

Academic Press and Sense of Community: Conflict, Congruence, and Implications for Student Achievement*

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Abstract. This paper examines tensions between two visions of schooling. One stresses social cohesion (i.e., common beliefs, shared activities, and caring relations between members). The other emphasizes strong academic mission (i.e., values and practices that reinforce high standards for student performance). Though not incongruous, numerous organizational studies reveal the potential for social cohesion and communality to be achieved at the expense of academic demand or “press.” To examine their separate and joint effects, measures of academic press and communality are developed from NELS:88 First Follow-up data. Results of hierarchical regression analyses indicate (1) significant links between academic press and student achievement; (2) that academic press has its greatest achievement effect among low-SES schools; (3) that strong sense of community may have a negative impact on achievement in low-SES schools with weak academic press; and (4) that for low- and middle-SES schools, the greatest achievement effects follow from strong combinations of communality and academic press. These findings highlight an important additional component of the “school as community” model, indicating that for most schools, academic press serves as a key prerequisite for the positive achievement effects of communality.

Much of the present tension in American educational policy can be tied to the contrast between two fundamental visions of schooling. In one of these, schools deepen their weave within society’s fabric by preserving a distinctive core of academic values which convey the universal importance of intellectual training. In the other, schools increase their influence by responding to a diverse range of students’ social needs and interests. Though these visions are not incongruous, historical studies remind us of the friction between them using such symbolic markers as the “Committee of Ten,” “Cardinal Principals,” “Progressive Movement,” “Sputnik,” “Shopping Mall High School,” and “Nation at Risk” (see, for example, Cremin, 1961; Powell, Farrar, & Cohen, 1985; Ravitch, 1985).

Recent waves of school reform reveal similar cross currents. Proposals to increase school “academic press” (McDill, Natriello, & Pallas, 1986; Murphy, Weil, Hallinger, & Mitman, 1982; Stern, 1962) still compete with those for strengthening

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school social cohesiveness. We thus continue to grapple with questions as to the nature of purposeful and effective schooling: is it revealed in the strong academic messages a school conveys to its members, or in its response to their needs for social attachment and sense of community?

Though balance and integration are possible and appropriate, schools vary greatly in their emphasis of academic and social goals. Numerous studies, in fact, reveal the conflict that often arises between establishing supportive social relationships and meaningful academic demand (Bidwell, 1965; Coleman, 1961; Gordon, 1957; Powell et al., 1985; Sedlak, Wheeler, Pullin, & Cusick, 1986). Such conflict came through clearly in a recent study of two typical comprehensive inner-city high schools (Shouse & Schneider, 1993; Shouse, Schneider, & Richards, 1991). In search of key values, norms, and understandings at the two schools, the authors noted a clear distinction between them. At one, the key message seemed to be, "of course it's important for our students to perform well academically, but our first concern is that they behave well, stay in school, stay out of gangs, and stay alive." Teachers here expressed a particularistic style of caring, making allowances for poorly performing students and those whose personal backgrounds seemed especially harsh. At the other school, the key message seemed to be, "sure we want our students to stay in school and behave well, but our first goal is to raise their academic achievement." Here, teachers expressed a more universalistic and rugged sort of caring, aware of the social obstacles their students faced, but not allowing these to excuse poor performance. Statistical comparisons later revealed that while students at the first school received higher grades, those at the second were more likely to go on to college. It was evident that the first school's emphasis on providing care and support constrained it from promoting meaningful academic effort.

As American schools strive for greater equity and effectiveness, it becomes more crucial to investigate systematically this sort of friction and its implications for student achievement. This seems especially true as interest grows in the idea of schools as communities—that their most enduring effects emerge out of shared values, common activities, and caring, particularistic relationships among members. Though some studies link significant achievement effects to school "communitality" (Bryk & Driscoll, 1988; Bryk, Lee, & Holland, 1993), others appear to support David Monk's (1992) caution regarding the possible development of dysfunctional communities, where social understandings run counter to the intellectual concerns commonly associated with schooling.

It is thus important to consider the potentially negative consequences of such forms of school social cohesion. Equally important, however, is some further consideration of how school sense of community and academic press might work together to produce strong achievement effects. Despite the attention paid to both characteristics in effective schools literature, few, if any, studies have framed them in any interactive way. This article responds to this research need. Using data from a national sample of schools, teachers, and students, it examines the

separate and combined effects of academic press and sense of community on high school achievement. Among the hypotheses examined here, I expect that when academic press is weak, strong sense of community may actually *constrain* student achievement, particularly among low-SES schools. Put another way, I argue that strong academic press serves not only as a prerequisite for improving student achievement but also as a basis for meaningful communality within schools.

1. Definitions of Academic Press and School Community

1.1. ACADEMIC PRESS

Academic “press” typically refers to the extent to which school organizations are driven by achievement oriented values, goals, and norms. Sources of academic press are found both within and outside the school. For example, Stern (1962) applies the term to external pressures students, families, and communities place *upon* schools. More often, however, the term refers to the normative emphasis placed on academic excellence by members of the organization (McDill et al., 1986) or to other organizational characteristics that help reinforce the value of intellectual effort and performance. Citing “academic press” as an essential characteristic of “effective schools,” Murphy and his colleagues (Murphy et al., 1982) link its development to teachers holding high expectations and taking responsibility for student learning.

Though Murphy and his colleagues offer reasonable ideas for generating academic press, problems lurk with respect to teachers’ “high expectations” and “responsibility for student learning.” As these notions filter their way from theory to practice, and as they increasingly become catch phrases of modern educational lore, they may also lose much of their academic vigor. It is much easier, for example, to hold the high expectation that “all children will learn” when standards and content are diluted. And as teachers feel increasingly obliged to shoulder more responsibility for student learning, they may actually help weaken their students’ own sense of academic responsibility. Pertinent here is Lortie’s (1975) argument that teachers’ uncertainty as to their ability to make “all their students learn” produces a willingness to accept “indicators of partial effectiveness” as a basis for psychic reward. Teachers may shift their focus to their most talented students, or they may simply lower their academic standards. Divorced from other academic norms and values, it is thus conceivable (and ironic) that organizational pressures for teachers to raise expectations and assume more responsibility for their students’ learning may actually work to weaken academic press.

This issue aside, the work of Murphy and his colleagues prompts us to examine further the importance of academic press in high school organizational culture. Despite the importance attributed to it by effective schools literature, the concept has yet to receive the quantitative treatment needed to determine its real impact on achievement. This is a major goal of this study, and a specific measurement scheme

is presented in a later section. At this point, however, a general framework for understanding the concept is offered comprising the following three components:

Academic Climate. Rather than dispersing their students across a wide range of subjects and ability levels, schools with high academic press channel them into higher status courses (geometry or physics, as opposed to consumer math or general science); they not only encourage students to work for high grades, but also strive to protect the integrity of the grades they reward; they emphasize the value of homework and recognize and honor outstanding performance.

Disciplinary Climate. A deep understanding exists in schools with high academic press that broad-based student achievement cannot occur without good attendance and reasonable decorum in hallways and classrooms. To that end, such schools work to establish appropriate and effective attendance and disciplinary policies, producing results that are clearly perceived by adult and student school members.

Teachers' Instructional Practices and Emphasis. Teachers express a sense of academic press to the extent that they establish *objective and challenging* standards for student performance, that they cover content in ways that promote student understanding and desire to learn more, and that they regularly assign meaningful homework and provide useful feedback to students and their parents.

High academic press schools send strong messages to their members, infusing activities with purpose and signaling that intellectual endeavors really matter. The principles embodied in the idea of academic press help define the institutional mission of schooling. They distinguish the school from other socializing institutions (e.g., the family, the church, the Boy Scouts, etc.) and raise it to a level of commensurate importance.

1.2. THE SCHOOL AS A COMMUNITY

Communal themes run throughout our educational history, with Waller's "we feeling," Dewey's "embryonic community," Kohlberg's "just community," and Lightfoot's "good high school" being just a few examples. The degree to which each of these carry an implicit sense of academic ethos, however, is open to argument. In fact, even the so-called "shopping mall" high school may be viewed as a "community," one ostensibly "held together" by diffuse authority, pluralism, and peaceful coexistence and diversity of interest (Powell et al., 1985).

Some visions of school communality, however, extend greater respect toward more traditional understandings of schooling. Sense of community is viewed as a moral order built upon "respect for authority" and the "consistent enforcement of norms" (Cohen, 1983). It requires the type of moral and intellectual attitudes, practices, and ideals that evolve when adults refuse to "leave their values at the school door" (Grant, 1988). Such understandings call to mind Rodriguez's (1982)

sentiment that the purpose of education is to shape and change students rather than to merely accept and tolerate them.

Bryk and Driscoll (1988) argue that such shaping is most likely to emerge from a particular form of organizational structure. Communally organized schools, they suggest, are marked by three *core components*: (1) a set of shared and commonly understood organizational values and beliefs about institutional purpose, what students should learn, how adults and students should behave, and students' potential as learners and citizens; (2) a common agenda of activities that defines school membership, fosters meaningful social interaction among members, and links them to school traditions; and (3) a distinctive pattern of social relations embodying an ethic of caring visible in both collegial and student-teacher relationships. Using items from the "High School & Beyond" survey, Bryk and Driscoll meld these components into an "index of communality," and their empirical results indicate positive links between communal organization and student achievement.

Mindful of Monk's earlier caution, Bryk and Driscoll's findings seem intuitive only in the context of an organizational culture "grounded in the significance and value of 'academics'" (Mitchell & Willower, 1992). One notes, however, that neither Bryk and Driscoll's definition of communality, nor the index representing it, contains any explicit academic component. Arguably, what Bryk and Driscoll have tapped into are not so much the effects of school communality *per se*, but rather those of a particular type of *academically oriented* communality such as that often found in Catholic schools. As Bryk et al. (1993) point out, to a greater extent than their public counterparts, a "widely held belief" exists within Catholic schools "that a traditional academic curriculum is appropriate for most adolescents."

Besides this philosophical contrast, public schools lack well-defined institutional boundaries and are therefore more sensitive to external demands. Such conditions make it difficult to establish staff and student norms that run counter to prevailing local values (Hallinger & Murphy, 1986; Meyer & Rowan, 1977). A public school's ability to establish a strong academic climate thus depends on the importance its constituency places upon academic activity.

2. Academic Press and Sense of Community; Sources of Conflict and Their Special Implications for Low-SES Schools

Here, then, lies the main source of tension between school academic press and sense of community. To become more communal, and, in fact, to retain institutional legitimacy, public schools must respond to, if not mimic, the norms and beliefs of the students and families they serve (Dreeben, 1968; Fuller & Izu, 1986), even when these conflict with the goals of promoting student academic effort and achievement.

The implications of this tension are likely to vary across school socio-economic levels. Schools serving more affluent communities are aided in maintaining high content, instructional, and performance standards by local demand for high academic performance. Low-SES schools, however, responding to different local priorities

and incentives, may be drawn more toward creating safe, socially attractive environments. The point, of course, is not that high-SES schools are educational utopias or that low-SES schools are educational wastelands. The efforts of urban teachers, parents, and community members to push students toward higher academic goals are well known. And yet, the publicity surrounding such efforts speaks loudly as to the struggle often required to overcome prevailing norms and attitudes.

Thus, as Hallinger and Murphy (1986) point out, unlike their higher-SES counterparts, academically effective low-SES schools must often maintain "weak linkages" with their external community. In similar contrast, and in contrast with many communal visions of school organization, Hallinger and Murphy also report that effective low-SES schools operate not so much in a "relationship oriented" way, but rather in a more bureaucratic "task oriented" fashion, emphasizing strong leadership and tight controls over curriculum and instruction (see also Hughes, 1988; Irvine, 1988; Sizemore, 1988; Young, 1988).

Other more intrinsic sources of friction exist between academic and social goals, the impact of which should also vary across school socio-economic levels. Waller (1932) noted over half a century ago, for example, how teachers sometimes lowered academic standards in exchange for student cooperation and good behavior. In a similar vein, studies by Gordon (1957), Coleman (1961), and Bidwell (1965) suggest how the realities of classroom life, student sub-culture, and student background draw teachers away from universalistic judgments and relationships, toward those more influenced by students' personal characteristics. While these early studies suggest how teachers' *positive* perceptions of students' status, popularity, or athletic ability may adulterate their academic judgment, more recent work indicates how teachers often apply weak criteria to the efforts of minority, low-ability, or disadvantaged students (Powell et al., 1985, see p. 59) or to those seen as indifferent, disengaged, or defiant (Sedlak et al., 1986).

Taken together, a sound basis exists to suspect that low-SES students will likely be exposed to socially therapeutic—rather than intellectually demanding—values and activities, and that their schools' efforts to build supportive and cohesive communities may actually help divert attention from academic goals. For those interested in reducing educational inequality across socio-economic levels, this possibility should be of major concern.

And yet, while their academic press levels may be lowest, there is good basis for suspecting that efforts to strengthen academic press should produce the *greatest results* in low-SES schools. Viewed as a social resource, the value of the academic press generated by the school should increase inversely with the availability of other academically oriented resources or support structures outside of the school. For students in higher SES schools, alternative resources and structures are often available. Families are more likely to be intact, and parents, older siblings, and other relatives are more likely to have attained higher levels of education. The same is also more likely to be true for family friends, neighbors, and other members of the local community. The result is a network of experience, access, and expectation which

“presses” students toward higher academic performance. The school contributes to this network, of course. But as its academic mission is externally supported, a level of redundancy exists which makes the school’s contribution less critical.

In contrast, the social capital available to low-SES students may underemphasize or actually undercut the value of academic effort. Academically oriented support networks which do exist may have critical gaps which weaken their effectiveness. For example, persuading teenagers to spend evenings working on homework is a more daunting task for parents when other neighborhood teens are allowed to spend their evening time unsupervised outside the home. Circumstances like these intensify the importance of whatever increased level of academic press the school can provide. In part, this helps explain numerous previous findings of stronger organizational effects among schools serving minority, urban, and low-income students (Coleman, Campbell, Hobson, McPartland, Mood, Weinfeld, & York, 1966; and see Hallinger & Murphy, 1986, for a brief summary of other relevant studies).

3. A Direction for Research

A firm basis exists for expecting that achievement effects related to sense of community stem less from consensus and cohesion and more from the power of specific organizational values. Without a commitment to academic endeavor, caring, supportive relationships, and commonality of beliefs, activities, and traditions, are unlikely to raise (and may even impede) student achievement. An important corollary follows from this: that an *academically oriented* sense of community may hold great potential for raising student achievement. At issue, then, are both negative and positive implications for educational equity across socio-economic levels. On one hand, serious obstacles exist to the development of academically oriented communality in low-SES schools. On the other hand, this combination of organizational characteristics offers significant promise for narrowing the achievement gap between low- and high-SES schools.

My hypotheses can now be stated more explicitly. First, I expect to find a positive relationship between school academic press levels and student achievement. Second, though academic press levels should be highest in high-SES schools, its greatest achievement effects should occur among low-SES schools. Third, important interactive effects will likely be found between academic press, communality, and school mean SES. For example, as previously suggested, high levels of school communality may work to constrain student achievement in low-SES schools with weak academic press. In contrast, when academic press is high, increased communality should produce even stronger achievement effects.

4. Methodology

The groundwork for testing these hypotheses consisted of creating indices of academic press and communality using items from the First Follow-Up survey of the National Education Longitudinal Study of 1988 (NELS:88).

The academic press index incorporates 28 indicators representing the three component areas (academic climate, disciplinary climate, and teachers' instructional practices and emphasis). The communality index incorporates 24 items across Bryk and Driscoll's (1988) three core components (shared beliefs, common agenda of activity, and ethos of caring). With Cronbach's Alpha scores of .73 for the academic press index and .84 for the communality index, both measures have reasonably high internal consistency and reliability. Table I summarizes the indicators comprised by each index. (For complete item descriptions and technical details of index construction, see Shouse, 1994 or Coleman, Schneider, Plank, Schiller, Shouse, Wang, and Lee, forthcoming.)

Equipped with measures of academic press and communality, I tested my hypotheses in two stages:

Stage One. Using hierarchical linear modeling (HLM), I examined the main achievement effects of these two variables, while controlling for a number of other important school and student characteristics known to influence student achievement. Also at this stage, I sought to tease out in a preliminary way (through dummy coding) the "three way" interactions described earlier; that is, the achievement effects of academic press and communality across categories of school-mean socio-economic status.

Stage Two. Here, I used a more sophisticated HLM model to more reliably reveal the three-way interaction between academic press, communality, and school SES. Essentially, this technique involves using continuously coded interaction terms to predict and graphically display the average achievement scores that would appear in typical schools exhibiting different combinations of these three variables. These various Stage One and Stage Two procedures are described in greater detail in the following sections.

4.1. SOURCE OF THE DATA

The First Follow-Up survey of the National Education Longitudinal Study of 1988 (NELS:88) provides the data for this study. Conducted by the National Center for Education Statistics, NELS:88 examines students' educational experiences from eighth grade through high school, highlighting family, community, school, and classroom factors that influence educational success.

Beginning with a Base Year (eighth grade) survey, NELS:88 includes First and Second Follow-Up surveys (tenth and twelfth grade respectively). To obtain a representative sample of American public and private school students, the Base Year survey employed a two-stage, stratified random design. In the first stage, public and

Table I. Indicators of Academic Press and Sense of Community*

Academic Press

Academic Climate

Factor composite of principal reports regarding five areas of school and classroom academic climate

Principal report of degree to which school publicizes and honors student achievement

Semester requirements in math and foreign language (2)

School percent of teachers with at least a masters degree

Extent of mainstream course taking in science and humanities (2)

Student reports of overall school academic demand (2)

Disciplinary Climate

School policies on absenteeism, misbehavior, and parental notification (3)

Student reports on schools response to their last absence

Student and teacher perceptions of classroom and hallway decorum (4)

Teachers' Instructional Practices and Emphasis

Teachers emphasis absolute level of achievement in determining student grades

Teachers emphasis on higher order instructional goals (3)

Teachers homework policies; amount assigned and regularity of feedback (2)

Teacher reports of having contacted parents of poorly performing students

Teacher reports of time spent planning and preparing outside of school (2)

Student reports of classroom instructional quality and teachers academic demand (2)

Sense of Community

Shared Values

Teachers agreement concerning school and classroom goals (2)

Teacher reported faculty consensus concerning educational beliefs and values (3)

Teachers belief that students are incapable of learning the material (reversed scale)

Principal reports of conflict between teachers and administrators (reversed scale)

Principal reports of teachers having negative attitudes toward students (reversed scale)

Common Agenda of Activities

Limited use of vocational, general, or academic tracks (based on student and principal reports)

Student course taking similarity (based on student reports)

Proportion of students in sports or other extracurricular activities (based on student reports) (2)

Proportion of students in leadership roles (based on student reports)

Ethos of Caring and Collegiality

Teachers perceptions of faculty cooperation and collegiality (4)

Teacher reports of how often they seek help from colleagues in and out of their department (2)

Teacher reports of time spent on cooperative projects

Staff commitment to evaluation

Teacher reports that this school seems like one big happy family

Student reports that teachers are interested in them as people

Student reports that teachers really listen to what they have to say

* Numbers in parentheses refer to the number of representative indicators.

Table II. School and Student Samples by School Type

School Type	School n (%)	Student n (%)
Public		
Comprehensive	294 (74)	5700 (73)
Special Public (i.e., magnet, choice)	73 (18)	1441 (18)
Private		
Catholic	12 (3)	393 (3)
Other	19 (5)	333 (6)
Total	398	7867

private schools with eighth-grade students were stratified by region, urbanicity, and minority enrollment. In the second stage, an average of 26 students were sampled in each school, resulting in a total sample of approximately 24,599 students clustered across 1,035 public and private schools. In addition to a questionnaire, each student in the Base Year survey completed a cognitive test in history, mathematics, reading, and science. Questionnaires were also administered to a parent, the principal, and two teachers (one from science or math, the other from English or social studies) of each student.

Except for the omission of the parent questionnaire, the NELS:88 First Follow-Up survey (conducted in 1990) has the same basic design and student sample as that of the Base Year. As students in the Base Year sample are followed to their tenth-grade schools, however, researchers examining school effects must grapple with three methodological issues. First, the students no longer represent a random sample within each high school. Second, the schools they attend no longer constitute a probability sample of schools. Finally, within many schools, the student and teacher sample sizes no longer permit comprehensive analysis of school effects.

To address these issues, this analysis uses a sub-sample of 398 First Follow-Up schools with at least fifteen sampled students and five sampled teachers. In addition, because interest centers on "typical" high schools, this sub-sample excludes vocational and boarding schools as well as those with 30% or more of their students placed in remedial reading or "alternative" programs. Though this does not guarantee a statistically representative sample of students, teachers, or schools, it introduces no systematic bias. The final sample contains an average of 20 students and 11 teachers for each of the 398 schools. (Table II presents the school and student sample distribution by school type.)

4.2. SELECTION OF DEPENDENT VARIABLE

As shown in Table III, student's mathematics test IRT¹ scores from the NELS:88 First Follow-Up survey serve as the dependent variable in this analysis. Math scores were used for three reasons. First, they are moderately-to-highly correlated with the other scores. Second, the NELS:88 math test contains the greatest number of items and ability-level versions and is thus most immune to ceiling and floor effects. Finally, math scores are arguably more reflective of *in-school* learning than those for reading, history, or science.

4.3. SELECTION OF INDEPENDENT VARIABLES

In addition to the measures of academic press and communality described previously, Table III also lists several student and school level variables representing characteristics empirically linked to variation in student achievement. These are included primarily as controls to ensure that any effects found for academic press or communality actually result from those specific characteristics and not from other individual or school effects. At the student level, these include socio-economic status, race, placement in either the "vocational" or "academic" track, prior academic ability, and prior course taking in "mainstream" mathematics. At the school level, the controls include sector (Catholic, other private, public magnet, or public "school of choice"), average socio-economic status, and school SES category (low or high).

Finally, Table III also lists the various interaction terms used in both Stage One and Stage Two of this analysis. At Stage One, for example, to tease out the effects of academic press in low-SES schools, I created an interaction term by multiplying school academic press by one (for low-SES schools) or zero (for all other schools). The regression coefficient associated with this term thus represents the additional effect of academic press in low-SES schools. Table III also lists the continuously coded interaction terms used in Stage Two of this analysis. These will be described in more detail in the following section.

4.4. ANALYSIS OF ACHIEVEMENT EFFECTS

Equipped with these variables, I used a multiple regression technique known as hierarchical linear modeling (HLM) to evaluate the achievement effects of academic press and communality. As three decades of schools research indicates, ordinary least squares (OLS) regression analyses of "mixed-level" effects (i.e., those occurring at the student and school level) often underestimate the importance of school characteristics as predictors of student achievement. To address this problem, HLM divides the total variation in school achievement into a student and school component and uses separate equations to estimate the effects at each level. I can illustrate how this actually works by describing the steps involved in Stage One of this study. First, I specified a regression equation containing only student-level variables. The

Table III. Variable Descriptions^a

Dependent Variable

10th Grade Math Achievement Score

Student-level Effects

Student Socio-economic Status (continuous scale)

Student Minority Status (black or hispanic = 1, others = 0)

Vocational Track Placement (yes = 1, no = 0)

Academic Track Placement (yes = 1, no = 0)

8th Grade Math Achievement Score

Math Course Taking Experience (no. semesters taken, algebra and beyond)

School-level Main Effects

School Mean Socio-economic Status (MEANSES: continuous scale)

Low SES School (LSES: school-mean SES is 1 std. dev. or more below the mean; yes = 1, no = 0)

High SES School (HSES: school-mean SES is 1 std. dev. or more above the mean; yes = 1, no = 0)

Special Public School (magnet or "choice" school; yes = 1, no = 0)

Catholic School (yes = 1, no = 0)

Other Private School (yes = 1, no = 0)

Communality (COMM: continuous scale composite variable)

Academic Press (PRESS: continuous scale composite variable)

School-level Interactive Effects

Communality * Low-SES School

Academic Press * Low-SES school

Communality * High-SES School

Academic Press * High-SES School

Academic Press * Communality * Low-SES School

Academic Press * Communality * High-SES School

Academic Press * Communality

Academic Press * Communality * School Mean SES^bAcademic Press * School Mean SES^bCommunality * School Mean SES^b

^a Variables are standardized to have a mean of zero and a standard deviation of one.^b Continuous interaction term used in stage two of the analysis.

intercept of this equation is the estimated mean achievement across the sample of schools. It is based on the individual means of each school adjusted for the student-level variables contained in the equation. These individual school means now serve as the outcome variable for a school-level equation containing only school-level variables. This procedure thus produces a pair of "nested" equations containing more accurate coefficients than could be obtained using OLS regression (see Bryk & Raudenbush, 1992).

In Stage Two of the analysis (that focusing on the interactions of academic press and communality across levels of school SES), the student-level equation remained the same. At the school level, however, I replaced the dummy-coded terms with more efficient and effective continuous terms. For example, to reveal the effects of academic press across levels of school SES, instead of multiplying school academic press by zero or one, we multiply it by the continuous value of school mean SES. Interestingly, the regression coefficient associated with this new term also conveys information about the effects of school SES across levels of academic press. Though not easily interpreted as separate effects, the coefficients associated with these continuous interaction terms can be added together to predict and graphically present achievement levels for typical schools with different combinations of academic press, communality, and average SES.

5. Results

Table IV presents the findings from Stage One of this analysis. Specifically, it addresses two questions: (1) what are the effects of academic press and communality across all schools? and (2) how do these effects differ across categories of school socio-economic status? In this hierarchical presentation, the top panel of Table IV reports school-level effects; the bottom panel reports student-level effects. The coefficients are standardized and can be interpreted in much the same way as those in an ordinary multiple regression model; that is, they represent the expected number of standard deviations of change in the dependent variable (student math achievement) for each standard deviation change in a particular independent variable.

Before discussing the main school-level effects, our attention turns to the student-level equation presented in the bottom panel of Table IV. Listed here are a number of important variables related to background and school experience. These were identified and included in the equations because they represent individual characteristics widely regarded as predictive of school achievement and because they were significant predictors within this particular student sample. For three related reasons, it is crucial that these controls be included. First, their inclusion helps ensure that the student effects are not attributed to schools. For example, leaving out the variables representing track placement, math course taking experience, and prior ability would allow the argument that “academic press” was simply a function of the distribution of talented students across schools. Second, the controls help ensure that the school effects reported in the top panel reflect the experience of a typical “general track” student of average social background, with average prior ability, and who has taken an average number of mathematics courses.

Finally, and of special note, these controls help address the oft-cited problem concerning the fact that “climate” is often not homogeneous within schools. High school organizational practices such as ability grouping or curricular departmentalization may cause students and teachers within the same school to experience very

Table IV. Base and Interactive Achievement Effects of Academic Press, Communality, and School SES (Standardized Coefficients)

School-Level Effects	β
School-mean SES	.07*
Low-SES school category	.03
High-SES school category	-.04
Special public school	-.01
Catholic school	.04
Other private school	-.02
Communality	.02
Academic press	.04*
Academic press * low-SES school	.10*
Academic press * high-SES school	.00
Communality * low-SES school	-.01
Communality * high-SES school	.03
Academic press * Communality	.01
Academic press * Communality * low-SES school	.05
Academic press * Communality * high-SES school	-.03
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Student-Level Controls	
Student SES	.03*
Student minority status	-.03*
Vocational track placement	-.03*
Academic track placement	.05*
Math course taking experience	.18*
Prior ability	.69*

* Coefficient twice or more its standard error, which means it is statistically significant at $p < .05$.

different types of climate and culture. The student-level controls allow greater confidence that the effects reported for academic press and communality are reasonably pervasive within each school.

Turning now to the school-level effects shown in the top panel of Table IV, the first three variables relate to school socio-economic status. The significance of the continuous measure of school SES coupled with the non-significance of the two categorical variables suggests that the achievement effect of community affluence is quite consistent at all socio-economic levels. The next three variables relate to school sector, and their lack of statistical significance is somewhat surprising in light of prior research (Bryk et al., 1993; Coleman & Hoffer, 1988). It should be noted, however, that each sector variable represents relatively few schools, and their inclusion serves mainly to ensure that any effects found for communality or academic press do not actually result from differences between public and private

or public and “special public” schools. It is also worth remembering that research attributes much of the private school advantage to strong academic press and sense of community, the next two variables presented in Table IV.

With respect to these two characteristics, only academic press stands as a statistically significant predictor of school achievement. Each unit increase in academic press is associated with a 4% of a standard deviation increase in achievement. This effect seems small until one recalls that a fraction of a standard deviation of achievement may equal several percentile ranks, especially near the center of a normal distribution. For example, a difference of one fourth of a standard deviation between two achievement scores can translate into as many as 10 percentile ranks.

The remainder of Table IV suggests how the effects of academic press and communality vary with respect to school SES. Representing the average social and economic background of each school’s student population, school mean SES is actually a proxy for the fiscal, human, and social resources available in a school’s surrounding community. Earlier, I argued that academic press would have its strongest effects wherever such resources were scarce or unavailable, that is, among low-SES schools. The coefficients associated with the first two interaction terms presented in Table IV (“academic press * low-SES” and “academic press * high-SES”) support this position. To illustrate, the main effect of academic press across all schools was estimated at 0.04. Its additional effect among low-SES schools is estimated at 0.10. (Note the absence of any additional effect among high-SES schools.) The total effect of academic press in low-SES schools is thus 0.14, three-and-a-half times its effect among all other schools. It is also twice the effect of school mean SES (0.07), making it reasonable to suspect that academic press offers an avenue for narrowing the achievement gap between schools and students at different socio-economic levels.

The last five variables presented in the top panel of Table IV examine two other important interactions, the effect of communality and the combined effect of communality and academic press, across school SES categories. Though these effects are not statistically significant, their pattern is consistent with prior arguments. Specifically, for low-SES schools, a slight negative effect is suggested for sense of community; a slight positive effect is suggested for the combination of community and academic press. Interestingly, the pattern of effect runs in nearly the opposite direction for high-SES schools where a slight positive effect is suggested for sense of community, and a slight negative effect is suggested for the combination of community and academic press.

Except for the effect of academic press in low-SES schools, the weak pattern of interaction just described would seem to merit little discussion. Much of the weakness stems, however, from the fact that dummy coding becomes a less effective and efficient tool for revealing interactions as their number and complexity increase. For example, Table IV tells us nothing about how the effects of academic press vary across levels of communality. Earlier arguments about how high communality may constrain achievement in weakly academic low-SES schools make it important to

examine such covariance. To do so through dummy coding, however, would require us to create additional interaction terms, essentially “carving up” the data into a larger number of smaller cells and thereby disintegrating much of its predictive power.

As described earlier, Stage Two of this analysis solves this problem by introducing continuously coded interaction terms (for example, school mean SES * academic press * communality; see Table II) into a new HLM equation. Based on the coefficients of this newly specified equation, we can predict and graphically display the average achievement for typical schools exhibiting different combinations of academic press, communality, and school SES. This process offers a clearer and more complete illustration of how SES, academic press, and communality jointly and separately shape student achievement and involves the following specific steps:

1. Create low, medium, and high categories of school SES, academic press, and sense of community based on cut-points of one standard deviation above and below the mean. (This was already done for school SES.)
2. Using the median within each category as a representative value, create 27 hypothetical school types (for example, “low SES, high academic press, high communality,” “high SES, high academic press, moderate communality,” etc.).
3. Substitute the median values representing each school type into the newly specified HLM equation described above. The resulting values represent the expected average achievement for each school type.

It is important to understand that the estimated effects obtained through this procedure are independent of categorical cell sizes (in fact, some of the 27 school types are represented by few or no schools in the sample). Instead, these estimates relate to *continuous* differences in levels of academic press, communality, and school-mean SES within and among schools contained in the sample. (For further technical details and precise estimates of these effects, see Shouse, 1994 or Coleman et al., forthcoming.)

The interactive effects of these three variables can now be illustrated graphically. Figure 1 displays the expected increment or decrement to a student’s achievement associated with each of the 27 hypothetical school types. Each panel of Figure 1 represents a school SES category. In each SES category, the expected achievement effect is measured on the vertical or “y” axis, levels of academic press along the horizontal or “x” axis, with each line style representing a different level of communality. For each category of school SES, this configuration reveals the predicted effects of academic press at a given level of communality and those of communality at a given level of academic press.

To understand how Figure 1 supports the main arguments of this study, attention turns first to the panel representing low-SES schools. Here, the rising slopes suggest the positive impact of academic press at all levels of communality. For example, among highly communal schools, those with high academic press are expected to attain levels of achievement about three eighths of a standard deviation higher than

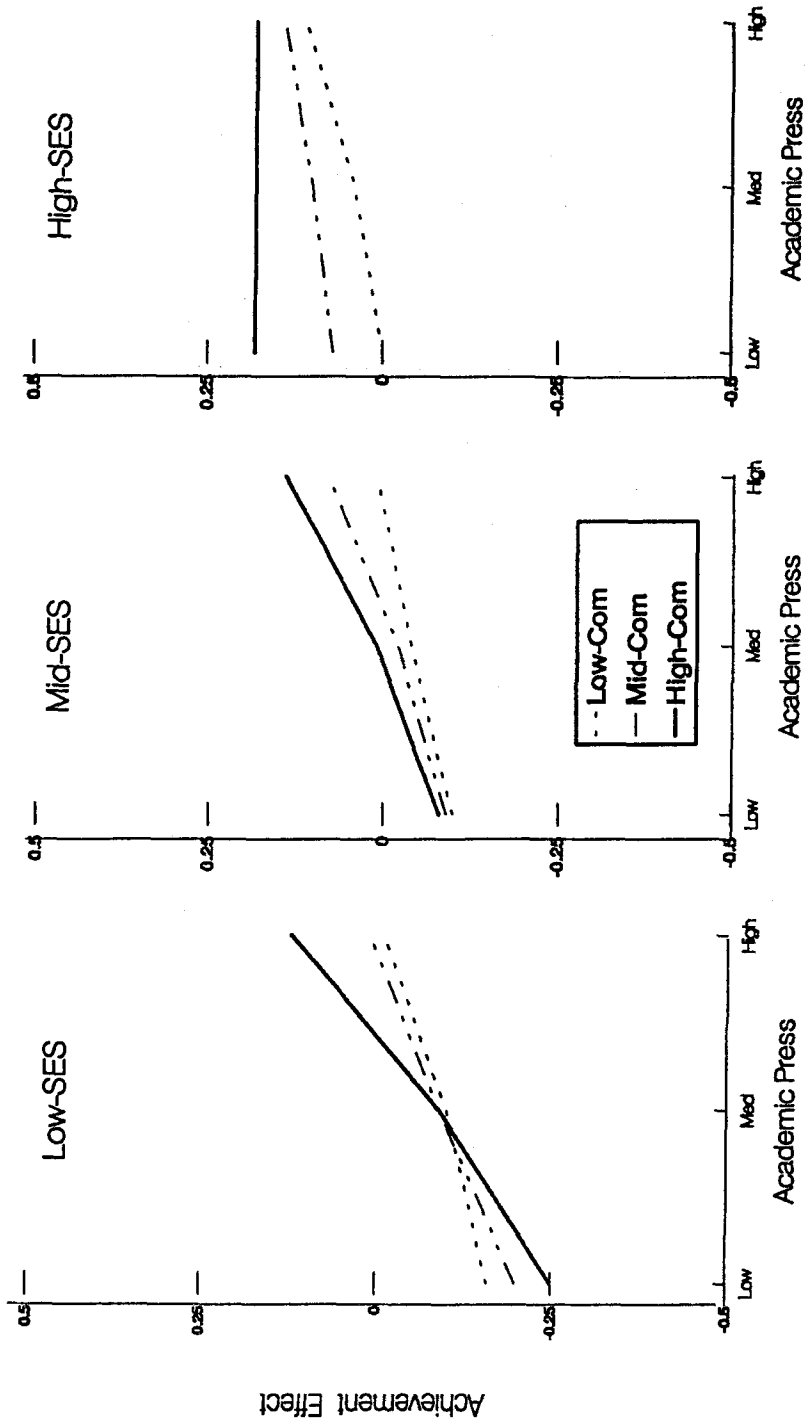


Figure 1. Predicted Interactive Achievement Effects of Academic Press, Community, and School SES

those with low academic press. A similar, somewhat lesser advantage is apparent among low and moderately communal schools. In contrast, scanning the vertical distance between the lines at each level of academic press reveals how the direction of the communality effect depends on the level of school academic press. Among low-academic press schools, for example, those with high communality attain achievement levels roughly one fifth of a standard deviation lower than those with low communality. The impact of communality among low-SES schools becomes positive, however, across increasing levels of academic press. In fact, the strongest achievement effects are predicted for schools with high levels of both communality and academic press.

Thus, for low-SES schools, sense of community produces positive achievement effects only when working in tandem with high academic press. A similar pattern is revealed in the center panel of Figure 1 for medium-SES schools. Again, academic press is positively associated with achievement at all levels of communality. In contrast to low-SES schools, however, the effects of communality “kick in” at lower levels of academic press. Like low-SES schools, however, the strongest achievement effect is predicted for schools with high levels of both academic press and communality.

Shifting attention to the final panel, the pattern of effect reverses for high-SES schools. The impact of academic press begins to wane among highly communal schools. Among high-SES schools, in fact, achievement appears to be more a function of communality than of academic press.

6. Discussion

This study highlights and distinguishes the social and academic dimensions of schooling. The analyses presented here reveal their points of friction and lines of harmony in rather striking fashion, particularly as they relate to economically disadvantaged students and schools. Specifically, low-SES schools benefit greatly from strong academic press and even more so from high combined levels of academic press and communality. At the same time, the lowest levels of achievement are found in low-SES schools with strong communality and weak academic press. Cutting against much current thinking, this latter finding indicates that the effects of school sense of community hinge on the extent to which it is rooted in an academically oriented social context.

This argument gains further support from observing the effects of academic press and communality in middle- and high-SES schools, as shown across the last two panels of Figure 1. While academic press remains important, the relative influence of communality increases to the point where, for high-SES schools, its effects outweigh those of academic press. Apparently, because higher-SES schools can avail themselves of the academic values of the families they serve, they are in a real sense “pre-fit” with the social foundation necessary for triggering the positive achievement effects of communality. This would also help explain why

the negative effects of the “weak academic press/high communality” combination are confined to low-SES schools. The level of academic expectation placed on more affluent students by parents and other significant adults is high enough to counter balance any deficit of academic press within the school.

This pattern of findings clearly shows how academic press functions as a form of social capital. Its value depends upon its own scarcity and that of other resources that might serve as substitutes. Because they have fewer substitutes on which to depend, the most promising path to higher performance in schools of low to moderate SES is one that focuses on generating academic press while remaining mindful of the amplifying influences of communal organization. In contrast, high-SES schools may benefit more by using local academic demands as a basis for establishing more supportive and cohesive organizational characteristics.

Beyond these broad conclusions, several more specific policy implications are apparent. First, the findings suggest that schools do their students no service by diluting their academic mission. To the contrary, schools can apparently make marked improvement in achievement levels by increasing student opportunities for intellectual engagement. All in all, the evidence indicates that most schools – particularly low-SES schools – can increase student achievement by placing their academic mission at center stage and allowing their social mission to play a supporting role. Effective low-SES schools thus appear to be those which find ways to translate the standard script about the importance of high expectations into a meaningful academic drama.

Second, schools can perform such translation by channeling their students into mainstream academic subjects. This emerges from the data in two ways. The community index contains a measure of program homogeneity – the extent to which students experience the same *type* of academic program. The academic press index contains measures of program *level* – the extent to which students take standard- or higher-level courses in social studies, science, and humanities. Correlation and regression analyses (not tabulated here) reveal the significant achievement effects of both items. Though not necessarily offering support for the abolition of ability grouping, these findings do highlight the importance of increasing congruence across ability groups. For example, schools could limit the number of groups and the content differentiation across them. They could also refrain from shuttling students into “sidetrack” courses (e.g., Consumer Math or Business English) and away from more promising avenues to higher status knowledge (i.e., Algebra or Classic Literature).

Third, in the debate over equality of educational opportunity, some have argued that it would be unfair to hold all schools to the same achievement goals until all schools receive equal fiscal resources. In focusing on fiscal inequality, however, they risk overlooking a more serious deficit related to the unequal distribution of academic press. As Figure 1 illustrates, lower-SES schools may attain levels of achievement approaching that of their higher-SES counterparts by forging an organizational amalgam of high academic demand and strong individual support.

Overall, the evidence presented here suggests that educational equity is advanced as low-SES schools marshal their human and social capital in more academically focused ways.

Finally, the findings offered here are relevant to the ongoing discussion of school choice, vouchers, and the putative advantages of private schools. While not intended to draw comparisons between school sectors, the analysis does indicate that academic press, sense of community, and their meaningful combination are not the sole property of private schools. Many public schools—including those serving our poorest communities—find ways to overcome the barriers to quality schooling often alleged to accompany democratic governance (Chubb & Moe, 1990, for example). In a way, this finding cuts both ways in the debate over school choice. On one hand, this variation in effectiveness occurs with little or no market incentive. On the other hand, the variation in itself suggests that choice plans may offer significant options to our least affluent citizens, even if implemented in limited or incremental fashion, say, within a single urban school district.

7. Conclusion

In both local and national arenas, the underpinnings of “community” often consist of rough-edged social norms and realities. From such basic elements communities fashion the “gentler rewards and penalties of social life” (Murray, 1992). As Durkheim might have suggested, the gentler aspects of school society are rooted in the student’s gradually evolving perception of demand, structure, and discipline, each of which provide crucial ballast in the process of formal learning. Seasoned learners themselves, educators, and policy makers may take this process for granted, believing that students could develop a sense of school attachment and commitment without also experiencing and appreciating the rugged demands of learning. In contrast, this study suggests that the most effective schools are those where a sense of community emerges as a positive result of a strong sense of academic purpose and where the message is conveyed that, although what students accomplish here may sometimes be difficult, it will always be important.

Notes

¹The Item Response Theory (IRT) scores included in the NELS:88 data set (a) allow analysts to make meaningful comparisons between students taking different ability-level versions of the math test and (b) reduce the influence of “ceiling” and “floor” effects often associated with the use of “raw” test scores. See National Center for Educational Statistics (1992, Appendix I, p. 19) for further information.

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