DOCUMENT RESUME

ED 363 963 EA 025 448

AUTHOR Krug, Samuel E.
TITLE Monitoring the "Health" of the School. Project Report.
INSTITUTION MetriTech Inc., MI.; National Center for School Leadership, Urbana, IL.
SPONS AGENCY Office of Educational Research and Improvement (ED), Washington, DC.
PUB DATE [93]
CONTRACT R117C80003
NOTE 30p.
PUB TYPE Information Analyses (070)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Educational Assessment; Elementary Secondary Education; Evaluation Criteria; *Institutional Environment; *Institutional Mission; *Measurement Techniques; *Organizational Climate

ABSTRACT

This paper summarizes research on ways to measure a school's instructional climate. Four areas of inquiry revolve around accomplishment, recognition, power, and affiliation. Because a school's instructional climate has a significant impact on student learning, the study of instructional climate is important. Three sets of conditions to examine when measuring instructional climate include generalizability, changes in respondents, and changes over time. School norms are essential for interpreting and understanding a school's score. Samples of two forms of the Instructional Climate Inventory (for teachers and students) are presented and ways to analyze their results are described. A conclusion is that instructional climate is real, important, and measurable. A remaining question is how to create positive learning climates. One way is through school leaders who clearly articulate a school mission by their actions and behaviors. Four figures are included. (LMI)

Monitoring the "Health" of the School

The National Center for School Leadership

Project Report

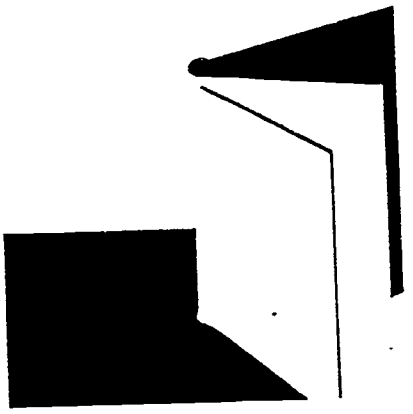
University of Illinois at Urbana-Champaign

College of Education

In collaboration with

The University of Michigan

MetriTech, Inc.



Monitoring the "Health" of the School

Samuel E. Krug
MetriTech, Inc.

About The National Center for School Leadership

Our objectives are to produce new knowledge about school leadership and influence the practice and preparation of school leaders. Through various research programs and dissemination activities, we aim to give school leaders effective strategies and methods to influence teaching and learning.

The Center is funded by a grant from the Office of Educational Research and Improvement (Grant No. R117C80003). Any opinions, findings, and conclusions expressed in this publication are those of the National Center and authors and do not necessarily reflect the views of the supporting agency.

Center staff

Paul Thurston, Director
Richard Privitt, Visiting Project Coordinator

The National Center for School Leadership
University of Illinois at Urbana-Champaign
1208 West Springfield Avenue
Urbana, IL 61801
1(800)643-3205 Fax number (217)244-4948

The National Center for School Leadership

Committed to Leadership and Learning

Office of Educational Research and Improvement

Ronald Anson, Liaison

Project Investigators

University of Illinois at Urbana

Paul Thurston, Head and Professor, Administration, Higher and Continuing Education
Frederick Wirt, Professor, Political Science
Renee Clift, Associate Professor, Curriculum and Instruction
Gary Cziko, Associate Professor, Educational Psychology
Betty Merchant, Assistant Professor, Administration, Higher and Continuing Education
Finbarr Sloane, Assistant Professor, Curriculum and Instruction

University of Illinois at Chicago

Larry Braskamp, Dean, College of Education

The University of Michigan

Martin Maehr, Professor, Education and Psychology
Carol Midgley, Senior Research Associate

MetriTech, Inc.

Samuel Krug, President
Chris Scott, Project Investigator

Visiting Scholars

William Boyd, Professor, Education, Penn State University
Robert Crowson, Professor, Educational Administration, University of Illinois at Chicago
Marlene Johnson, Research Assistant, Curriculum and Instruction, University of Houston
Douglas Mitchell, Professor, Education, University of California at Riverside
Stephanie Parker, Assistant Professor, Education, Nursing & Health Professions, University of Hartford
Mary Polite, Assistant Professor, Educational Leadership, Southern Illinois University-Edwardsville
David Seeley, Professor, Education, College of Staten Island/CUNY

National Advisory Panel

David Clark, Chair
Chair, Department of Educational Administration, University of North Carolina

Gary Gottfredson
Professor, Center for the Social Organization of Schools, Johns Hopkins University

Kent Peterson
Professor, Department of Educational Administration, University of Wisconsin at Madison

Laraine Roberts
Director, Leadership in Educational Administration Development (L.E.A.D.) Project, California

Lynn St. James
Principal, Lindblom Technical High School, Chicago

Scott Thomson
Executive Director, National Policy Board for Educational Administration

Lonnie Wagstaff
Professor, Educational Administration, University of Texas at Austin

MONITORING THE "HEALTH" OF THE SCHOOL

Samuel E. Krug
MetriTech, Inc.

When we go to a physician for a routine checkup, we don't do so because something is wrong. Instead we want to prevent problems by taking corrective action at the earliest possible opportunity. A change of diet can reduce the pressure on an aging and overburdened pancreas. Medication to reduce elevated blood pressure can lessen the possibility of stroke or coronary artery disease. A change in lifestyle can return lost tone to muscles and restore vitality that has been sapped by the aging process. The physician uses a variety of indicators -- pulse rate, heart rate, and self-reports -- to identify irregularities that could signal otherwise unsuspected conditions. If the verdict is "OK," if no pathological condition can be discovered, very few people take this as a bad sign. Indeed, this is the message they went hoping to hear.

Many of us routinely accept this analysis and prevention model as essential to health maintenance and the prevention of health-related problems. Analysis and prevention is the key to many problems -- not just health problems. By the time problems surface clearly, it is often difficult, expensive, and painful to correct them.

Our primary concern with schools is educational outcomes -- the learning that takes place. We expect that students will acquire knowledge in a variety of areas necessary to allow them to compete effectively in a world wherein knowledge advances quickly. At an even more fundamental level, we expect that graduates will acquire the skills that enable them to continue learning so that when existing knowledge is made obsolete by new discoveries, they can keep pace.

These expectations have not always been met. One of the most widely-shared beliefs today is that public education in the United States has foundered dramatically during the last several decades. Although not all seem convinced of the conclusions (e.g., Bracey, 1992), studies of change in indicators like SAT and ACT scores over time and international comparisons of current student performance certainly raise concerns, if not outright skepticism, about the quality of public instruction in the U.S.

One of the outcomes of this debate has been a stronger focus on accountability and outcomes. Many state legislatures have introduced legislation requiring regular assessment of student performance and public reporting of those assessments. In Illinois, the concern resulted in a dramatic shift in the process by which the State Board of Education accredits public schools. Under the new system, schools must demonstrate in multiple and diverse ways that all students are being served and that all students are

learning. The previous system, in contrast, focused instead on whether all elements of the learning process were in place, whether instructional staff were appropriately certified, whether the building complied in all ways with safety codes, etc.

While not disputing the preeminence of outcomes, there is something still to be said about elements of the process. In the same way that physical symptoms serve to predict subsequent disease status, measurable elements of the instructional process serve to predict subsequent learning gains. One of the most important elements of the process that research has shown to be predictive of outcomes is the psychological atmosphere that pervades the classroom and school, the instructional climate.

What Is Instructional Climate?

Halpin and Croft (1962) describe school climate as the "personality" of a school. Personality usually refers to relatively enduring characteristics that distinguish one person from another and that allow us to predict what people will do in various situations. By this analogy, school climate may be thought of as relatively enduring characteristics that distinguish one school from another and permit a certain degree of prediction about instructional outcomes.

There are many "relatively enduring" characteristics that distinguish schools, ranging from the physical environment itself to the attitudes of those within the building. There is no question that the physical environment places obvious limitations on learning and that these factors contribute to the overall personality of the school. However, I use *instructional* climate rather than *school* climate to refer to attitudes that (a) focus more specifically on learning and instructional outcomes, (b) are shared (or at least shareable) across all levels of the school organization, and (c) are manipulable (for better or worse) by those in influencing roles within the school.

By "attitudes that focus more specifically on learning," I mean to suggest that instructional climate reflects positive attitudes toward schooling in general more than positive attitudes toward this particular school. While instructional climate is correlated with general morale, it is more clearly articulated than a general sense of satisfaction that may arise from a variety of sources, not all of which are instructionally relevant.

By "shareable across all levels of the school," I mean to suggest that instructional climate revolves about attitudes that students, faculty, and administrators are able to share about learning and the way learning proceeds. It may be, of course, that there are differences in perceptions. For example, students may describe the school as placing much less emphasis on quality work than do the school's leadership. However, core aspects of instructional climate are not unique to a single perspective. Differences in perspectives may, in fact, offer some of the most interesting diagnostic information regarding how the school improvement process should most effectively proceed.

By "manipulable by those in influencing roles," I mean to suggest that instructional climate, while relatively stable, may be altered systematically by those in formal or informal leadership positions within the school. Indeed, as theory suggests and research has demonstrated, instructional climate may be perceived as the medium by which school leaders engage others systematically toward achieving the mission of the school (Krug, 1993; Maehr, 1991; Wirt & Krug, 1993).

Attitudes are usually thought to involve cognitive, affective, and behavioral components (Prochansky & Seidenberg, 1965). The cognitive component deals with the person's perceptions and beliefs; the affective component deals with the person's feelings; the behavioral component deals with reaction tendencies. By framing questions in certain ways, it is possible to focus more specifically on individual components. For example, "There is peer pressure here to do a good job," "When I finally understand a difficult problem, I feel great," and "I often find myself working after others have gone home" all examine attitudes toward achievement and task accomplishment but from cognitive, affective, and behavioral perspectives.

A programmatic examination of instructional climate and its relationship to leadership and learning outcomes in which we have been engaged for nearly a decade has emphasized the cognitive component in its measurement procedures (Krug, 1989, 1992, 1993; Krug, Ahadi, & Scott, 1991). This is not to suggest that affective and behavioral components are unimportant. However, the intimate relationship among beliefs, action, and affect on the one hand, and the primary focus of the school on intellectual development of students on the other, suggests that the cognitive component is a particularly important level at which to study attitudes toward instruction, a view likely to lead to useful predictions of cognitive outcomes.

Thus, this view of school climate is primarily concerned with student, teacher, and administrator perceptions of norms related to instructional performance, expectations for learning, the school's sense of purpose, and their overall commitment to this common purpose. It is less concerned with satisfaction and positive attitudes toward the school and school related activities.

There are four areas of inquiry that our measures have focused on. They originated in studies of organizations in general, not just schools. These four features were found to say much about the functioning of organizations (Maehr & Braskamp, 1986; Braskamp & Maehr, 1985; Krug, Maehr, & Braskamp, In press) and seemed adaptable to the school setting. The four dimensions of instructional climate on which we have focused are accomplishment, recognition, power, and affiliation.

Accomplishment. Most organizations exist to accomplish some task, to produce some product, or to provide a service. There is often considerable variation from organization to organization, however, in how much value members place on that task and, thus, the degree of excellence they achieve in pursuing that task. Although the pursuit of excellence is an essential quality to monitor in all kinds of organizations, it is particularly critical in the case of schools whose primary task is the instruction of future generations and the nurturing of ideas. Are teachers encouraged to innovate, to go beyond a prescribed curriculum and lesson plan? What latitude exists for creativity and innovation? These are questions that bear importantly on the quality of instruction the school provides and the quality of the graduates it produces.

Recognition. Learning theories differ in the relative emphasis they place on various mechanisms, processes, and influences. However, they are in solid agreement that learning does not take place in the absence of reinforcement, whether externally or internally applied. As with accomplishment, recognition is an important element to assess in any organization, but particularly so in schools where learning is the primary product. How does the school demonstrate that it values good efforts and productivity? Most organizations and schools encourage effort. But not all of them do something concrete about it in terms of a well-regarded reward system.

Power. The distribution and flow of energy are important to understand within any organization because they directly impact the balance of competition and cooperation.

Power, in itself, is not a positive or negative force. A positive balance of competition and cooperation is most likely necessary: too much competition and the organization will be torn apart by internal strife; too little competition and the organization may lose its competitive edge.

Affiliation. What are the support systems like within an organization? Sharing of information, involvement in decision making, and mutual cooperative problem solving are some activities that describe a supportive environment. These are also the kinds of activities that help students actively construct new knowledge, which is, after all, the primary purpose in attending school.

Understanding the school's task focus, its reinforcement and support systems, how it balances competition and cooperation and how these qualities are perceived in the minds of students and teachers lead to important predictions about what will happen within that building.

Why Is Climate Important?

If student learning is the primary outcome variable, why be concerned with climate? Doesn't this shift the emphasis from the primary focus -- instruction and instructional materials -- to a secondary, less important variable? As any gardener will quickly tell you, although plants depend primarily on soil, air, and sun, climate also plays a critical role. If the air temperature is too low or too high, plants will not grow. In a similar way, if the instructional climate is not congenial, students will not learn.

Instructional climate and learning are intimately connected. One large-scale study we conducted included data from 72 schools, 1,523 teachers, and 9,415 students (Krug, 1993b). In addition to climate measures, achievement results for reading and mathematics were available from the state testing program. Significant, positive correlations were found between school mean scores on these achievement tests and (a) principal self-ratings of the district instructional climate, especially accomplishment and recognition, (b) teacher ratings of the school instructional climate, especially accomplishment and overall strength of climate, and (c) student ratings of the school instructional climate. With respect to the student ratings, power was found to correlate negatively with achievement test results, and affiliation was found to correlate positively. Overall, the results indicated that about 25% of the variation in achievement test scores across the 72 schools in the study could be

explained on the basis of the climate scores. Others (Brookover, Beady, Flood, Schweitzer, & Wisenbaker, 1979; Walberg, 1979) have come to similar conclusions about the intimate connection between instructional climate and student learning outcomes.

Since the relationship between climate and learning is a strong one, and since there are many things teachers and administrators can do to impact the instructional climate, the study of climate is not a frivolous task. Instead, corrective actions can be taken that will result in "healthier" schools in the same way that changes in diet and lifestyle can keep people healthier. But in order to change things, you first must measure them. Can that be done with instructional climate?

Can You Really Measure Climate?

Chamberlin (1971) has suggested that climate is a "subtle spirit" that exists both in the minds of the teachers and students and in every action, which may never be exactly described or analyzed. While not denying that many properties of climate may be subtle, subtlety itself is not a barrier to measurement. Physicists who have never seen subatomic particles nevertheless carefully describe and analyze their behavior by accelerating them to high speeds and recording what happens when they collide with a dense object. Psychologists over many decades have developed objective measures of such ephemeral personal qualities as sensitivity or sociability and have developed instruments for quantifying an individual's self-concept. While these are surely subtle qualities, they can be measured and charted; their development and changes can be monitored.

The same thing is true of instructional climate. The qualities described earlier -- accomplishment, recognition, power, and affiliation -- may be subtle. But to the extent that they exist, at least as perceptions in the minds of administrators, teachers, and students, they are quantifiable and measurable.

Exactly how do we approach the problem of quantification and measurement? With respect to personality, for example, Cattell (1957) remarked that there are really only three ways in which to find out about a person. We can observe and record behavior directly, we can ask others who know the person we're interested in knowing more about, or we can ask the person directly. The same possibilities exist when it comes to measuring the personality of a school.

We can, of course, look for some signs of their presence. For example, if a well-regarded reward system is operating within the school, we should be able to see some evidence. There may be a publicly-displayed honor roll or bumper stickers ("I have an honor roll student at Lincoln school") or regular assemblies in which students and teachers are recognized for their achievements.

Alternatively, we can develop information about the personality of the school by interview. If the atmosphere of a school is really supportive, if people really care about one another, if students trust teachers, and administrators support instructional staff, people will usually be able to say something positive. On the other hand, they may not be as articulate within an environment of distrust. However, under such circumstances their silence may be eloquent.

A third possibility is to rely on structured self-reports and develop the information that way. In our own work, we have relied on a series of psychometrically refined instruments. These instruments allow us to assess the perceptions of administrators, teachers, and students objectively, reliably, and inexpensively. All of these surveys used have been carefully analyzed and standardized and found to meet exacting psychometric criteria.

Reliability in Climate Assessment. A scale is reliable when the scores it produces remain stable (or generalize) across some change in testing conditions. Reliability answers the fundamental question: Would we get the same score (and draw the same conclusion) if we had used a somewhat different set of questions or administered the scale at a different time or, in the case of scales designed for use with organizations, selected a different sample of people? If the answer to these kinds of questions is yes, then we can trust the score and the conclusions we draw from the score. If the answer is no, we have no firm basis for drawing conclusions because the information we have does not generalize well beyond a narrow set of items or a certain time frame or a certain set of people.

generalizability across test items, usually called internal consistency reliability, is always important. The term refers to the expected correlation between one test score and a second based on an equal number of test items drawn from the same universe of content. Consider, for example, a test score that is used for making college admission decisions. In order to maintain the security of the test, items are routinely changed from administration to administration so that some students do not benefit unfairly by having seen and studied individual items prior to the test. It is critical, however, that the generalizability across

items remain very high. Otherwise, students would do unpredictably better on one form of a test than another. Students who would score high on one test form would score low on another test form. Such information would be unfair to the students taking the test and would be essentially useless to college staff who tried to use these test results to make admissions decisions.

A second set of conditions that is of particular interest from the perspective of studying social organizations is that of changes in respondents. That is, does a school score based on a sample of teachers or students from that school convey predictively useful information that can be used by planners to analyze and resolve problems? Would we get the same score if we asked the same questions of different people? For the study of organizations, a test score must generalize well beyond the initial sample of respondents if the score is to be very useful. Not all scores will. If the questions in our climate survey, for example, related largely to extracurricular activities, the results would not generalize well beyond respondents who were involved in extracurricular activities.

A third set of conditions that is important to evaluate is that of changes over time. If a score changes *unpredictably* from one time to another, then information gathered at one time is essentially useless for decision making at some point in the future. The emphasis on unpredictably is intentional because it is not necessary that scores remain stable or fixed over time in order to use them effectively. Student achievement scores, for example, change throughout the course of schooling but usually in predictable ways that reflect the effects of instruction. If the achievement test score reasonably samples the content of an instructional program, then even though student scores will change during the program, they will change in predictable ways.

For the surveys we use, internal consistency reliabilities generally range between .70 and .90 with a median value of about .85. In terms of reliability across respondents, if teacher surveys are averaged across 15 staff members, for example, the results provide a reasonably stable, credible picture of the school (median reliability across scales for 15 teachers = .80, range = .63 to .84). One would expect considerably more diversity in how students perceive the instructional climate of the school. However, comparable levels of precision can be obtained when results from 25 students are considered (median reliability = .80, range = .65 to .86). These school-level reliabilities depend directly, of course, on the number surveyed within a single school, and more precise estimates can be obtained as the number surveyed increases.

Available data is more limited with respect to changes over time. However, the results we do have suggest that these changes are neither substantial nor unpredictable, at least over the course of a school year. In one study we conducted, a sample of approximately 120 students from five schools were assessed at the beginning of the school year, then again approximately eight months later. The grade distribution of students in the sample was as follows: 3rd grade - 52%; 4th grade - 25%; 5th grade - 23%. None of the mean differences on the primary climate scales was found to be statistically significant. The only exception to this pattern was a tendency for the Strength of Climate scale to increase significantly during the school year.

Although the scales are designed to assess groups, not individuals, the median student-level correlation between scales over the school year was found to be .55 in this study, ranging to .65 in the case of the Commitment scale (Krug, 1993c). More to the point is the reliability of the school (average) score over time. This same study reported the following reliability coefficients for the scales with an average of approximately 23 students at each school contributing to each determination: Accomplishment - .86, Recognition - .87, Power - .50; Affiliation - .80, Commitment - .94, Strength of Climate - .60. With the exception of Power, which is marginally low, all of these values are very high and lead to the conclusion that the information derived from these scales is sufficiently stable over time to permit planning and intervention strategies.

Norms. The existence of norms or some reference point is essential for interpreting and understanding a score. What does it mean, for example, to get six questions right on a mathematics test? At the very least we need to know how many questions were asked and we usually want to know something about how difficult the items were. Very frequently this latter question can be answered by knowing how a representative sample of students did on the test. Did most of them get more than six questions right? What was the average score on the test? What percent of students answered fewer than six questions correctly?

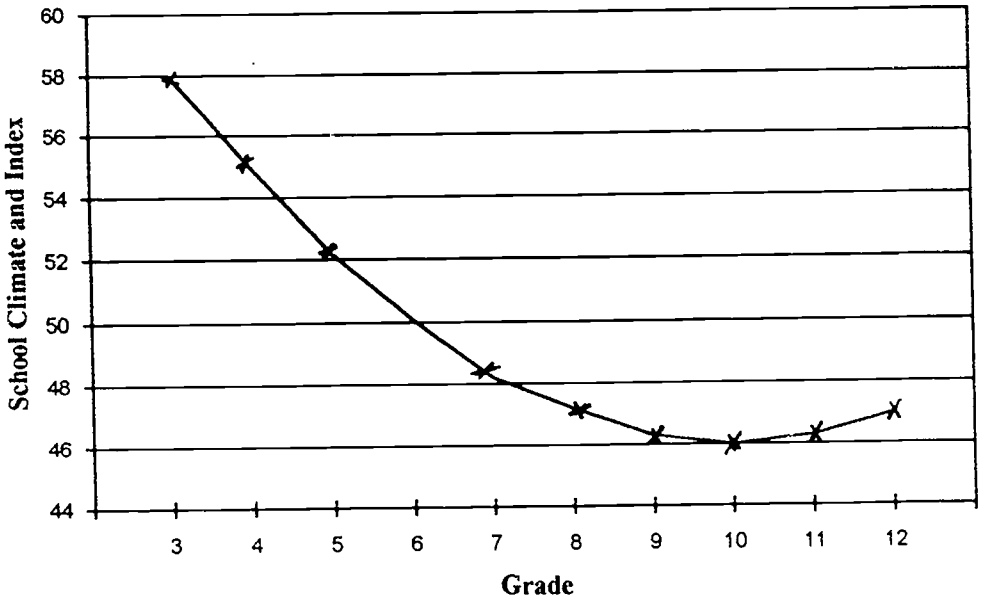
The development of norms for these climate instruments that reflect a diverse population of schools, principals, teachers, and students has been another major research goal. The use of these instruments in a variety of research projects has allowed us to accumulate results on several thousand administrators, approximately 10,000 teachers, and nearly 50,000 students (Krug, Ahadi, & Scott, 1991). The existence of this type of norm basis

allows us to interpret a school profile and understand the meaning behind the numbers. We know, for example, what an "average" or typical recognition score looks like, when a power score is unusually high, and when a school's accomplishment emphasis is low.

One of the more interesting features of these scores from a norm perspective is the way in which they change across grades. While aggregating large numbers of student surveys across grades, schools, districts, and communities, we found a very clear but disturbing message in what students told us about their schools. Other studies have previously reported students' increasing dissatisfaction with school and have attributed it to student characteristics, changes in the school experience, or changing patterns of relationships with adults (Newman & Newman, 1978). Walberg, House, and Steele's (1973) survey of students in grades 6 to 12 suggested that dissatisfaction reaches a minimum at ninth and tenth grade. They attributed the pattern to an increased emphasis on memorizing and decreased emphasis on innovative problem solving that peaked in the early high school years.

The data in Figure 1 represent the perceptions of students from districts located in four states. There is no guarantee that the sample speaks for the nation as a whole. However, the sheer size of the sample (N = 17,863) affords a certain degree of confidence in the conclusions.

Figure 1
Student Perceptions of School Climate



Instead of considering the scales separately, in this study we combined student ratings of school instructional climate into a single positive index. When we looked at the results, a general decline in the index across grades was immediately evident, although the raw data was somewhat uneven. The results shown in Figure 1 have been analytically "smoothed" to reveal a more even pattern.

Elsewhere (Krug, 1993a), these results have been discussed in terms of the psychological processes that may underlie the observed relationships. For our purposes here, it is only important to note that without grade-level norms on these scales, certain comparisons would be gravely misleading. For example, comparisons of climate scores across grades at the raw score level would simply mirror the pattern shown in Figure 1 and might lead an administrator to conclude, incorrectly, that the fifth-grade teaching staff was doing a poorer job than the fourth-grade teaching staff. Alternatively, comparisons across schools could be misleading at the raw score level if the school scores were based on samples of students from different grades in the two schools. The problem would become more regularly troublesome at the district level where central office administrators might wish to compare the performance of elementary, middle, and highs schools within the district. In the absence of grade-appropriate norms, these comparisons could be very confusing.

What Do These Instruments Look Like?

Up to this point, a great deal of discussion has taken place about the importance of climate, the ways in which climate can be assessed, and some results based on application of a set of standard instruments. At this point in the discussion, it is appropriate to interject a practical note and take a look at what these "instruments" actually look like.

Figure 2
Sample Items from the ***Instructional Climate Inventory - Form T***

PART I

The following items deal with views you have about the school in which you're now employed and various career opportunities. Choose just one answer for each item. Use the following key to choose your answers.

(A) Strongly Disagree	(B) Disagree	(C) Uncertain	(D) Agree	(E) Strongly Agree

1. My co-workers and I work well together.
2. Disagreements occur here because people frequently compete with each other.
3. I get rewarded in a fair way for the work I do.
4. I do my best work here because co-workers urge me to do so.
5. In this school we believe in what we're doing.
6. I feel I get sufficient pay for the work I do.
7. Employees here receive a lot of attention.
8. This school makes me feel like I'm a winner.
9. I like what I'm doing now, so I don't think of doing anything else.
10. I like my chances of doing good work here so I can get ahead.
11. I have a sense of loyalty to this school.
12. People spend a lot of time trying to get to know those in powerful positions in this school.
13. I identify with this school.
14. In this school, there is respect for each individual.
15. I'm satisfied with the opportunities I have to direct others.
16. I think about the future of this school.
17. There are many chances to complete with others to get ahead.
18. Everyone in this school knows what it stands for.
19. In this school we hear more about what people do right than the mistakes they make.
20. Communication within this school is very informal and frequent.
21. I'm doing the kind of work I want.
22. People at all levels of this school share information about how well it is doing.
23. This school stresses excellence.
24. I enjoy working with those to whom I report.
25. I'm involved in decisions that directly affect my future.
26. Employees here are afraid to make a mistake.
27. There is peer pressure here to do a good job.
28. This school makes me feel like I'm an important, productive person.
29. Around here we're encouraged to try new things.
30. This school is clear about what it expects from me.
31. Evaluations of my work are directly tied to how I do.
32. There's a close knit feeling among us in this school.
33. I've regretted that I chose to work for this school.
34. Employees here don't really trust one another.
35. Almost everyone has similar values and ideas about what this school should be doing.
36. This school allows me to do things that I find personally satisfying
37. Competition among teachers/departments is actively encouraged in this school
38. This school really cares about me as a person.
39. I know what this school stresses.
40. In this school, we're encouraged to try new things.

Figure 2 shows a sample page from the *Instructional Climate Inventory - Form T*, the form that is used with teachers and school staff. In its complete form, the instrument consists of 100 questions that usually require about 20-30 minutes to complete. The standard approach is to administer these instruments anonymously. Individual responses are not interesting when the purpose is to understand a social organization, and people usually feel freer to express themselves when no individual identification is requested. That is not to say that people are necessarily more critical when surveys are conducted anonymously. Ahadi, Scott, and Krug (1990) reported data that compared principal self-reports of instructional leadership with their teachers' ratings along the same dimensions. One interesting finding was that the teacher ratings, which were obtained anonymously, were somewhat *higher*, not lower, on average than the principal self-reports.

Figure 3 shows a reduced sample of the *Instructional Climate Inventory - Form S*, the form that is used with students. These 20 questions assess the four climate dimensions described earlier as well as Strength of Climate and Commitment, and do so with a high degree of precision. They were ultimately selected from a much larger pool of questions with which we began this research. The final criteria for item selection included the psychometric criteria mentioned earlier and the ability of the item to be read and understood by a large segment of the school-age population. This instrument has been used successfully with students from third grade through high school to assess the climate of a variety of urban, suburban, and rural schools.

Figure 3
Instructional Climate Inventory-Form S

FORM S

Instructional Climate Inventory

by

Larry A. Braskamp, Ph. D. and Martin L. Maehr, Ph. D.

DIRECTIONS

Use a pencil to mark this sheet. Make your marks heavy and dark, but keep inside the circles. Avoid making any stray marks. If you need to change an answer, erase the first one completely before you fill in the second. Try to keep this sheet neat at all times. Don't fold or bend it.

In the space for GRADE fill in the circles for your grade. For example, if you are in grade 10, fill in the "1" circle in the first column and the "0" circle in the second column. If you are in grade 5, fill in the "0" circle in the first column and the "5" circle in the second column. Fill in the IDENTIFICATION NUMBER only if told to do so by your teacher.

GRADE

IDENTIFICATION NUMBER

Read the following sentences and decide how strongly you agree or disagree with each one. There are no right or wrong answers. Fill in the circle below the choice that best describes the way you really think and feel. For example, if you strongly agree with a sentence, fill in the circle under the STRONGLY AGREE column.

STRONGLY AGREE

1. This school makes me like to learn.
2. Doing well at school gets the approval of my teachers.
3. Teachers and students here really trust one another.
4. At this school, the teachers tell the students what is expected of them.
5. I have a strong sense of loyalty to this school.
6. It's important to do well in this school.
7. Doing well at school will help my future education.
8. At this school it is very important to get good grades.
9. I take a lot of pride in my school work.
10. I'm proud I go to this school.
11. This school makes me like to study hard for good grades.
12. This school gives praise for good work.
13. Competition among students in this school is very high.
14. Every student in this school knows what it stands for.
15. I do my best in this school.
16. In this school we hear about what the students do right, not their mistakes.
17. I feel like I belong in this school.
18. This school has many talented students and teachers.
19. Teachers at this school treat students with respect.
20. In this school, we can try new things.

What Do Numbers Tell? A Tale of One School

Lindelow, Mazzarella, Scott, Ellis, and Smith (1989, p. 174) have said that "no analysis of data derived from a school climate measurement instrument can provide the 'feel' for what is happening in a school that comes from directly observing students, teachers, and administrators in action." It is difficult to argue with this statement, particularly since the purpose of numbers is not to provide a "feel" but a more abstract, more formal statement of what is occurring.

Figure 4

Sample School Report for the *Instructional Climate Inventory - Form S*

INSTRUCTIONAL CLIMATE INVENTORY	- Form S
Group Processing Label	SCH92
Number of Students Assessed:	338

Use the following key to interpret the item analysis results:

1	2	3	4	5
Strongly Disagree	Disagree	Uncertain	Agree	Strongly Agree

	School	Norm
2. COMMITMENT (page 10)	59	50
4th Quartile (76-99%)	63	25%
3rd Quartile (51-75%)	23	25%
2nd Quartile (26-50%)	9	25%
1st Quartile (1-25%)	5	25%
I have a strong sense of loyalty to this school	4.19	3.32
I'm proud to go to this school	4.53	3.58
I feel like I belong in this school	4.43	3.39

	School	Norm
3. STRENGTH OF CLIMATE (page 11)	58	50
4th Quartile (76-99%)	68	25%
3rd Quartile (51-75%)	13	25%
2nd Quartile (26-50%)	10	25%
1st Quartile (1-25%)	9	25%
Every student in this school knows what it stands for	3.79	2.87

	School	Norm
3. ACCOMPLISHMENT (page 12)	61	50
4th Quartile (76-99%)	74	25%
3rd Quartile (51-75%)	18	25%
2nd Quartile (26-50%)	5	25%
1st Quartile (1-25%)	2	25%
This school makes me like to learn	4.14	3.20
I take a lot of pride in my school work	4.44	3.64
This school makes me like to study hard for good grades	4.07	3.01
I do my best in this school	4.38	3.79
In this school, we can try new things	4.45	3.37

Figure 4, continued

	School	Norm
3. RECOGNITION (page 13)	60	50
4th Quartile (76-99%)	71	25%
3rd Quartile (51-75%)	17	25%
2nd Quartile (26-50%)	8	25%
1st Quartile (1-25%)	4	25%
Doing well at school gets the approval of my teachers	4.47	3.69
At this school, the teachers tell the students what is expected of them	4.48	3.75
This school gives praise for good work	4.13	3.20
In this school we hear about what the students do right, not their mistakes	3.64	2.81

	School	Norm
3. POWER (Page 14).....	57	50
4th Quartile (76-99%)	53	25%
3rd Quartile (51-75%)	30	25%
2nd Quartile (26-50%)	14	25%
1st Quartile (1-25%)	4	25%
It's important to do well in this school	4.69	4.06
Doing well at school will help my future education	4.85	4.52
At this school it is very important to get good grades	4.59	3.96
Competition among students in this school is very high	3.97	3.37

	School	Norm
3. AFFILIATION (page 15)	60	50
4th Quartile (76-99%)	63	25%
3rd Quartile (51-75%)	21	25%
2nd Quartile (26-50%)	8	25%
1st Quartile (1-25%)	6	25%
Teachers and students here really trust one another	3.70	2.69
This school has many talented students and teachers	4.55	3.76
Teachers at this school treat students with respect	4.09	3.05

Figure 4 shows a report derived from the results of the Instructional Climate Inventory - Form S administered to a total of 358 6th-, 7th-, and 8th-grade students enrolled in a middle school. The numbers of responses were roughly balanced across classes. In this report, scores on scales are reported as T-scores. These are standard scores that have a mean of 50 and a standard deviation of 10 in the normative population. The use of this scale permits the reader to quickly interpret score differences. Regardless of which scale is being examined, the expected mean is 50. Scores higher than 50 are above average with respect to the total population on which the instrument was normed. Scores below 50 are below average with respect to norm population. In the report shown in Figure 4, the students score 9 scale score points above average (59) on the Commitment scale. Considering the size of the sample of students on which the report is based, this is a sizable departure from the mean, approximately 15 standard errors, which indicates that this is not a chance elevation.

In order to provide some sense of the distribution of scores across students, the report shows a breakdown by quartile. This section of the report is interpreted as follows. If the distribution of student scores was essentially identical to the norm population, then we would expect about 25% of the students within the school to fall into each quarter of the norm distribution This is clearly not the case for the school shown in Figure 4. On the Commitment scale, for example, more than half (63%) of students have scores that are as high or higher than the top 25% of scores in the normative distribution. Only 5% of students in this school have scores that are as low or lower than the lowest 25% of scores in the normative distribution.

At a third level, the report provides some information about how individual items were answered by students in comparison with the normative population. Beneath the quartile distribution, each item that contributes to the scale is shown along with the average item response for the school and for the normative population. These averages are reported on the original response metric where 1 means "Strongly Disagree" and 5 means "Strongly Agree." Thus, on the first Commitment item, "I have a strong sense of loyalty to this school," the average student response within this middle school is 4.19, which would place it somewhere between Agree and Strongly Agree. This is almost a full point higher than the average item response for the normative population.

What do these numbers tell us about the school in question? Obviously, some very positive things are going on in the school. All of the scales are significantly elevated, with the highest score found on the Accomplishment scale. The items within the scale confirm the meaning of the scale elevation. This is a school in which learning, study, and innovation are clearly stressed.

Although the picture the report presents is a very positive one overall, the fact that there are some students who score in the lowest quartile remind us that there is a disenchanted minority within the walls of the building. Those numbers raise some questions about what might be done to reach out to those students whose perceptions of the school are so different than those of their peers. Are they new to the school? Has the message not yet reached them? In any event, the results show that they are out there.

The school itself is real. Although the student population is culturally diverse and represents all levels of the socioeconomic stratum, the instructional climate is substantially homogeneous. This is not a school that attracts only the most capable students whose parents are so committed to education that the students could succeed despite what a school might do to them. Many of the students qualify for free or reduced lunches because of their parent/guardian income levels.

What the numbers suggest is that this is a school in which the administrators, teachers, and staff have all been able to convey a single message about the value of education. They have managed to excite these students about learning and to create an environment in which students feel comfortable pursuing study and knowledge. One can only hope that the deep sense of commitment these students feel to the school will translate into a sense of commitment to learning itself.

Implications for Practice

Any reader who has gotten this far in the text is, or perhaps already was, convinced that instructional climate is real, important, and measurable. The results of climate surveys can be used to inform decision making and give those responsible for ensuring the quality of educational outcomes a practical tool for monitoring the psychological well-being or health of the school. Nevertheless, a number of questions remain to be explored.

Perhaps the most important is: How do we go about creating positive learning climates? The instruments we have available to measure the instructional climate of schools only record what is present, they do not create it. Although assessment is sometimes used as an instrument of change, the evaluation of school instructional climate is very unlikely, of itself, to create a positive learning environment.

Deal and Peterson (1990) have approached the issue primarily from the perspective of how the principal can go about creating a positive learning climate. They have suggested six strategies for climate or culture building: developing a sense of what the school should and can be; value-based staffing; resolving conflict in ways that shape values; communicating values through actions; identifying and articulating stories that communicate shared values; and nurturing the traditions, ceremonies, and symbols that communicate the school climate.

The interested reader is referred to the original source for details. However, a few general comments are relevant here. The essential prerequisite for Deal and Peterson's suggested strategies is a clear understanding by those charged with climate change of what the school is about. That is, the mission of the school must be very clearly articulated. If the school's mission is unclear or uncertain, it will be impossible to create a common understanding of what the school is about.

Deal and Peterson underscore the importance of communicating values and beliefs through actions and behavior. They cite the example of a principal who used lunchroom duty as an opportunity to make personal contact with individual students. Elsewhere (Krug, Ahadi, & Scott, 1991) we have noted differences in how principals have approached "bus duty," a district requirement to be present during times school busses board and discharge students. One principal used the time as an opportunity to talk about learning activities with students, to reinforce their work, and to communicate a sense of importance about their daily learning activities. Students, teachers, and parents can tell the difference between those who "go through the motions" and those whose actions are guided by a genuine sense of purpose.

Deal and Peterson also spotlight the importance of oral and written school histories as instruments for developing positive learning climates. Students may spend only a year or two in many schools, and no more than nine years in the best case, a very unrealistic best case scenario in light of population mobility statistics. In the absence of written and oral

histories, it is difficult for students, as well as teachers who may spend only a year or two in a school, to "connect" with the school. The centrality of value-based histories is closely connected to Deal and Peterson's last point about maintaining and nurturing the traditions, ceremonies, and symbols that communicate and maintain a sense of shared values.

Deal and Peterson's advice is directed primarily at the principal. But the task of building a positive learning climate is not simply the responsibility of building administrators. Ames and Ames (1993), for example, have proposed a team-leadership perspective for developing school-wide climates. They outline a model and, perhaps more important, a set of practical materials for implementing their program.

Regardless of how people go about the task of building positive learning climates, there will always be a need to evaluate the efficacy of those efforts. The existence of instruments that reliably and validly assess the instructional climate of the school represents an important practical advance in building the kinds of schools that will carry our students into the 21st century.

References

Ahadi, S.A., Scott C.K., & Krug, S.E. (1990). *Reliability, validity, scope, and demographic correlates of teacher ratings of instructional leadership and school instructional climate.* Technical Report 8C2104-103. Champaign, IL: MetriTech, Inc.

Ames, R., & Ames, C. (1993). Creating a mastery-oriented school-wide culture: A team leadership perspective. In M. Sashkin and H.J. Walberg (Eds.) *Educational leadership and school culture.* Berkeley: McCutchan, 124-145.

Bracey, G.W. (1992). What assessment and research say about the condition of education. *Educational Measurement: Issues and Practice, 11 (4),* 5-6, 41.

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

Cattell, R.B. (1957). *Personality and motivation structure and measurement.* New York: World.

Chamberlin, L.J. (1971). *Effective instruction through dynamic discipline.* Columbus, Ohio: Merrill.

Deal, T.E., & Peterson, K.D. (1990). *The principal's role in shaping school culture.* Washington, DC: U. S. Government Printing Office.

Halpin, A.W., & Croft, D.B. (1962). *The organizational climate of schools.* St. Louis: Washington University.

Krug, S.E. (1989) Leadership and learning: A measurement-based approach for analyzing school effectiveness and developing effective school leaders. In C. Ames & M.L. Maehr (Eds.) *Advances in motivation and achievement, Volume 6.* Greenwich, CT: JAI Press, 249-277.

Krug, S.E. (1992). Instructional leadership: A constructivist perspective. *Educational Administration Quarterly,* 18(3), 432-445.

Krug, S.E. (1993a). Quantitative findings regarding school leadership and school climate. In M. Sashkin and H.J. Walberg (Eds.) *Educational leadership and school culture.* Berkeley: McCutchan, 163-178.

Krug, S.E. (1993b). *Instructional Leadership, School Instructional Climate, and Student Learning Outcomes*, (Champaign, IL: National Center for School Leadership, 1993)

Krug, S.E., (1993c). Test-retest stability of school instructional climate measures. *Psychological Reports*, In press.

Krug, S.E., Ahadi, S.A., & Scott, C.K. (1991). Current issues and research findings in the study of school leadership. In P. Thurston and P. Zodiates (Eds.) *Advances in Educational Administration, Volume 2.* Greenwich, CT: JAI Press, 241-260.

Lindelow, J., Mazzarella, J A., Scott, J.C., Ellis, T.I., and Smith, S.C. (1989). School climate. In S.C. Smith and P.K. Piele (Eds.) *School leadership: Handbook for excellence.* Eugene: University of Oregon, 168-188.

Maehr, M.L. (1991) The "psychological environment" of the school: A focus for school leadership. In P. Thurston and P. Zodiates (Eds.) *Advances in Educational Administration, Volume 2.* Greenwich, CT: JAI Press, 51-81.

Newman, B.M., & Newman, P.R. (1978). *Infancy and childhood: Development and its contexts.* New York: Wiley.

Prochansky, H.M., & Seidenberg, B. (1965). Basic studies in social psychology. New York: Holt.

Walberg, H.J. (1979). *Educational environments and effects: Evaluation, policy, and productivity.* Berkeley: McCutchan.

Walberg, H. ., House, E.R., & Steele, J.M. (1973). Grade level, cognition and affect: A cross-section of classroom perceptions. *Journal of Educational Psychology, 64,* 142-146.

Wirt, F., & Krug, S.E., (1993). Leadership and vision: A constructivist approach to leadership theory. Paper presented at the annual meeting of the Midwestern Political Science Association, Chicago, April 15, 1993.