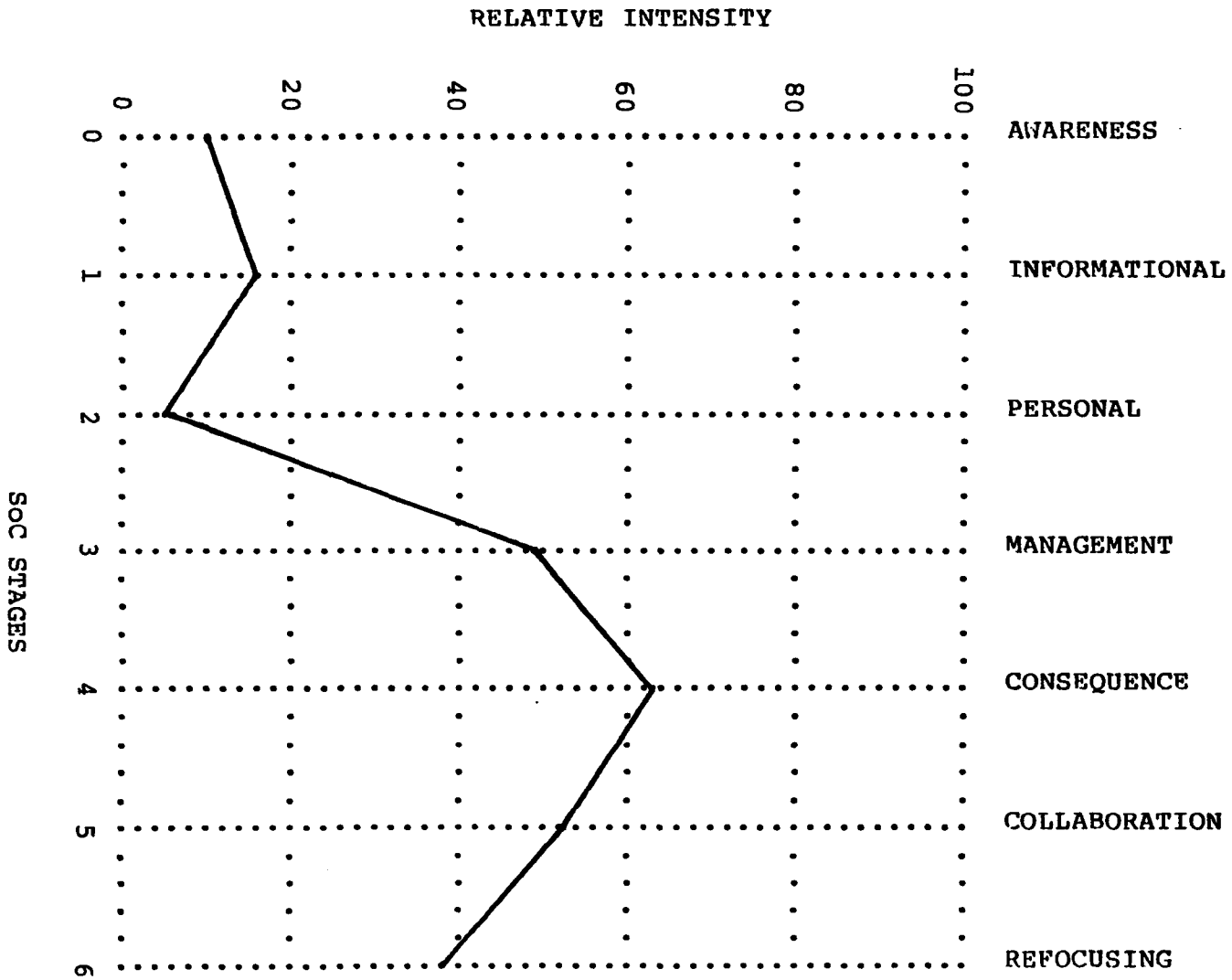
Figure IV. User Profile

High Collaboration Concerns Profile
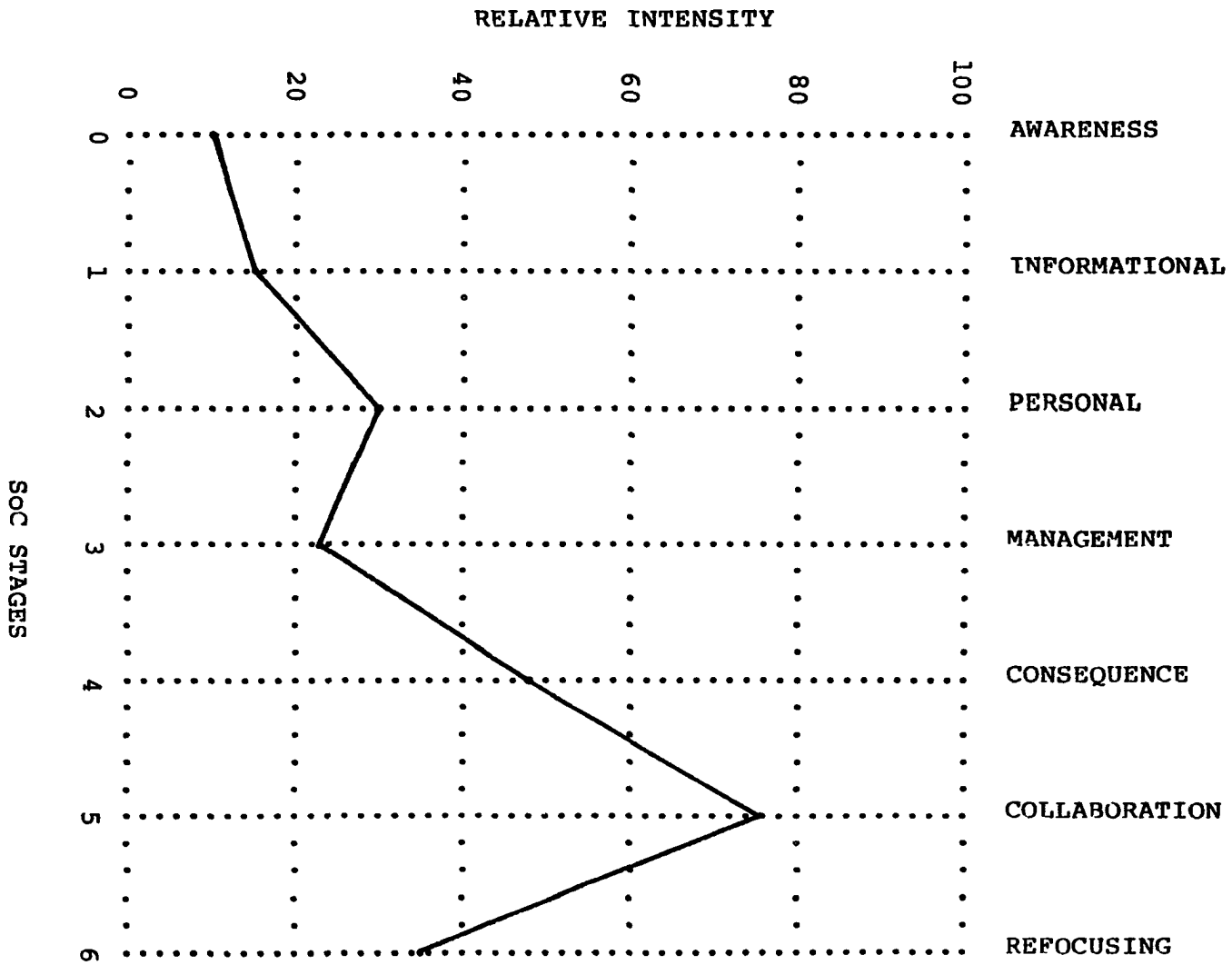
Figure V. User Profile

High Refocusing Concerns Profile
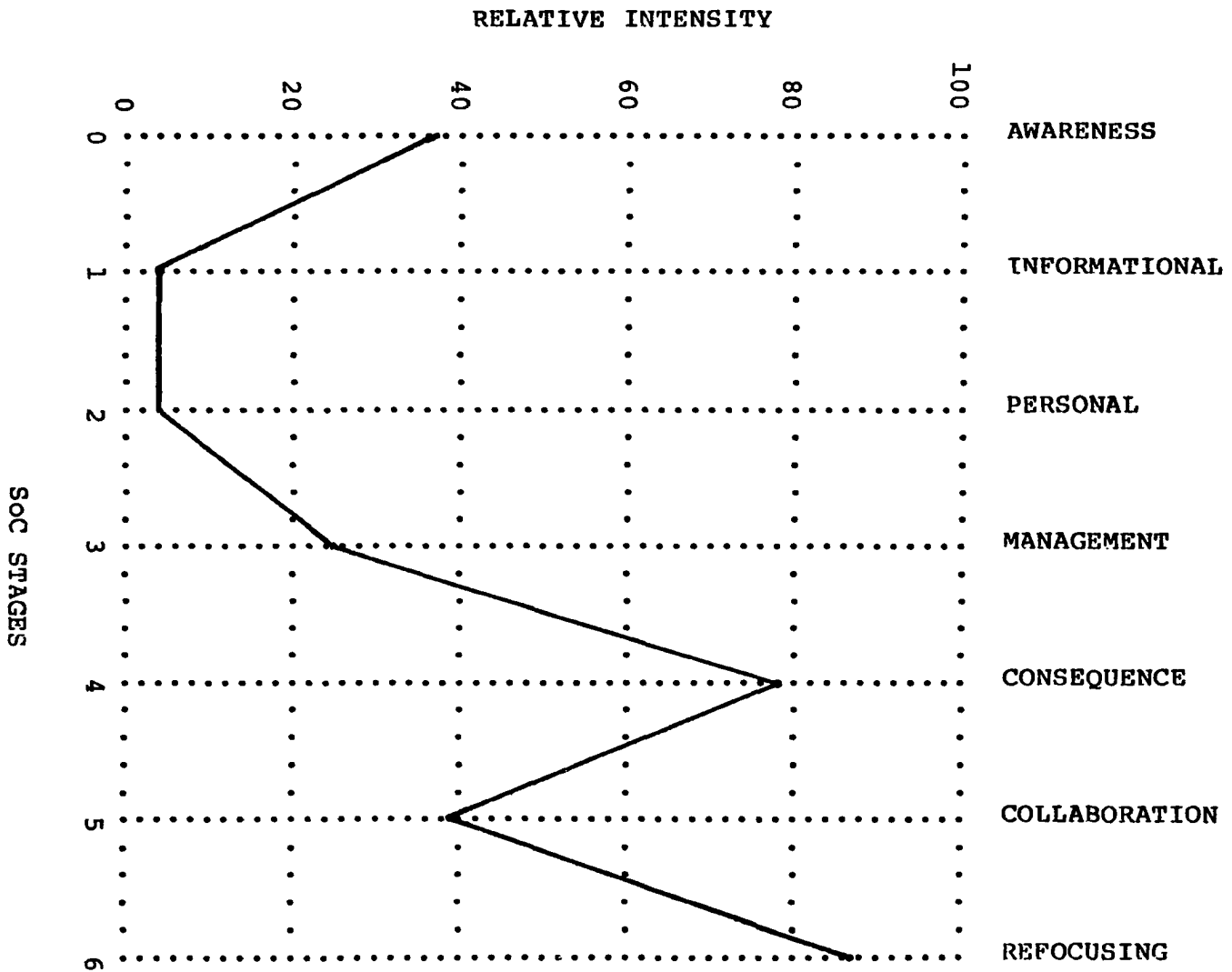
APPENDIX B

SCHOOL CLIMATE SURVEY/"TROUBLE SHOOTING" CHECKLIST

SCHOOL CLIMATE SURVEY

1981 Revision

Scoring Key

	Scale	Items					Total Possible Score
I	School-Based Staff	28	48	60	70		50
		30	54	64			
		33	55	66			
II	Communication	6	20	45	67		55
		14	24	49	78		
		17	42	62			
III	Innovative Experience	3	19	34	47	69	70
		10	21	36	51	80	
		15	26	39	65		
IV	Central Administration	4	25	73			45
		8	29	76			
		18	50	77			
V	School/Community Relations	1	22	32	57		50
		11	23	35			
		12	27	41			
VI	Organizational Climate	5	16	40	59	74	70
		7	31	44	61	79	
		9	37	52	71		
VII	Students	2	43	56	58		50
		13	46	58	72		
		38	53	63	75		

	Reverse Key	2	12	31	37	50	70
		4	18	33	38	59	
		7	19	34	47	60	
		8	21	36	48	64	

Scoring Guide for the

School Climate Survey

Scoring

Scoring of the TSC can be done by hand and requires approximately 15 minutes. As explained in detail below, all items which describe non-innovative organizational characteristics must be reverse keyed before the scores are summed. Scores are then added for each scale and for the total instrument. Those respondents who have chosen to use "0" should be scored according to the Score adjustment formula section which provides a formula for equalizing the scores of TSC's in which "0" was used, with the scores of TSC's in which "0" was not used.

Reverse Key Scoring. The item numbers listed below are reverse keyed, and should have their rating values adjusted in the following manner:

Item Response		Reverse Score Value	
5	=	1	
4	=	2	
3	=	3	(Reverse keyed items rated 3 should not be changed)
2	=	4	
1	=	5	

For example, if you have marked one of the following items a "1," it should be changed to a "5" for scoring purposes; if you have marked one of the following items a "4," it should be changed to a "2" for scoring purposes. The items at the bottom of the scoring key should be reverse keyed.

Score Adjustment Formula. If respondents have used "0" it is necessary to use the following score adjustment formula. The score adjustment formula equalizes the scores of TSC's in which 0 has been used with the scores of TSC's in which 0 has not been used. This formula assumes that the items receiving a numerical response are representative of the entire scale content.

$$\frac{\text{Actual computed score for scale}}{\text{Number of items not marked 0}} \quad \text{x} \quad \text{Number of items in scale}$$

For example, in order to score Scale I, first reverse key items as explained above. After reverse keying the items, add up the total score. If an individual has five "0's," four "1's," two "2's," and two "3's," the formula would be completed as follows:

$$\frac{\text{Actual computed score for scale} = 14}{\text{Number of items not marked 0} = 8} \quad \text{X} \quad 13 \text{ (Number of items in scale)}$$

$$\frac{14}{8} \quad \text{X} \quad 13 = 22.75 \text{ (Score for Scale I)}$$

Similarly, the score adjustment formula for the total score is as follows:

Actual computed
score for entire TSC   X   Number of items in TSC
Number of items not
marked 0 on entire TSC

For example, if an individual rates an institution using ten "0's," ten "1's," ten "2's," forty "3's," twenty "4's," and ten "5's" the formula would be completed as follows (after reverse keying the items):

$$\frac{280}{90} \; X \; 100 \; = \; 311.11$$

APPENDIX C

DESCRIPTIVE STATISTICS

TABLE 1

Descriptive Statistics for School Climate Survey

Scale 1: School Based Staff

School	Count	Means	Standard Deviation	Standard Error
1	20	39.05	2.96	0.66
2	11	39.36	3.38	1.02
3	12	32.41	4.71	1.36
4	14	40.78	3.30	0.88
5	7	38.57	3.73	1.41
6	18	35.94	4.26	1.00
7	12	37.00	4.45	1.28
8	2	37.00	0.00	0.00
9	12	36.00	4.17	1.20
10	21	38.04	4.21	0.91
11	19	38.47	4.57	1.04
12	18	36.88	4.62	1.09
13	13	35.76	4.85	1.34
14	13	35.07	3.40	0.94
15	25	38.72	3.63	0.72
TOTAL	217	37.43	4.36	0.29

TABLE 2

Descriptive Statistics for School Climate Survey

Scale 2: Communication

School	Count	Means	Standard Deviation	Standard Error
1	20	50.30	3.45	0.77
2	11	44.36	6.88	2.07
3	12	44.58	3.80	1.09
4	14	52.21	3.86	1.03
5	7	48.57	6.05	2.28
6	18	40.88	6.37	1.50
7	12	38.00	6.87	1.98
8	2	40.50	3.53	2.50
9	12	46.00	4.99	1.44
10	21	43.38	5.68	1.24
11	19	47.47	3.42	0.78
12	18	45.83	6.67	1.57
13	13	43.84	4.87	1.35
14	13	44.69	6.82	1.89
15	25	46.32	5.27	1.05
TOTAL	217	45.49	6.24	0.42

TABLE 3

Descriptive Statistics for School Climate Survey

Scale 3: Innovative Experience

School	Count	Means	Standard Deviation	Standard Error
1	20	45.80	5.70	1.27
2	11	49.90	5.37	1.62
3	12	46.50	5.45	1.57
4	14	53.00	8.44	2.25
5	7	48.42	5.85	2.21
6	18	40.94	6.55	1.54
7	12	42.25	8.66	2.50
8	2	40.50	7.77	5.50
9	12	50.33	7.76	2.24
10	21	42.28	8.64	1.88
11	19	46.21	7.36	1.68
12	18	49.00	7.70	1.81
13	13	46.76	7.55	2.09
14	13	45.00	3.26	0.90
15	25	48.56	7.59	1.51
TOTAL	217	46.48	7.67	0.52

TABLE 4

Descriptive Statistics for School Climate Survey

Scale 4: Central Administration

School	Count	Means	Standard Deviation	Standard Error
1	20	33.30	3.11	0.69
2	11	33.00	5.91	1.78
3	12	28.50	5.72	1.65
4	14	35.57	5.10	1.36
5	7	34.57	4.27	1.61
6	18	28.55	6.83	1.61
7	12	27.66	6.87	1.98
8	2	31.00	5.65	4.00
9	12	34.91	5.03	1.45
10	21	28.85	6.58	1.43
11	19	30.31	5.26	1.20
12	18	34.50	6.96	1.64
13	13	33.07	5.63	1.56
14	13	29.61	4.03	1.11
15	25	34.44	3.74	0.74
TOTAL	217	31.87	5.94	0.40

TABLE 5

Descriptive Statistics for School Climate Survey

Scale 5: School Community

School	Count	Means	Standard Deviation	Standard Error
1	20	38.85	4.14	0.92
2	11	36.72	4.07	1.22
3	12	37.08	3.14	0.90
4	14	41.85	4.16	1.11
5	7	37.14	3.23	1.22
6	18	32.72	5.85	1.38
7	12	34.16	6.30	1.82
8	2	39.50	3.53	2.50
9	12	37.91	3.98	1.15
10	21	36.33	4.38	0.95
11	19	39.21	3.56	0.81
12	18	36.72	5.65	1.33
13	13	37.84	3.97	1.10
14	13	36.23	3.96	1.09
15	25	39.76	4.42	0.88
TOTAL	217	37.47	4.91	0.33

TABLE 6

Descriptive Statistics for School Climate Survey

Scale 6: Organizational Climate

School	Count	Means	Standard Deviation	Standard Error
1	20	49.25	3.65	0.81
2	11	47.27	4.19	1.26
3	12	45.00	8.60	2.48
4	14	50.07	5.83	1.56
5	7	49.42	5.47	2.06
6	18	43.50	5.53	1.30
7	12	45.33	4.65	1.34
8	2	45.50	7.77	5.50
9	12	48.33	5.91	1.70
10	21	46.38	4.95	1.08
11	19	49.78	4.32	0.99
12	18	47.61	5.68	1.34
13	13	46.84	5.84	1.62
14	13	46.30	3.27	0.90
15	25	47.76	4.77	0.95
TOTAL	217	47.33	5.39	0.36

TABLE 7

Descriptive Statistics for School Climate Survey

Scale 7: Students

School	Count	Means	Standard Deviation	Standard Error
1	20	44.75	6.32	1.41
2	11	45.72	3.10	0.93
3	12	42.41	6.43	1.85
4	14	55.07	2.23	0.59
5	7	48.00	4.79	1.81
6	18	40.00	5.47	1.29
7	12	40.50	6.61	1.90
8	2	43.00	2.82	2.00
9	12	42.16	6.13	1.77
10	21	46.57	5.59	1.22
11	19	43.89	5.96	1.36
12	18	44.50	8.39	1.97
13	13	46.00	8.29	2.30
14	13	40.76	7.17	1.99
15	25	45.12	4.88	0.97
TOTAL	217	44.61	6.82	0.46

TABLE 8

Scale Scores Summarized by School

School	Count	Means	Standard Deviation	Standard Error
1	140	43.04	7.16	0.60
2	77	42.33	7.37	0.84
3	84	39.50	8.47	0.92
4	98	46.93	8.49	0.85
5	49	43.53	7.56	1.08
6	126	37.50	7.59	0.67
7	84	37.84	8.24	0.90
8	14	39.57	5.84	1.56
9	84	42.23	7.85	0.85
10	147	40.26	8.24	0.68
11	133	42.19	7.96	0.69
12	126	42.15	8.51	0.75
13	91	41.45	7.92	0.83
14	91	39.67	7.44	0.78
15	175	42.95	7.01	0.53
TOTAL	1519	41.53	8.11	0.20

TABLE 9

School Climate Scores Across Scales

Group	Count	Means	Standard Deviation	Standard Error
School Based Staff	217	37.43	4.36	0.29
Communications	217	45.49	6.25	0.42
Innovation (New Programs)	217	46.48	7.67	0.52
Central Administration	217	31.87	5.94	0.40
School-Community Relations	217	37.47	4.91	0.33
Organizational Climate	217	47.33	5.39	0.36
Students	217	44.61	6.82	0.46
TOTAL	1519	41.53	8.11	0.21

TABLE 10

Correlation of School Climate Scales Across Schools

	SCALE 1	SCALE 2	SCALE 3	SCALE 4	SCALE 5	SCALE 6	SCALE 7
Scale 1	1.00						
Scale 2	0.39	1.00					
Scale 3	0.35	0.56	1.00				
Scale 4	0.27	0.54	0.73	1.00			
Scale 5	0.25	0.46	0.48	0.49	1.00		
Scale 6	0.44	0.52	0.54	0.51	0.41	1.00	
Scale 7	0.38	0.44	0.36	0.38	0.40	0.27	1.00

TABLE 11

MEANS OF THE SCHOOL CLIMATE

SCALES USED IN THE DISCRIMINANT ANALYSIS

Means Group = Variable	Scale I Personal	Scale II Management	Others
School Staff	38.62	37.58	36.85
Communication	48.59	46.13	45.22
Innovation (New Programs)	51.31	45.86	46.85
Central Administration	34.81	31.52	32.11
School-Community Relations	39.68	37.13	36.66
Organizational Climate	49.37	45.85	45.77
Students	48.96	45.50	43.25
Group	1.00	2.00	3.00
COUNTS	32	36	27

TABLE 12

STANDARD DEVIATIONS OF THE SCHOOL CLIMATE

SCALES USED IN THE DISCRIMINANT ANALYSIS

Standard Deviations

Group = Variable	Scale I Personal	Scale II Management	Others
School Staff	5.36	4.99	4.62
Communication	6.32	6.20	5.72
Innovation (New Programs)	7.57	7.09	7.98
Central Administration	5.38	5.72	6.95
School-Community Relations	4.56	4.16	5.08
Organizational Climate	4.70	5.87	6.10
Students	6.72	6.74	7.21
Group	0.00	0.00	0.00

TABLE 13

SUMMARY TABLE FOR DISCRIMINANT ANALYSIS
OF SCHOOL CLIMATE SURVEY SCALES BASED ON GROUPS OF
TEACHERS WITH PERSONAL OR MANAGEMENT CONCERNS

Scale	Step	F to Enter	U Statistics	Approx. F	df
New Programs	1	9.4	.88	9.4**	1.66
Organizational Climate	2	1.9	.85	5.7*	2.65

* p .05
** p .005

Classification Function

Scale Variable Group:	Personal	Management
New Programs	0.488	0.412
Organizational Climate	1.419	1.342

Cononical Correlations

Variable	Coefficients
New Programs	0.092
Organizational Climate	0.092
Constant	-8.83