The School Leadership/School Climate Relation: Identification of School Configurations Associated With Change in Principals

James Griffith

This study examined the relation of school leadership to school climate, school structure, and student population characteristics, together referred to as school configuration. Archival and survey data were obtained from 122 elementary schools. Some schools had changed principals under less than positive circumstances, whereas other schools had not. Schools having principal changes had greater use and more students who were new to the district, new to the school, economically disadvantaged, and minority. Schools having principal changes also had slightly lower scores on criterion-referenced tests. Students and their parents also perceived these schools as less ordered and disciplined, and parents reported lower levels of school empowerment and participation in school activities. As predicted, within schools having principal changes, students and their parents showed less agreement in perceptions of the school environment. Implications of results for effectively configured school organizations and effective principal leadership are discussed.

The concepts of leadership and organizational climate are intertwined (Kozlowski & Doherty, 1989). Organizational literature has recognized leadership as an essential element in determining organizational climate and productivity (Chelte, Hess, Fanelli, & Ferris, 1989; Evans, 1968; Indik, 1968; Litwin & Stringer, 1968; Schneider, 1983). By the same token, organizational climate has been recognized as a powerful element in determining leadership effectiveness (Franklin, 1975; Sheridan & Vredenburgh, 1978). This linkage is evident in educational research, where organizational climate has been related to principal effectiveness (Anderson, 1982), faculty trust in the principal, and trust among teachers (Tarter & Hoy, 1988). Yet, few educational research studies have related the concepts of school leadership and

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school climate. This study examined the relation of school leadership to school climate, in addition to school structure and student population characteristics, all together referred to as school configuration.

**Characteristics of Effective Principals**

Past research on effective principal leadership proposes that principals should be focused primarily on school processes of instruction. For example, Danley and Burch (1978) supposed the effective principal to be the “master teacher,” making frequent visits to classrooms and providing detailed suggestions for improving the quality of teaching. Although his work was broader in scope, Edmonds (1979) also described an effective principal as involved in academic instruction: The principal sets clear and high achievement goals, maintains an orderly school environment, encourages the teaching of the “basics,” monitors student achievement progress, and is actively immersed in day-to-day school activities. Weller, Butter, and Bland (1994) identified similar characteristics of effective principals: a principal who emphasizes curriculum and student achievement, provides a positive instructional environment, evaluates student performance, develops instructional improvement plans, supports teachers, and facilitates communication. In their review of effective school studies, Hallinger and Murphy (1986) concluded that effective elementary school principals maintained a strong task orientation where their “focus is on the development of curriculum and instruction rather than on management or human relations activities” (p. 332).

Juxtaposed is other research that proposes effective principal leadership to be concerned chiefly with providing coordination among classroom teachers, discerning needs of the external environment (parent and community), and providing a bridge between the external environment and the school. Although Bossert, Dwyer, Rowan, and Lee (1982) recognized that principals in more effective schools were strong programmatic leaders, they also espoused that effective principals are managers. In their review of studies, they described effective principals as creating conditions to achieve school consensus on instructional program, goals, and academic standards; maintaining student discipline; buffering classrooms from outside interferences; allocating school resources effectively; knowing community power structures; and maintaining appropriate relations with parents. Bredeson (1985) described the principal’s function as “the maintenance manager, or the person in the organization who sees and understands the total (educational) process (in the school building) and is responsible for everything that goes on (in the school)” (p. 45). Similarly, Stronge (1993) observed the principal as a maintenance manager, primarily concerned with resource allocation and
student discipline, and thus, whose responsibilities “can hardly be characterized as ‘instructional leadership’” (p. 5). Tarter, Sabo, and Hoy (1995) also stressed the principal’s role as a manager of interpersonal relations. They described the main task of the principal as providing a “supportive environment,” one in which teachers may make mistakes, not feel at risk, develop open professional and collegial relations, and trust the principal and other teachers. Lee, Dedrick, and Smith (1991) acknowledged effective principals as having the traditional leadership qualities (e.g., setting school achievement goals and expectations for school staff), but they also described effective principals as obtaining resources and protecting teachers from potentially hostile and disruptive forces in the external environment. Thus, previous research on effective principal leadership espouses the principal as a curriculum leader, on one hand, and as a manager of interpersonal relations and resources on the other.

**Principal Effectiveness as Contextually Dependent**

The answer, in part, to what constitutes an effective principal may lie in the school environment. Bossert et al. (1982) described principal effectiveness as dependent on the school’s instructional and social climate. Hart (1992) also contended that the school context and the dynamics of social interactions largely determined principals’ impact on student academic outcomes. Likewise, Salley (1979) asserted that “ principals are captives of their environments. . . . The size of the school system, size of the school, and number of grade levels in a school are organizational variables that influence the principal’s definition of his or her work” and “ethnic and socioeconomic characteristics play a significant part in defining the work of principals” (p. 3). Empirical evidence supports the notion that principal effectiveness is contextually dependent. For example, Kleine-Kracht (1993) observed several organizational characteristics associated with the principal’s influence on school instruction, including student, parent, and school staff goal consensus; goal congruence; role expectations for school staff; and attitudes toward innovation. Heck, Larsen, and Marcoulides (1990) found that principals had positive effects on student achievement only under certain conditions of school governance, instructional organization, and school climate. In their review of studies investigating the principal’s role in school effectiveness, Hallinger and Heck (1996) observed that models that incorporate intervening variables (i.e., environmental conditions and in-school processes, for example, school goals, academic expectations, instructional organization) between principal leadership and student achievement account for most effects. This perspective is consistent with social-psychological theories of leadership (e.g.,
contingency leadership, Fiedler, 1967; transactional leadership, Hollander, 1978; path-goal leadership, House, 1970; transformational leadership, Bass, 1985). These leadership theories understand effective leadership as dependent on the appropriate match between leader behaviors and the nature of the organizational context and the environment in which the organization operates.

Principal effectiveness has also been associated with school structural characteristics and student population characteristics. In their longitudinal analysis of principal change on school functioning and student academic performance, Rowan and Denk (1984) observed that change in principals was associated with higher student academic achievement, especially in schools having proportionally more socioeconomically disadvantaged students (greater than 20%). Using national data, Zheng (1996) reported that principal effectiveness was significantly related to school size, urban-rural location, and percentage of minority student enrollment (see also Goldring, 1990). Which principal leadership styles are most effective also depends on the school level, elementary school versus secondary school (Tarter et al., 1995).

Characteristics of the school structure, student population, and broader organizational context, along with traditional aspects of organizational climate, are conceived as a broader concept, called organizational configuration (Meyer, Tsui, & Hinings, 1993). An organizational configuration is a set of identifiable common characteristics of organizations that are useful in predicting organizational performance and effectiveness. After having reviewed organizational studies relating to leader succession, Miskel and Cosgrove (1985) concluded that “organizational configurations and processes of schools... and community factors limit the amount of influence that new leaders have in initiating school changes” (p. 101). Indeed, a very recent meta-analysis of empirical studies (Ketchen et al., 1997) showed that organizations whose configurations are aligned with their environments perform better than organizations with nonaligned configurations.

Educational research offers several examples of school configurations. Bolman and Deal (1984) characterized schools as bureaucracies, organizations that fulfill human needs, political entities, and cultural enclaves. Reyes and Pounder (1993) described schools in terms of their reward systems, either institutionally based (normative) or materially based (utilitarian). Lee et al. (1991) presented two general types of school organizations: loosely coupled and integrated. Schools with loosely coupled authority structures are identified by distant contacts between the school’s administrators and day-to-day instructional activities. The school’s authority, the principal, provides a buffer between the day-to-day operations of the school and external pressures by responding to external demands without having to make changes in
the school’s instructional content and practices. In this configuration, the school is more likely to respond to the external environment, for example, to parents, community groups, and political groups, rather than to the students (Chubb & Moe, 1990). In contrast, schools having integrated authority structures have school administrators who monitor and provide linkages among the needs of the external community, school staff, school organization, and the core instructional activities. In this configuration, the school develops school and community consensus regarding the school’s overall mission and academic goals. The authority structure, that is, the school principal, is able to align day-to-day instructional content and practices with these goals. Most recently, Ostroff and Schmitt (1993) speculated that organizational processes or configurations were related to both organizational value orientation and to organizational emphasis on effectiveness and efficiency. In a sample of secondary schools across the United States and Canada, Ostroff and Schmitt observed that efficient schools (as measured by ratio of dollars spent to student achievement) may be best represented by the “rational goal model” found in the organizational literature (Perrow, 1970). This model represents schools that place importance on internal structure, control, and planning to meet externally defined goals. Ostroff and Schmitt (1993) also observed that effective schools (as measured by student achievement) more closely resembled the “human relations model” (Likert, 1967) found in the organizational literature. This model portrays schools as flexible, internally focused organizations concerned with member cohesion and morale, growth, and self-development.

Study Purpose

Despite conceptual linkages among school leadership, school climate, and broader organizational characteristics, together called organizational configuration, few studies have empirically examined their interrelations in one study. In the present study, archival data and survey data were obtained from 122 elementary schools. Some of the schools had changed principals, whereas other schools did not. Ineffectiveness of a principal often precipitates a change in principal. Research suggests that on many occasions, new leadership in business organizations (Allen, Panian, & Lotz, 1979; Chelte et al., 1989; Evans, 1968) as well as in schools (Ganz & Hoy, 1977; Miskel & Cosgrove, 1985) is done to effect change in the organization. Thus, the broad research question addressed by this study was: Do schools having a change in principals have identifiable organizational configurations? The archival data and survey data, treated as a whole, provided the opportunity to examine the relation of principal effectiveness to school structure, student population, and
social climate. Three specific research questions were addressed by this study.

First, are schools that have principal changes more racially, ethnically, and socioeconomically diverse? Are they larger in student enrollment? Do they have more student turnover? Early organizational studies found that leader succession occurs more frequently in larger, more demographically diverse organizations (summarized in Miskel & Cosgrove, 1985). Previously cited educational studies have linked principal effectiveness to school structural and student characteristics (Goldring, 1990; Rowan & Denk, 1984; Tarter et al., 1995; Zheng, 1996). These studies suggest that schools composed of demographically diverse student populations would be more difficult to manage. Indeed, the benefits of group member similarity to group functioning is well documented in the groups psychology literature. Groups having members whose backgrounds are similar display greater cohesiveness and greater efficiencies in social interactions and task accomplishment (Hogg, 1992). The groups psychology literature also suggests that schools having greater student turnover (i.e., new students to the school) would be more difficult to manage. Processes associated with effectively functioning groups—consensus, formation of friendships, and cohesiveness—are less likely to occur in groups where members have spent less time together (Baron & Byrne, 1997). Negative effects of employee turnover on organizational functioning and performance have been well documented in the organizational psychology literature (Hom & Griffeth, 1995). Employee turnover exacts enormous costs in the formal and informal teaching of task and social roles, communication networks, power and status relationships, norms for behavior, and broader organizational values. Finally, observed relations between school structural characteristics relating to population density or school size and disciplinary problems or acts of vandalism (Huber, 1983) suggest that schools having smaller student populations, classroom sizes, and student-faculty ratios are more easily managed. A consistent finding in ecological psychology is that the presence of fewer students in “behavior settings,” such as school classrooms, results in both positive psychological effects (students feel that demands to participate in the setting’s activities are less alienated and experience a sense of belonging and a sense of self-efficacy) and positive behavioral effects (students are more punctual, attend class more regularly, and participate in more school activities) (Barker & Gump, 1964; Wicker, 1968, 1969; Willems, 1967).

The second research question to be answered by this study is Are schools having changes in principals configured in specific ways? Are they perceived by students and their parents as insensitive bureaucracies (Bolman & Deal,
1984), as concerned with boundary issues between the school and community (Lee et al., 1991), as having specific reward structures for students and school staff (Reyes & Pounder, 1993), as oriented toward student goal achievement (Perrow, 1970), as oriented toward fulfilling interpersonal needs of students and school staff (Likert, 1967), and so on?

The third and final research question to be answered by this study is Are students and their parents in schools having principal changes less certain about their perceptions of the school environment? Organizational research and theory emphasize the importance of the organizational leader in providing the basis for and maintaining organizational climate and culture (Chelte et al., 1989; Evans, 1968). Thus, students and their parents in “leaderless” schools (schools that recently had principal changes) would be expected to show less agreement in their perceptions regarding the school environment. Moreover, the lack of consensus among students and their parents may have precipitated change in principals.

**METHOD**

**Analytic Design**

Data consisted of archival school data and student and parent perceptions of school physical and social environment for 122 elementary schools. The elementary schools from which the sample of students and their parents were drawn were in a large suburban school district just outside a large metropolitan area. The schools were racially, ethnically, and socioeconomically diverse. The mean percentage of students in minority race/ethnic groups among the schools was 41%, with 18% African American, 12% Asian American, and 11% Hispanic. Whites made up 59% of the student population of the schools. There was substantial variability of students enrolled in the Free and Reduced Price Meals program (FARMS) (median = 24%, range = 1% to 94%).

The primary purpose of the study was to determine whether schools having principal changes could be distinguished from schools having no principal changes in terms of organizational configuration (as measured by school structural characteristics, student population characteristics, and student and parent perceptions of the school environment). Discriminant function analysis was used to specify school structure, student population, and student and parent perception variables that differentiated the two groups of schools. Measures of school structure, student population, and student and parent perceptions of the school environment served as the discriminating variables or
independent variables. Whether the school had a newly assigned principal (change or no change) served as the grouping variable or dependent variable. Data sources for developing the measures of the discriminating and grouping variables are summarized below.

**Discriminating Variables: School Structure and Student Population Characteristics**

School structure and student population characteristics of interest were identified in the school district's archival data. School archival data provided data for several school structure and student population characteristics of interest. Specifically, appended data represented student diversity (i.e., the percentage of students in racial/ethnic categories, the percentage of students enrolled in FARMS), student turnover (i.e., percentages of students new to the school district and new to the school), and student population density (i.e., student enrollment or school size, percentage of school utilization [student enrollment/planned student capacity], mean class size, student-faculty ratio). School data, corresponding to the academic year in which the survey was administered, were appended to the school-level survey database.

The school district's criterion-referenced test (CRT) mean score for each school was also appended to the school-level survey data. The CRT was developed by the school district, state Department of Education, and the McGraw-Hill Measurement Corporation as part of the student performance assessment program. Content of the tasks is based on specific competencies that the course curriculum is designed to teach students. The internal reliability of task performance in each of the separate content areas has been moderate to high (average Cronbach's alpha = .85). The CRT has relied primarily on face and content validity, that is, developing test items that assess the student's mastery of the instruction of course curriculum. The CRT has demonstrable concurrent validity. Using data from all students in third, fourth, and fifth grades for the most recent academic year, individual student grade averages moderately correlated with individual CRT scores, and correlations were similar across grade levels, $r(9,109) = .62, p < .001; r(8,842) = .60, p < .001; r(9,072) = .61, p < .001$, respectively. Student CRT scores in each school were averaged to derive a school mean CRT score.

**Discriminating Variables: Student and Parent Perceptions of School Environment**

Students and their parents responded to questionnaire items that asked about school climate, school facilities, school order and discipline, parent-
school relationships, academic instruction, and student-teacher relationships. The survey was part of the school district's strategic improvement plan.

Survey administration. Survey packets were sent to the schools for distribution to students and parents of students enrolled in the 122 elementary schools. Student questionnaires were group-administered by teachers to all students in their classes. Students in Grades 3 through 6 completed the surveys. Of the 29,854 students surveyed, 26,904 students completed the survey, representing a 90% completion rate. The mean student response rate across the schools was 91%. The grade and race/ethnic composition of the student respondent sample resembled the student population enrolled at the elementary schools.

Each household having children enrolled in the rated school was given one survey form. Some households had more than one student attending the same elementary school. It is likely that parents in these households would have similar perceptions of the school, and if permitted to respond for each child enrolled in the school, would unduly influence estimates based on households. Also, most survey items pertained to the school level (i.e., the school, group of teachers) rather than individual student level (i.e., individual classroom or teacher); thus, having parents rate each teacher and classroom attended by each of their children was not necessary. To give each household an equal representation in the school's assessment, teachers were instructed to give survey packets to the youngest or only child in the household who attended the school. Children carried the survey packets home and returned the questionnaire in sealed envelopes when parents had completed them. Of the 46,585 parents surveyed, 33,244 completed the survey, representing a 71% completion rate for the entire sample of parents. The mean completion rate across the schools was 71%. The racial composition of the parent respondent sample was similar to that of the elementary school student population.

Scale development. Survey items were borrowed and adapted from national and regional surveys of school environment and satisfaction (e.g., U.S. Department of Education's 1988 National Education Longitudinal Study, Student Questionnaire; San Diego County, 1984, Office of Education, Effective Schools Student Survey; and University of Washington's 1988 Effective Schools Project Student Survey). The student survey instrument consisted of 42 items, and the parent survey consisted of 41 items. Students and their parents responded to items using a 4-point Likert-type scale: 1 = strongly disagree, 2 = disagree, 3 = agree, and 4 = strongly agree. Based on their content similarity, survey items were organized into scales. There were six student scales.
1. Facilities (bathrooms are neat and well supplied; the cafeteria is neat and clean; there is enough space, books, and equipment for learning)
2. Order and Discipline (students in the school follow school rules; the student is not bothered by other students; other students are friendly to the student; and the student’s feelings of being safe in school)
3. Helpfulness of School Staff (office staff are helpful to the student; school staff provide help when the student is hurt physically or emotionally; and the school principal is fair)
4. Academic Instruction (teachers do a good job teaching the student reading, writing, and mathematics; and assigned homework is interesting and helps learning)
5. Student-Teacher Relationships (teachers listen to the student, help the student when needed, expect the student to do well, tell the student how well he (she) is doing, and treat the student fairly)
6. Student Satisfaction (the extent the student enjoys classroom activities)

There were seven parent scales.

1. School Climate (whether the parent is made to feel welcome, office staff are helpful and courteous to the parent, and teachers and principal are interested and cooperative when discussing the parent’s child)
2. Order and Discipline (the parent’s child is safe at school; misbehavior is not a problem at the school; and the parent’s child is safe from weapons at the school)
3. School Informs Parents (teachers inform the parent of student academic progress, problems involving the parent’s child, school rules, and school policies)
4. School Empowers Parents (the school tells the parent about school events, meetings, and ways the parent can help out in the school; and the school schedules events so that the parent can attend)
5. Parent Participation (the frequency of parent volunteering to help in school activities and parent attendance at parent-teacher meetings, school open houses, back-to-school nights, etc.)
6. Academic Instruction (teachers provide challenging work at school, teachers help the child when needed, the child understands homework, and the parent is satisfied with academic progress of the child)
7. Parent Satisfaction (the extent to which parents believe that their child is enthusiastic about learning and enjoys school, whether parents believe that the child is getting an education, and whether they would recommend the school to others)

The student and parent scales corresponded well to school internal processes evident in the school effectiveness research (Goldring & Shapira, 1993; McGrew & Gilman, 1991; Ostroff & Schmitt, 1993) and school climate research (Anderson, 1982; Moos, 1979; Stockard & Mayberry, 1992; Walberg & Anderson, 1968).
Table 1

<table>
<thead>
<tr>
<th>Scale</th>
<th>Number of Items</th>
<th>Alpha</th>
<th>Interitem r</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student scale</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Facilities</td>
<td>5</td>
<td>.62</td>
<td>.34 to .43</td>
</tr>
<tr>
<td>School Order and Discipline</td>
<td>6</td>
<td>.74</td>
<td>.42 to .51</td>
</tr>
<tr>
<td>Helpfulness of School Staff</td>
<td>4</td>
<td>.60</td>
<td>.37 to .40</td>
</tr>
<tr>
<td>Academic Instruction</td>
<td>7</td>
<td>.77</td>
<td>.34 to .55</td>
</tr>
<tr>
<td>Student-Teacher Relationships</td>
<td>6</td>
<td>.74</td>
<td>.36 to .60</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parent scale</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Climate</td>
<td>5</td>
<td>.81</td>
<td>.53 to .67</td>
</tr>
<tr>
<td>School Order and Discipline</td>
<td>4</td>
<td>.72</td>
<td>.46 to .56</td>
</tr>
<tr>
<td>School Informs Parents</td>
<td>3</td>
<td>.72</td>
<td>.47 to .60</td>
</tr>
<tr>
<td>School Empowers Parents</td>
<td>3</td>
<td>.76</td>
<td>.57 to .61</td>
</tr>
<tr>
<td>Parent Participation</td>
<td>3</td>
<td>.59</td>
<td>.35 to .46</td>
</tr>
<tr>
<td>Academic Instruction</td>
<td>4</td>
<td>.75</td>
<td>.47 to .65</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>4</td>
<td>.80</td>
<td>.45 to .68</td>
</tr>
</tbody>
</table>

NOTE: N = 33,244 parents in 122 schools; N = 26,904 students in 118 schools.

Scale Reliability. Table 1 displays statistics regarding the internal reliability of the student and parent scales.

All scales had sufficient internal reliability for exploratory purposes. Lower Cronbach’s alphas for some scales (.59, .60, and .62) were most likely the result of having few items in the scales. For these scales, Nunnally (1978) suggests that the average item-total correlation equal or exceed .25. All scales met this standard; item-total correlations were moderate to high in magnitude, ranging from .33 to .68.

A principal components factor analysis was employed to corroborate the organization of survey items on the various scales. Survey items generally loaded on separate factors, showing their stability as separate scales.¹

Grouping Variable

Of the 122 elementary schools, 16 schools had principal changes identified by experienced and knowledgeable school administrative staff as having “less than positive circumstances” before the principal change was made. Ninety-seven schools had no principal changes. The remaining schools were not included in the analysis, due to the fact that the schools either had missing
archival data or had principal changes under "positive circumstances." The two groups of schools served as values on the discriminating variable for the analyses. Survey data were collected during the academic year immediately following the change in school principal. Student and parent survey data were collected from the elementary schools. Archival data on school structure and student population characteristics were appended to the survey data.

RESULTS

Principal Changes and School Configuration

The first two research questions pertained to identification of school configurations associated with schools having principal changes under less than positive circumstances. Specifically, are schools in which principals change more racially, ethnically, and socioeconomically diverse? Are they larger in student enrollment? Do they have more student turnover? Are student and parent perceptions of schools different, depending on whether they have or do not have principal changes? Discriminant function analysis is well suited to differentiate schools having principal changes from those not having principal changes by school structure and student population characteristics and student and parent perceptions. Discriminant function analysis identifies variables that best differentiate members among two or more groups (see Klecka, 1975, 1980; Silva & Stam, 1995). In the present analysis, variables representing school structure and student population characteristics and student and parent perceptions were used to distinguish schools having principal changes from those schools having no principal changes. Linear combinations of the discriminating variables that maximally differentiated the two groups of schools are represented in the resulting function. Table 2 displays a statistical summary of the discriminant function.

The discriminant function was statistically significant, \( \chi^2 (24) = 35.92, p < .05 \). School structure, student population, and survey variables accounted for 47% of the total variance in the discriminant function. In addition, the discriminating power of the discriminating variables not yet removed by the discriminant function was moderate (Wilks's lambda = .68). (The larger the lambda, the less information remaining in the discriminating variables to differentiate between the two groups of schools.) Finally, the correlation between the best linear combination among the school structure, student population, and survey variables and the two types of schools was moderate; canonical correlation = .56.
TABLE 2
Statistical Summary of the Discriminant Function and Group Centroids for Schools Having Principal Changes and Schools Not Having Principal Changes

<table>
<thead>
<tr>
<th></th>
<th>Statistical summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discriminant function statistic</td>
<td></td>
</tr>
<tr>
<td>Eigenvalue</td>
<td>0.47</td>
</tr>
<tr>
<td>Canonical correlation</td>
<td>0.56</td>
</tr>
<tr>
<td>Wilks's lambda</td>
<td>0.68</td>
</tr>
<tr>
<td>$\chi^2$</td>
<td>35.92, $p &lt; .05$</td>
</tr>
<tr>
<td>Principal Change</td>
<td>Group Centroids$^a$</td>
</tr>
<tr>
<td>No Change</td>
<td>1.68</td>
</tr>
<tr>
<td></td>
<td>-0.27</td>
</tr>
</tbody>
</table>

NOTE: Listwise deletion, $N = 108$ schools.

$^a$ A group centroid is the mean of the discriminant scores for the discriminant function.

The lower half of Table 2 displays the group centroids for the two types of schools. Group centroids describe the location of the two groups of schools in dimensional space. The less similar (both in magnitude and direction) the centroids are for the function, the more the groups of schools are differentiated by the function. The group centroids indicated that schools scoring higher on the discriminant function were more likely those schools having principal changes.

Table 3 displays the discriminant function weights (the first column of coefficients) for the school structure and student population characteristics and student and parent survey data. Each weight indicates the contribution that the variable makes to the overall discriminant function and is used to weight the original values on the variables to derive discriminant scores.

Table 3 also displays the correlations between the discriminant scores and original values on the variables (the second column of coefficients). These correlations identify which of the variables are most strongly represented in the discriminant function. In particular, schools having principal changes had greater use, as well as more students who are new to the district and to the school, economically disadvantaged (more percentage FARMS), and minority (African American and Hispanic). Schools having principal changes also had slightly lower CRT scores than schools having no principal changes. In addition, students and parents of students in schools having principal changes viewed the schools as less ordered and disciplined and less empowering and reported lower levels of participation in school activities than did parents and students in schools not having principal changes.
TABLE 3
Discriminant Function Analysis: School Structure, Student Population, and Student and Parent Perception Variables That Distinguish Schools Having Principal Changes (positive values) and Schools Not Having Principal Changes (negative values)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Discriminant Function Weight</th>
<th>Correlation with the Discriminant Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>School characteristics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School size</td>
<td>-.51</td>
<td>-.07</td>
</tr>
<tr>
<td>Percentage utilization</td>
<td>.42</td>
<td>.27*</td>
</tr>
<tr>
<td>Classroom size</td>
<td>.14</td>
<td>-.05</td>
</tr>
<tr>
<td>Student-teacher ratio</td>
<td>-.06</td>
<td>-.16</td>
</tr>
<tr>
<td><strong>School student population</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage new to district</td>
<td>.81</td>
<td>.38**</td>
</tr>
<tr>
<td>Percentage new to school</td>
<td>.37</td>
<td>.31*</td>
</tr>
<tr>
<td>Percentage using the Free and Reduced</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price Meals program</td>
<td>-.46</td>
<td>.26*</td>
</tr>
<tr>
<td>Percentage Asian American</td>
<td>-.45</td>
<td>.15</td>
</tr>
<tr>
<td>Percentage African American</td>
<td>-.18</td>
<td>.37**</td>
</tr>
<tr>
<td>Percentage Hispanic</td>
<td>-.18</td>
<td>.22++</td>
</tr>
<tr>
<td>Percentage White a</td>
<td></td>
<td>-.27++</td>
</tr>
<tr>
<td>Mean CRT score</td>
<td>.08</td>
<td>-.17+</td>
</tr>
<tr>
<td><strong>Student scales</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Facilities</td>
<td>-.09</td>
<td>-.13</td>
</tr>
<tr>
<td>School Order and Discipline</td>
<td>.11</td>
<td>-.24++</td>
</tr>
<tr>
<td>Helpfulness of School Staff</td>
<td>-.12</td>
<td>.01</td>
</tr>
<tr>
<td>Student-Teacher Relationships</td>
<td>-.56</td>
<td>-.15</td>
</tr>
<tr>
<td>Academic Instruction</td>
<td>.58</td>
<td>.06</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>.04</td>
<td>.04</td>
</tr>
<tr>
<td><strong>Parent scales</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Climate</td>
<td>-.01</td>
<td>.07</td>
</tr>
<tr>
<td>School Order and Discipline</td>
<td>-.33</td>
<td>-.31*</td>
</tr>
<tr>
<td>School Informs Parents</td>
<td>.33</td>
<td>.11</td>
</tr>
<tr>
<td>School Empowers Parents</td>
<td>-.48</td>
<td>-.17+</td>
</tr>
<tr>
<td>Parent Participation</td>
<td>.35</td>
<td>-.30*</td>
</tr>
<tr>
<td>Academic Instruction</td>
<td>.42</td>
<td>.11</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>.49</td>
<td>.04</td>
</tr>
</tbody>
</table>

NOTE: Listwise deletion, N = 108 schools. Significance level is based on the univariate F tests of the MANOVA discriminant function analysis. CRT = criterion-referenced test.

a. Dropped from the analysis, as sum of racial/ethnic categories equaled 100%.

+p < .25. ++p < .10. *p < .05. **p < .01.
TABLE 4
Percentage of Schools Correctly Classified by the Discriminant Function

<table>
<thead>
<tr>
<th>Predicted Group Membership</th>
<th>No Principal Change</th>
<th>Principal Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Group Membership</td>
<td>Row Percentage</td>
<td>n</td>
</tr>
<tr>
<td>No Principal Change (N = 93)</td>
<td>82.8</td>
<td>77</td>
</tr>
<tr>
<td>Principal Change (N = 15)</td>
<td>13.3</td>
<td>2</td>
</tr>
</tbody>
</table>

NOTE: Percentage of schools correctly classified overall was 83.3%.

How well the discriminant function correctly classifies the schools in the two groups was then determined. Table 4 displays results of school classification based on the discriminant function.

Overall, 83.3% of the schools were correctly classified by the discriminant function. The percentage of correctly classified schools was about the same for schools not having principal changes (82.8%) and for schools having principal changes (86.7%).

Student and Parent Consensus Regarding Perceptions of the School Environment

The third research question was, Is there less certainty in the perceptions of the school environment among students and their parents in schools having principal changes? Following a procedure described by Kozlowski and Doherty (1989), a statistical analysis was performed to determine whether variances on the student and parent scales were equivalent between the two groups of schools. Results supported the consensus hypothesis: Within-group dispersions were not equivalent between the two groups of schools. The multivariate test of homogeneity of variance across the attitudinal scales by change versus no change in school principal was statistically significant for students (box $M = 41.22, p < .01$) and for parents (box $M = 129.62, p < .001$). Thus, as predicted, both students and their parents in schools having principal changes showed greater variability or less agreement regarding the school environment—irrespective of the school membership—than did students and their parents in schools having no principal changes. This difference in variability was then examined on a school-by-school basis. Students and parents were placed in their schools, and then schools were divided into
the two types of schools (principal change versus no principal change). Two statistical procedures were used to determine within-school agreement among students and their parents regarding the school environment. First, intraclass correlation coefficients, ICC(2), were derived for each scale. The ICC(2) indicates the replicability of the school scale mean. Specifically, the ICC(2) represents the correlation between the group scale means and means obtained from random samples of individuals belonging to the organizational group or unit (James, 1982; Ostroff & Schmitt, 1993). Higher values indicate greater agreement among parents or students in the same school regarding their perceptions of the school environment.

The second statistical procedure, the within-school correlation, $r_{wg}$, assessed the extent to which students and parents of students in the same school showed agreement on each item composing the scale (James, Demaree, & Wolf, 1984; Kozlowski & Hattrup, 1992). Specifically, the $r_{wg}$ assesses the similarity of ratings to items composing each scale given by members of the same group. The correlation is based on the extent to which individuals in the same group give similar ratings (or agree on the rating of the stimulus) compared to the extent individuals in the same group would give dissimilar ratings (or disagree on the rating of the stimulus). Lindell and Futch (1996) suggest using maximum dissensus as the reference distribution in the $r_{wg}$ calculation, or distributing responses in the extreme categories, rather than distributing responses evenly across all responses categories (as in Kozlowski and Hattrup's 1992 approach). Again, higher values indicate more similarity among parents or students in the same school regarding their perceptions of the school environment. Table 5 displays the ICC(2)s and $r_{wg}$s for the student and parent scales for schools having principal changes and schools not having principal changes.

More than one half of the parent scales showed lower within-school agreement for schools having principal changes, using the ICC(2), four of seven scales or using the $r_{wg}$, four of seven scales. Differences in agreement statistics between the two types of schools were small. Differences in the ICC statistics were greatest on the School Climate and Academic Instruction scales. For students, none of the ICC(2)s showed less within-school agreement in schools having principal changes, compared to schools not having principal changes. In fact, three of six ICC statistics for the student scales were opposite of the hypothesized direction. Most of these differences, however, were minimal. As predicted, four of five $r_{wg}$s indicated less agreement among students within-schools in schools having principal changes, compared to schools not having principal changes. Again, the differences in agreement statistics between the two types of schools were small, except for the School Order and Discipline scale.
TABLE 5
Student and Parent Within-School Agreement in Perceptions of the School Environment

<table>
<thead>
<tr>
<th>Scale</th>
<th>No Principal Change</th>
<th>Principal Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ICC(2)⁰</td>
<td>rwg</td>
</tr>
<tr>
<td>Student scale</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Facilities</td>
<td>.94</td>
<td>.74</td>
</tr>
<tr>
<td>School Order and Discipline</td>
<td>.94</td>
<td>.77</td>
</tr>
<tr>
<td>Helpfulness of School Staff</td>
<td>.94</td>
<td>.68</td>
</tr>
<tr>
<td>Teacher-Student Relationships</td>
<td>.84</td>
<td>.77</td>
</tr>
<tr>
<td>Academic Instruction</td>
<td>.89</td>
<td>.74</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>.82</td>
<td>.72</td>
</tr>
<tr>
<td>Parent scale</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Climate</td>
<td>.93</td>
<td>.83</td>
</tr>
<tr>
<td>School Order and Discipline</td>
<td>.93</td>
<td>.82</td>
</tr>
<tr>
<td>School Informs Parents</td>
<td>.88</td>
<td>.80</td>
</tr>
<tr>
<td>School Empowers Parents</td>
<td>.89</td>
<td>.83</td>
</tr>
<tr>
<td>Parent Participation</td>
<td>.95</td>
<td>.60</td>
</tr>
<tr>
<td>Academic Instruction</td>
<td>.85</td>
<td>.76</td>
</tr>
<tr>
<td>Satisfaction</td>
<td>.89</td>
<td>.81</td>
</tr>
</tbody>
</table>

NOTE: Italicized statistics indicate results consistent with predictions; schools having principal changes had lower within-school agreement in scale responses.

a. ICC(2) is the intraclass correlation coefficient (James, 1982; Ostroff & Schmitt, 1993).
b. rwg is the within-school correlation (James, Demaree, & Wolf, 1984; Kozlowski & Hattrup, 1992).

DISCUSSION

Schools having principal changes, contrasted to schools not having principal changes, had identifiable organizational configurations. Schools having principal changes under less than positive circumstances had greater use as well as more students who were new to the district, new to the school, economically disadvantaged, and minority. Schools having principal changes also had slightly lower CRT scores than schools having no principal changes. In addition, students and parents of students in schools having principal changes perceived the school as less ordered and disciplined. Parents also perceived these schools as less empowering and reported lower levels of participation in school activities. As predicted, parents and students in schools having principal changes showed less consensus in their perceptions of the school environment than did parents and students in schools not having principal changes. Results, when considered together, imply characteristics for
effectively configured school organizations and effective principal leadership.

Schools as Configured Organizations

Linkages between four recurrent models of organization in the literature and their organizational emphases provide a preliminary basis for describing differently configured organizations. Models of organization have been described in terms of their emphases on control versus flexibility, internal versus external focus, and means versus ends (Quinn & Rohrbaugh, 1983). To illustrate, the human relations model (Keeley, 1978) emphasizes flexibility and internal focus and promotes cohesion and morale among employees (means) to achieve human resource development (ends). The open systems (Katz & Kahn, 1978) model places importance on flexibility and external focus and employs flexibility and readiness (means) to achieve organizational growth, resource acquisition, and efficiency (ends). The rational goal model (Perrow, 1970) stresses internal control and external focus and makes use of planning and goal-setting (means) to accomplish organizational productivity and efficiency (ends). The internal processes model (Likert, 1967) underscores control and internal focus and employs information management and communication (means) to achieve stability and control (ends).

In the present study, schools with principal changes were characterized by less order and discipline (less internal control), lower levels of school empowerment of parents and parent participation in school activities (less external focus), lower CRT scores (less emphasis on end product), and less parent and student consensus regarding the school environment (respectively, less external focus and less internal control). By inference, then, the organizational configuration of effectively managed schools (as measured by no change in principals) most closely resembles the rational goal model of organizations, that is, more internal control, outward focus, and emphasis on the end product.

Results relating to school structure and student population characteristics for schools having principal changes are consistent with observations in the literature. Leader succession has been observed to occur more frequently in more ethnically and socioeconomically diverse organizations here and elsewhere (summarized in Miskel & Cosgrove, 1985). This study adds to this literature by observing that turnover among organizational members, namely, new students to the district and to the school (Hom & Griffeth, 1995); and school student population density, namely, school utilization, are related to leader succession (Barker & Gump, 1964; Huber, 1983; Wicker, 1968, 1969; Willems, 1967). Results suggest that student diversity, turnover, and
population density make schools more difficult to manage (Goldring, 1990; Rowan & Denk, 1984; Tarter et al., 1995; Zheng, 1996). Indeed, theories of organizations have depicted organizational size as contributing to individual and interpersonal stress (e.g., role ambiguity, conflict, and overload), often interfering with individual and organizational effectiveness (Kahn & Byosiere, 1992).

Effective Principal Leadership

Results also imply characteristics for effective principal leadership. Examples of roles for effective principals are numerous in the literature. For example, Bredesen (1985) described four types of principal leadership styles corresponding to four models of school administration. The *instructional leader* is concerned with the technical core of operations, namely, well-designed and managed classroom instruction. The *custodial manager* is concerned with well-designed and operating school support functions, such as program planning and budgeting, business operations, and differentiated job tasks and position. The *missionary principal* is concerned with meeting the social needs of students, school staff, and parents through positive school climate. The *gamesman* or *politician* acts to negotiate and “satisfice” the many and divergent needs and demands internal and external to the school.

Earlier, effective principal leadership was characterized as a dichotomy of instructional leader versus manager of school operations, interpersonal relations, and competing demands. Stronge (1990) posited that in American education, the job tasks of principals have been transformed from curriculum leader or principal-teacher to manager of school operations or administrative agent. Stronge (1990) explained this shift in what constitutes effective school leadership by changes in the structure, student population, and external environment of contemporary schools. In recent decades, schools have become larger in size, student needs have become greater and more varied, and mandated educational requirements have increased. These changes have resulted in specializing the content and process of instruction, meeting complex legal requirements, and developing specialized management skills; all necessitated the principal’s greater management of school noninstructional rather than instructional activities.

Results here suggest that effective principal leadership combines the leadership styles in the literature. Bredesen’s (1985) instructional leader corresponds well with the finding that schools having principal changes had lower student academic performance. The custodial manager corresponds well with maintaining order and discipline that keep school functions operating smoothly. Lower levels of school empowerment of parents and parent
participation in schools having principal changes coincide with the missionary and politician aspects of Bredeson's effective principal leadership. Similarly, Ogawa (1996) recognized that how well managers provide bridges and buffers between organizational core technologies and demands of the external environment determines managerial and organizational effectiveness. In effective schools, principals provide bridging and buffering mechanisms. Individual and group parent involvement may benefit teaching, student learning, and school governance; thus, the principal informs, coordinates, and arranges for community involvement in school activities. In contrast, external pressures may interfere with the school curriculum, teaching, and the professional discretion of teachers; thus, the principal may act as an arbitrator between community demands and classroom teaching.

Unanswered Questions Regarding Leader Succession and School Effectiveness

A commonplace assumption in school management and administration is that changes in school administration will bring positive changes in schools (Brown, 1982). Indeed, organizational psychology has shown that poor leadership performance often precedes leader succession (Allen et al., 1979) and that leaders are given mandates when assuming a new position (Gordon & Rosen, 1981; Helmich, 1977). Results suggest that newly assigned principals are given mandates and are expected to change the school environment, school-parent interactions, and student academic performance. Schools not having positive environments (i.e., less order and discipline and lower levels of school empowerment of parents, parent participation in school events, and student achievement) experienced principal changes. Thus, change in principals probably reflects expectations among students and parents, in addition to the school administration and school staff, for change in school functioning and student performance. Unfortunately, this study did not assess principal behaviors or intervening processes between principal behaviors and student performance. Each of these points is further detailed below.

A shortcoming of this study was the inability to assess the exact circumstances that precipitated change in principals. In this study, a retrospective assessment of the circumstances surrounding principal changes was made. More desirable and an area for improvement in future research are data collection methods that capture prospective objective and systematic record keeping of principal leadership performance, for example, previous job performance evaluations and assessment of the principal leadership skills (Hallinger & Murphy, 1985). These assessments, in turn, can be related to student and parent perceptions of the school environment.
Another shortcoming of this study is the assessment of intervening processes on the relation of principal leadership to school effectiveness. Accumulating evidence has shown that principals influence student performance indirectly (through establishing school goals, setting high student and staff expectations, organizing classrooms, allocating resources, promoting a positive and orderly learning environment, and communicating with school staff, parents, community groups) rather than directly (through training teachers to better instruct, visiting classroom, and making frequent teacher evaluations). Recent examples of this research include Hoy, Tarter, and Witkoskie (1992), Tarter et al. (1995), Hallinger and Heck (1996), and Hallinger, Bickman, and Davis (1996). Thus, the need to assess these intervening processes is crucial to determine which principal behaviors are most closely correlated with school effectiveness. As Hallinger and Heck (1996) noted,

The fact that leadership effects on school achievement appear to be indirect is neither cause for alarm nor dismay. . . . [That] principal effects are mediated by other in-school variables does nothing whatsoever to diminish the principal’s importance. Understanding the routes by which principals can improve school outcomes through working with others is itself a worthy goal for research. (p. 39)

Future studies should continue direct assessment of principal behaviors in relation to specific schools processes (e.g., the principal’s facilitation of collegiality and trust among staff, statement of the school mission, influence on teacher expectations for student learning). Specifying these relations would imply how to instruct principals to manage schools effectively and how to evaluate their performance.

In summary, this study provides a preliminary framework for a systematic method to record principal changes in relation to characteristics of the school configuration. The combined information on principal skills, contextual characteristics, and desired skills for principals represents a more systematic study of which principal leadership traits and roles work well with which school environments. In this way, a better person-environment fit or principal-school configuration fit is achieved, leading to a more effective school organization. As Hart (1992) observed, principals’ opportunities to exert influence on schools depend on their ability to understand and use their personal and social power in the particular context in which they work. . . . Consequently, principals and superiors need a heightened awareness of and experience in diagnosing and working with the powerful social forces that shape schools, districts, and communities. (p. 49)
NOTES

1. Survey items generally loaded on separate factors, corroborating their placement on the scales. For students, three factors emerged, accounting for 29.4%, 6.2%, and 4.2% of the total item variance, respectively. Factor 1 consisted of survey items pertaining to classroom environment, namely, Student-Teacher Relationships and Academic Instruction. Factor 2 represented the Order and Discipline survey items. Survey items pertinent to the larger, school environment composed Factor 3, that is, Helpfulness of School Staff and School Facilities. For the parents, five factors emerged, accounting for 34.9%, 7.2%, 5.8%, 5.2%, and 4.2% of the total item variance, respectively. In the orthogonal rotation, survey items on the School Informs Parents, Academic Instruction, and Parent Satisfaction scales fell on Factor 1. School Climate items composed Factor 2, and items on the Order and Discipline scale composed Factor 3. Factor 4 consisted of the survey items on the School Empowers Parents scale, and Factor 5 consisted of items on the Parent Participation scale. In the oblique rotation, the loading of individual survey items on their respective scales were similar to those of the varimax rotation.

2. Some caution should be exercised in interpreting differences in variability on the school environment scales between the two groups of students and parents, as the differences were small, and each group had a large sample size. In addition, the sample sizes of the two groups were not equivalent.

REFERENCES


Indik, B. P. (1968). The scope of the problem and some suggestions toward a solution. In B. P. Indik & F. K. Berrien (Eds.), People, groups, and organizations (pp. 3-30). New York: Teachers College Press.
