SCHOOL ENVIRONMENTS AND STUDENT ACHIEVEMENT:

TOWARD A FRAMEWORK FOR UNDERSTANDING ENVIRONMENTAL INFLUENCES

Jean Stockard and Maralee Mayberry

A major concern for both the general public and for scholars specializing in the study of education is students' academic achievement.[1] Much of the early research in this area focused on variables related to individual students such as their ability, attitudes and beliefs and their parents' economic well being, educational background, and concern and involvement with their children's education (for reviews, see, Bridge, Judd, & Moock, 1979; Mosteller & Moynihan, 1972; Shea, 1976). These variables have a large influence on the achievement of individual students, yet they are primarily related to institutions such as the economy and the family rather than education. Therefore, they are largely beyond the control of school officials and policymakers. It is possible, however, that schools, as well as families, can influence students'

attitudes toward learning; and evidence suggests that there may well be an interactive effect of home and school related variables on students' achievement (e.g., Heyns, 1978; Mayeske, Okada, Cohen, Beaton, & Wisler, 1972).

Recent research has focused on areas where schools have more direct control. This research has, at least implicitly, asked how schools can enhance student achievement beyond the levels which would be expected given students' individual characteristics and familial backgrounds. Attention has been given to how the ways in which students are grouped, the prevailing norms or "learning climates" of classrooms and schools, school size and the facilities of schools, and community environments affect student achievement.[2] This research suggests that the environment in which students learn can enhance student achievement, to at least some degree, beyond that which would be expected given their individual background characteristics. To a large extent, this enhancement appears to occur through altering "noncognitive" traits, developing an atmosphere in which students are expected to achieve and in which they come to believe that they are indeed capable of achieving and behave in ways which enhance their achievement.

There have been several attempts to synthesize literature regarding the influence of at least some of these environmental variables on student achievement. However, while there is a long theoretical tradition, in both psychology and sociology, regarding the influence of the social context or environment on individual behavior, reviews of the educational literature have generally not taken this theoretical tradition into account. Instead, they have tended simply to describe empirical results and/or present large scale models of interacting influences on achievement. While such descriptions can be extremely useful, we believe that a more parsimonious and a more analytical description of environmental influences on student achievement can be obtained by utilizing the theoretical traditions developed within the social sciences.

Most of the literature on the effect of environmental variables on student achievement can be understood by utilizing two broad-ranging, key variables presented in theoretical examinations of environmental or contextual effects: (1) the nature of a group's norms and values, and (2) the relationships among the group members. The norms and values of the group may be linked to distinctions between instrumental activities, those oriented toward task completion and expressive activities, and those oriented toward promoting socioemotional integration of the group. The relative balance between these activities and their content are influenced by the nature of group relations. The analyasis presented here provides an analytical description capable of identifying the structural boundaries of these influences.

This paper first provides a review of the literature, acknowledging the importance of four key environmental influences on student achievement—student groupings, learning climates, school facilities and size, and the

community environment. Second, this paper shows how this literature can be integrated into a conceptual model capable of specifyinng the structural elements of environmental influences on student achievement.

ENVIRONMENTAL INFLUENCES

Groupings of Students

One basis by which schools have grouped students, usually in recent years because of neighborhood and community boundaries, is their ethnicity or race. A large number of studies have examined the effects of school desegregation (e.g., Armor, 1972; Pettigrew & Green, 1976) and the results are not totally clear. However, it does appear that for black students, but not white students, having more white classmates is associated with higher achievement and later educational attainment (see Bridge, Judd, & Moock, 1979, pp. 231-232). Explanations of this effect tend to note characteristics of the minority students' classmates in integrated schools as well as social-psychological benefits which arise from the experience of being in an integrated school and provide an impetus for later achievement (Crain, 1971).

In this country the racial composition of schools is highly associated with the socioeconomic composition of schools, and other studies have focused on the socioeconomic context of schools and classrooms. For instance, the *Coleman Report* (Coleman et al., 1966) noted that the socioeconomic (and to some extent the racial) composition of a student's school could affect academic achievement. A number of studies in the status attainment tradition have also examined the influence of the socioeconomic composition of a school on students' educational aspirations. Some of these studies have shown that once the effect of students' own socioeconomic backgrounds is controlled, students in schools with a higher socioeconomic composition (that is, with more peers from a higher socioeconomic background) tend to have higher educational aspirations (e.g., Meyer, 1970; Nelson, 1972; Wilson, 1959). Campbell and Alexander (1965) demonstrated that the influence of the socioeconomic context could be accounted for by the interpersonal influence of friends with high status. In schools with a higher socioeconomic context, students simply have a greater probability of having high status friends.

Building on Campbell and Alexander's (1965) work, other researchers have suggested that relatively little weight should be given to the socioeconomic context of a school as a causal variable, especially after individuals' socioeconomic status and/or other intervening variables have been controlled (Alwin & Otto, 1977; Hauser, 1971, Sewell & Armer, 1966). For instance, Alwin and Otto (1977) suggested that both curriculum placement and the educational aspirations of peers intervene between the effect of the socioeconomic climate

of a school on students' educational and occupational aspirations. That is, while they concluded that the socioeconomic composition of a school had no direct effect on aspirations, it did influence both students' curriculum placement and the aspirations of peers. These results suggest that in discussing the influence of environmental variables one must pay attention to the causal ordering involved and that contextual influences on intervening variables may indeed add an important qualification to any model of achievement (cf. Alwin & Otto, 1977, p. 269; Campbell & Alexander, 1965).

Socioeconomic variables are often related to students' academic ability. The major way of grouping students in schools is through tracking or grouping by academic ability or achievement. Some students of tracking have noted its effect on students' nonacademic lives such as their tendency to pursue delinquent careers and other negative consequences of a social psychological nature (Alexander & McDill, 1976; Goldberg, Passow, & Justman, 1966; Peng, Bailey, & Ekland, 1977) although more recent studies suggest that this influence is at best indirect (Wiatrowki, Hansell, Massey, & Wilson, 1982). Tracking also appears to be related to both verbal and mathematics achievement (Alexander & McDill, 1976; Bowles, 1969; Bridge et al., 1979; Michelson, 1970), educational aspirations (Alexander & McDill, 1976; Heyns, 1974), college grades, and even to the probability that students will drop out of college before completion (Peng et al., 1977). The negative effects of tracking may be more intense for students of lower ability (see Bridge et al., 1979, pp. 259-260).

Other studies have examined the influence of the "academic ability context" of a school, usually measured by the average ability level of students in a school. Consistent with the literature on tracking, these studies suggest that when students are in an environment with other high achieving students, their own achievement tends to increase (see Bridge et al., 1979, p. 234). However, average ability levels have the opposite effect on educational aspirations. When students' individual characteristics are controlled, attending a school with more students of high ability tends to be related to lower educational aspirations (Meyer, 1970; Nelson, 1972). In explaining this effect, authors note that students compare themselves to others with whom they go to school. Given students of equal ability, those who are surrounded by students with greater ability might tend to downgrade their own aspirations while those who are surrounded by students of lesser ability might tend to upgrade their aspirations. As Davis (1966) noted, students look at their own "frogpond" in deciding on their future aspirations.

Just as with the results with socioeconomic context, the results regarding the academic ability context suggest certain considerations in determining the influence of environmental variables. First, the influence of ability context may vary depending upon the dependent variable considered. While academic achievement is certainly a precursor to successful adult life, it by no means

explains all of the variance in later occupational success (cf. Jencks, 1979), and many scholars, especially those in the status attainment literature, see academic achievement as an intervening variable in accounting for adult status or aspirations. Second, these results demonstrate the importance of carefully considering the nature of control variables which should be used in determining the effect of context variables, especially those related to socioeconomic status. Nelson (1972) noted that when individuals' ability levels are used as a control variable the direct influence of social status is blurred. A high social status context can increase aspirations by increasing the probability of associations with high status peers, but can also lower aspirations by decreasing the relative rank at which a person falls within a school. In other words, because the two variables are highly correlated, the effects of ability context and status context counteract each other (see Alexander & Eckland, 1975). Thus, not just students' academic ability but also their ranking relative to other students within the school is important to consider.

In general, the effects of grouping or contextual variables such as the socioeconomic, racial, or ability composition of a school or classroom on students' achievement are relatively small. Much more of the variation in individual student achievement appears to be accounted for by within-school variation rather than between-school variation.

Theories regarding how ability and socioeconomic contexts influence achievement focus on interpersonal and normative influences within groups. While it has been suggested that these contextual variables represent normative expectations within schools, they in many ways represent only proxies or indirect measures of these norms. It could be suggested that being in a predominantly upper-status, high ability context enhances achievement by altering the norms regarding learning and the expectations students have for each other and teachers have for students. The contextual variables described above may be only very indirect measures of "academic climates" within schools, the relationships between students and teachers and the attitudes, norms, and values which influence these climates (see Entwisle & Hayduk, 1982). It is thus possible that more direct measures of school climate could provide a better understanding of how the environment in which students learn affects their achievement (see also, McDill, Meyers, & Rigsby, 1967). It is to these more direct studies of learning climates that we now turn.

Learning Climates

The concept of school climate has been used in many different ways. Some researchers define "climate" as a school level variable, specifying aspects of a school's culture and content (e.g., Brookover, Beady, Flood, Schweitzer, & Wisenbaker, 1979; McDill et al., 1967; Rutter, Maughan, Mortimore, Ouston, & Smith, 1979). These researchers, especially McDill et al. (1967) build on the

sociological theoretical tradition by noting the normative effect of contextual climates. Others focus on distinct classroom atmospheres, experiences, and instructional patterns (e.g., Alexander & Mc Dill, 1976; Moos, 1979; Walberg, 1969a, 1969b; Walberg & Anderson, 1968). This strand of research builds more on the psychological theoretical tradition, examining structural and affective aspects of the classroom, including the effect of group properties such as cohesiveness and intimacy and, most commonly, the perceptions of teachers and students of their classroom atmosphere and environment. Still other researchers have looked at "school effectiveness," trying to identify the attributes and characteristics that distinguish "effective schools" from their less effective counterparts. They have usually used schools as the unit of analysis and average student achievement within schools as the dependent variable. Much of this research has focused on schools comprised of students from disadvantaged backgrounds, the groups most likely to experience achievement problems. This has the effect of essentially controlling for the influence of the socioeconomic context of a school on achievement by limiting the variability of this variable. However, this practice also limits the potential generalizablity of findings from this literature to other types of schools. While often atheoretical in nature and limited in generalizability, the "school effectiveness" literature highlights a number of school-climate variables that are central to our discussion, and thus these studies are also included in the review below.[3]

Whereas our survey of the literature suggests that relevant and consistent "climate" factors can be aggregated under school-level and classroom-level variables, it should be noted that these categories are not mutually exclusive. The conceptualization and operationalization of general school climate necessarily includes classroom factors while classroom-oriented research often notes the significance of external criteria (e.g., the leadership style of the principal) on internal classroom dynamics. Therefore, the school/classroom dichotomy is primarily employed here as an organizational device.

School Climate

Although the research has defined school climate with composites of different sets of school and classroom characteristics and even though the work emerges from somewhat separate traditions, the bulk of the literature is aimed at providing a portrait of the nature of a school and its personality. Given the vast array of climate conceptualizations, it is little wonder that a concise and systematic review of school climate variables has yet to emerge. However, from the substantial amount of research that has been conducted exploring the relationship between school climate and student achievement, a number of variables consistently emerge as influential. These all appear to involve, in a very general sense, the norms and common values which promote

learning within a school and the nature of relationships among school members.

Data collected in secondary schools by McDill and his associates highlight the first of these important dimensions: schools in which both students and staff value academic excellence have a climate conducive to high levels of academic achievement. Their analysis (McDill et al., 1967; McDill & Rigsby, 1973; McDill, Rigsby, & Meyers, 1969) suggests that schools which teachers and students see as emphasizing intellectualism, subject matter competency, and academic competition are more likely to have higher levels of mathematics achievement and higher levels of educational aspirations. Importantly enough, these climate variables were important influences on individual-level student outcomes even when individual attributes such as socioeconomic background, ability, academic values, and the contextual variable of the socioeconomic context of the school were controlled. Other studies indicate that not just an abstract valuing of academic excellence, but frequent and public rewards and praise for academic accomplishments and good behavior appear to be important aspects of this dimension of school climate (Brookover et al., 1979; Rutter et al., 1979; Wynne, 1980).

While they reached similar conclusions about the importance of high academic expectations, William Brookover and his associates, in their studies of changes in the average achievement of students in elementary schools (Brookover & Lezotte, 1979; Brookover & Schneider, 1975; Brookover, Schweitzer, Schneider, Beady, Flood, & Wisenbaker, 1978; Brookover et al., 1979) also noted the importance of the second major dimension of school climate noted in the literature: an emphasis on the development of basic academic skills. They reported that a number of attitudes held by school members, most importantly, staff commitment to teaching goals, high and/or increasing expectations of teachers about students (i.e., high opinions of student abilities), staff emphasis on reaching basic reading and math goals, and students' low "sense of futility" were related to increasing levels of school achievement. Throughout their studies both teachers and students seeing higher achievement as a real and attainable goal was a common ingredient in schools with increased levels of achievement.

A third important dimension of school climate appears to be strong, administrative leadership, a variable most often noted in the school effectiveness literature (e.g., Brookover & Lezotte, 1979; Edmonds, 1979a, 1979b; Kiltgaard & Hall, 1973; Purkey & Smith, 1982). While these studies do not attempt to argue that this factor alone accounts for a school's effectiveness, they suggest that in schools that have been categorized as "effective" or "improving" the principal is perceived as a strong leader, as having control over school functions, and is often identified as an expert instructional manager (Klitgaard & Hall, 1973). Important aspects of the effective leadership style appear to include involvement of the principal in instruction (Brookover

et al., 1979; Brookover & Lezotte, 1979; Edmonds, 1979a, 1979b; Young, 1980), promoting good relationships and feelings of collegiality between faculty and administrators and among faculty (Ellett & Walberg, 1979; New York State Department, 1976), and encouraging teacher participation in decision making within the school (Rutter et al., 1979). These results suggest that the effective administrator is one who promotes both academic learning and cohesive relations within a school.

A fourth important element of school climate is an orderly atmosphere which is conducive to learning. This appears to involve an atmosphere that is orderly without being rigid (Edmonds, 1979a,b) and one that involves purposefulness and pleasure in learning (Anderson, 1982), including good communication among those in the school, an atmosphere of trust and caring and cooperation (Brookover et al., 1979; Downing, 1978; Duke & Perry, 1978; Phi Delta Kappa, 1980; Silberman, 1970; Wynne, 1980), and shared activities by staff and students (Rutter et al., 1979). Further support for this climate dimension comes from analyses of the national High School and Beyond Survey, which suggest that, in addition to high academic expectations, strong attendance and disciplinary policies appear to promote achievement (Coleman, 1982; Peng, 1982; Squires, 1980).

Classroom Climate

Studies focusing on the classroom provide support for the notion that factors within the school may mediate between macroenvironmental variables, such as those involving the school and community, and student outcomes, thus denying that macrosocial contexts are so overwhelming that the microenvironment of the classroom is insignificant in learning (Moos, 1979; O'Reilly, 1975; Walberg, 1969a, 1969b). In general, classroom variables noted as influencing student achievement parallel those noted for schools: the expectations and values of students and teachers, an emphasis on basic skills and academic learning, an atmosphere conducive to learning, and the role of the teacher (as contrasted to the principal in the school-level analysis) as an effective instructor. These findings are noted both in the somewhat atheoretical, descriptive accounts of variables which distinguish "effective classrooms" and in those which build on the "social-ecological" theories developed by Rudolf Moos and his colleagues, psychologists whose works are reviewed in a later section.[5]

In a review of the literature, Puff (1978) suggested that an effective classroom environment (defined by positive student outcomes on cognitive scales) is warm, friendly, democratic, and relatively free of disruptive behavior, much like the effective school. He noted that the effective teacher appears to be one who emphasizes basic skills, promotes a supportive classroom environment, and uses a number of good teaching techniques (see also, Austin, 1979;

Kilitgaard & Hall, 1973; Rutter et al., 1979). Furthermore, Clark, Lotto, and McCarthy's (1980) study strongly emphasized the importance of teachers' expectations and teachers' attitudes in influencing student achievement. Classroom factors related to high achievement included teachers' warmth and responsiveness to students, the use of positive reinforcement, the emphasis on cognitive development, and positive perceptions and evaluations of students' abilities and intelligence.

Studies growing out of the social-ecological tradition of studying climate also support these findings. This literature is primarily interested in the effects of different learning environments on cognitive and affective development (Moos, 1979; O'Reilly, 1975; Walberg & Anderson, 1968, 1972) and uses specific measures of classroom climate to examine the effect different climates have on student achievement; the development of values, interests, and attitudes of students; and student behavior. The results obtained in these studies have been surprisingly consistent. For example, Walberg (1969a) found that classes perceived by students as difficult, satisfying, and without friction, apathy, or cliques, gained more on physics achievement and science interest and activities than those without these characteristics. Similar results have been found in general studies (Walberg & Anderson, 1972), science (Walberg & Anderson, 1968), and mathematics achievement (O'Reilly, 1975).

The importance of noncognitive variables in the analysis of both school and classroom climates is striking. While noting the importance of teaching and leadership skills of a school's staff, the presence of orderly, warm, supportive, and academically oriented environments is continually stressed. Many observers of schools have noted the presence of a "hidden curriculum" in schools which promotes the development of traits such as conformity, respect for authority, and obedience (e.g., Jackson, 1968). Other authors have noted the importance of such noncognitive traits in influencing the achievement of adults in the occupational world (e.g., Jencks, 1972). The climate literature reviewed above suggests that these noncognitive traits, when they are typical of members of a school or classroom, are important influences on academic achievement. That is, when the normative structure of the group incorporates high academic expectations, warmth, concern, and respect of others in terms of developing an orderly atmosphere, academic achievement is enhanced.[6]

School Facilities and Size

The previous sections have dealt with how the ways in which students are grouped and the atmosphere or climate of a school affect learning. It is also possible that other characteristics of schools may affect achievement. This section reviews literature describing how school facilities and expenditures, characteristics of teachers, and school size influence student achievement.

Facilities and Expenditures

Many studies have examined the influence of a school's facilities and educational expenditures on students' achievement (e.g., Coleman et al., 1966; Stephens, 1933, 1967). Variables such as class size, per-pupil expenditures, and the presence or absence of school libraries and laboratory facilities usually have little relation to student's achievement. However, when a significant relationship does appear, it is in the expected direction, with higher average expenditures related (at least indirectly) to higher average student achievement (e.g., Bidwell & Kasarda, 1975; Cohn & Millman, 1975; Guthrie, Kleindorfer, Levin, & Stout, 1971) and more elaborate and better maintained school facilities (e.g., Guthrie et al., 1971; Michelson, 1970; Phi Delta Kappa, 1980; Rutter et al., 1979) related to higher student achievement.

It is important to remember that most of this work has been done in the United States where there is relatively little variation between schools in their facilities or expenditures. When there is greater variation among schools in these characteristics, as can occur in other countries, the importance of school facilities and resources in accounting for achievement seems to increase (Brimer, Madaus, Chapman, Kellagham, & Wood, 1978; Madaus, Airasian, & Kellaghan, 1980).

The Effect of Teachers

Teachers are clearly an integral part of the environment of schools, and schools and school districts have at least some control over characteristics of teachers that they hire. While the evidence on the influence of teachers' years of educational attainment and type of education (e.g., prestige of school attended and college major) on student's achievement is generally inconclusive, some studies indicate that teachers with more recent educational training and with more years of teaching experience have students with higher achievement test scores (Guthrie et al., 1971, p. 84). The effect of greater teaching experience, however, may be curvilinear with the greatest effect in the first few years (Bridge et al., 1979, pp. 235-256; Murnane, 1975). The only other teacher-related variable with a relatively strong effect on student achievement is the teachers' own verbal ability. Studies, primarily those using data from Coleman et al.'s (1966) work, have consistently shown a relationship between greater verbal ability of teachers and higher achievement of students (e.g., Armor, 1972; Bridge et al., 1979, pp. 249-251).

Apart from these quantitative analyses related to teachers' demographic characteristics, it is possible that nonquantifiable characteristics of a *particular* teacher may greatly influence students' later lives. Pedersen, Faucher, and Eaton (1978) documented the effect of having a particular first grade teacher on students' later achievement. Even when various background characteristics

were controlled the long-lasting effect of having this effective first grade teacher was direct and statistically significant.

School Size

Much of the early literature suggested that there was a strong positive relationship between the size of schools or school districts and achievement, (e.g., Fonstad, 1973). The common conclusion from this literature was that students would be well served by the consolidation and reorganization of school districts which would result in larger schools (for reviews of literature advocating school consolidation, see Dunne, 1977; Rosenfeld & Sher, 1977; Sher & Tompkins, 1977).

In contrast many contemporary authors suggest that there is little association between the size of a school and students' achievement or other measures of educational "productivity." According to Sher and Tompkins (1977, p. 63), the "effect of this development has been nothing less than a complete reversal of the traditional conclusions about the correlation between size and achievement. In fact, of the recent controlled studies, there is not one that records a consistent, positive correlation between size and achievement, independent of IQ and social class" (e.g., Alkins, 1968; Coleman et al., 1966; Krietlow, 1962; Raymond, 1968). In fact, a number of studies have documented a negative relationship between school size and student achievement once socioeconomic status and ability are controlled (e.g., Guthrie et al., 1971, pp. 86-90; Kiesling, 1968; New York State Department of Education, 1976; Summers & Wolfe, 1977). Even Coleman's (1966) study found smaller school size associated with higher verbal achievement among twelfth graders. Many studies that report no association between school size and achievement have a sample of schools with only a small range of variation in school size (e.g., Rutter et al., 1979), a typical situation in a sample with only schools in urban areas. It is thus possible that even studies which indicate no relationship between achievement and school size have not provided an adequate test of the hypothesis. In addition, the negative effect of school size may be greater for black students than for whites (Smith, 1972; Summers & Wolfe, 1977) and for marginal students than for average and above average students (Willems, 1967).

Simply noting that smaller schools may enhance student achievement does not indicate how this occurs. Some literature suggests that small schools have lower pupil-teacher ratios, more varied assignments for teachers, and better guidance and more attention available for individual students (Clements, 1970; Dunne, 1977) than larger schools. Bidwell and Kasarda's (1975) finding that smaller districts were associated with higher average student achievement indirectly through the size of the pupil-teacher ratio would suggest that this greater personal attention enhances achievement, at least on the aggregate level.

Several studies suggest that students in small high schools are involved in a greater number and variety of activities, assume a greater number of positions of responsibility, are less alienated than students in larger schools, and have a greater "sense of belonging" to the group (Baird, 1969; Barker & Gump, 1964; Huling, 1980; Peshkin, 1978; Wicker, 1968; Willems, 1967). In addition, smaller schools tend to have many fewer discipline problems (Duke & Perry, 1978; Huber, 1983) and much less vandalism and crime. Cusick's (1973) ethnographic study of a suburban high school vividly illustrates the alienation, fragmentation, and lack of involvement by most students that can appear in larger high schools.

Studies of elementary schools suggest that small schools provide a more humanistic learning experience. They apparently do so by being able to more closely attend to the individual needs of each child (Day, 1979), providing a more "open" environment (Flagg, 1964), and being perceived by children as friendlier and more cohesive (Sinclair, 1970).

Barker and Gump (1964) provide one of the most developed explanations of this area. They suggest that as schools increase in size they increase in differentiation, but not at a continuous rate. Both large and small schools must fulfill similar functions, and, in fact, the smaller schools in their studies managed to sustain a larger proportion of activities than would be expected given their size relative to the larger schools. Thus, students in small schools, in contrast to their counterparts in larger schools, must be involved in a wider variety of activities, both in participant and leadership roles. This can explain why students in small schools are more actively involved in various school activities and are more likely to have positions of responsibility. This greater degree of responsibility can in turn help account for their lower levels of alienation or greater attachment to their school, as well as their better behavior.

It could be suggested that this lower level of alienation and greater involvement of students in smaller schools is related to their greater sense of personal efficacy and better behavior (see, Barker & Gump, 1964; Sher & Tompkins, 1977, pp. 68-70). Significantly enough, literature on student achievement from that of Coleman et al. (1966) to the more recent studies involving school climate suggest that these variables have a strong relationship to students' achievement and school effectiveness. In addition, some studies have suggested that greater opportunities for students to participate successfully in extracurricular school activities is related to a more positive school climate (Epstein & McPartland, 1976; Mitchell, 1967) and higher student achievement (Rutter et al., 1979; Weber, 1971).

It is also possible that the association between school size and achievement is not strictly linear. Very small schools and very large schools may be detrimental to student achievement. Very small schools may provide too little stimulus and too few facilities for adequate learning; very large schools may be so alienating as to further suppress student achievement (cf. Coleman et

al., 1966, p. 314). Support for the latter proposition comes from Eberts, Kehoe, and Stone's (1983) study of gain in mathematics achievement of children in elementary schools. They found only slight differences between achievement gain in small and medium sized schools once other relevant variables were controlled, but a much larger negative effect on achievement when large and medium sized schools were compared. There appears to be growing consensus that very large schools are detrimental to student achievement and calls for division of such schools into "mini-schools" (e.g., Levin, 1983) or "schools within schools" (Goodlad, 1984) are becoming more common.

Given the correlation between school size and students' sense of belonging or meaning, it could be expected that the various measures of school climate would be associated with the size of a school. While there have been few direct tests of this hypothesis, some studies provide preliminary evidence. For instance, McDill and his associates noted, in describing influences on various meaures of school climate, that parental involvement in and commitment to the schools was the one contextual variable which was a source of climate effects (McDill & Rigsby, 1973; McDill et al., 1969). Breckinridge (1976) noted that school climates could be improved by increasing communication and rapport between parents and school, while two other studies (New York State Department, 1976; Phi Delta Kappa, 1980) suggest that greater parent-school or parent-principal rapport enhances student achievement. Parental involvement would be expected to be related to both the size of a school and its relation to its surrounding community.

Community Environment and Student Achievement

Much of the literature that examines the relationship between community environments and student achievement has focused on urban schools and changes which began in the late nineteenth century: the growing bureaucratization of schools, the establishment of an age-graded curriculum, and differentiation between the ranks of teachers and administrators. The end result of this process was the large and complex school systems found in cities throughout the country today (Tyack, 1974).

A counterpart of the growing complexity of school systems was a decline in the control which local communities had over schools in their neighborhoods. In an attempt to counter this process, various reformers have promulgated the idea of "community controlled schools" (see, Fantini, Gittell, & Magat, 1970), involving not just decentralization of the bureaucratic apparatus of large school systems, but direct involvement and control by community people over the functions of neighborhood schools; "community schools." which serve the community by being a focal point for cultural, recreational, and educational activities (see, Fantini et al., 1970; Olsen, 1953); and schools which voluntarily develop decision making processes that

incorporate staff, administrators, and parents (Comer, 1980). Each of these strategies has the aim of tying community members more closely to school operations and the implicit assumption that such ties would enhance student achievement and the effectiveness of the cities' schools.

As schools in urban communities were trying to mitigate the alienation and powerlessness which appeared to be fostered by large, impersonal school systems, schools in rural communities had been drastically altered by the adoption of the urban model of school organization. In just ten years—1950 to 1960—the number of school districts in the country was halved (Rosenfeld & Sher, 1977, p. 39). In recent years, in the face of declining enrollments, many urban districts have also closed smaller schools to enhance efficiency and cut costs.

Careful studies suggest that the expectations associated with school consolidation have not necessarily been fulfilled (see, Fox 1980; Parks, Ross, & Just, 1982; Sher & Tompkins, 1977). Ironically enough, one reason often cited for the lack of improved quality in consolidated schools is the diminished ties between the community and the schools that result when students must travel far from their homes to attend classes (see, Sarason, 1971, p. 100). Thus, the school consolidation movement has resulted in a situation not unlike that which advocates of community control and community schools in urban areas have tried to address.

Observers of schools in rural settings have noted the identification of students and parents with their schools. For instance, Dodendorf (1983), in an observational study of a rural, small midwestern school noted strong community involvement in the life of the school and strong interdependence of the pupils. In a broader study involving a large number of rural Alaskan schools, McBeath, Kleinfield, McDiarmid, Coon, and Shepro (1983) noted that schools with "localized control" had the lowest rates of absenteeism and vandalism of all the schools studied, perhaps indicating a greater degree of identification with the school itself (see also, Dunne, 1977). If one accepts the findings noted above regarding the relationship between parental involvement with the school and school climate and student achievement, these results would suggest that schools which promote strong identification and ties of parents and students with the school might be more likely to foster more effective school climates, once variables such as socioeconomic status of the parents were controlled. This school climate in turn may be hypothesized to be related to higher student achievement.

Remembering that the rural-urban distinction is best seen as an ideal type, it is important to note that a substantial number of schools in this country are located in suburban communities, which are often relatively affluent. Rogoff's (1961) analysis of students' aptitude scores and educational aspirations found that, within each social status category, attending school in a suburb was most conducive to future college attendance. While,

unfortunately, Rogoff did not control for the climate of the schools studied or the quality of instruction that the students received, others have examined variations in classroom climate in suburban, rural, and urban schls (Moos, 1979; Trickett, 1978). These authors conclude that, while the variations are not as large as those between different types of schools (e.g., alternative and vocational schools), some significant variations do exist.

Finally, it is also important to note that a close fit between a school and its community is not without problems. Peshkin (1978), in a study of a rural community and its high school, noted the dilemmas that arise from this close fit. While the close-knit community resulted in feelings of belonging, commitment, and social support, it also promoted insularity, a retention of the associated values and perspectives, and a limited emphasis on academic achievement. In commenting on these results Hamilton (1983) noted the limitations in students' outlooks which such close ties may promote, but suggested that the personal and societal values associated with these ties should not be lightly dismissed, especially given the relatively small differences in the academic achievement of students in the school and that of students in the nation as a whole.

The challenge for those concerned with quality education may well lie in promoting strong ties between communities and schools, supportive interpersonal environments, and an academic climate in schools that encourages each participant to achieve to his or her potential. We turn now to a discussion of social theory related to this area and a conceptual model that can better tie this literature together, pointing to crucial variables involved in attaining this goal.

TOWARD A CONCEPTUAL MODEL

The literature reviewed in the previous section stresses the importance of four key environmental influences on student achievement—student groupings, learning climates, school facilities and size, and the community environment. In this section, we suggest that it is possible to integrate these influences within two broad-ranging concepts—group norms and values and the relations among group members—in order to specify the content and nature of activities which occur in schools. Moreover, we suggest that these activities can be further specified according to their "instrumental" or "expressive" orientation. This will provide the conceptual categories necessary for developing a parsimonious framework in which to analyze not only the nature of activities which occur in schools, but also the relative balance and frequency of these activities as they differ from school to school.

We begin by describing theoretical explanations of how environments influence the behavior of individuals and then move to a description of our conceptual model.

Theoretical Contributions

This section briefly reviews theories related to the effect of environments on the behavior of individuals. We recognize that it is impossible to convey the complexity and subtleties of each of the theoretical views described below in such a short review. Our intent, however, is not to provide a detailed overview of the theoretical notions involved in each perspective but instead to show how their insights can be used to provide a parsimonious and analytically useful model for organizing a wide range of research findings pertaining to environmental influences on student achievement.

The general aim of most scholars working in this area has been to demonstrate that there are influences on individuals' behaviors beyond those which are apparent within the individuals themselves. While the classical statement of this position was developed by Durkheim (1933), contemporary theorists working in this area have tended to avoid his large-scale distinctions between communities and have focused instead on organizations. One of the most influential of these theorists has been Blau, who, in a classic article titled "Structural Effects" (1960), explicated the distinction between characteristics of individuals, such as their values, orientations, and dispositions, and characteristics of groups, such as prevailing norms or social values. He defined structural effects as those which may be attributed to the influence of group values and norms independent of the influence of individuals' internalized value orientations. In discussing types of structural effects, Blau distinguished between the impact of common group values and norms and the influence of relational networks within groups. In a more recent analysis, Blau (1977) developed his macrosociological analysis of structural effects, suggesting that the distribution of people among social positions and the extent of interrelationships among people were most important in understanding social life.

While Durkheim and Blau directly influenced sociology, psychology has had its own branch of work focussing on the effects of the environment on individual behavior. To some extent, however, each of the theorists in the psychological tradition echoes the work of sociologists by noting the importance of group values and the relationships among group members.

Much of the work in psychology has been influenced by Lewin and the general area known as "field theory" (e.g., Lewin, 1935, 1951).[7] While a number of the specific aspects of Lewin's theories have not held up over the years, the heritage of his work can be seen in both work on group dynamics and "ecological psychology." For instance, Roger Barker and his colleagues at the University of Kansas conducted many studies on the relation between human behavior and the environment in which it occurs (e.g., Barker, 1968; Barker & Gump, 1964). Building on some of Lewin's concepts they used the notion of a "behavior setting" to define the environment in which behavior occurs.

Based on their observations and comparisons of results from a range of behavior settings Barker suggested that in comparison to settings with an optimal number of inhabitants, those which are "undermanned" have greater "forces" acting on each inhabitant. This results in the inhabitants being more active within the settings and also being involved in a greater number of actions. (For discussions of ecological research, see also, Bronfenbrenner [1979], Hamilton [1983], and Ogbu [1981].)

The parallels of this analysis to both the work of Durkheim and Blau should be noted. Durkheim asserted that the division of labor within a society serves to bind people together. By suggesting that in "undermanned" settings the division of labor results in inhabitants being both more active and involved in a greater variety of activities, Barker may well be illustrating how the process Durkheim described works. In addition, Blau noted that relational networks are one of the key elements of group structures and stressed the importance of group size in determining the nature of group interactions (see, Blau, 1977, pp. 19-44). In his analysis of the "undermanning" of groups, Barker is essentially referring to relational networks, the extent to which the group must depend upon the services of each group member and thus the extent to which individuals are tied to the group.

Like Barker's work, that of Rudolf Moos and his colleagues (e.g., Moos, 1979) builds on the foundation laid by the field theorists. While he uses some of the insights developed by Barker, Moos' work focuses somewhat more on what are called "social environments" and the characteristics of inhabitants of the group rather than the setting in which the group operates (see, Trickett, 1978). Moos terms his framework "social-ecological" to emphasize that he takes into account both social-environmental variables, such as social climate, as well as physical-environmental variables, those termed ecological and typical of the work by Barker (see, Moos, 1979, p. 4). In many ways, the social climate or social environment which Moos emphasizes may be seen as simply the group values and norms emphasized by Blau and the early sociologists. As they noted, these group norms and values may well differ systematically from one type of social setting to another.

The Charge of Reductionism

Any discussion of structural or contextual effects, whether from sociology or psychology, is subject to the charge of reductionism: the problem of making unwarranted inferential leaps from the characteristics of groups to the traits and behaviors of individuals. In other words, it is important to address the issue of *how* group norms affect individual group members. Campbell and Alexander (1965) focus directly on this issue, contrasting their discussion to the more structural analyses of Blau. Utilizing social psychological work such as that by Homans (1961), Festinger (1957), Heider (1958), and Newcombe (1961), they suggest that structural effects are best seen as due to the

interpersonal influences of an individual's "significant others" (Campbell & Alexander, 1965, p. 288). They suggest that a "two-step analytical model" is necessary to understand how structural factors influence individuals and that interpersonal relationships act as an intervening variable between structural variables and individuals' behavior. First, there may be a relationship between "structural variables and the proclivity to relate to particular types of persons in the collectivity" (Campbell & Alexander, 1965, p. 288). Second, it is through interactions with significant others, however, that individuals develop their attitudes and behaviors. In other words, in accounting for how environmental variables influence individuals, it may well be important to consider the mediating effect of relations among group members. (For a statistical development of this perspective, see Campbell & Alexander [1965, p. 288] and Duncan, Featherman, & Duncan [1972].)

Analyzing Schools as Social Organizations

The theories reviewed above have certain common elements. They all assert that the nature of a group in which people interact, whether it is a society, a community, or an organization such as a school, influences people's behaviors and attitudes. They also assert that this influence is analytically distinct from the influence of an individual's own background and characteristics. In other words, these theories suggest that the same individual may behave quite differently in different groups and different social settings.

The variations from one group setting to another appear to involve variations in group norms and values and variations in the relationships among group members. It is norms and values that define acceptable behavior within a group and it is the relationships among group members that influence the extent to which individuals are tied into the group and tend to accept and adhere to the normative expectations. We suggest that by utilizing these two broad-ranging variables—the nature of a group's norms and values and relationships among group members—the structural aspects of environmental influences on student achievement may be identified.

The following sections discuss how the literature on student groupings, learning climates, school size, and community environments, when analyzed within the context of group norms and values, delimits the "structural" aspects of school culture or climate. The sections conclude with a discussion of the importance of group relationships in the analysis of how individuals come to share in this culture and the ways in which the balance of various types of school norms is determined.

Group Norms and Values

Using terms first developed by Parsons, Bales, and Shils (1954) and Parsons and Shils (1952), Shipman (1968) analyzed the culture of schools and schools

as organizations. Shipman suggested that the ongoing activities of a school involve both instrumental activities, those oriented toward task completion, and expressive activities, those oriented toward promoting socioemotional integration of the group. While both types of activities may be seen within classrooms and schools, the relative balance and frequency of these actions may differ from one school to another.

Instrumental activities are those which involve the attainment of learning goals, the actual work of learning. The literature already reviewed suggests that student groups from higher socioeconomic backgrounds may have expectations regarding learning which are more conducive to higher achievement than those found in other groups. Similarly, the literature on learning climates stresses the importance of instrumental norms in schools which have higher levels of achievement. These instrumental aspects of effective schools and classroooms involve an emphasis on academic achievement, on learning basic skills, and on effective instructional leadership and teaching skills. Research related to school facilities suggests that providing adequate school resources and teacher training helps promote student achievement. The literature also suggests that better use of school resources (the more effective implementation of instrumental activities) appears to occur more often in small to medium size schools than in larger schools (Eberts et al., 1983).

Expressive activities are those which are related to the socioemotional atmosphere of the school and classroom and which might best be seen as promoting positive ties of students to school and socioemotional motivations underlying achievement. The literature on school climate notes the extent to which a warm and supportive environment, both among staff and between students and staff, can promote learning. The literature on school size suggests that the negative effect of greater school size on student achievement can be explained by the alienation and lack of interpersonal involvement and caring which more often appears in larger schools. Similarly, studies of the relationship between community environments and student achievement imply that more compatible, cohesive relationships are associated with better attitudes toward school and higher achievement.

Thus, the literature suggests that both expressive and instrumental norms are important in promoting student achievement in schools. Important instrumental, or task related, norms involve the expectations of high academic success and task orientation. Important expressive, or socioemotional related, norms involve a supportive and caring atmosphere for students as well as staff. Taken together, these norms could be seen as embodying what the social-ecological theorists term the "structural" aspects of classroom climate, the organization of student roles within the class, the constellation of role expectations, and the shared, group sanctioned behavior (Walberg, 1975; Walberg & Anderson, 1968, 1972).

Group Relationships

Simply distinguishing the types of activities which make up a school's culture or environment does not describe how individuals come to share in this culture or the ways in which the balance of various types of norms is determined. The process of learning the norms associated with various social roles is commonly termed socialization. Analyses of socialization from a functional perspective in sociology generally examine the sanctions used to encourage the display of behavior defined as appropriate for a given status and role and the ways in which definitions of appropriate behavior are conveyed among group members (for examples of this analysis within classrooms, see, Dreeben, 1973; Jackson, 1968; Parsons, 1959). These analyses are most useful in explaining why people conform to the expected norms, but they are less successful in explaining why some do not conform or resist the norms of the school. Functional explanations of such deviance usually point to strains or inconsistencies within the social situation, implying that nonconformity is an aberration in an otherwise cohesive and relatively conflict-free social group.

It is probably more accurate, however, to recognize that schools inherently involve coercion, conflicts and contradictions. Both the heterogeneous background characteristics of students and staff and the compulsory nature of schooling contribute to the probability that members of a school will not accept and/or adhere to official norms and values of the school to the same degree (see, Giroux, 1983; Shipman, 1968; Waller, 1932; Willis, 1977). Thus, within a school, students and staff will display various degrees of accommodation and resistance to the officially established norms and values. In addition, the actual norms and values found within a school (in contrast to those which are officially decreed) are themselves probably the product of continuous negotiation and renegotiation by group members and may well depend on the nature of the relationships among those within the group. We suggest that the nature of the relations among group members influences the extent to which coercion, conflict, and contradiction permeate a school's culture and the extent to which patterns of resistance typify a school's culture. This suggests that various dimensions of a school's culture can be characterized as "resistant" (those in conflict with officially established norms and values) or "accommodative" (i.e., those in consensus with officially established norms and values).

The literature reviewed above suggests that variables related to the environment of schools can influence the nature of group relationships found within a school. We suggest that the content and balance of these relations can better be understood through analysis of their accommodative or resistant orientation. For instance, the literature on learning climates suggests that safe and orderly environments promote learning. This may occur because such an environment is associated with relationships which are conducive to the

acceptance of common school norms. The literature on school size stresses the greater interdependence and closer ties among school members that appear in smaller schools. It is possible that these are related to the lower levels of disciplinary problems and vandalism found in small schools and a safer, more orderly environment, as well as one in which students and staff find more interpersonal support. The literature on the relationships between community environments and schools relates directly to this issue, suggesting that in schools with greater rapport between parents or community members and school staff favorable attitudes toward school and even achievement are enhanced.

In general, we suspect that relationships between school members, involving variables such as felt similarity and the nature and the quality of interactions, influence the extent to which norms supportive of academic achievement are accepted by those within the school. (To a large extent, this may involve what the social ecologists term the "affective" dimension of a school's climate.) If we can assume that students' gender and ability, as well as other variables, influence social relations within schools, some support for this contention may come from Anderson's (1970) finding that classroom climates not only affect learning, but affect it in a manner that may vary for different groups of students. His findings suggest that a student's ability level and gender interact with the climate dimensions, causing the indicator to be correlated in a direction which depends upon this interaction.

It is important that analysts of schools recognize the varying degrees of attachment to schools which students display and that relationships within schools are often better described with a conflict than with a functional model. However, this analysis is not meant to imply that schools in which there is little agreement on school norms or attachment to the officially sanctioned norms have little hope for academic success or that these academic benefits accrue equally to all children within a school. Neither do we wish to imply that "consensus" is reflected by a member's "compliance" or acquiescence to officially sanctioned norms. Instead, we believe that it is important to recognize that schools where dissension may not be apparent are not necessarily schools reflecting a consensus orientation, described by the functionalist model. Rather, compliance to school norms may be achieved through the imposition of authoritarian mechanisms. Furthermore, we believe that if the learning of *all* children is to be promoted, the basis of conflict and resistance to school norms needs to be determined.

We would hypothesize that resistance to school norms is most likely to emerge among disenfranchised sectors of a school's population precisely because they are least likely to be considered and/or involved in the development and maintenance of these norms. If learning is to be promoted among *all* children, resistance among disenfrachised members may well be seen as a positive rather than negative occurrence. The task for researchers, as well

as school officials, is understanding why this resistance appears and how it may be adequately addressed to allow academic benefits to accrue equally among all groups of children. We believe that a potentially fruitful way to examine this area is through detailing the association between relationships among members of a school and the nature of group values and norms.

Finally, some comment should be made about the relative simplicity of our conceptual model, especially in light of the rather complex listings of variables and models of student achievement (e.g., Centra & Potter, 1980). Such elaborate models may be extremely informative in summarizing the literature and suggesting specific hypotheses for further research. Yet, in their complexity they may disguise what appears to be a consistent theme in the literature: student achievement is enhanced by positive instrumental norms—those stressing academic goals, persistence, and high expectations for students—and positive expressive norms—those involving supportive, humane, relationships. The extent to which such norms can exist and be accepted within a school seems to be influenced by the nature of relationships among school members. We believe that most of the literature on environmental influences on student achievement can be subsumed within this overriding conceptual view.

ACKNOWLEDGMENTS

NOTES

1. In focusing primarily on academic achievement in this paper it must be noted that eventual adult success in terms of occupational attainment actually depends more on educational attainment than on academic achievement. This occurs because of the effects of certification. It is completing certain levels of schooling more than simply learning a given amount of material that facilitates entry into a given job (e.g., Blau & Duncan, 1967; Hauser, 1971; Sewell & Shah, 1968; Shea, 1976). In addition, greater equality of incomes in the society has little relationship to equality of educational achievement (Jencks, 1972). Thus, it appears that the ultimate outcome of increasing students' achievement may not be increased adult status nor greater equality of income within the society. It is indeed possible, however, that increased academic achievement can result in a better quality of life and even, ultimately, in pressures for a more equitable occupational and income structure.

2. Although community environment of schools may at first sight appear as intractable as family background variables, in fact the practices of school consolidation, school closures, and the construction of new schools are all directly under the control of policymakers and directly influence the relationship between schools and their communities.

3. Our review deals only with aspects of school climates that appear to be related to student achievement. For a discussion of the concept of school climate and its possible dimensions see Anderson (1982).

. 4. It should be noted that a large proportion of the variance in student achievement was accounted for in Brookover's study because the analysis uses schools, not individual students, as the unit of analysis. McDill and associates used individuals as the unit of analysis and thus were able to enter the individual level measures of social status and ability as control variables. Because they were analyzing within school variation in achievement, they actually explained much less of the total variation. It is noteworthy, however, that similar conclusions were reached when either level of analysis was used.

5. Research oriented towards examining the relationship between classroom learning environments, teacher behaviors, and student cognitive and affective development has been termed "process-product research." Process-product research is primarily interested in relating classroom processes to student products (Rosenshine, 1971). While research and reviews in this area flourish (Centra & Potter, 1980; Dunkin & Biddle, 1974), little has been done in synthesizing the conclusions drawn. A major attempt at filling this void is provided by Puff (1978).

6. In a fascinating, often convincing, but admittedly controversial analysis of effective schools, Wynne (1980) argues that the development of prosocial noncognitive traits, what he calls character development, along with the provision of a safe and pleasant environment, should be a major criterion of effective schools.

7. Lewin and other field theorists discussed "cognitive structures." It might appear that this involves quite a different notion of "structure" than the concept used by Blau and the other sociologists, who tended to envision structures as involving group norms and relational patterns. In actuality, however, Lewin and other field theorists explicitly recognized the influence of others within a group on an individual's behavior and in that sense at least implicitly accepted the sociologists' views that normative structures and relational patterns are important influences on behavior.

REFERENCES

Alexander, K.L., & Eckland, B.K. (1975). Contextual effects in the high school attainment process. *American Sociological Review, 40*, 402-416.

Alexander, K.L., & McDill, E.L. (1976). Selection and allocation within schools: Some causes and consequences of curriculum placement. *American Sociological Review, 41*, 963-980.

Alkins, M. (1968). *Economy of scale in the production of selected educational outcomes.* Washington, DC: AERA.

Alwin, D.F., & Otto, L.B. (1977). High school context effects on aspirations. *Sociology of Education, 50*, 259-273.

Anderson, C.S. (1982). The search for school climate: A review of the research. *Review of Educational Research, 52*, 368-420.

Anderson, G. (1970). Effects of classroom social climate on individual learning. *American Education Research Journal, 7*(2), 135-152.

Armor, D. J. (1972). The evidence on busing. *The Public Interest, 28*, 90-126.

Austin, G.R. (1979). Exemplary schools and the search for effectiveness. *Educational Leadership, 37*, 10-14.

Baird, L. (1969). Big school, small school: A critical examination of the hypothesis. *Journal of Educational Psychology, 60*, 253-260.

Barker, R.G. (1968). *Ecological psychology: Concepts and methods for studying the environment of human behavior.* Stanford, CA: Stanford University Press.

Barker, R.G., & Gump, P.V. (1964). *Big school, small school*. Stanford, CA: Stanford University Press.

Bidwell, C.E., & Kasarda, J.D. (1975). School district organization and student achievement. *American Sociological Review, 40*, 55-70.

Blau, P.M. (1960). Structural effects. *American Sociological Review, 25*, 178-193.

Blau, P.M. (1977). *Inequality and heterogeneity: A primitive theory of social structure*. New York: Free Press.

Blau, P.M., & Duncan, O.D. (1967). *The American Occupational Structure*. New York: Wiley.

Bowles, S.S. (1969). *Educational production function: Final report*. Washington, DC: U.S. Department of Health, Education, and Welfare, Office of Education.

Breckenridge, E. (1976). Improving school climate. *Phi Delta Kappan, 58*, 314-318.

Bridge, R.G., Judd, C.M., & Moock, P.R. (1979). *The determinants of educational outcomes: The impact of families, peers, teachers, and schools*. Cambridge, MA: Ballinger.

Brimer, A., Madaus, G.F., Chapman, B., Kellaghan, T., & Wood, R. (1978). *Sources of difference in school achievement*. London: NFER.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press.

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

Brookover, W.B., & Lezotte (1979). *Changes in school characteristics coincident with changes in student achievement* (ED 181005). Washington, DC: National Institute of Education.

Brookover, W.B., & Schneider, J.M. (1975). Academic environments and elementary school achievement. *Journal of Research and Development in Education, 9*, 82-91.

Brookover, W.B., Schweitzer, J.H., Schneider, J.M., Beady, C.H., Flood, P.K., & Wisenbaker, J.M. (1978). Elementary school social climate and school achievement. *American Educational Research Journal, 15*, 301-318.

Campbell, E.Q., & Alexander, C.N. (1965). Structural effects and interpersonal relationships. *American Journal of Sociology, 71*, 284-289.

Centra, J.A., & Potter, D.A. (1980). School and teacher effects: An interrelational model. *Review of Educational Research, 50*, 273-291.

Clark, D.L., Lotto, L.S., & McCarthy, M. (1980). Factors associated with success in urban elementary schools. *Phi Delta Kappan, 61*, 467-470.

Clements, W.H. (1970). *Ideal high school size: A mirage in the desert* (ED 055689). Wisconsin: Wisconsin State University.

Cohn, E., & Millman, S.D. (1975). *Input-output analysis in public education*. Cambridge, MA: Ballinger.

Coleman, J.S. (1982). Public schools, private schools, and the public interest. *American Education, 18*, 17-22.

Coleman, J.S., Campbell, E.Q., Hobson, C.F., McPartland, J., Mood, A.M., Weinfeld, F.D., & York, R.L. (1966). *Equality of educational opportunity*. Washington, DC: U.S. Department of Health, Education, and Welfare, Office of Education.

Comer, J.P. (1980). *School Power: Implications of an intervention project*. New York: Free Press.

Crain, R.L. (1971). School integration and the academic achievement of Negroes. *Sociology of Education, 44*, 1-26.

Cusick, P.A. (1973). *Inside high school: The student's world*. New York: Holt, Rinehart, & Winston.

Davis, J.A. (1966). The campus as a frog pond: An application of the theory of relative deprivation to career decisions of college men. *American Journal of Sociology, 72*, 17-31.

Day, W.C. (1979). Are small schools better? *School Business Affairs, 45*, 32-33.

Dodendorf, D.M. (1983). A unique rural school environment. *Psychology in the Schools, 20*, 99-104.

Downing, C.J. (1978). Adult and child: Improving learning environments through better communications. In D.J. Kurpius (Ed.), *Learning: Making learning environments more effective*. Muncie, IN: Accelerated Development.

Dreeben, R. (1973). The school as a workplace. In R. Travers (Ed.), *Second Handbook of Research on Teaching*. Chicago: Rand McNally.

Duke, D.L., & Perry, C. (1978). Can alternative schools succeed where Benjamin Spock, Spiro Agnew and B.F. Skinner have failed? *Adolescence, 13*, 375-392.

Duncan, O.D., Featherman, D.L., & Duncan, B. (1972). *Socioeconomic background and achievement*. New York: Seminar Press.

Dunkin, M., & Biddle, B.J. (1974). *The study of teaching*. New York: Holt, Rinehart, & Winston.

Dunne, F. (1977). Choosing smallness: An examination of the small school experience in rural America. In J.P. Sher (Ed.), *Education in rural America: A ressessment of conventional wisdom* (pp. 81-124). Boulder, CO: Westview Press.

Durkheim, E. (1933). *The division of labor in society* (G. Simpson, Trans.). New York: Macmillan.

Eberts, R.W., Kehoe, E., & Stone, J.A. (1983). *Determinants of student outcomes: The roles of collective bargaining and school size*. Eugene, OR: University of Oregon, Center for Educational Policy and Management.

Edmonds, R.R. (1979a). Effective schools for the urban poor. *Educational Leadership, 37*, 15-24.

Edmonds, R. (1979b). Some schools work and more can. *Social Policy, 9*, 28-32.

Ellett, C.D., & Walberg, H.J. (1979). Principals' competency, environment, and outcomes. In H.J. Walberg (Ed.), *Educational environments and effects*. Berkeley, CA: McCutchan.

Entwisle, D.R., & Hayduk, L.A. (1982). *Early schooling*. Baltimore, MD: The Johns Hopkins University Press.

Epstein, J.L., & McPartland, J.M. (1976). The concept and measurement of the quality of school life. *American Educational Research Journal, 13*, 15-30.

Fantini, M., Gittell, M., & Magat, R. (1970). *Community control and the urban school*. New York: Praeger.

Festinger, L. (1957). *Theory of cognitive dissonance*. Chicago: Row Peterson.

Flagg, J.T., Jr. (1964). *The organizational climate of schools: Its relationship to pupil achievement, size of school, and teacher turnover*. Unpublished doctoral dissertation, Rutgers, The State University.

Fonstad, C. (1973). *What research says about schools and school districts: Factors related to effectiveness* (ED 85892). Madison, WI: Wisconsin Department of Public Instruction.

Fox, W.F. (1980). *Relationships between size of schools and school districts and the cost of education* (Technical Bulletin No. 1621, ED 187029). Washington, D.C.: U.S. Department of Agriculture, Economics, Statistics and Cooperative Service.

Giroux, H. (1983). *Theory and resistance in education: A pedagogy for the opposition*. South Hadley, MA: Bergin Gowey.

Goldberg, M., Passow, A.H., & Justman, J. (1966). *The effects of ability grouping*. New York: Teachers College Press.

Goodlad, J.I. (1984). *A place called school: Prospects for the future*. New York: McGraw-Hill.

Guthrie, J.W., Kleindorfer, G.B., Levin, H.M., & Stout, R.T. (1971). *Schools and Inequality*. Cambridge, MA: MIT Press.

Hamilton, S.F. (1983). Synthesis of research on the social side of schooling. *Educational Leadership, 40*(5), 65-72.

Hauser, R.M. (1971). *Socioeconomic background and educational performance*. Washington, DC: American Sociological Association.

Heider, F. (1958). *The psychology of interpersonal relations*. New York: Wiley.

Heyns, B. (1974). Social selection and stratification within schools. *American Journal of Sociology, 79*, 1434-1451.

Heyns, B. (1978). *Summer Learning*. New York: Academic Press.

Homans, G. (1961). *Social Behavior: Its elementary forms.* New York: Harcourt Brace.

Huber, J.D. (1983). Comparison of disciplinary concerns in small and large schools. *The Small School Forum, 4,* 7-9.

Huling, L. (1980). How school size affects student participation, alienation. *NASSP Bulletin, 64*(438), 13-18.

Jackson, P. (1968). *Life in classrooms.* New York: Holt, Rinehart, & Winston.

Jencks, C. (1972). *Inequality: A Reassessment of the effect of family and schooling in America.* New York: Basic Books.

Jencks, C. (1979). *Who gets ahead? The determinants of economic success in America.* New York: Basic Books.

Kiesling, H.J. (1968, March). *High school size and cost factors* (Project No. 6-1590). Washington, DC: DHEW.

Klitgaard, R.E., & Hall, G. (1973). *Are there unusually effective schools?* (ED 085402). Santa Monica, CA: Rand Corporation.

Krietlow, B. (1962). *Long-term study of educational effectiveness of newly formed centralized school districts in rural areas* (Report 1). Madison, WI: University of Wisconsin Press.

Levin, H.M. (1983). Commentary: Reawakening the vigor of urban schools. *Education Week, 2* (34), 24.

Lewin, K. (1935). *A dynamic theory of personality.* New York: McGraw-Hill.

Lewin, K. (1951). *Field theory in social science.* New York: Harper.

Madaus, G.F., Airasian, P.W., & Kellaghan, T. (1980). *School effectiveness: A reassessment of the evidence.* New York: McGraw-Hill.

Mayeske, G.W., Okada, T., Cohen, W.M., Beaton, A.E., & Wisler, C.E. (1972). *A study of the achievement of our nation's students.* Washington, D.C.: U.S. Government Printing Office.

McBeath, G., Kleinfeld, J., McDiarmid, W.G., Coon, E.D., & Shepro, C.E. (1983). *Patterns of control in rural Alaska education.* Fairbanks, AK: University of Alaska, Center for Cross-Cultural Studies.

McDill, E.L., Meyers, E.D., Jr., & Rigsby, L.C. (1967). Institutional effects on the academic behavior of high school students. *Sociology of Education, 40,* 181-199.

McDill, E.L., & Rigsby, L.C. (1973). *Structure and process in secondary schools: The academic impact of educational climates.* Baltimore, MD: Johns Hopkins University Press.

McDill, E.L., Rigsby, L.C., & Meyers, E.D., Jr. (1969). Educational climates of high schools: Their effects and sources. *American Journal of Sociology, 74,* 567-586.

Meyer, J.W. (1970). High school effects on college intentions. *American Journal of Sociology, 76,* 59-70.

Michelson, S. (1970). The association of teacher resources with children's characteristics. In *Do teachers make a difference?* Washington, D.C.: U.S. Department of Health, Education, and Welfare, Office of Education.

Mitchell, J.V., Jr. (1967). *A study of high school learning environments and their impact on students* (Report, U.S. Office of Education, Project No. 5-8032). Rochester, NY: University of Rochester.

Moos, R.H. (1979). *Evaluating Educational Environments.* San Francisco: Jossey-Bass.

Mosteller, F., & Moynihan, D.P. (Eds.). (1972). *On equality of educational opportunity.* New York: Vintage.

Murnane, R.J. (1975). *The impact of school resources on the learning of inner city children.* Cambridge, MA: Ballinger.

Nelson, J.I. (1972). High school context and college plans: The impact of social structure on aspirations. *American Sociological Review, 37,* 143-148.

New York State Department, Bureau of School Programs Evaluation. (1976, April). *Which school factors relate to learning?* Albany, NY: Author. (Eric Document Reproduction Service No. ED 126 613)

Newcomb, T.M. (1961). *The acquaintance process.* New York: Holt, Rinehart & Winston.

Ogbu, J.U. (1981). School ethnography: A multi-level approach. *Anthropology and Education Quarterly, 12,* 3-29.

Olsen, E.G. (Ed.). (1953). *The modern community school.* New York: Appleton-Century-Crofts.

O'Reilly, R. (1975). Classroom climate and achievement in secondary school mathematics classes. *Alberta Journal of Educational Research, 21,* 241-248.

Parks, G.A., Ross, P.J., & Just, A.E. (1982). Education. In D.A. Dillman & D.J. Hobbs (Eds.), *Rural society in the U.S.: Issues for the 1980's.* Boulder, CO: Westview Press.

Parsons, T. (1959). The school class as a social system. *Harvard Educational Review, 29,* 297-318.

Parsons, T., Bales, R.F., & Shils, E. (1954). *Working papers in the theory of action.* Glencoe, IL: Free Press.

Parsons, T., & Shils, E. (1952). *Towards a general theory of action.* Cambridge, Harvard University Press.

Pedersen, E., Faucher, T.A., & Eaton, W.W. (1978). A new perspective on the effects of first-grade teachers on children's subsequent adult status. *Harvard Educational Review, 48,* 1-31.

Peng, S.S., Bailey, J.P., & Ekland, B.K. (1977). Access to education: Results from the national longitudinal study of the high school class of 1972. *Educational Researcher, 88,* 3-7.

Peng, S.S. (1982). *Effective high schools: What are their attributes?* Washington, DC: National Center for Education Statistics, Office of Educational Research and Improvement.

Peshkin, A. (1978). *Growing up American: Schooling and the survival of community.* Chicago: University of Chicago Press.

Pettigrew, T.F., & Green, R.L. (1976). School desegregation in large cities: A critique of the Coleman "white flight" thesis. *Harvard Educational Review, 46,* 1-53.

Phi Delta Kappa. (1980). *Why do some urban schools succeed? The Phi Delta Kappa study of exceptional urban elementary schools.* Bloomington, IN: Author.

Puff, F. (1978). *Instructional variables and student achievement in reading and mathematics: A synthesis of recent process-product research* (ED 189 135). Philadelphia: Research for Better Schools.

Purkey, S., & Smith, M. (1982). *Effective schools–A review.* Madison, WI: University of Wisconsin at Madison, Wisconsin Center for Educational Research.

Raymond, R. (1968). Determinants of primary and secondary education in West Virginia. *Journal of Human Resources, 3,* 450-470.

Rogoff, N. (1961). Local social structure and educational selection. In A.H. Halsey, J. Floud, & C. Arnold Anderson (Eds.), *Education, Economy, and Society.* New York: Free Press.

Rosenfeld, ,S.A., & Sher, J.P. (1977). The urbanization of rural schools, 1840-1970. In J.P. Sher (Ed.), *Education in rural America: A reassessment of conventional wisdom* (pp. 11-42). Boulder, CO: Westview Press.

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

Sarason, S.B. (1971). *The culture of the school and the problem of change.* Boston: Allyn & Bacon.

Sewell, W.H., & Armer, J.M. (1966). Neighborhood context and college plans. *American Sociological Review, 31,* 159-168.

Sewell, W.H., & Shah, V.P. (1968). Social class, parental encouragement, and eduational aspirations. *American Journal of Sociology, 73,* 559-572.

Shea, B.M. (1976). Schooling and its antecedents: Substantive and methodological issues in the status attainment process. *Review of Educational Research, 46,* 463-526.

Sher, J.P., & Tompkins, R.B. (1977). Economy, efficienty, and equality: The myths of rural school and district consolidation. In J.P. Sher (Ed.), *Education in rural America: A reassessment of conventional wisdom* (pp. 43-80). Boulder, CO: Westview Press.

Shipman, M.D. (1968). *The sociology of the school*. London: Longman.

Silberman, C.E. (1970). *Crisis in the classroom*. New York: Random House.

Sinclair, R.L. (1970). Elementary school educational environments: Toward schools that are responsive to students. *National Elementary Principal, 49*, 53-58.

Smith, M.S. (1972). Equality of educational opportunity: The basic findings reconsidered. In F. Mosteller & D.P. Moynihan (Eds.), *On equality of educational opportunity* (pp. 230-342). New York: Vintage.

Squires, D.A. (1980). *Characteristics of effective schools: The importance of school processes*. Philadelphia, PA: Research for Better Schools.

Stephens, J.M. (1933). *The influence of the school upon the individual*. Ann Arbor, MI: Edwards Brothers.

Stephens, J.M. (1967). *The process of schooling: A psychological examination*. New York: Holt, Rinehart, & Winston.

Summers, A.A., & Wolfe, B.L. (1977). Do schools make a difference? *American Economic Review, 65*, 639-652.

Trickett, E.J. (1978). Toward a social-ecological conception of adolescent socialization: Normative data on contrasting types of public school classrooms. *Child Development, 49*, 408-414.

Tyack, D. (1974). *The one best system*. Cambridge, MA: Harvard University Press.

Walberg, H. (1969a). Predicting class learning: An approach to the class as a social system. *American Educational Research Journal, 6*, 529-542.

Walberg, H. (1969b). Social environment as a mediator of classroom learning. *Journal of Educational Psychology, 60*, 443-448.

Walberg, H. (1975). Structural and affective aspects of classroom climate. *Psychology in the Schools, 5*, 247-253.

Walberg, H., & Anderson, G. (1968). Classroom climate and individual learning. *Journal of Educational Psychology, 59*, 414-419.

Walberg, H., & Anderson, G. (1972). Properties of achievement in urban classes. *Journal of Educational Psychology, 61*, 381-385.

Waller, W. (1932). *The sociology of teaching*. New York: Wiley.

Weber, G. (1971). *Inner city children can be taught to read: Four successful schools* (Occasional Paper 18). Washington, D.C.: Council for Basic Education.

Wiatrowski, M.D., Hansell, S., Massey, C.R., & Wilson, D.L. (1982). Curriculum tracking and delinquency. *American Sociological Review, 47*, 151-160.

Wicker, A.W. (1968). Undermanning, performances, and students' subjective experiences in behavior settings of large and small high schools. *Journal of Personality and Social Psychology, 10*, 255-261.

Willems, E. (1967). Sense of obligation to high school activities as related to school size and marginality of students. *Child Development, 38*, 1247-1260.

Willis, P. (1977). *Learning to Labor*. London: Saxon House.

Wilson, A.B. (1959). Residential segregation of social classes and aspirations of high school boys. *American Sociological Review, 24*, 836-845.

Wynne, E.A. (1980). *Looking at schools: Good, bad and indifferent*. Lexington, MA: Lexington Books.

Young, B.S. (1980). Principals can be promoters of teaching effectiveness. *Thrust for Educational Leadership, 9*, 11-12.