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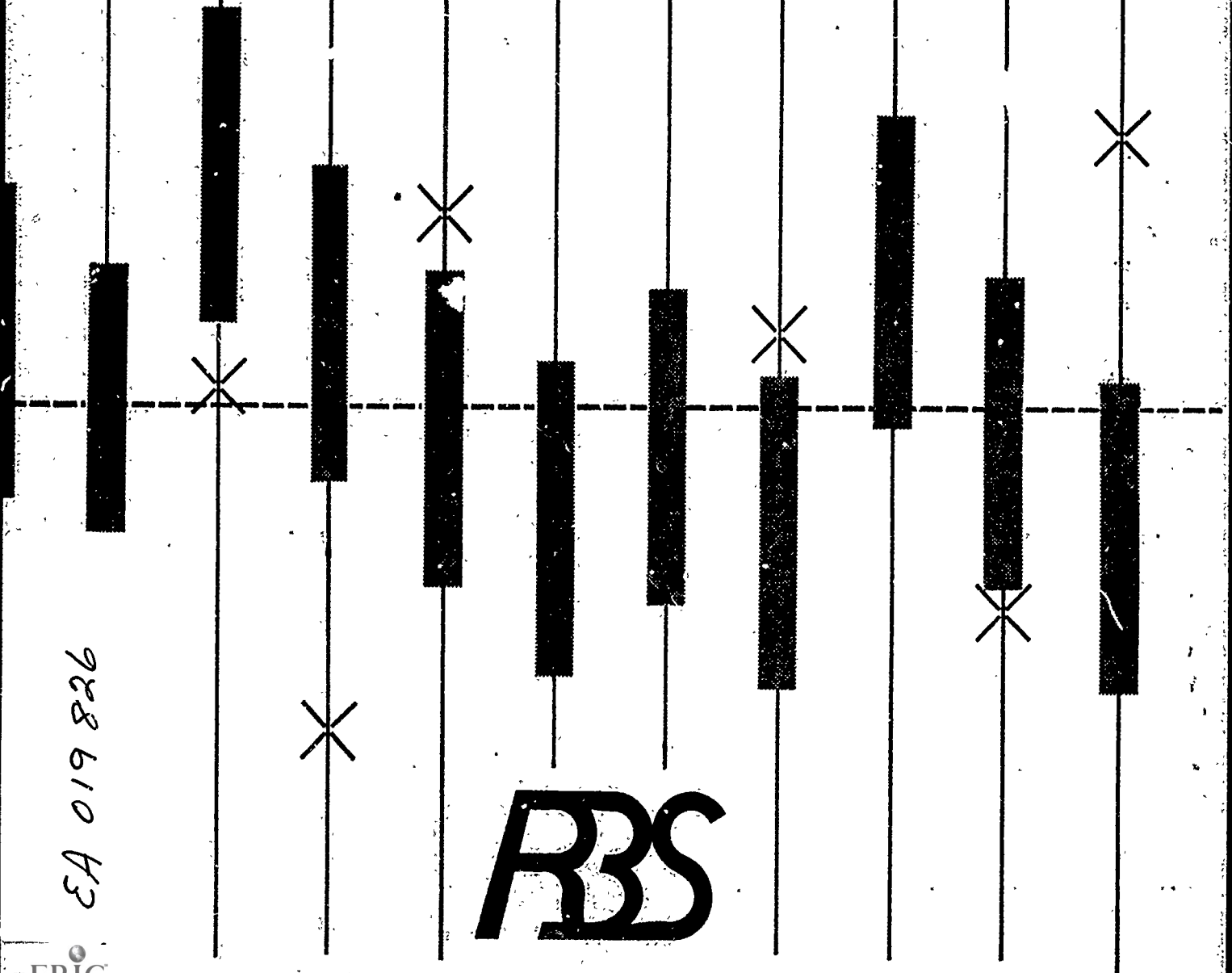
ABSTRACT

This technical manual describes the School Assessment Survey (SAS), a multidimensional questionnaire that uses teachers' perceptions to measure key organizational characteristics of a school. Developed to take advantage of recent developments in organizational theory and school effectiveness research, the SAS instrument can be used to identify areas of strength and weakness and to help decide the course of action to implement desired changes. A general overview of a perspective on schools as organizations states why that perspective is important and illustrates how it might be useful in efforts to improve educational practices. The 55 items in the SAS questionnaire measure 9 distinct dimensions covering a wide range of organizational characteristics. A justification for each dimension is offered. The history of the SAS instrument is also presented, as well as technical details regarding the measurement properties of its nine dimensions. A four-page graphic profile illustrates how the results can be presented to educators. Twenty notes and a 60-item bibliography are appended. The appendixes contain the SAS instrument and summary statistics of items in the dimensions based on data collected from a sample of 2,311 teachers in 61 schools. (MLF)

School Assessment Survey

Information for School Improvement

A Technical Manual



RBS

A survey feedback program from Research for Better Schools, Inc.

School Assessment Survey
Information for School Improvement

A Technical Manual

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PREFACE

This technical manual describes the *School Assessment Survey (SAS)*, an instrument designed to help educators and researchers analyze characteristics of schools known to be related to organizational improvement efforts. It offers a general overview of our perspective on schools as organizations, states why that perspective is important and illustrates how it might be useful in efforts to improve practice. The history of the SAS instrument is also presented, as well as technical details regarding the measurement properties of its nine dimensions. Finally, we illustrate how the results can be presented to educators through an easy-to-read graphic profile.

A companion brochure, SAS: Information for School Improvement, answers common questions about SAS, defines the SAS dimensions, explains what the results look like, and offers users comments. In addition, a report will be available in the near future that details alternative models for school improvement through analysis of SAS data. That report is based on our experience in working with over 250 schools that have used SAS.

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INTRODUCTION

When--as periodically happens--schools are criticized for their failure to develop the capabilities of students or for being inflexible and unable to change, the problems are often organizational. Yet, improvement efforts often fail to consider key organizational conditions. The study of schools as organizations is thus important because it can help identify organizational barriers and facilitators to more effective schooling. In addition, an organizational perspective permits one to draw on what has been learned about the design and management of other organizations--businesses, hospitals, or government agencies--when studying or making decisions in schools. Finally, the examination of the organizational characteristics of a particular school often identifies factors beyond personality factors or economic resources that may affect the quality of education offered and efforts to improve it.

The *School Assessment Survey (SAS)* is a multidimensional questionnaire that uses teacher's perceptions to measure key organizational characteristics of a school. It generally follows the tradition of organizational measures initiated by Halpin and Croft (1963) and extended by Gross and Herriott (1965). Research for Better Schools (RBS), a federally funded, nonprofit, regional education laboratory has developed SAS to take advantage of recent developments in organizational theory and school effectiveness research. SAS is designed to be used in elementary, junior high, or senior high schools to help teachers and administrators describe organizational conditions in their schools. The SAS instrument can be used as a research tool, as a means to identify areas of strength and weakness to determine whether improvement is needed and what kind might be helpful (needs assessment), or as a technique to help decide what course of action is needed to implement a specific desired change (change planning).

The 55 items in the SAS questionnaire measure nine distinct dimensions covering a wide range of organizational characteristics. The dimensions were selected to represent classical concepts in organizational sociology that would have practical applications for schools. A justification for each dimension is offered in a later section of this manual.

The SAS instrument is designed to measure school-wide characteristics. It relies on teachers as informants about these characteristics, and assesses each dimension by combining the views of most teachers in each school.[1] This approach has proven effective in assessing the dynamics of the nine organizational dimensions when other approaches are not feasible. For instance, examination of existing records is often precluded because those dimensions which reflect ongoing patterns of thought and activity are not written down. Direct observation might be possible, but is often too expensive, time-consuming, and subject to problems of reliability and validity. Reliance on a sample of informants also creates problems since perceptions of a few informants may inaccurately represent the full picture of a school. Yet, when most views are combined, a more accurate portrait

can be produced, one that minimizes individual biases.[2] Further, by systematically surveying all teachers in a given school, the full range of perceptions can be represented.

INITIAL DEVELOPMENT OF SAS

The development of the SAS instrument has proceeded through four phases. In the first, the emphasis was on operationalizing organizational characteristics and testing their relationship to planned change (Firestone & Herriott, 1981, 1982a). The second phase expanded the descriptive dimensions of organizational characteristics and used a larger sample of schools (Firestone & Herriott, 1982b). The third refined the instrument to make it more useful for school practitioners as they confront issues of school improvement. The fourth phase used the same items as the third and expanded the size and representativeness of the sample for validity analysis and norming purposes. This section reviews those four phases. Following this, we describe the instrument in its current form.

All four phases of instrument development have been influenced by an underlying tension regarding how theorists think about schools as organizations. Historically, much of the original thinking was dominated by the perspective that schools operate as bureaucratic organizations (Anderson, 1968). Such a view has been challenged in the last decade by theories describing schools as "loosely coupled systems" (Cohen, March, & Olsen, 1972; Weick, 1976; Meyer & Rowan, 1978). These two images of how schools work--as bureaucracies or as loosely coupled systems--have utility beyond theoretical discourse. Indeed, they have very different practical implications for educational change. For instance, in a more bureaucratic school, change works better when initiative is concentrated at the top and administrators plan carefully using the best available knowledge to anticipate barriers to innovation. In a loosely coupled system, change initiative rests more with teachers, while administrators play a more facilitative role and school-wide change is not to be expected (Firestone, 1980; Wilson & Corbett, 1983). The instrument measures important dimensions that help distinguish the organizational forms of schools.

Phase I: Images and Change

The first phase of instrument development was concerned with operationalizing two organizational dimensions: one of influence and one of goal consensus. These two dimensions, each of which was represented by 12 questionnaire items, were tested in 1979 with 661 teachers in 13 schools (Firestone & Herriott, 1982a).

Phase II: Further Assessment of Images

The first phase was promising, but further work was needed to overcome sampling and measurement limitations. While discrimination between images of schools using only two dimensions was parsimonious, it did not provide a rich description of the expected differences between images. To explore those differences, a second study was initiated in 1981 that relied on a random sample of 50 schools with 1323 teachers in southeastern Pennsylvania. Seven new dimensions were added and together the nine dimensions were represented by a total of 85 questionnaire items.[3] A series of analyses (similar to those described in a later section of this manual) reduced the number of items to 44 and the number of dimensions to eight.

Phase III: Refinements for Practitioners

Although the SAS questionnaire was originally developed for research purposes, colleagues in training units within RBS found it to possess considerable promise as a diagnostic instrument for use with practitioners in training and planning activities. To maximize this potential, further development was needed. Attention focused on adding items to selected dimensions to enhance their reliability and to make them more relevant for educators. In addition, some new dimensions were considered. Many of the new items and dimensions were inspired by the effective schools research (Edmonds, 1979; Brookover, Beady, Flood, Schweitzer, & Wisenbacker, 1979).

These revisions were tested in 1983 on a sample of 2311 teachers from 61 schools in Pennsylvania and New Jersey. Before analysis of these data began, the dimensions were again screened by trainers at RBS. This screening helped focus our analysis on those dimensions with the greatest potential for practical application. Nine dimensions were then subjected to empirical analyses, as described later in the "Measurement Procedures and Results." The 55 items representing these dimensions that survived the empirical tests constitute the current SAS instrument.

Phase IV: Expanding the Sample

A further round of data collection was initiated in 1984 and 1985 with a sample of 4087 teachers from 159 schools throughout the country. It was felt that for purposes of validity and norming the manual would be enhanced by the inclusion of a larger and more nationally representative set of schools. The combined Phase III and Phase IV data were thus used to describe the "Characteristics of the Dimension Scores" and the "Presentation of the Dimension Scores" that concludes this technical manual.

DESCRIPTION OF SAS DIMENSIONS

The current version of the SAS instrument contains nine dimensions. This section provides definitions for each dimension and illustrates how each is operationalized (see Chart 1). A complete version of the SAS questionnaire is included in Appendix A.

In the paragraphs below, we clarify the SAS dimensions and briefly review some theoretical considerations related to each one. Our general approach to the selection of dimensions was based on conceptual rather than empirical grounds. We chose existing concepts and approaches to their measurement from the literature of organizational sociology and then used the advice of school practitioners and school improvement trainers at RBS to develop specific items to measure each concept. The most relevant sources from this conceptual literature are cited in the discussion of each dimension. Chart 2 briefly reviews literature showing their contribution to school effectiveness and improvement. Because the concepts employed in the SAS questionnaire have been studied extensively by other researchers using a variety of methodologies, we refer to their work as well as our own when describing the meaning of each dimension.

The dimensions have been organized for presentation purposes in a top-down manner to reflect a progression of relationships down the organizational hierarchy of a school. The discussion begins with the formal purposes of a school as an organization (goal consensus), then shifts to address a managerial issue (facilitative leadership), then deals with principal/teacher concerns (centralization of influence and vertical communication), and concludes with several issues related to teacher activities (horizontal communication, staff conflict, and teaching behavior).

1. Goal consensus. The formal goals for any organization are usually determined by a governing board or by the chief executive officer, but there is frequently a question about the extent to which staff share those goals (Simon, 1964). Researchers generally agree that schools are expected to achieve an excessive number of goals and have no clear rules for prioritizing them (Boyd, 1978; Goodlad, 1983). However, these general statements fail to take into account the variation among schools in goal consensus documented through the use of SAS.

2. Facilitative leadership. One of the recurring debates about organizations is whether their performance is entirely determined by the environment (Aldrich, 1979) or whether leaders can take actions to improve productivity (Child, 1972). If leaders play a role, it can be either by developing a basic strategy (Firestone & Wilson, 1985a) or by motivating and supporting the work of other staff. To understand principal's contributions, their interaction with teachers has been studied extensively using both survey (Halpin & Croft, 1963; Bridges, 1982) and observational methods (Wolcott, 1973; Kmetz & Willower, 1982). This work

Chart 1

Definitions and Sample Items for the Eight SAS Dimensions

Dimension	Definition	Sample Item[1]	Metric[2]	SAS Question Number[3]
GOAL CONSENSUS	Agreement among teachers on on which student skills and characteristics should receive the most attention in a particular school.	Rank these seven areas in terms of how important they are to you as a member of your school: Critical and original thinking.	Most important (1) to least important (7)	6
FACILITATIVE LEADERSHIP	Actions of the principal that encourage and support the professional behavior of the teaching staff.	Indicate how frequently your principal engages in each activity listed below: Gives teachers the feeling that their work is an "important" activity.	Never (0) to always (5)	13
CENTRALIZATION OF INFLUENCE: CLASSROOM INSTRUCTION	The ability of the principal to get teachers to carry out his/her wishes with respect to teaching activities.	Indicate how much influence teachers in the school and the principal in the school have on the following decisions: Selecting required texts and other materials.	Principal centered (+3) to teacher centered (-3)	11
CENTRALIZATION OF INFLUENCE: CURRICULUM AND RESOURCES	The ability of the principal to get teachers to carry out his/her wishes with respect to courses, schedules, staff assignments, and the allocation of resources.	Indicate how much influence teachers in the school and the principal in the school have on the following decisions: Making specific faculty grade level and course assignments.	Principal centered (+3) to teacher centered (-3)	11

Dimension	Definition	Sample Item[1]	Metric[2]	SAS Question Number[3]
VERTICAL COMMUNICATION	The extent to which information about instruction is shared between teachers and administrators.	Indicate how often you talk about each of the topics listed below with administrators in this school: Lessons or curriculum units that work well or poorly.	Never (0) to once a day (5)	12b
HORIZONTAL COMMUNICATION	The extent to which information about instruction is shared among teachers.	Indicate how often you talk about each of the topics listed below with the two teachers you talk to most often: Lessons or curriculum units that work well or poorly.	Never (0) to once a day (5)	12a
STAFF CONFLICT	The frequency of disputes about school-related matters among teachers.	In the last twelve months, how often have disputes occurred among teachers regarding the following issues: The need for administrative support for handling pupil behavior problems.	Never (0) to always (5)	10
STUDENT DISCIPLINE	The presence of an orderly environment in the school.	Throughout this school the atmosphere is orderly and businesslike.	Never (0) to always (5)	7
TEACHING BEHAVIOR	Actions of teachers that enhance the quality of instruction for all students in the classroom.	What percent of the teachers in this school: Provide opportunities for students to go beyond the minimum demands of assigned work.	0 percent to 100 percent	9

1. Abbreviation of items found in the SAS questionnaire which is included in the manual as Appendix A.
2. Where transformations are performed on item-level data, the metric shown is for the final dimension level data.
3. Refers to question numbers in the actual questionnaire. See Appendix A.

Chart 2

Research Showing Relationships Between SAS Dimensions and School Effectiveness and Improvement

DIMENSION	SCHOOL EFFECTIVENESS	SCHOOL IMPROVEMENT
Goal Consensus	When staff agree on the importance of basic skills instruction in urban schools, achievement increases: • Brookover et al., 1979 • Clark, Lotto, & McCarthy, 1981	Goal consensus plus the belief that an innovation facilitates meeting valued goals leads to implementation: • Berman & McLaughlin, 1975 • Wilson & Corbett, 1983
Facilitative Leadership	This measure of principal leadership contributes to student achievement both directly and by working through teaching behavior when controlling for student SES: • Gross & Herriott, 1965 • Calif. State Dept. of Ed., 1977 • Firestone & Wilson, 1985b	Principal support for an innovation contributes to its implementation: • Berman & McLaughlin, 1975, 1977 • Corbett, Dawson, & Firestone, 1984
Centralization of Influence: Classroom Instruction	Decentralization promotes higher achievement: • Firestone & Wilson, 1985b	
Centralization of Influence: Curriculum and Resources	Decentralization promotes higher achievement: • Firestone & Wilson, 1985b	
Vertical Communication	Frequent communication between teachers and administrators about instruction promotes higher achievement • Wellisch et al., 1978	
Horizontal Communication		Frequent communication leads to the spread of change and promotes the effectiveness of instruction: o Little, 1982 • Rosenblum & Louis, 1981 • Wilson & Corbett, 1983
Staff Conflict		Conflict reduces the chances of implementation and the spread of change: • Corbett, Dawson, & Firestone, 1984 • Firestone, 1980 • Rosenblum & Louis, 1981
Student Discipline	A sense of order that is fair, consistent and encourages responsibility will promote higher achievement: • Rutter et al., 1979	
Teaching Behavior	High quality teaching of all children promotes student achievement • Brookover et al., 1979 • Gross & Herriott, 1965	

identifies a number of dimensions or aspects of leadership. One of the most important is the extent to which the leader "conform(s) to a definition of his/her role that stresses his obligation to improve the quality of staff performance" (Gross & Herriott, 1965:22). That is the dimension of leadership examined here. Research from the SAS database indicates there is a ·significant positive effect of facilitative leadership on teaching behavior (Firestone & Wilson, 1985b).

3. Centralization: Classroom instruction. Centralization refers to the distribution of power or influence in an organization (Hall, 1982). One of the difficulties in studying centralization is in specifying the decision areas of interest. Sociologists are typically interested in centralization of power over strategic decisions that affect the basic destiny of the organization (Hage, 1980). However, in schools there is considerable interest in understanding who controls the day-to-day decisions governing how children are taught. This is generally assumed to be an area over which teachers, rather than administrators, have the greatest power (Lortie, 1969). Our measure looks at the relative influence of teachers versus the principal over day-to-day classroom instruction. Analyses from this data indicate that more decentralized control promotes better teaching (Firestone & Wilson, 1985b).

4. Centralization: Curriculum and resources. This measure looks at the centralization of influence over more long-term decisions including the allocation of resources and materials, adding and dropping courses, setting the school's schedule, making faculty assignments in the building, and determining space allocations. These decisions are expected to fall in the principal's "zone of authority" (Lortie, 1969).

5. Vertical communication. Communication is the exchange of information and the transmission of meaning (Katz & Kahn, 1978). It is one of the most commonly discussed and measured concepts in the organizational literature (Price, 1972). An optimal communication system should provide an organization's members with the information necessary to coordinate their work without overloading them (Hall, 1982). Schools are generally viewed as isolating environments for teachers where there is little opportunity to discuss one's work and learn from others (Dreeben, 1973). Thus, insufficient information rather than overload is the problem.

Following Price (1972), our instrument differentiates between horizontal (among peers) and vertical (between subordinates and superiors) communication. Vertical communication assesses the amount of discussion between teachers and administrators about instruction and student management. Barriers to vertical communication have been studied in a variety of organizations (Hall, 1982). Generally, vertical communication about teaching work is limited and may be distorted by the affective orientation of teachers towards principals (McPherson, 1979).

6. Horizontal communication. This dimension assesses the amount of communication among teachers using the same topics as in vertical communication.

7. Staff conflict. Conflict is the struggle over values and claims to scarce status, power and resources in which the aims of the opponents are to neutralize, injure, or eliminate their rivals (Coser, 1957). The study of conflict is a major theme in sociology and a recurring concern in the study of organizations (Hage, 1980). Conflict is generally regarded as unpleasant, although Coser (1957) and others point out that it is sometimes a necessary step in creating the consensus needed for an organization to function. Our measure of conflict assesses the frequency of disputes among teachers concerning school-related matters.

8. Student discipline. Order in organizations is particularly problematic when membership is not voluntary (e.g., prisons, mental institutions). Not only are students forced by law to attend school, but those in authority over them (i.e. adults) are often viewed as having very different value orientations. For that reason control over the social behavior of students is very important in understanding the school as an organization. Discipline is so problematic in some schools, that it takes priority over other activities (Lightfoot, 1981). Indeed, some schools have even struck tacit bargains with their students; if they behave, few other demands will be placed on them (Cusick, 1983). However, there is also evidence that indicates a fair, consistent sense of order which encourages student responsibility. can be linked to higher achievement (Reynolds, 1977; Rutter, Maugham, Mortimer, Ouston, & Smith, 1979).

9. Teaching behavior. Teaching behavior is the primary "production activity" of the school. As such, it is a phenomenon midway between the organizational characteristics on which this instrument focuses and the primary concern of educators: increasing student performance. Moreover, teaching behavior is multifaceted. This measure focuses on two aspects of teaching that have been shown to relate to

student performance. The first is what Gross and Herriott (1965) call a "professional orientation." By this they mean making the effort to creatively do more than the minimum, for instance by using materials in addition to their textbooks, trying new methods, and taking an interest in students' social and emotional problems. The second is what Brookover, Brady, Flood, Schweitzer, & Wisenbacker (1979) call teacher expectations. These expectations focus on the extent to which teachers believe that all students in their classroom can achieve at some reasonable level and their willingness to teach all children rather than single out a few of the more talented students who are more rewarding to work with. By looking at teachers' behavior (rather than beliefs), this dimension focuses on both of these aspects of teaching which we found to be highly correlated.

MEASUREMENT PROCEDURES AND RESULTS

This section describes the measurement properties of the nine dimensions of schools as organizations. The dimensions were constructed initially from the responses of 2311 teachers in 61 elementary or secondary schools to 55 questionnaire items.[4] The data in this section derive from phase III activities. The following discussion presents the logic of the progression from the responses of individual teachers to empirical indicators of schools as organizations.

Data were summarized across teachers for each dimension. In eight instances, we summarized the central tendency of teacher responses within a given school. However, in one case (goal consensus), a summary score was developed to capture the dispersion of responses. The goal consensus measure taps the extent to which individuals perceive a collective sense of purpose around which their daily activities are organized. The focus is on agreement and the simplest way to assess that is to measure the extent of variation or dispersion among respondent preferences. Since the procedures used to measure goal consensus are very different from those used to measure the other eight dimensions, these two approaches are discussed separately.

The Measure of Dispersion (Goal Consensus)

To measure goal consensus in each school, we asked each teacher to rank order seven "areas of student development"[5] in terms of "how important they are to you as a member of this school." The degree of consensus among teachers within each school was obtained by computing Kendall's coefficient of concordance (W) across all teachers and ranks. This statistic produces a single score for each school (ranging from 0 to 1) by assessing the degree of agreement among all the teachers in the school

across the seven goals. It represents a logical extension of Spearman's rank order coefficient (r_s), with W representing the communality of judgment for all teachers rather than just two as is the case with r_s (Siegel, 1956).

The Measures of Central Tendency

In the eight instances where our measure was one of central tendency, the transformation of the individual teacher responses across a large set of items to a subset of dimension scores for each school was more complex and generally involved four major steps:

- creation of "individual item scores" for each teacher from the several questionnaire items representing each dimension of organizational behavior,
- creation of "school item scores" for each school by summarizing the item scores of teachers in the same school,
- deletion of any school item scores failing to meet established criteria of validity, reliability, and lack of redundancy,
- creation of "school dimension scores" for each school by combining multiple school item scores in each dimension.

Creation of Individual Item Scores

Each question in the survey instrument asked individual teachers to report about conditions in his/her school. The first step was to make these individual item scores usable in further analysis. In five of the eight dimensions measuring central tendency, the individual item score was ready for use directly as transcribed from the questionnaire. These five dimensions were:

- facilitative leadership
- vertical communication
- staff conflict
- student discipline
- teaching behavior

On the other hand, the items in three dimensions required some manipulation before they were ready for further analysis. The required transformations for the items in those three dimensions are described below.

Horizontal communication. This dimension assesses the frequency of communication among teachers. A number of different approaches could have been adopted to measure communication. By asking a respondent to report interactions with only one colleague, answers would be biased to the high end because of close friendship associations. Likewise, asking teachers to assign an average across all colleagues would yield a conservative estimate since there are large numbers of teachers who have little or no interaction with one another. A compromise was to ask teachers to think of the two colleagues with whom they speak most often and to report the frequency of communication with each. By averaging the responses for two colleagues a more realistical appraisal of communication is obtained for colleagues with whom any ongoing communication is maintained. To arrive at that average, the mean of the responses vis a vis both colleagues was calculated for each item.[6]

Centralization. The two centralization measures operationalize the influence a principal has relative to that of the teaching staff.[7] Item scores for both the classroom instruction and curriculum/resources dimensions were calculated identically. Rather than asking teachers to evaluate directly the influence of principals over teachers, a less obtrusive approach was taken. Teachers were asked to indicate how much influence the "teachers in the school" and "the principal" separately had in each of ten key decision areas (five for each dimension). Both were assessed on a four point scale from no influence (0) to major influence (3). The relative influence measure for each decision area was assessed by subtracting the teachers' score from the principal's score. The greater the score, the more centralized the influence.

After the transformations were performed on the appropriate items, summary descriptive statistics were generated to test that there was, indeed, some variation across the items of interest.[8] In all cases there is ample spread on the distribution of scores.

Creation of School Item Scores

Since the goal of the research guiding the development of this instrument was to assess organizational characteristics of schools, we needed to progress from individual teacher responses to school-wide item scores. This second step required that the scores for each questionnaire item be summarized across all teachers in a school. That summary is the mean or the average response for all teachers in a school.[9]

Deletion of School Item Scores

The phase III SAS instrument contained 86 items designed to measure central tendencies with respect to eight organizational dimensions. A series of tests was carried out to ensure that the items met three important empirical criteria: that items differentiated among schools, that items expected to cohere as a dimension in fact did so, and that items from different dimensions did not cohere as a set. These steps eliminated almost half the items leaving a final set of 48.[10] The logic of the procedures to assess the utility of included items is presented below.

The first criterion for retaining items was that they must differentiate among schools. Analysis of variance offers an empirical test of whether teachers exhibit sufficient agreement about their school for a mean score to be descriptively accurate. It does so by assessing the variation in scores among teachers within a school relative to variation among schools.[11] A small number of items was eliminated because of excessive within school variation (see Appendix B for data on the surviving items).[12]

After school means were computed for the retained items, the criterion of coherence around each dimension was assessed. Two tests provided evidence of coherence. The first test involved an examination of the correlation matrix of items in each dimension. A review of the matrices for eight dimensions (excluding goal consensus) enabled us to assess the extent to which different items measuring the same dimension yielded similar results. Where correlations were low, the affected item was thought not to accurately represent the same concept measured by others in the set. At the opposite extreme, very high correlations merely added redundancy to a dimension since one item was well defined by another. Thus, items were eliminated when they did not correlate with other items in their dimension set (lack of convergent validity)[13] or if there were excessively high correlations (redundancy).

Examination of correlation matrices did not always lead to a clear cut decision. Consequently, conceptual considerations were reintroduced. As described above, specific items were written to capture the essence of the concept to be measured by each dimension. Hence, each item had an initial degree of face validity. However, a reconsideration of that early face validity in light of empirical correlations led to a rethinking of what was being measured by what. This meant that some items no longer seemed to match the refined meaning of the dimension and thus needed to be eliminated.

The second test of coherence among items was the calculation of Cronbach's alpha (Cronbach, 1951). This coefficient measures the internal consistency of the items, i.e., whether the items are homogeneous within each dimension. This internal consistency notion is a standard test of reliability (Kerlinger, 1973). While there is no formal cutpoint for establishing reliable measures, the research community generally recognizes

.7 as an acceptable standard. For all eight dimensions, the alpha results were consistently high, providing strong evidence that reliable measures of organizational properties of schools are obtained through the SAS instrument (Table 1).[14]

The final criterion in selecting items involved comparing the association of items within each dimension with items in the other dimensions. This comparison assessed whether, as expected, items from different dimensions failed to cohere. To determine the degree to which the items in a dimension converge, the mean inter-item correlation within each dimension ("on diagonal items") was calculated. This was then contrasted with the mean correlation of the absolute value of the correlation with items in the remaining dimensions ("off-diagonal items").[15] The results of these calculations indicated the mean interitem on-diagonal correlation was approximately twice the size of the mean off-diagonal correlation (Table 2), providing strong confirmation of the convergent and discriminant validity of the organizational dimensions in this instrument.

Creation of School Dimension Scores

The last step in the analysis was to create a single score for each school for each of the eight dimensions. This was accomplished for each dimension by adding the school means for each item that remained after the elimination steps described above. This score was then divided by the number of items to return the dimension score to the original metric of its associated questionnaire items.

Table 1

Reliability Estimates (Cronbach's alpha)
for Eight SAS Dimensions (N=61)

Dimension	Number of Items	Alpha Coefficient
Facilitative Leadership	6	.96
Centralization, Classroom Instruction	5	.83
Centralization, Curriculum and Resources	5	.76
Vertical Communication	6	.90
Horizontal Communication	6	.88
Staff Conflict	7	.89
Student Discipline	7	.90
Teaching Behavior	6	.95

Table 2

Discriminant Validity Estimates for Eight SAS Dimensions (N=61)

Dimension	Within Dimension r	Across Dimension r
Facilitative Leadership	.82	.35
Centralization, Classroom Instruction	.52	.24
Centralization, Curriculum and Resources	.41	.17
Vertical Communication	.61	.24
Horizontal Communication	.55	.21
Staff Conflict	.55	.28
Discipline	.57	.30
Teaching Behavior	.80	.37

CHARACTERISTICS OF THE DIMENSION SCORES

As an introduction to the school-wide dimension scores, summary descriptive statistics have been presented for each one (Table 3). Analysis of the dimension scores combines the data from both phases III and IV. These data suggest that there is substantial variation across the 220 schools in the sample.[16] This finding further confirms the utility of the SAS instrument as a tool for diagnosing strengths and weaknesses in a school's organizational properties.

However, such descriptive information is not sufficient for the practitioner trying to make sense of these organizational properties as they relate to any improvement effort. Indeed, two additional questions must be answered. First, are these dimensions measuring empirically distinct organizational phenomena within schools? And, second, are the dimensions systematically related to any other important characteristics of schools? Each of these questions is addressed by a separate analysis.

Empirical Distinctiveness of the Nine Dimensions

As a check on the distinctiveness of the nine SAS dimensions, an examination was made of the interdimension correlation matrix (see Table 4). These nine dimensions were designed to assess conceptually distinct organizational characteristics of schools. However, there was no a priori reason to expect complete independence among the dimensions. Indeed, since these dimensions all measure organizational characteristics as broad concepts, it could be argued that there should be moderate association among the dimensions. However, if that association were too high, the dimensions could be measuring a much smaller number of higher-order concepts. In general, the correlation matrix indicates that there is moderate association among the dimensions, but there is also evidence of independence. Such findings provide additional confirmation for the utility of distinguishing schools along a number of organizational characteristics as measured by this instrument.

External Validity of the Nine Dimensions

To be of value to educators, these dimension scores must also be related to common-sense characteristics of schools. Our sociological view of schools is grounded in the belief that their organizational form adapts to the environment in which they are located (Meyer & Scott, 1983). Schools are not static organizations; they change to accommodate to the context in which they must operate. If this is true, then schools with different environments should take on different organizational forms. If the nine organizational dimensions have any validity, they should be responsive to different environmental settings. Two of the more pervasive

Table 3

Summary Statistics for the Nine School-Level
SAS Dimension Scores (N=220)

Dimension	Mean	SD	Potential Minimum	Potential Maximum	Observed Minimum	Observed Maximum	Skewness
Goal Consensus	0.400	0.129	0.00	1.00	.091	0.711	- 0.20
Facilitative Leadership	3.51	0.74	0.00	5.00	1.39	5.00	-0.15
Centralization, Classroom Instruction	-0.88	0.51	-3.00	3.00	-2.09	0.58	0.10
Centralization, Curriculum and Resources	1.56	0.42	-3.00	3.00	0.44	2.53	-0.43
Vertical Communication	1.35	0.41	0.00	5.00	0.54	3.83	1.67
Horizontal Communication	2.36	0.40	0.00	5.00	1.31	4.10	0.74
Staff Conflict	1.06	0.39	0.00	5.00	0.00	2.09	-0.09
Student Discipline	3.15	0.54	0.00	5.00	1.45	4.11	-0.65
Teaching Behavior	73.02	10.04	0.00	100.00	50.29	98.00	0.11

Table 4

Correlation Matrix of the Eight SAS Dimension Scores (N=220)

	GOCO 1	PLEAD 2	CINT 3	CINP 4	VCMN 5	HCMN 6	HCFT 7	DISCIP 8	TEACH 9
1. Goal Consensus	--	.31*	.42*	-.04	.19*	.21*	-.54*	.32*	.53*
2. Facilitative Leadership		--	.05*	-.34*	.51*	.13*	-.50*	.60*	.56*
3. Centralization: Classroom Instruction			--	.40*	.24*	.16*	-.05	-.12*	.17*
4. Centralization: Curriculum/Resources				--	-.30*	-.13*	.27*	-.49*	.31*
5. Vertical Communication					--	.43*	-.19*	.37*	.39*
6. Horizontal Communication						--	-.06	.02	.23*
7. Staff Conflict							--	-.59*	.64*
8. Student Discipline									.63*
9. Teaching Behavior									--

*p < .05

environmental conditions to which schools must adapt are the age-grade level of the students being taught (Hodgkins & Herriott, 1970) and the socio-economic background of students (Herriott & St. John, 1966). To assess whether the age-grade level or SES of the school is related to the nine organizational dimensions, two-way analyses of variance were conducted for each school organizational dimension using dichotomous level (elementary vs. secondary)[17] and SES (high vs. low)[18] scores as factors (see Table 5). The results indicate a powerful level effect (with six of the nine dimension scores being significantly influenced by the school age-grade level) and a more moderate SES effect (with only two of the dimensions having a larger SES than level effect).

It is also known that schools vary in terms of student behavior. Thus, the validity of the SAS instrument can also be enhanced by establishing an association between student behavior and the nine organizational dimensions.[19] As indicators of student behavior, we asked teachers to report on academic behavior.[20] In addition, one of the SAS dimensions (student discipline), can be conceptualized as a measure of student social behavior. These two behavior measures have been correlated with the SAS dinensions (see Table 6). Since a strong level effect had been observed (Table 5), the association between student behavior and the nine organizational dimensions is displayed separately for elementary and secondary schools (Table 6). These results indicate that for both elementary and secondary schools the organizational dimensions are related to student behavior. For both levels approximately three quarters of the correlations are statistically significant. However, the associations are generally weaker at the secondary level, reinforcing cautions about applying research on effectiveness in elementary schools to the secondary school setting (Firestone & Herriott, 1982c). Nevertheless, the consistent association between measures of student behavior and the nine organizational measures provides further evidence of their validity as meaningful organizational dimensions.

PRESENTATION OF THE DIMENSION SCORES

Since the dimension scores use four different metrics, their utility for educators can be greatly enhanced if direct comparisons can be made across dimensions. To do so requires standardization of scores so that every dimension is measured using the same metric. A number of metrics and standardization procedures are available. Following McCall (1939), we chose a "t scale" with a mean of 50 and a standard deviation of 10. Once the scores are standardized, direct comparisons can be made between dimensions (e.g., how a school's score on communication related to that on conflict). The standardization was performed on the single sample of 220 schools.

In addition to the ability to make comparisons across dimensions, educators have also expressed a desire to know how their school is performing relative to other comparable schools. In other words, a norm

Table 5

Proportion of Variance in Each of the Eight SAS Dimensions Explained by Age-Grade Level (LEVEL), SES, and the LEVEL x SES Interaction (N=219 schools)

Organizational Dimension	Proportion of Variance Explained			
	LEVEL	SES	LEVEL x SES	TOTAL
Goal Consensus	.54	--	--	.54
Facilitative Leadership	.02	--	--	.03
Centralization: Classroom Instruction	.30	.13	--	.37
Centralization: Curriculum/Resources	--	.06	--	.06
Vertical Communication	--	--	--	--
Horizontal Communication	--	--	--	--
Staff Conflict	.25	.01	--	.29
Student Discipline	.05	.11	--	.19
Teaching Behavior	.17	.01	--	.20

Note: The proportion of variance explained is measured via the computation of Eta-square. Only those Eta-square coefficients that are statistically significant at below the .05 level (df = 1, 111) are reported.

Table 6

Correlation Coefficients for the Relationship of the Eight SAS Dimensions with Measures of Student Behavior, by School Level (N=219)

Organizational Dimension	Student Behavior			
	Social		Academic	
	Elementary (N=145)	Secondary (N=75)	Elementary (N=145)	Secondary (N=75)
Goal Consensus	.40*	-.17	.42*	.05
Facilitative Leadership	.66*	.36*	.48*	.20*
Centralization: Classroom Instruction	-.29*	-.32*	-.37*	-.33*
Centralization: Curriculum/Resources	-.55*	-.39*	-.50*	-.47*
Vertical Communication	.40*	.18	.20*	.03
Horizontal Communication	.11	-.33*	-.04	-.09
Staff Conflict	-.62*	-.43*	-.53*	-.42*
Student Discipline	--	--	.80*	.74*
Teaching Behavior	.69*	.25*	.61*	.19*

*p <.05

reference is desired. Our experience with schools, in conjunction with the empirical evidence presented in Table 6, suggests that separate norms are required for elementary schools and secondary schools.

Once the dimensions had been standardized and an appropriate norming group had been established, an easy-to-read profiling technique was developed that allows educators to:

- review both school raw scores and standardized scores on each dimension,
- make comparisons of their school's scores from one dimension to another, and
- assess how well their school is doing relative to other elementary or secondary schools.

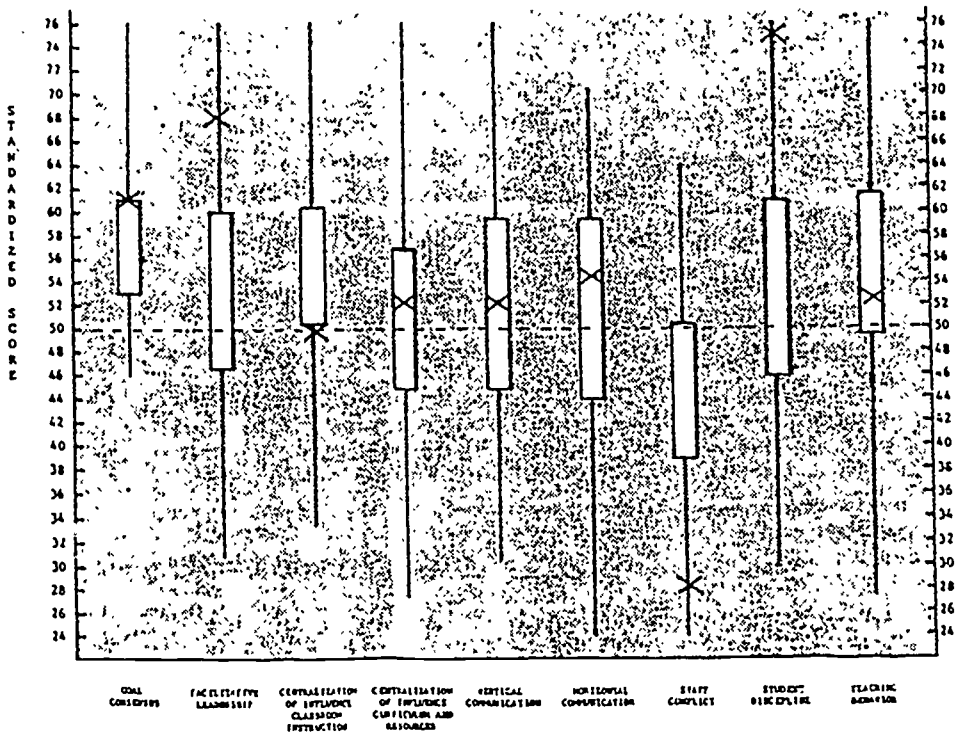
To facilitate answering all these questions in a single graphic, a "box and whisker" display format was adopted (Fields, 1985). A separately normed profile with corresponding positioned box and whisker displays has been designed for both levels. An illustrative example for each is displayed in Table 7. Each of the nine dimensions has a rectangular box with a vertical line or whisker extending above and below it. The line above the box represents the range of scores for the top quartile of schools within the normed group. The box represents the range of scores for the middle two quartiles. The line below the box represents the range of scores for the bottom quartile of schools in the normed group. An (X) along the box and whisker represents the standardized score for that school. The dotted horizontal line represents the mean standardized score (50) for the full sample of 220 schools. Directly below each dimensional graphic is the raw score.

The SAS instrument has now been administered in over 250 different school settings. The resulting profiles have been used by schools throughout the country to identify organizational strengths and weaknesses. A number of schools have even moved beyond that step and have initiated improvement activities based on SAS results. Reports from the schools indicate that the data not only accurately portray organizational conditions but also stimulate discussion between teachers and administrators regarding strategies to correct problem areas (Wilson, Rossman, & Miller, 1985). These are healthy signs. As schools continue to grapple with the challenges of the future, SAS will be available as a useful tool for such efforts.

Table 7

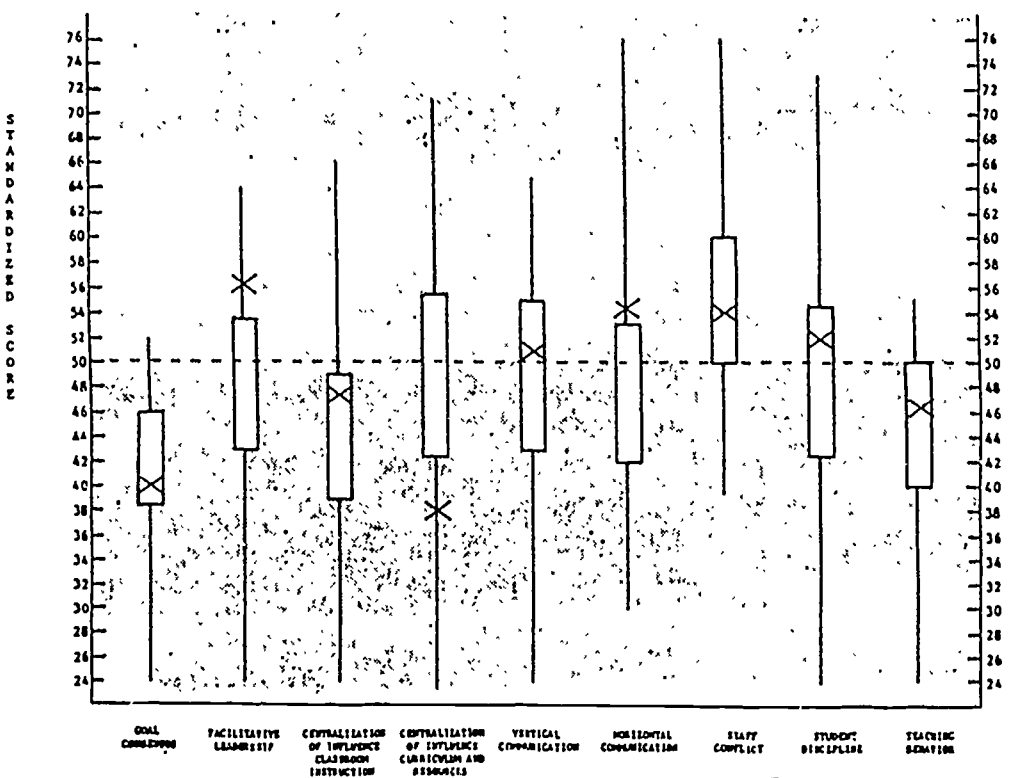
Illustrative Profiles of an Elementary and Secondary School

Elementary Profile



raw score	.551	4.67	-1.01	1.72	1.41	2.50	0.35	4.05	76.8

Secondary Profile



raw score	.227	4.17	-1.16	1.06	1.38	2.50	1.33	3.39	70.0

NOTES

1. The use of informants as sources of data has a long history in social science research (Siedler, 1974). The first systematic technique developed by anthropologists made use of single knowledgeable informants who could be counted on to describe how an otherwise inaccessible culture formed a working integrated social system. The study of single organizations is an adaptation of this approach. A shift in trends to more quantitative and analytic approaches in recent years has facilitated the move from studies of single organizations to the analysis of many (Scott, 1981). The techniques described in this manual follow that trend by using almost all teachers within a school as informants. These reports are summarized and then compared across a large number of schools.

2. For an elaboration of this view see Halpin & Croft (1963: 9-10).

3. A full discussion of the nine dimensions and the technical aspects of how items were combined can be found in Firestone & Herriott (1982b, Appendix A).

4. An important strength in our approach has been our success in surveying almost all the teachers in each school. The average proportion of teachers in a school completing the SAS instrument was 86 percent. Almost a quarter of the sample had all teachers completing the survey, while 87 percent had more than three quarters of the eligible teachers. Consequently, our summary of teacher responses for each school represents almost the total universe of professional opinion about the organization by those who work in it. To maximize the amount of information to be collected while minimizing the burden on teachers, phases II and III used a split-form format, whereby each teacher responded to all items in approximately two-thirds of the dimensions. By randomly distributing the two forms and by asking all teachers in a school to respond, we were confident that our sampling technique allowed for full representation of disparate viewpoints. Statistical tests on items that were common to both forms suggest no significant interform differences. With the subsequent elimination of items, we have been able to consolidate all items onto a single form (see Appendix A).

5. The seven goal consensus items are listed in Appendix A, question 6.

6. A review of the frequency distributions for each communication item confirmed that teachers report more communication with the first colleague nominated. However, these differences were not large. This fact allowed us to use the single response instead of the average for two in those few cases (less than 3%) where communication with only one colleague was mentioned.

7. Our initial conceptualization of centralization in phase I treated it as a single dimension. If a principal had control over decisions in

one area, then he/she was assumed to have control in all areas. However, our review of early data and literature on schools as organizations suggested that responsibility for decisions is differentiated (Lortie, 1969). Some areas are in the principal's domain (e.g. matters of administration) while the core activity of instruction rests with teachers. For that reason, we conceptualized two distinct dimensions in phases II through IV.

8. Appendix B provides a summary of descriptive statistics for each item in the current instrument. In addition, the percentage of missing cases is given, the results of the analysis of variance (described in the following section) is summarized, and the item/dimension correlation is presented.

9. This procedure of summarizing data for multiple lower unit observations to represent a single score for a higher unit is that of aggregation, a standard statistical technique employed in social science research (Hannan, 1971). The computer package algorithm adopted in this research was the SPSS (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975) procedure of "aggregate" used to compute the mean for all valid teacher responses within a school.

10. An overriding concern for balancing economy and response burden with technical acceptability (i.e. valid and reliable items) led us to strive for dimensions with no fewer than five and no more than eight items. In the one area (communication) where horizontal and vertical linkages were measured, our review process was organized around maintaining comparable items for both types of linkages. No items were eliminated from the goal consensus and principal leadership dimensions, one was eliminated from each of the centralization of influence measures, four from each of the communication dimensions, seven items from the staff conflict dimension, and ten from teaching behavior.

11. When within school variation is high relative to the variation between schools, it is inappropriate to use a single school score to summarize multiple informant reports.

12. The results from this analysis are summarized in columns 4 and 5 of Appendix B. In addition to reporting F values, the eta-squared, or the proportion of variance accounted for by the school in which teachers work, is presented. This statistic can vary from zero to one with a score of one indicating that all variation among teachers is accounted for by the school in which they work. Most of the items discriminated well between schools on this criterion.

13. While excessively high correlations suggest that two items represent the same phenomenon, it is not always a straight forward decision regarding which to eliminate. To assist in that decision, we evaluated the empirical and conceptual fit of the two items with all other items in their dimension and excluded those which fit less well.

14. All eight dimensions exceeded that figure, with all but one dimension having reliability coefficients greater than .85. In addition to an overall assessment of coherence, this procedure produces a correlation of each item with the dimension as a whole. The results of those correlations are presented in Appendix B.

15. A set of items is separated into distinct dimensions measuring different concepts to the extent that the mean interitem on-diagonal correlation is greater than the mean off-diagonal correlations (Dewar, Whetten, and Boje, 1980; Hackman and Oldham, 1975).

16. The variation by school is less than that by individual teachers, a finding not unexpected. However, the question of whether the variation by school has practical meaning requires further examination. One way of assessing the significance of that variation is to compare the range of school scores with the potential range. In all cases the observed range was at least 30 percent of the potential. This compares quite favorably with that of two widely used instruments where individual responses are aggregated to larger units--the School Climate questionnaire developed by Brookover and his colleagues (Brookover, Beady, Flood, Schweitzer & Wisenbaker, 1979) and the Learning Environment Inventory developed by Walberg and his associates (Fraser, Anderson & Walberg, 1982).

17. Background data on each school was obtained from a questionnaire completed by the principal. Part of that data collection activity included a question on the grade level of students being taught. A visual inspection of a two dimensional plot of highest and lowest grades indicated the appropriateness of splitting the sample into two groups. The elementary schools reflected predominantly K-6 grade configurations while the secondary schools included middle schools (6-8), junior high schools (7-9), senior high schools (9 or 10-12), and combined 7-12 schools.

18. Four questions pertaining to the socio-economic background of students' families were included in the principal questionnaire. All four were highly correlated. The one with most complete data ("percent of students in this school who come from families with incomes of less than $10,000") was used in this analysis. The distribution was dichotomized at the median with percentages of over 25% being considered low SES and those below that figure treated as high SES.

19. Student behavior can be considered either as an input or an output of schools. The more traditional view is to think of it as an output, but because the data were cross-sectional and because the measures were teacher reports rather than actual observed behavior, the data to date are unable to address this issue. Future research is planned that will link these organizational dimensions to student achievement, as an indicator of a school's output. However, in the interim a more conservative approach will be adopted that assumes our measures of

student behavior are simply co-temporal with the organizational dimensions.

20. As with the nine organizational dimensions, our student academic behavior dimension went through rigorous technical assessments before we were convinced that it represented a reliable and valid measure of the school. The same steps that were detailed for the nine organizational dimensions were also employed for the student academic behavior measure. Results comparable to those documented in the text were achieved. The student academic behavior measure included teacher reports of five items related to the achievement performance of the students they teach. These items are found in question 8 of Appendix A.

REFERENCES

Aldrich, H. (1979). Organizations and environments. Englewood Cliffs, NJ: Prentice-Hall.

Anderson, G. (1968). Bureaucracy in education. Baltimore: Johns Hopkins Press.

Berman, P. E., & McLaughlin, M. W. (1975). Federal programs supporting educational change. Vol. IV: The findings in review. Santa Monica, CA: Rand.

Berman, P. E., & Mclaughlin, M. W. (1977). Federal programs supporting educational change, V l. VII: Factors affecting implementation and continuation. Santa Monica, CA: Rand.

Boyd, W. L. (1978). The changing politics of curriculum policy making for American schools. Review of Educational Research, 43(4), 577-628.

Bridges, E. M. (1982). Research on the school administrator: The state of the art, 1967-80. Educational Administration Quarterly, 18(3), 12-33.

Brookover, W., Beady, C., Flood, P., Schweitzer, J., & Wisenbacker, J. (1979). School social systems and student achievement: Schools can make a difference. New York: Praeger.

California State Department of Education. (1977). California school effectiveness study. The first year: 1974-75. Sacramento: Author.

Child, J. (1972). Environment and performance: The role of strategic choice. Sociology, 6, 1-22.

Clark, D. L., Lotto, L. S., & McCarthy, M. M. (1980). Factors associated with success in urban elementary schools. Phi Delta Kappan, 61(7), 467-70.

Cohen, M. D., March, J. A., & Olsen, J. P. (1972). A garbage can model of organizational choice. Administrative Science Quarterly, 17, 1-19.

Corbett, H. D., Dawson, J. A., & Firestone, W. A. (1984). To each its own: School context and school change. New York: Teachers College Press.

Coser, L. A. (1957). The functions of social conflict. New York: Free Press.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. Psychometrika, 16, 297-334.

Cusick, P. A. (1983). The egalitarian ideal and the American high school: Studies of three schools. New York: Longman.

Dewar, R. D., Whetten, D. A., & Boje, D. (1980). An examination of the reliability and validity of the Aiken and Hage scales of centralization, formalization and task routineness. Administrative Science Quarterly, 25(1), 120-128.

Dreeben, R. (1973). The school as a workplace. In R. M. W. Travers (Ed.), Second handbook of research on teaching: A project of the American Research Association. Chicago: Rand McNally.

Edmonds, R. (1979). Effective schools for the urban poor. Educational Leadership, 37(1), 15-23.

Fields, M. W. (1985). Exploratory data analysis in educational administration: Tempering methodological advances with a conservative note. Educational Administration Quarterly, 21(3), 247-262.

Firestone, W. A. (1980). Images of schools and patterns of change. American Journal of Education, 8(4), 459-487.

Firestone, W. A., & Herriott, R. E. (1981). Images of organization and the promotion of education change. In R. Corwin (Ed.), Research in sociology of education and socialization, (Vol. 2). Greenwich, CT: JAI Press.

Firestone, W. A., & Herriott, R. E. (1982a). Two images of schools as organizations: An explication and illustrative empirical text. Educational Administration Quarterly, 18(2), 39-59.

Firestone, W. A., & Herriott, R. E. (1982b). An empirical study of the applicability of images of organization to schools. Philadelphia: Research for Better Schools.

Firestone, W. A., & Herriott, R. E. (1982c). Prescriptions for effective elementary schools don't fit secondary schools. Educational Leadership, 40(3), 51-53.

Firestone, W. A., & Wilson, B. L. (1985a). Using bureaucratic and cultural linkages to improve instructionl: The principal's contribution. Educational Administration Quarterly, 21(2), 7-30.

Firestone, W. A., & Wilson, B. L. (1985b). Management and organizational outcomes: The effects of approach and environment in schools. Philadelphia: Research for Better Schools.

Fraser, B. J., Anderson, G. J., & Walberg, H. J. (1982). Assessment of learning environments: Manual for learning environment inventory (LEI) and my class inventory (MCI). Bentley, Western Australia: Western Australian Institute of Technology.

Goodlad, J. I. (1983). A place called school: Prospects for the future. New York: McGraw-Hill.

Gross, N., & Herriott, R. E. (1965). Staff leadership in public schools. New York: Wiley.

Hackman, J. R., & Oldham, G. R. (1975). Development of the job diagnostic survey. Journal of Applied Psychology, 60(2), 159-170.

Hage, J. (1980). Theories of organization: Form, process and transformation. New York: Wiley, 1980.

Hall, R. (1982). Organizations: Structure and process (3rd ed.). Englewood Cliffs, NJ: Prentice-Hall.

Halpin, A. W., & Croft, D. B. (1963). The organizational climate of schools. Chicago: Midwest Administration Center.

Hannan, M. T. (1971). Aggregation and disaggregation in sociology. Lexington, MA: Lexington Books, 1971.

Herriott, R. E., & St. John, N. H. (1966). Social class and the urban school. New York: Wiley.

Hodgkins, B., & Herriott, R. E. (1970). Age-grade structure, goals, and compliance in the school: An organizational analysis. Sociology of Education, 43, 90-105.

Katz, D., & Kahn, R. L. (1978). The social psychology of organizations (Rev. ed.). New York: Wiley.

Kerlinger, F. N. (1973). Foundations of behavioral research. New York: Holt, Rinehart and Winston.

Kmetz, J. T., & Willower, D. J. (1982). Elementary school principal's work behavior. Educational Administration Quarterly, 18(4), 62-78.

Lightfoot, S. L. (1981). Portraits of exemplary secondary schools: George Washington Carver Comprehensive High School. Daedalus, 110(4), 17-39.

Little, J. W. (1982). Norms of collegiality and experimentation: Workplace conditions of school success. American Educational Research Journal, 19, 325-340.

Lortie, D. C. (1969). The balance of control and autonomy in elementary school teaching. In A. Etzioni (Ed.), The semi professions and their organization. New York: Free Press.

McCall, W. A. (1939). Measurement. New York: MacMillan.

McPherson, G. H. (1979). What principals should know about teachers. In D. A. Erickson & T. R. Relker (Eds.), The principal in metropolitan schools. Berkeley, CA: McCutchan.

Meyer, J. W., & Rowan, B. (1978). The structure of educational organizations. In M. Meyer and associates (Eds.), Environments and organizations: Theoretical and empirical perspectives. San Francisco: Jossey-Bass.

Meyer, J. W., & Scott, S. R. (1983). Organizational environments: Ritual and rationality. Beverly Hills, CA: Sage.

Nie, N. H., Hull, C. H., Jenkins, J. G., Steinbrenner, K., & Bent, D. H. (1975). Statistical package for the social sciences. New York: McGraw-Hill.

Price, J. L. (1972). Handbook of organizational measurement. Lexington, MA: D. C. Heath, 1972.

Reynolds, D. (1977). Schools that fail. London: Routledge & Kegan Paul.

Rutter, M., Maughan, B., Mortimer, P., Ouston, J., & Smith, A. (1979). Fifteen thousand hours: Secondary schools and their effects on children. Cambridge, MA: Harvard University Press.

Rosenblum, S., & Louis, K. S. (1981). Stability and change: Innovation in an educational context. New York: Plenum.

Scott, W. R. (1981). Organizations: Rational, natural and open systems. Englewood Cliffs, N.J.: Prentice-Hall.

Siedler, J. (1974). On using informants: A technique for collecting quantitative data and controlling measurement error in organization analysis. American Sociological Review, 39(6), 816-831.

Siegel, S. (1956). Nonparametric statistics for the behavioral sciences. New York: McGraw-Hill.

Simon, H. A. (1964). On the concept of organizational goal. Administrative Science Quarterly, 9(1), 1-22.

Weick, K. E. (1976). Educational organizations as loosely coupled systems. Administrative Science Quarterly, 21, 1-19.

Wellisch, J. B., MacQueen, A. H., Carriere, R. A., & Duck, G. A. (1978). School management and organization in successful schools (ESAA in-depth study of schools). Sociology of Education, 51, 211-227.

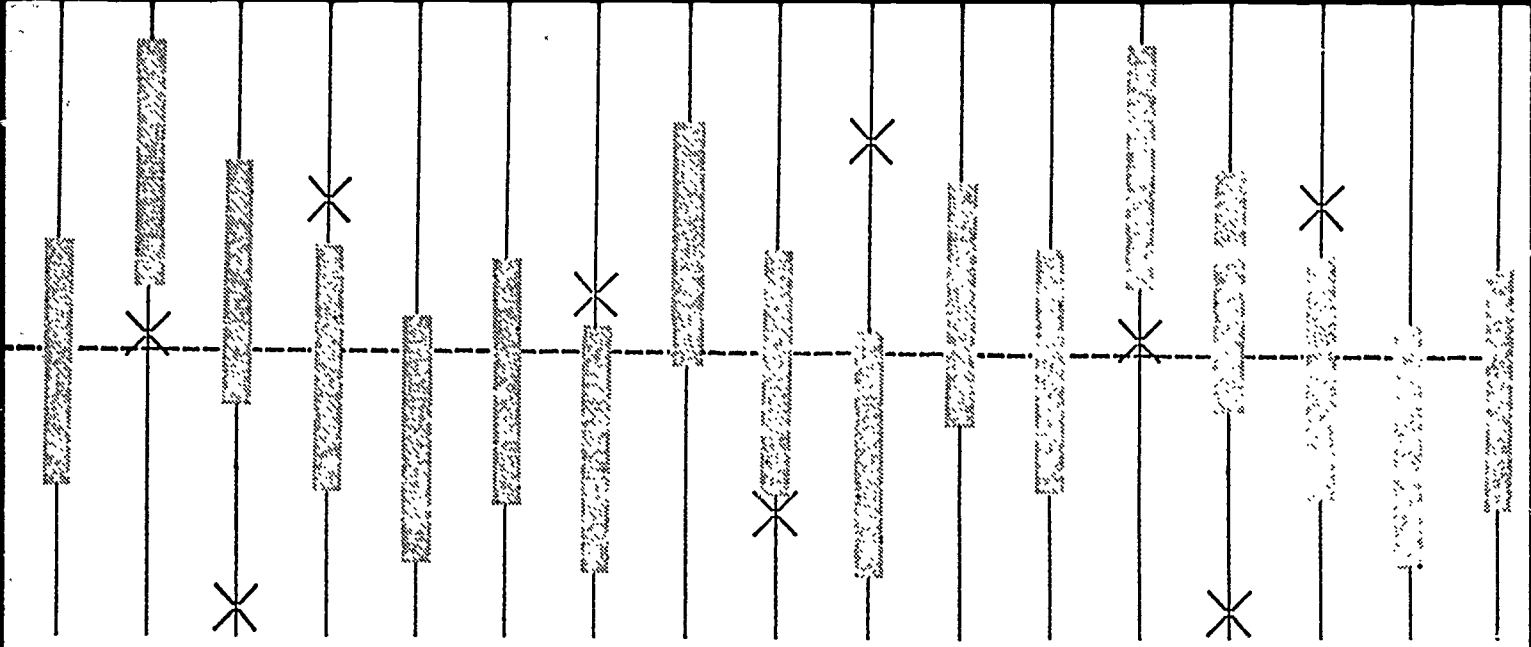
Wilson, B. L., & Corbett, H. D. (1983). Organization and change: The effects of school linkages on the quantity of implementation. Educational Administration Quarterly, 19(4), 85-104.

Wilson, B. L., Rossman, G. B., & Miller, R. (1985). School improvement through analysis of organizational data: From fastfood to five-star restaurant. Philadelphia: Research for Better Schools.

Wolcott, H. F. (1973). The man in the principal's office: An ethnography. New York: Holt, Rinehart, Winston.

APPENDIX A

SAS instrument



School Assessment Survey
Information for School Improvement

To learn more about various aspects of this school, we are asking that the teaching staff tell us their views. Individual responses will be combined to form a series of organizational dimension scores for the school. These school scores will be fed back to the school in the form of a profile. This profile will enable the staff to compare their school with other schools as well as to compare the relative strengths and weaknesses across the various organizational dimensions.

Please complete this questionnaire as carefully and frankly as possible. All individual responses will be kept in strictest confidence and will be seen only by the research staff at Research for Better Schools. To assure this confidentiality, we ask that you enclose your completed questionnaire in the attached envelope and hand it to the person collecting the questionnaires. All questionnaires will be returned as a group directly to Research for Better Schools.

Thank you for your cooperation.

RBS
444 North Third Street
Philadelphia, PA 19123
215·574·9300

1. *What is the highest level of formal education you have completed?*

____ a. less than a Bachelor's degree

____ b. Bachelor's degree

____ c. Bachelor's degree plus 1 to 12 credit hours

____ d. Bachelor's degree plus 13 to 24 credit hours

____ e. Bachelor's degree plus 25 to 30 credit hours

____ f. Master's degree

____ g. Master's degree plus 1 to 30 credit hours

____ h. Master's degree plus more than 30 credit hours

____ i. Doctorate

2. *Are you?*

____ a. Female

____ b. Male

3. *How many years of experience prior to this year have you had as a:*

a. Teacher in this school (do not count this school year) ____ years

b. Teacher in another school in this district ____ years

c. Teacher in another district ____ years

Total teaching experience ____ years

4. *During the current year, what percent of your professional time is spent as:*

a. A teacher in this school..... ____%

b. A teacher in another school..... ____%

c. An administrator..... ____%

d. A counselor..... ____%

e. Other (please specify) _____ ____%

Total professional time 100%

5. *Schools and school districts organize teaching responsibilities in many different ways. Some of the more common are to organize by grade level, subject area, or specialist classification.*

a. Is your primary responsibility:

(i) special education?
___ Yes
___ No

(ii) Bilingual/ESL?
___ Yes
___ No

(iii) librarian/media services?
___ Yes (If yes, go to Question 6)
___ No

(iv) counselling/guidance?
___ Yes (If yes, go to Question 6)
___ No

b. Is two-thirds or more of your instructional time spent teaching a single grade level?
___ Yes
___ No

c. Please check which grade levels you teach:

___ Pre K
___ K
___ Grade 1
___ Grade 2
___ Grade 3
___ Grade 4
___ Grade 5
___ Grade 6
___ Grade 7
___ Grade 8
___ Grade 9
___ Grade 10
___ Grade 11
___ Grade 12

d. Is two-thirds or more of your instructional time spent teaching a single subject?
___ Yes
___ No

e. Please check which subject areas you teach:

___ Reading/Language arts
___ Remedial Reading
___ English
___ Social Studies/History
___ Mathematics/Computers
___ Science
___ Foreign Language
___ Industrial/Agricultural Arts
___ Music
___ Art
___ Performing Arts/Drama
___ Home Economics
___ Business/Commercial
___ Vocational
___ Physical Education/Health
___ Driver's Education/Safety

GOAL CONSENSUS

6. *Schools try to help students develop in many ways. However, some people prefer to stress some areas of student development while others want to emphasize other areas. Listed below are some of the many possible areas of student development. Please rank these seven areas in terms of how important they are to you as a member of this school. Place a "1" after the most important area, a "2" after the second most important, and so forth until you have placed a "7" after that which you consider to be the least important of these seven areas of student development.*

AREA OF STUDENT DEVELOPMENT	IMPORTANCE RANK
a. Appreciating and striving for excellence (in school work or other areas)	____
b. Critical and original thinking	____
c. Basic skills (reading and math)	____
d. Respect for authority (discipline, character building. etc.)	____
e. Vocational understanding and skills	____
f. Understanding others (cultural pluralism, getting along with peers, etc.)	____
g. Self-esteem (self-concept)	____

Please check to make sure that you have ranked all seven areas and that each area has a different rank.

STUDENT DISCIPLINE

7. *Listed below are a number of statements that can describe a school. For each statement, please circle the number which best represents the overall picture of your school.*

THROUGHOUT THIS SCHOOL...	Never	Almost Never	Occasionally	Frequently	Almost Always	Always
a. The atmosphere is orderly and businesslike.	0	1	2	3	4	5
b. Students behave in an orderly manner in public areas (e.g., halls, buses, assemblies, cafeterias, bathrooms, etc.).	0	1	2	3	4	5
c. In class, students concentrate on their work with very little disruption.	0	1	2	3	4	5
d. Students are intimidated by other students when not directly supervised (e.g., in halls, buses, assemblies, cafeterias, lavatories, etc.).	0	1	2	3	4	5
e. It is a problem to get students to pay attention during lessons.	0	1	2	3	4	5
f. Students have to worry about their personal safety.	0	1	2	3	4	5
g. Keeping graffiti off the walls is a problem.	0	1	2	3	4	5

STUDENT ACADEMIC BEHAVIOR

8. *This question asks you to furnish information about students in this school. The information is requested in the form of percentages, although we know it is difficult to give exact percentages for most of the questions. Please write in your SINGLE BEST ESTIMATE of the percentage that most accurately reflects your assessment of students in your school as a group.*

Of the STUDENTS you currently teach, what percent...

a. Are one or more years behind grade level in reading ability? ____%

b. Are not interested in academic achievement? ____%

c. Do not work up to their intellectual capabilities? ____%

d. Were not adequately prepared to do the grade level work you expected when they entered your class? ____%

e. Are not mastering the subject matter or skills you teach at the minimum level of satisfactory performance? ____%

TEACHING BEHAVIOR

9. *This question asks you to furnish information about fellow teachers in this school. The information is requested in the form of percentages, although we know it is difficult to give exact percentages for most of the questions. Please write in your SINGLE BEST ESTIMATE of the percentage that most accurately reflects your assessment of teachers in your school as a group.*

Of the TEACHERS in this school, what percent...

a. Encourage students to work at a higher level than the students have worked in the past? ____%

b. Give as much attention to the slower students as to the brighter ones? ____%

c. Encourage all students to participate actively in classroom academic activities? ____%

d. Plan their classes so that different learning needs of the students can be met? ____%

e. Provide opportunities for students to go beyond the minimum demands of assigned work? ____%

f. Try new teaching methods in their classrooms? ____%

STAFF CONFLICT

10. *In most schools, specific issues or events may occur over which there are differences of opinions resulting in disputes. During the last 12 months, how often have disputes occurred among teachers in your school regarding the following issues and events? In answer to these questions, please circle the appropriate number.*

ISSUES AND EVENTS	FREQUENCY OF DISPUTES AMONG TEACHERS: Never	Almost Never	Occasionally	Frequently	Almost Always	Always	I Don't Know
a. The teaching of controversial material.	0	1	2	3	4	5	9
b. The need for administrative support for handling pupil behavior problems.	0	1	2	3	4	5	9
c. The hiring or dismissal of a teacher.	0	1	2	3	4	5	9
d. Teacher participation in nonteaching duties (e.g., lunchroom duty, bus duty, etc.).	0	1	2	3	4	5	9
e. Promotion of particular students.	0	1	2	3	4	5	9
f. Teacher absenteeism.	0	1	2	3	4	5	9
g. Teacher evaluation criteria or policies.	0	1	2	3	4	5	9

CENTRALIZATION: INSTRUCTION AND CURRICULUM/RESOURCES

11. *During a typical school year, many decisions must be made. Not all people influence any particular decision, and the degree of influence of different persons generally varies with the nature of the decision. Please indicate, in your opinion, how much influence teachers in this school, the principal in this school, and all others in this school system actually have on the following decisions.*

Please insert the appropriate code number on each line:

0 = No influence
1 = Minor influence
2 = Moderate influence
3 = Major influence

DECISIONS	INFLUENCE OF: Teachers	The Principals	All Others in the School System
a. Selecting required texts or other materials.	___	___	___
b. Establishing objectives for each course.	___	___	___
c. Determining daily plans or activities.	___	___	___
d. Determining concepts taught on a particular day.	___	___	___
e. Identifying types of educational innovations to be adopted.	___	___	___
f. Determining the allocation of teaching materials, supplies, or other resources.	___	___	___
g. Determining the school's schedule (including teacher prep. periods)	___	___	___
h. Adding or dropping courses.	___	___	___
i. Making specific faculty grade level or course assignments.	___	___	___
j. Determining the use of school space including classrooms, offices, or other areas.	___	___	___

HORIZONTAL AND VERTICAL COMMUNICATION

12. *Schools differ in the need and opportunity they provide for teachers to discuss different topics (a) among themselves and (b) with administrators. Listed below are some common topics of communication. Please indicate your response by inserting the appropriate code number in each box. For discussions with other teachers, please think of the two teachers you talk to most often. (If it will help in answering these questions, please feel free to write in the initials of the teachers you choose.) For discussions with administrators in your school, please just indicate the average across all administrators if there is more than one with whom you speak.*

0 = Never
1 = Once a month or less
2 = 2 or 3 times a month
3 = About once a week
4 = 2 or 3 times a week
5 = Once a day or more

TOPIC	(a) FREQUENCY OF DISCUSSION WITH TEACHER A: _____	(a) FREQUENCY OF DISCUSSION WITH TEACHER B: _____	(b) FREQUENCY OF DISCUSSION WITH ADMINISTRATORS IN THIS SCHOOL:
a. Lessons or curriculum units that work well or poorly.	____	____	____
b. Motivating or controlling specific children.	____	____	____
c. Improving discipline generally.	____	____	____
d. Defining or enforcing student performance, grading or promotion standards.	____	____	____
e. Maintaining or improving positive relations with parents.	____	____	____
f. Obtaining materials or resources needed for classroom instruction.	____	____	____

FACILITATIVE LEADERSHIP

13. *Administrative activities within a school can be carried out in various ways depending on the persons involved, the building in which they work, and many other factors. Clearly there is no one best way for administrative activities to occur.*

For each of the administrative activities listed below, please circle the number that indicates how frequently your principal engages in each activity.

Administrative Activity	Never	Almost Never	Occasionally	Frequently	Almost Always	Always
a. Treats teachers as professional workers.	0	1	2	3	4	5
b. Takes a strong interest in the professional development of teachers.	0	1	2	3	4	5
c. Gives teachers the feeling that their work is an "important" activity.	0	1	2	3	4	5
d. Has constructive suggestions to offer teachers in dealing with their major problems.	0	1	2	3	4	5
e. Gives teachers the feeling that they can make significant contributions to improving the classroom performance of their students.	0	1	2	3	4	5
f. Makes meetings a valuable professional activity.	0	1	2	3	4	5

APPENDIX B

Summary Statistics of Items in Dimensions

Summary Statistics of Items in Dimensions

($N_{teachers}$ = 2311; $N_{schools}$ = 61)

Dimension/Item	Mean	SD	Missing Cases[1]	One-way ANOVA (by school) F	Eta[2]	Item/Dimension Correlation
Goal Consensus						
1. strive for excellence	3.78	1.96	2.6%	N/A	N/A	N/A
2. critical thinking	4.00	1.79	2.6%	N/A	N/A	N/A
3. basic skills	2.86	1.74	2.6%	N/A	N/A	N/A
4. respect for authority	3.60	1.71	2.6%	N/A	N/A	N/A
5. vocational skills	5.93	1.63	2.6%	N/A	N/A	N/A
6. understanding others	4.56	1.68	2.6%	N/A	N/A	N/A
7. self-esteem	3.27	1.86	2.6%	N/A	N/A	N/A
Facilitative Leadership						
1. professional workers	4.14	1.09	2.2%	5.02*	.22	.805
2. professional development	3.66	1.37	3.1%	5.37*	.23	.911
3. teacher work as important	3.71	1.40	2.4%	4.24*	.19	.913
4. constructive suggestion	3.33	1.50	2.9%	5.45*	.24	.919
5. significant contributions	3.51	1.45	3.2%	4.92*	.22	.946
6. meetings a valuable activity	3.05	1.43	3.0%	5.52*	.24	.832
Centralization of Influence, Classroom Instruction						
1. textbook selection	1.97	1.30	7.4%	8.27*	.329	.755
2. course objectives	1.83	1.24	8.0%	6.00*	.264	.777
3. daily plans	1.26	1.27	8.0%	2.17*	.115	.540
4. teaching concepts	0.62	0.92	7.9%	2.04*	.109	.589
5. identifying innovations	3.43	1.38	7.8%	2.19*	.116	.621
Centralization of Influence, Curriculum/Resources						
1. teaching materials	3.76	1.44	7.6%	2.88*	.146	.241
2. school schedule	5.03	1.09	7.2%	3.11*	.156	.602
3. adding courses	4.29	1.34	12.2%	2.73*	.147	.649
4. faculty assignments	4.53	1.41	9.9%	2.51*	.133	.591
5. use of school space	5.08	1.02	7.1%	2.99*	.106	.658

Dimension/Item	Mean	SD	Missing Cases	One-way ANOVA (by school) F	Eta^2	Item/Dimension Correlation
Vertical Communication						
1. lessons	1.16	1.05	1.5%	2.91*	.139	.729
2. motivating students	1.76	1.17	1.6%	1.79*	.090	.806
3. discipline	1.53	1.19	1.0%	1.67*	.085	.622
4. student performance	1.32	1.05	1.2%	1.53*	.078	.861
5. parental relations	1.25	1.04	1.6%	2.83*	.136	.704
6. classroom materials	1.52	1.17	1.2%	2.27*	.112	.680
Horizontal Communication						
1. lessons	2.35	1.35	1.0%	2.96*	.140	.608
2. motivating students	2.60	1.32	4.1%	2.33*	.118	.786
3. discipline	2.45	1.40	3.5%	2.17*	.110	.650
4. student performance	2.16	1.28	3.5%	1.50*	.080	.789
5. parental relations	1.57	1.18	3.5%	2.99*	.145	.716
6. classroom materials	2.08	1.24	3.9%	1.72*	.089	.605
Horizontal Conflict						
1. controversial materials	0.69	0.86	13.9%	1.32*	.078	.535
2. support for discipline	1.81	1.38	7.9%	3.76*	.184	.777
3. hirings/firings	0.92	1.09	14.7%	2.57*	.143	.668
4. nonteaching duties	1.51	1.33	10.2%	3.35*	.171	.814
5. student promotions	1.35	1.19	13.3%	2.49*	.137	.607
6. teacher absenteeism	0.88	1.00	12.0%	2.19*	.121	.703
7. teacher evaluations	1.26	1.14	11.0%	2.56*	.137	.789
Student Discipline						
1. orderly & businesslike	3.58	0.93	0.3%	5.43*	.23	.752
2. public areas	3.03	0.94	0.6%	5.29*	.23	.800
3. concentrate on classwork	3.19	0.84	0.5%	4.35*	.19	.809
4. intimidation[2]	2.83	0.93	1.2%	2.59*	.13	.674
5. pay attention[2]	2.89	0.85	0.7%	3.44*	.16	.731
6. personal safety[2]	3.91	0.84	0.6%	4.82*	.21	.802
7. graffiti[2]	3.35	1.12	0.7%	7.09*	.28	.698

Dimension/Item	Mean	SD	Missing Cases	One-way ANOVA (by school) F	Eta[2]	Item/Dimension Correlation
Teaching Behavior						
1. encourage higher levels	76.8	20.6	3.7%	2.88*	.14	.904
2. attention to slower students	73.7	20.9	4.0%	2.97*	.15	.886
3. active participation	78.9	19.0	4.5%	3.30*	.16	.891
4. different learning needs	68.6	24.7	7.7%	4.20*	.20	.830
5. beyond minimum demands	64.2	26.4	7.5%	3.65*	.18	.856
6. new methods	61.6	26.6	7.8%	3.58*	.18	.870
Student Academic Behavior[3]						
1. behind grade level	62.6	30.4	6.3%	11.40*	.25	.880
2. not interested	67.6	25.4	4.8%	10.83*	.23	.927
3. don't work to capabilities	55.1	27.2	3.9%	10.92*	.23	.876
4. not adequately prepared	68.2	27.2	6.6%	9.97*	.22	.943
5. not mastering skills	77.4	20.0	5.4%	7.12*	.17	.924

[1]In general, missing cases arose when a respondent failed to properly follow our instructions. However, for the one dimension where we anticipated some reluctance of respondents to offer candid reports (staff conflict) we provided an "I don't know" response and coded it as missing data. Such action was taken to improve the quality of our informant based data.

[2]The latter four items were recoded in the reverse order from the questionnaire (i.e. never = 5, always = 0) so that the direction of a score was always consistent. A high score on each item indicates more favorable student social behavior.

[3]All five items were transformed by subtracting the original response from 100 so that a high score on each item indicates more positive academic behavior.

*p .05

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