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AUTHOR Stockard, Jean; Mayberry, Maralee
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ABSTRACT

Theoretical traditions concerning school environments and student achievement are described, and their insights are linked with analyses of school and classroom interactions to develop a simple conceptual model of environmental influences on student achievement. The literature regarding environmental influences is then reviewed, and the last section of the paper summarizes the analysis and suggests specific areas for future research. The literature review suggests that the learning environment can enhance individual achievement somewhat, beyond the level expected given individual background traits. This enhancement occurs through altering the "non-cognitive" traits--by developing an atmosphere in which students are expected and feel able to achieve. The researchers' conceptual model provides a framework to describe these influences, divided into factors of group norms and group relationships. It is suggested that school analysts should recognize the attachments to schools that students display and acknowledge that relationships within schools are often better described with a conflict model than a consensus model. The basis of conflict needs to be determined in order to enhance achievement. The task for researchers and school officials is understanding why this resistance to officially sanctioned norms occurs and how it may be adequately addressed to promote learning. A 13-page bibliography is appended. (CJH)

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Learning Environments:
A Review of the Literature on School Environments
and Student Achievement

by
Jean Stockard and
Maralee Mayberry

Center for Educational Policy and Management
University of Oregon
Eugene, Oregon 97403

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Learning Environments:
A Review of the Literature on School Environments
and Student Achievement

A major concern for both the general public and for scholars specializing in the study of education is students' academic achievement. 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 (see Shea, 1976; Bridge, Judd, and Mook, 1979; and Mosteller and Moynihan, 1972 for reviews of this literature). These variables influence the academic achievement of individual students, yet they are primarily related to institutions such as the economy and the family rather than education. Thus they are largely beyond the control of educators and policy makers. 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. Mayeske, et al., 1972; Heyns, 1978).

Given the intractability of family background variables and the hope that schools can at least indirectly influence student achievement, it is understandable that more recent research has focused on areas over which schools have more direct control. This research has asked, at least implicitly, how schools can enhance student achievement beyond the levels that would be expected given students' individual characteristics and family backgrounds. In this literature attention has been given to how ways students are grouped, prevailing norms or "learning climates" of classrooms and schools, school facilities, and community environments of schools affect student achievement.¹ These classroom-, school-, and community-related

variables all involve various degrees of aggregation beyond the individual level of analysis. Thus, analyses using these variables describe student achievement as at least partially a product of the environment or context in which learning occurs.

There have been several attempts to synthesize literature regarding the influence of 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 to simply describe empirical results and/or present large-scale models of interacting influences on achievement. While we believe that such descriptions can be extremely useful, we also believe that a more parsimonious and analytical description of environmental influences on student achievement can be obtained by utilizing the theoretical traditions developed within the social sciences.²

In this paper we briefly describe these theoretical traditions and then link their insights with analyses of school and classroom interactions to develop a simple model of environmental influences on student achievement. The literature regarding various types of environmental influences is then reviewed, and the last section of the paper summarizes the analysis and suggests specific areas for future research.

Theoretical Perspectives

This section briefly reviews theories related to the effect of environments on the behavior of individuals. Special attention is given to the commonalities of the various analyses. This theoretical work is then related to analyses of classroom interactions, and a model that can be used to describe environmental influences on students' individual achievement is

presented.

In such a short review, it is impossible to convey the complexity and subtleties of each of the theoretical views described below. Our intent, therefore, is not to provide a detailed overview of the theoretical notions involved in each perspective but 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.

Contributions from Sociology

The general aim of most scholars working in this area has been to demonstrate that there are influences on individuals' behavior beyond those within the individuals themselves. The classical statement of this position was developed by the sociologist Emile Durkheim in the late nineteenth and early twentieth centuries. Throughout his work, Durkheim, stressed the existence of normative forces, the "conscience collective," that bind societies together and influence individuals' behavior.

Durkheim (1933) suggested that a society's division of labor has an important influence on its members. He distinguished between mechanical solidarity, which he saw as more typical of primitive, less differentiated societies, and organic solidarity, which he saw as typical of more complex societies with a more extensive division of labor. Ferdinand Tonnies (1957) made a similar distinction between the ideal typical folk or communal society, which he termed Gemeinschaft, and the more complex society, or Gesellschaft. Because social relations in the former type of society are less differentiated, they are more emotionally meaningful for the participants. In the more complex type of society, relations are more often contractual and voluntary. Both Max Weber (1976) and Georg Simmel (Wolff,

1950) noted that the movement of society towards the more complex forms involves greater rationality in social organizations, greater planning, and more efficiency as well as more impersonality in human relations (see also Mannheim, 1949).

Contemporary theorists in this area have tended to avoid the earlier theorists' large-scale distinctions between communities and have focused instead on organizations. One of the most influential of these theorists is Peter Blau, who in a classic article entitled "Structural Effects" (Blau, 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 that may be attributed to the influence of group values and norms independent of the influence of individuals' internalized value orientations.³ 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.

Perspectives from Psychology

While Blau and the other theorists reviewed above directly influenced sociology, psychology has also focused on the effects of the environment on individual behavior. To some extent, however, the theorists in the psychological tradition echo the work of the sociologists by noting the importance of group values and the relationships among group members.

Much of the work in psychology has been influenced by Kurt Lewin and the general area known as "field theory" (e.g. Lewin, 1935, 1951).⁴ Although 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 in "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 (... Barker, 1968; Barker and Gump, 1964). Building on some of Lewin's concepts, they used the term "behavior setting" to define the environment in which behavior occurs. Based on observations and comparisons of results from a range of behavior settings, Barker suggested that when compared to settings with an optimal number of inhabitants, those that are "undermanned" have greater "forces" acting upon each inhabitant. This results in the inhabitants being more active within the settings and also being involved in a greater number of actions. (See also Bronfenbrenner, 1979; Ogbu, 1981; and Hamilton, 1983 for discussions of ecological research.)

This analysis parallels both the work of the early sociologists and that of Blau. Durkheim asserted that the division of labor within a society binds 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. 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 upon the foundation laid by the field theorists. While he uses some of the insights developed by Barker, Moos focuses to a greater extent 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, and physical-environmental variables, those termed

ecological and typical of the work by Barker (see Moos, 1979:4). In many ways, the social climate or social environment that 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 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--making unwarranted inferential leaps from the characteristics of groups to the traits and behaviors of individuals. Therefore, it is important to address the issue of how group norms affect individual group members. Campbell and Alexander (1965) focused directly on this issue, contrasting their discussion to the more structural analyses of Blau. Utilizing social psychological work such as that by George Homans (1961), Leon Festinger (1957), Fritz Heider (1958), and Theodore Newcomb (1961), they suggest that structural effects are best attributed to the interpersonal influences of an individual's "significant others" (Campbell and Alexander, 1965:288). They suggest that a "two-step analytical model" is necessary to understand how structural factors influence individuals and how 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." Second, however, it is through interactions with significant others 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. (See Campbell and Alexander, 1965:288; also Duncan, et al., 1972 for a statistical development of this perspective).

Analyzing Schools as Social Organizations

The theories reviewed above share certain common elements. They all assert that the nature of a group in which people interact--whether it be 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 these theoretical notions may be applied to schools.

While the details of our conceptual framework will be given in the final section of this paper, we are essentially suggesting that most of the literature on the effect of environmental variables on student achievement can be understood by utilizing the two broad-ranging key variables presented in theoretical examinations of environmental or contextual effects: the nature of a group's norms and values and the relationships among the group members. We suggest that the norms and values of the group may be linked to distinctions between instrumental activities, those oriented toward task completion, and expressive activities, those oriented toward promoting socio-emotional integration of the group. The relative balance between these activities and their content may be influenced by the nature of group relations. In the next section we examine literature regarding the effect of environmental variables on student achievement.

Environmental Influences

Various types of environmental influences on student achievement have been described in the literature. Some authors have examined how the average characteristics of students in a classroom or school have affected students' achievement and aspirations. Partly as a result of the outcomes of these studies, other authors have focused on normative "climates" of schools and classrooms, while others have examined how characteristics of schools and communities affect achievement. Before examining the literature in each of these areas, however, we review certain conceptual and methodological concerns involved in analyses of environmental variables. These issues primarily focus on levels of analysis.

The Level of Analysis Issue

Inherent in any analysis of environmental influences on individuals are problems associated with the level of analysis which should be used. The issues involved in this area are both conceptual and statistical, but are too complex to be described fully here. We will only briefly describe arguments commonly given in support of analyses using aggregated data and those in support of retaining variables on the individual level.

Arguments for analyses of data on a grouped or aggregated level (e.g. using schools or classrooms as the unit of analysis) involve both statistical and theoretical considerations. The statistical argument is most commonly made in reference to educational experiments that involve treatments given to a class or another group. If the treatments are not administered to each student individually, the assumption of uncorrelated error among individuals within the sample or treatment group is violated. To counteract this problem it is suggested that the data should be analyzed at the aggregated level (e.g. Lindquist, 1940). Theoretical arguments note that if one is interested in studying organizations and organizational effectiveness it is appropriate

to measure effectiveness on the organizational level (Bidwell and Kasarda, 1976, 1980).

Arguments for retaining the individual unit of analysis in studies of environmental influences also address both theoretical and methodological issues. It is suggested that it is important to separate empirically the effect of the group level or aggregated variables from that of individual level variables. In his now classic discussion of structural effects, Peter Blau (1960) suggested that if the association between a contextual variable and a dependent variable (say between the average socioeconomic status of students in a school and student achievement) holds even when the relevant individual level variable (individual students' socioeconomic status) is controlled, then the presence of a contextual effect could be said to be demonstrated.

The methodological and statistical considerations show why such an approach is generally preferable to simply analyzing relations on an aggregated level. Aggregated analyses generally tend to misrepresent the influence of the environmental variables, for they confound compositional effects and contextual effects (Alexander, 1979). For instance, if schools with more high status students have higher average achievement than schools with students of lower social status, we cannot tell from an analysis conducted only on the level of schools whether this results from the relative representation of high and low status students in the school (a compositional effect) or from additional influences of the social situation (a contextual effect). Only an analysis that includes variables on both the individual and aggregated level can sort out these effects. Recent analyses also show that experiments involving classrooms as the treatment group should use analysis models that retain the dependent variable on the individual level of analysis and incorporate both individual and grouped level independent variables

(Hopkins, 1982).

In addition, most of the variation in student achievement tends to be within schools rather than between schools. Thus, analyses which use schools rather than individuals as the unit of analysis involve analyses of only a small portion of the actual variance in achievement and thus tend to overestimate the effect of environmental variables.

Finally, it is important to note that statistical methods themselves cannot guard against possible logical problems in searching for environmental or contextual effects. Accordingly, Hauser has pointed to the possible existence of a "contextual fallacy." According to Hauser (1971: 659), "the contextual fallacy occurs when residual differences among a set of social groups, which remain after the effects of one or more individual attributes have been partialled out, are interpreted in terms of social or psychological mechanisms correlated with group levels of one of the individual attributes." Because the grouping variable may be associated with other variables not included in the model that also influence the dependent variable, contextual analyses may easily overestimate the strength of the contextual variables. Thus Hauser suggests that a researcher "should be prepared to argue that his theory of relations among individual attributes is complete and correct, or at least defensible in relation to some explicit criterion, before speculating about residual group differences" (Hauser, 1970: 659).

The literature reviewed below includes studies involving both individual and grouped level variables and those with only grouped level variables. Given that the problems that the above analysis suggests can appear with grouped level analyses, it will be necessary to interpret the latter studies with caution (See Robinson, 1950; Wagner, 1964; Hannan, 1971).

Groupings of Students

One basis on 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 and Green, 1976) and the results are not completely clear. However, it does appear that for black students, but not for white students, having more white classmates is associated with higher achievement and later educational attainment (see Bridge, et al., 1979: 231-232). Explanations of this effect tend to note characteristics of the minority students' classmates in integrated schools as well as social-psychological benefits that 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 massive Coleman report (Coleman, et al., 1966) noted that the socioeconomic (and to some extent the racial) composition of a school could affect students' academic achievement. A number of studies in the status attainment tradition have 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. Wilson, 1959; Meyer, 1970, Nelson, 1972). Following their theoretical notions discussed above, 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.

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 has been controlled and/or other intervening variables have been considered (Alwin and Otto, 1977; Sewell and Armer, 1966; Hauser, 1971). 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 and Otto, 1977 .69; also Campbell and 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 studies of tracking have noted its effect on students' non-academic lives such as their tendency to pursue delinquent careers and other negative consequences of a social psychological nature (Peng, et al., 1977; Goldberg, et al., 1966, cited in Bridge, et al., 1979:262; and Alexander and McDill, 1976), although more recent studies suggest that this influence is at best indirect (Wiatrowski, et al., 1982). Tracking also appears to be related to both verbal and mathematics achievement (Bowles, 1969; Michelson, 1970; both cited by Bridge, et al., 1979; Alexander and McDill, 1976), educational aspirations (Alexander and McDill, 1976; Heyns, 1974), college grades, and even to the probability that students will drop out of college before completion (Peng and Feters, 1977). The negative effects of tracking may be more intense for students of

lower ability (see Bridge, et al., 1979:259-260).

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: 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. Students of the same ability 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 own aspirations. As Davis (1966) noted in his work with college students, in deciding upon their future aspirations students look at their own "frogpond."

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 et al., 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 and Eckland, 1975). Thus, it is important to consider not only students' academic ability but also their ranking relative to other students within the school.

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--the conscience collective noted by Durkheim--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 and Hayduk, 1982). It is thus possible that more direct measures of school climate, the notions of

which often build upon the theoretical foundations laid by Durkheim, Piaget, Lewin, and Moos, could provide a better understanding of how the environment in which students learn affects their achievement (see also McDill, Meyers, and 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. Rutter, 1979; Brookover, et al., 1979). These researchers, especially McDill and his associates, build upon the sociological theoretical tradition by discussing the normative effect of contextual climates. Others focus on distinct classroom atmospheres, experiences, and instructional patterns (e.g. Alexander and McDill, 1976; Moos, 1979; Walberg, 1979; Walberg and 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 generalizability 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 included in the review below.⁵

While 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, a number of variables consistently emerge as influential, all of which appear to involve, in a very general sense, the norms and common values that promote learning within a school and the nature of relationships among school members.

Data collected in secondary schools by McDill and his associates highlights 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, Meyers and Rigsby, 1967; McDill, Rigsby, and Meyers, 1969; McDill and Rigsby, 1973) suggests that schools that 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. 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 (Rutter, et al., 1979; Wynne, 1980; Brookover, et al., 1979).

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, 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 (Brookover, et al., 1979; Brookover and Lezotte, 1979).⁶ They reported that a number of attitudes held by school members, including 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. These studies found that in schools with increased levels of achievement both teachers and students considered higher achievement a real and attainable goal.

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 and Lezotte, 1979; Klitgaard and Hall, 1973; Edmonds, 1979; Purkey and Smith, 1982, Weber, 1971). 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 as an expert

instructional manager (Klitgaard and Hall, 1973). Important aspects of the effective leadership style appear to include principal involvement in instruction (Edmonds, 1979; Brookover, et al., 1979; Brookover and Lezotte, 1979; Young, 1980), promotion of good relationships and feelings of collegiality between faculty and administrators and among faculty (State of New York, 1974; Ellett and Walberg, 1979), and encouragement of teacher participation in decision making within the school (Rutter, et al., 1979). These findings suggest that the effective administrator is one who promotes both academic learning and cohesive relations within a school.

A fourth element of school climate that promotes achievement appears to be an atmosphere that is orderly without being rigid (Edmonds, 1979) or one that involves "purposefulness and pleasure in learning" (Weber, 1971), including good communication among those in the school, an atmosphere of trust, caring, and cooperation (Wynne, 1980; Silberman, 1970; Duke and Perry, 1978; Phi Delta Kappa, 1980; Downing, 1978; Brookover, et al., 1979), 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 strong academic demands, strong attendance and disciplinary policies appear to promote achievement (Peng, et al., 1982; Coleman, 1982; see also Squires, 1980).

In summary, it appears that a number of expectations regarding the effect of school climate on achievement may be drawn from the literature. First, there is strong support for the effectiveness and superior academic achievement levels of schools in which members value academic excellence, expect high achievement and skill acquisition, and where a staff's opinion of students' abilities to succeed are exhibited. Such commonly shared attitudes may also relate to students' low sense of futility, thus increasing the likelihood that students will perceive themselves as able to succeed.

Second, the literature indicates that emphasis on teaching academic subjects, attaining subject matter competency, and acquiring basic skills is important. The high achieving and effective school appears to be one in which the staff displays a commitment to teaching these skills, thus maximizing the students' chances of reaching the set goals. Third, it appears that educational environments that maintain an atmosphere that is conducive to learning -- pleasant, orderly, quiet, and safe -- are more effective. Finally, research also reveals that it is important for the building principal, or someone else in the role of instructional leader, to take responsibility for students' acquisition of basic skills by developing and communicating plans for handling problems in basic skill achievement and feeling a sense of control over the curriculum, program staff, and general functioning of the school (Austin, 1979).

Despite the probable influence of these school-level variables on achievement, it must be remembered that these variables are only part of a much larger set of conditions that enhance achievement possibilities. Nested within schools are other layers of influence on students' achievement, and we turn now to the lowest organizational level, the classroom.

Classroom Climate -- Studies focusing on the classroom provide support for the notion that factors within the school may mediate between macro-environmental variables, such as those involving the school and community, and student outcomes, thus denying that macro-social contexts are so overwhelming that the micro-environment of the classroom is insignificant in learning (O'Reilly, 1975; Moos, 1979; Walberg, 1969a and b).⁷ As with the studies involving school level variables, some of those focusing on the classroom are basically atheoretical, descriptive accounts of variables that distinguish "effective classrooms." Others build on the "social-ecological" theories developed by Rudolf Moos and his colleagues.

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 "effectiveness" studies and in the more theoretically oriented studies, each of which is included in the review below.

In a review of the literature, Puff (1978) suggests 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 notes 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 involving (1) using time efficiently, keeping students engaged with task-related activities; (2) organizing students into medium to large groups for instruction; (3) correctly monitoring work while being available to provide answers to student-initiated questions; (4) assuming the role of a strong leader; and (5) asking low-order questions, ensuring that students have the opportunity to learn sufficient amounts of content, keeping interaction at a low level of complexity, and structuring lessons so that students are aware of objectives. Klitgaard and Hall (1973), Rutter and his associates (1979), and Austin (1979) all provide support for Puff's conclusions that effective teaching methods are important elements in promoting student achievement.

Brookover's (1979) research focusing on staff and classroom elements that distinguish between high- and low-performing schools 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 not primarily interested in the characteristics of effective schools, but rather in the effects of different learning environments on cognitive and affective development (Walberg, 1969b; O'Reilly, 1975; Walberg and Anderson, 1968, 1972; Moos, 1979). It 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. Moreover, this research is aimed at identifying various classroom climate aspects and the effect these aspects have on classroom learning and student behavior.

Walberg (1969a) and Walberg and Anderson (1968, 1972) conceptualize classroom climate by seeing the classroom as a social system and then analytically distinguishing between the structural and affective dimensions of the classroom. The structural dimension refers to the organization of student roles within the class, the constellation of role expectations, and the shared, group-sanctioned behavior. The affective dimension refers to the unique ways in which individual personality needs are satisfied. In early attempts at exploring the influence of this social environment on student learning, Walberg and Anderson conducted a number of studies that considered the relationship between pupils' perceptions of their class and their individual learning (Walberg and Anderson, 1968); the relationship between differential class performance and classroom climate characteristics (Anderson and Walberg, 1968); and the effect of properties of the classroom

on individual learning (Anderson, 1970). Later research (Walberg, 1970, Walberg and Anderson, 1972; O'Reilly, 1975) was designed to investigate the power of classroom environment scales (e.g. the Learning Environment Inventory) in predicting achievement and in examining the relationship between the structural and affective dimensions of the classroom.

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 studies of general achievement (Walberg and Anderson, 1972), science (Walberg and Anderson, 1968) and mathematics achievement (O'Reilly, 1975).

In general, results in these studies parallel those on school climate. They suggest that within-classroom variables with significant effects on student achievement involve teaching skills (e.g. use of time, question asking, leadership, and monitoring of work); an emphasis on learning and academic activities; a warm, supportive, friendly and orderly classroom; and positive perceptions of students' abilities.

The importance of non-cognitive 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 have noted the presence of a "hidden curriculum" in schools that 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 non-cognitive traits in influencing the achievement of adults in the occupational world (e.g., Jencks et al., 1979). The climate literature reviewed above suggests that these non-cognitive 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 for others, and respect of others in terms of developing an orderly atmosphere, academic achievement is enhanced.⁸

School Facilities and Size

The sections above have dealt with how the ways in which students are grouped and the atmosphere or climate of a school affect learning. Other characteristics of schools may also affect achievement. In this section we review literature describing how school facilities and expenditures, characteristics of teachers, and school size and organizational complexity 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, 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 students' 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 and Kasarda, 1975; Conn and Millman, 1975; Guthrie, Kleindorfer, Levin, and Stout, 1971) and more elaborate and better maintained school facilities (e.g. Guthrie, et al., 1971; Michelson, 1970; Rutter, et al., 1979; Phi Delta Kappa, 1980) 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 among schools in their facilities or even in school 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 (see Brimer, Madaus, Chapman, Kellaghan, and Wood, 1978; also Madaus, Airasian, and 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 relationship between teachers' years of educational attainment and type of education (e.g. presence of school attended and college major) is generally inconclusive, studies indicate that teachers with more recent educational training and with more years of teaching experience have students with higher achievement test scores (Guthrie, Kleindorfer, Levin, and Stout, 1971:84). The effect of greater teaching experience, however, may be curvilinear with the greatest effect in the first few years (Murnane, 1975; Bridge, et al., 1979: 235-256). The only other teacher-related variable with a relatively strong effect on student achievement is the teacher's own verbal ability. Studies, primarily those using data from Coleman's (1966) study, have consistently shown a relationship between greater verbal ability of teachers and greater achievement of students (e.g. Armor, 1972; also Bridge, et al., 1979: 249-251).

Apart from these quantitative analyses related to teachers' demographic characteristics, it is possible that non-quantifiable characteristics of a particular teacher may greatly influence students later on in life. Pedersen, et al. (1978) documented the effect of having a particular first grade teacher on students' later lives. Even when various background characteristics were controlled, the long-lasting effect of having an 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. A paper distributed by the Wisconsin state superintendent of schools office (Monstad, 1973) illustrates this view. The report notes literature that demonstrates that larger districts offer a broader range of courses and thus a more comprehensive educational program to

students, more often have a complete range of educational services, either for remedial or gifted students, can more easily retain teachers, especially those with higher qualifications and specialized skills, and are more efficient than smaller districts, especially those with a small number of elementary schools (see also Massachusetts State Department of Education, 1973; cited by Dunne, 1977:85). The common conclusion from this literature is that students would be well served by the consolidation and reorganization of school districts, which would result in larger schools (see Dunne, 1977; Rosenfeld and Sher, 1977; Sher and Tompkins, 1977 for reviews of the literature advocating school consolidation).

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 (1977:63), "In recent years, researchers have begun controlling for IQ and social class. 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. Coleman, et al., 1966; Alkins, 1968; Raymond, 1968; Krietlow, 1962; all cited by Sher and Tompkins, 1977).

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., 1971:86-90; Kiesling, 1968; Summers and Wolfe, 1977; New York State Department of Education, 1976). Even Coleman's large (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, however, have a sample of

schools with only a small range of variation in school size (e.g. Rutter, et al., 1979), a common situation in samples limited to schools in urban areas. It is thus possible that even studies that indicate no relationship between achievement and school size have not adequately tested the hypothesis.

The negative effect of school size may be greater for some students than others. For instance, further analysis of Coleman's data indicated that the negative effect of size on achievement was stronger for black students than white students (Smith, 1972:291). Summers and Wolfe (1977) also noted that smaller schools appeared to benefit black students' academic achievement more than whites, and Willems (1967) noted that the negative effect of school size on involvement in school activities was greater for marginal students (see discussion of this general area below).

Simply noting that smaller schools may enhance student achievement does not indicate how this occurs. Literature that examines the effects of school size on other areas of student experience can provide clues to the nature of the process. As noted above, those promoting school consolidation suggest that larger schools enhance curriculum offerings, special services, and teacher quality. Others suggest, however, that these earlier reviews ignored many of the advantages of small schools such as lower pupil-teacher ratios, more varied assignments for teachers, and better guidance and more attention available for individual students (Clements, 1970; Dunne, 1977). 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, have a greater "sense of belonging" to

the group and are less alienated than students in larger schools (Helwig, 1980; Barker and Gump, 1964; Willems, 1967; Baird, 1969; Peshkin, 1978, Wicket, 1968; Morgan and Alwin, 1980). In addition, smaller schools tend to have fewer discipline problems and much less vandalism and crime (Huber, 1983; Duke and Perry, 1978). Cusick's (1973) ethnographic study of a suburban high school vividly illustrates the alienation, fragmentation, and lack of involvement experienced by many students in larger high schools.

Studies of elementary schools suggest that small schools provide a more humanistic learning experience. They apparently do so by attending more closely 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).

The theoretical perspectives noted at the beginning of this review help explain these associations. 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 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. As noted by Durkheim, as well as others (e.g. Talacchi, 1960), increases in size lead to an increase in the division of labor, thus

narrowing the areas of responsibility and involvement that people have in an organization. This in turn can affect the morale of the group members and their attachment to the group.

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

Besides greater involvement in school activities, it is possible that smaller schools can more easily develop consensus among school members, both teachers and students, on curricular and disciplinary policies than large schools can. Such consensus has been found to be related to more cohesive school climates (Wynne, 1980), student attendance, and academic achievement (Ellett, et al., 1978; McDill and Rigsby, 1973; Rutter, et al., 1979).

Most of the work on student involvement in schools has focused on secondary schools, probably because it is in these schools that extracurricular activities are more common. It is possible, then, that the causal linkages between school size and student achievement may involve different intervening variables depending upon the level of schooling that is studied. On the elementary level, the most important intervening variables may involve the humanistic and individualized attention that is possible in

that setting. At the secondary level, the most important intervening variables may be related to student involvement in the school and a sense of personal efficacy. On the other hand, these two variables may actually be elements of the same global phenomenon -- a sense of belonging or meaning, lower levels of alienation. They must simply be operationalized in different ways for children of different ages and in different types of schools.

It is also possible that the association between school size and achievement is not strictly linear. Very small schools and very large schools may both 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: 314). Support for the latter proposition comes from a study by Eberts, Kehoe, and Stone (1983) 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 school size. While there have been few direct tests of this hypothesis, some studies provide preliminary evidence. For instance, in describing influences on various measures of school climate, McDill and his associates noted that parental involvement in and commitment to the schools was the one contextual variable that was a

source of climate effects (McDill, Rigsby, and Meyers, 1969; McDill and Rigsby, 1973). Breckenridge (1976) noted that school climate could be improved by increasing communication and rapport between parents and schools, while two other studies (Phi Delta Kappa, 1980; New York State Department, 1976) suggest that greater parent-school or parent-principal rapport enhances student achievement. We would hypothesize that parental involvement would be related to both the size of a school and its relation to the surrounding community. It is to a discussion of community effects, then, that we now turn.

Community Environment and Student Achievement

Social scientists have long grappled with definitions of "community" (e.g. Kaufman, 1959) and even with conceptual distinctions between rural and urban communities or the nature of a "rural-urban continuum" (see Falk and Pinhey, 1978; Pahl, 1966). We recognize the complexity of these definitional quandaries and that the issues involved in distinguishing "types" of communities go far beyond those of concern to us here. We are primarily interested in literature that describes the effect of involvement of community members and parents in schools on achievement and variations in student achievement from one community context to another. Most of the literature involves rural and urban communities, but it is important to remember that not all schools are either urban or rural and that this distinction should best be seen as reflecting ideal types.

Much of the literature that examines the relationship between community environments and student achievement has focused on urban schools. Since the late nineteenth century when waves of immigrants flooded cities in this country, educators and social reformers have tried to devise strategies that would improve the education offered to the cities' children. The major thrust of changes beginning in the late nineteenth century was the growing

bureaucratization of schools, including 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 that local communities had over schools in their neighborhoods. In an attempt to counter this process, various reformers in the 1960s promulgated the idea of "community controlled schools" (see Fantini, Gittell, and Magat, 1970). The aim of these schools was not only decentralization of the bureaucratic apparatus of large school systems, but direct involvement and control by community people over the functions of neighborhood schools. While many of these attempts succumbed over the years to various political pressures and circumstances, a broader-based and less politically oriented movement promoting "community schools" has remained active. The aim of these schools has been to serve the community by being a focal point for cultural, recreational, and educational activities. The schools were first proposed as a way to combat not only educational disadvantage but also delinquency, poverty, and general urban decay (see Olson, 1953; Fantini, Gittell, and Magat, 1970). Yet another approach to greater involvement of parents in schools is described by Comer (1980). His approach essentially involves the voluntary development of decision making processes within schools that incorporate staff, administrators, and parents.

Whatever the political and theoretical content of these movements, they all have in common the aim of tying community members more closely to school operations and they all make the implicit assumption that such ties will enhance student achievement and the effectiveness of the cities' schools. As noted above, some evidence indicates that good parent-school relationships can enhance school climate (Breckenridge, 1976) and academic

achievement (Phi Delta Kappa, 1980; New York State Department of Education, 1976).

As schools in urban communities were trying to mitigate the alienation and powerlessness that 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. As noted above, school consolidation--the merger of smaller school districts into larger administrative units--swept the country. It was suggested that this consolidation would result in a greater number of course offerings for students, more educational services, more efficient use of resources, and by extension, higher student achievement (see Tyack, 1974; Sher and Tompkins, 1977; Rosenfeld and Sher, 1977). The consolidation movement met with great success and during this century the number of schools and school districts has sharply decreased. Between 1950 and 1960 the number of school districts in the country was halved (Rosenfeld and Sher, 1977: 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. The shift to large-scale education has produced some economies, but school consolidation does not always lead to lower costs or greater efficiency. The economies that come with large-scale education tend to depend upon the density of the population in the area and the level of schooling involved (see Fox, 1980; Sher and Tompkins, 1977; Parks, Ross, and Just, 1982). In general, if students must be bussed a long way to school, the costs involved in transportation may well exceed the efficiencies gained by closing some schools.

In addition, consolidated schools are not necessarily of higher quality. There is evidence that students in rural schools tend to have lower

scores on standardized achievement tests and attain lower levels of schooling. In addition, residents of rural areas are more likely than those in other areas to lack proper medical care and to live in poverty. However, once socioeconomic status and ability test scores are controlled, rural-urban differences in student achievement become statistically insignificant (see especially Sher and Tompkins, 1977; as well as discussion above regarding school size).

Ironically, one reason often cited for the lack of improved quality in consolidated schools is that there are fewer ties between the community and the school when students must travel far from their homes to attend classes (see Sarason, 1971: 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.

It is important to avoid romanticizing rural communities, for it is clear that their isolation and typically lower average educational attainment of people in these communities often work against the possibility of educational advantages (see Dunne, 1977; Sher and Tompkins, 1977 for discussions of this issue). Yet, from the early sociologists to the present, studies of rural cultures have suggested that rural environments are unique in a number of ways. Both the classical sociologists and contemporary scholars have noted differences in attitudes and behaviors of urban and rural dwellers. While some contemporary authors suggest that few correlates of urbanization cannot be accounted for by other variables such as income and education (e.g. Dewey, 1960; Gans, 1962) and that rural-urban differences will gradually disappear (e. g. Sjoberg, 1964), empirical studies continue to find significant differences in attitudes and behaviors of urban and rural dwellers, even when various individual characteristics such as income and education are taken into account (e.g. Willits, et al., 1973; Willits, et

al., 1982; Fischer, 1975; Glenn and Hill, 1977).

One aspect of the differences between urban and rural dwellers could well involve individuals' orientations towards interactions with others and towards the social system as a whole. Some work (Stockard and Dougherty, 1983) suggests that students in rural settings may be more likely than those in urban settings to adopt an expressive or communal orientation toward the world, focusing more on relations among individuals and between group members than on self-protection or self-assertion. This may relate to the suggestion that those in rural areas with a less well-defined division of labor may be more likely to feel connected with their community and less likely to be alienated from their surroundings. Assuming that this orientation is transferred to interactions within schools and classrooms, this in turn could be hypothesized to be related to the lower levels of alienation and greater self efficacy typical of students in more effective schools.

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 small rural midwestern school, noted strong community involvement in the life of the school and strong interdependence among the students. In a broader study involving a large number of rural schools in Alaska, Gerald McBeath and his associates (1983) noted that schools with "localized control" had the lowest rates of absenteeism and vandalism, 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 suggest that schools in a rural setting that promotes strong identification with and ties to the school among parents and students might be more likely to foster more effective school climates once variables such as socioeconomic status of the

parents were controlled. This in turn may be hypothesized to be related to greater 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, in an analysis of students' aptitude scores and educational aspirations (1961), found that among all social status categories attending school in a suburb was most conducive to future college attendance. Unfortunately, Rogoff did not control for the climate of the schools studied or the quality of instruction that the students received. However, other researchers who have examined variations in classroom climate in suburban, rural, and urban schools (Moos, 1979; Trickett, 1978) 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.

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 association. 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 that such close ties may promote, but suggested that the personal and societal value associated with these ties should not be lightly dismissed, especially given the relatively small differences in the academic achievement of students in the school compared to 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 that encourages each participant to achieve his or her potential. We turn now to a summary of the literature we have reviewed and a discussion of how it relates to our conceptual model with an eye toward suggesting research questions that might promote this goal.

Conclusions and Implications

It is undoubtedly true that the most important influences on students' academic achievement involve variables related to individual students, such as socioeconomic status, ability, and various non-cognitive traits such as industriousness and sense of efficacy. Yet, the literature reviewed above suggests that the environment in which students learn can enhance student achievement, to at least some degree, beyond the level expected given their individual background characteristics. To a large extent, this enhancement appears to occur through altering the "non-cognitive" traits," developing an atmosphere in which students are expected to achieve and in which they come to believe that they are indeed capable of doing so. We believe that the conceptual model outlined in an earlier section provides a parsimonious and useful framework in which to describe these influences. In this section we provide more details on this model, discussing how the literature reviewed above fits into its outline, and then briefly discuss possible areas for future research.

A Conceptual Model

We have suggested that most of the literature on the effect of environmental variables on student achievement can be understood by utilizing two broad-ranging variables presented in theoretical formulations of structural or contextual effects: the nature of a group's norms and values and relationships among group members. The norms and values of the group may be linked to distinctions between expressive and instrumental actions. The relative balance between these activities and their content may be influenced by the nature of group relations.

Group Norms -- Using terms first developed by Parsons and Bales (Parsons, 1951; Parsons and Skils, 1952; Parsons et al., 1954), M. D. 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 socio-emotional integration of the group. While both types of activities are present in classrooms and schools, the relative balance and frequency of these actions may differ from one school to another. We believe that these conceptual categories can provide a parsimonious framework in which to analyze the nature of activities that occur in schools.

Instrumental activities are those that involve the attainment of learning goals, the actual work of learning. The literature reviewed above suggests that student groups that include more high status and/or more high ability children may have expectations regarding learning that 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 that have higher levels of achievement. These instrumental aspects of effective schools and classrooms involve an emphasis on academic achievement, on learning basic skills, and on effective instructional leadership and teaching skills. Research related to school facilities and size 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 and medium schools than in large schools (Eberts, et al., 1983).

Expressive activities are activities related to the socio-emotional atmosphere of the school and classroom and that promote positive ties of students to school and to socio-emotional 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 that exists to a greater extent 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 socio-emotional, norms involve the provision of 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.

Group Relationships -- Simply distinguishing the types of activities that 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 what is often termed a "consensus" 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 (see Parsons, 1959; Jackson, 1968; Dreeben, 1973; for examples of this analysis within classrooms). 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 to or resist the norms of the school. In

explaining such deviance, the consensus tradition usually points 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 and conflicts. 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 school norms and values to the same degree (see Shipman, 1968; Waller, 1932; Giroux, 1983; Willis, 1977). Thus, within a school, students and staff will display varying degrees of acceptance of or 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 definition and redefinition 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 and conflict permeate a school's culture and the extent to which patterns of resistance typify a school's culture. The nature of relationships among group members will also be related to the need for measures beyond internalized controls to achieve adherence to the officially established school norms.

The literature reviewed above suggests that variables related to the environment of schools can influence these relationships. 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 that 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 exist 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 the issue of relationships, 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 among school members, involving variables such as felt similarity and the nature and 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 social ecologists term the "affective" dimension of a school's climate.) If we 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 that depends upon this interaction.

We believe it is important for analysts of schools to recognize the varying degrees of attachment to schools that students display and to acknowledge that relationships within schools are often better described with a conflict model rather than a consensus model. However, with this analysis we do not mean to imply that in schools where there is little agreement on school norms or attachment to the officially sanctioned norms there is little hope for academic success. Instead, we believe that it is important to recognize that such dissension exists and that the basis of that conflict

needs to be determined if achievement is to be enhanced. Given the heterogeneous characteristics of school members in most schools, resistance to officially sanctioned norms should be expected. The task for researchers, as well as school officials, is understanding why this resistance occurs and how it may be adequately addressed to promote the learning of all children.

Directions for Further Research

While we believe the conceptual model outlined above provides a parsimonious way of viewing schools as social environments for learning, we recognize that a good deal of research on how environments affect achievement remains to be conducted. Further research endeavors can be identified in each of the areas covered in our literature review.

First, it is apparent that both researchers and theorists need to pay careful attention to the level of analysis that they employ in their studies. Studies that have used only aggregated levels of analysis, especially those in the "school effects" and "classroom effects" traditions, need to be replicated using dependent variables measured on the individual level and appropriate individual-level control variables. Such replications could assess the extent to which the environmental influences found in these studies are attributable to contextual, as opposed to compositional, effects. Replications could also provide more accurate assessments of the amount of variation that is explained by environmental variables apart from individual-level variables.

While theoretical attempts to analyze schooling as an organizational process or event are certainly useful (e.g. Bidwell and Kasarda, 1980), it is possible that these theoretical exercises also need to consider more carefully the relationship between group-level or aggregated phenomena and those on the individual level and possible interactive effects.

Our review of the literature suggests that the effect of "grouping"

variables, such as the average socioeconomic status or average ability of students in a classroom or school might be at best a proxy for more direct measures of school or classroom climate. The actual relationship between these variables, however, has not been thoroughly examined and further research should address this issue.

We noted the need to examine school climate with an analysis that incorporates variables measured on an individual level as well as a grouped level. It also seems necessary to deal with the possible sub-group effects on school climate, especially within settings such as secondary schools that might incorporate various grouping mechanisms or "tracks." While some authors assume that school climates are closely aligned with classroom climates (e.g. Anderson, 1982), this assumption has not been thoroughly examined. Moreover, it is entirely possible that perceptions of school climate might vary for students enrolled in different curricular areas and for teachers and administrators who work with different groups of students. This area is also in need of research. One could also ask how the materials that students study (the curricula) affect students' and teachers' perceptions of school climate and how such materials which affect the norms that develop within schools. That is, to what extent can materials, apart from individuals, affect norms and interactions within a school? Finally, with respect to school climate, most of the school effects literature has focused only on schools within a limited range of the socioeconomic spectrum. While this is understandable given needs for school improvement, future research needs to examine effective schools in a broader range of settings to develop more wide-ranging theoretical understandings.

The research reviewed above suggests that, given equal levels of funding and comparable student ability and background variables, smaller schools can enhance student achievement. The positive effect of small schools

may be greater for some groups of students than for others. While the majority of all schools in this country are small, given the urbanization of the society, most students are actually enrolled in large schools. Given the large-scale bureaucracy surrounding these schools, how can the positive benefits of small-scale schooling be developed within urban areas?

A similar problem exists regarding the issue of the relation of community environments to student achievement. The evidence suggests that better relations between parents and schools and between community members and schools enhances positive feelings toward students and perhaps student achievement. More research is needed to determine how these relationships occur and to explore how positive school-community relationships can be enhanced in a wide variety of community settings. More research is also needed to examine how community values influence school climates and how this influence may vary from one type of community to another and between schools with varying student populations. It is possible that closer ties between communities and schools may promote the development of positive expressive norms within schools and better interpersonal relationships among school members. At the same time, prevailing community values may work against the establishment of positive instrumental norms promoting optimum achievement (e.g. through the promotion of traditional community practices and insularity). To what extent do these two processes affect each other? How may both positive expressive and positive instrumental values be enhanced with the optimum development of non-cognitive traits and academic achievement?

It is also important to examine how the various aspects of students' environments are associated with each other. More definitive studies of the relationships between community type and attitudes, school facilities (including teachers' characteristics) and organization, school climate, and

groupings of students are needed. Studies are also needed that take into account how variations in students' demographic characteristics (e.g. gender, ability, socioeconomic status, race) affect their relationships with others within a school and their attachment to school norms. It is conceivable that characteristics of teachers and administrators also affect the relationship between students' characteristics and their attachment to school norms, and this relationship needs to be investigated, too.⁹

Care should be taken in defining the dependent variable of interest. Studies of the effect of "groupings" of students produce different findings when educational attainment is studied than when educational achievement is studied. Other studies indicate that influences on mathematics achievement differ from those on language achievement (e.g. Stockard, et al., 1985). It also appears necessary to differentiate between achievement at various levels of schooling such as elementary and secondary. In general, it is entirely possible that the nature of environmental influences could vary from one setting to another.

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 and 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.

FOOTNOTES

1 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 policy makers and directly influence the relationship between schools and their communities.

2 In focussing primarily on educational 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 educational 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. Hauser, 1971; Blau and Duncan, 1967; Sewell and 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 among people 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.

3 Sociologists have long been aware of this distinction (Durkheim himself used the techniques Blau presented in his work, *Suicide* (Durkheim, 1951; see Blau, 1960: 190-191). Blau's contribution was a specification and elaboration of this method and an illustration of how it could be used in studies of organizations.

4 Lewin and other field theorists discussed "cognitive structures." It might appear that this involves quite a different notion of what "structure" entails 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 and least implicitly accepted the sociologists' views that normative structures and relational patterns are important influences on behavior.

5 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.

6 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.

7 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 (Dunkin and Middle, 1974; Centra and Potter, 1977), little has been done in synthesizing the conclusions drawn. A major attempt at filling this void is provided by Puff (1978).

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

9 Such a situation is likely with McBeath, et al's results. They found that academic performance was highest in the "unified schools," which were more common in the rural areas with city districts. However, there was no indication that their analysis controlled for either social status or ethnicity, both of which would probably have an important influence on the results.

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