

Democratic School Climate and Sense of Community in School: A Multilevel Analysis

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This study examines individual- and school-level predictors of sense of community in school among adolescents. Hierarchical linear modeling was used to examine the relationships between individual (demographics, control and monitoring by parents, and perception of democratic school climate), class, and school characteristics (mean democratic school climate, demographics, activities, school size, public/private governance of the school, and facilities) and students' sense of community in the school. Data were analyzed using a three-level model based on 4,092 10- to 18-year-old students nested within 248 classes (across three grade levels: 6th, 8th, and 10th grade level, where the median age was 11, 13, and 15, respectively) in 134 schools in the Veneto region of northeast Italy. Individual and contextual measures of the perception of a democratic school climate, modeled at the individual, class, and school levels simultaneously, were each significant predictor of school sense of community. More parental monitoring and less parental control were also predictive at the individual level. School-level SES predicted between school variation in sense of community, controlling for individual student SES and other student and school-level predictors. School size, facilities (physical spaces resources), level of interaction of the school with the community, public, or private governance, and number of extracurricular activities offered were all nonsignificant. The study demonstrates significant variation in school sense of community at the student, class, and school levels and the important role played by democratic school practices, such as student participation in making rules and organizing events, freedom of expression, and the perceived fairness of rules and teachers, in determining this variable.

KEY WORDS: school sense of community; democratic climate; HLM; adolescence; parenting style.

The need to belong is considered a fundamental motivational need with critical implications for human growth and development (Baumeister & Leary, 1995). The concept of *sense of community* has been used by many researchers to describe the psychological aspects of social settings and groups that satisfy this need (see Fisher, Sonn, & Bishop, 2002). This motivation applies to all people, operates in a wide variety of settings, and affects our

emotions, cognitions, and behaviors (Baumeister & Leary, 1995; Sarason, 1974). Baumeister and Leary (1995) and Pretty, Andrewes, and Collett (1994) suggest that sense of community may have at least as much relevance for adolescents' well-being as for adults. Furthermore, studying different contexts of what adolescents consider their "community," such as neighborhood or town, school, and peer group, may help us better understand the different roles and impacts each social network has in adolescents' well-being (Pretty, Conroy, Dugay, Fowler, & Williams, 1996).

During adolescence the school plays a central role in the life of youths. The social climate of this setting (e.g., in terms of inclusiveness and support) is an important condition influencing both the

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extent of “social capital”—the number and quality of informal social resources to which the individual can turn when problems arise—and the likelihood that a student will make use of those network ties (Cartland, Ruch-Ross, & Henry, 2003). In fact, students’ sense of community or belongingness in the school setting is linked to important motivational, attitudinal, and behavioral factors that are associated with school success (e.g., Bryk, Lee, & Holland, 1993; Croninger & Lee, 2001; Lee & Burkam, 2003) and psychosocial well-being and adjustment (Bateman, 1998; Osterman, 2002; Pretty et al., 1994). Hargreaves, Ear, and Ryan (1996) maintain that “one of the most fundamental reforms needed in secondary school or high school education is to make schools into better communities of caring and support for young people” (p. 77).

Sense of community has been studied more in the residential, and to a lesser extent, workplace contexts than in schools and more among adults than young people (Fisher et al., 2002). Within the literature on adolescents, we know more about the effects of having more or less sense of community, but less about the determinants of this important construct (Bateman, 2002). For these reasons, the first objective of this study is to identify both individual and context characteristics that may predispose adolescents to developing a psychological sense of community.

Many authors have investigated the social psychological aspects of learning environments in various educational systems (Bateman, 2002; Battistich, Solomon, Kim, Watson, & Schaps, 1995; Bransford, Brown, & Cocking, 1999; Lave & Wenger, 1991). Although there is a general consensus that school is a primary social context for adolescence, there has been relatively little research on the role of school organization, practices, and climate in the etiology of sense of community. The second objective of this study, then, is to identify some characteristics of school settings that predict sense of community.

Sense of Community in the School

The need for belonging, social support, and acceptance takes on special prominence during adolescence, particularly during early adolescence, when young people begin to consider seriously who they are and wish to be, with whom they belong, and where they intend to invest their energies and stake their future (Goodenow, 1993a). Because this period

involves exploring aspects of personal identity separate from parents and family, adolescents come to spend more time, physically and mentally, and more emotional energy in contexts involving nonfamilial peers (e.g., friends) and other significant adult figures (e.g., teachers; Pretty, 2002). During early adolescent development, the sense of personal acceptance and having a valued place in different social contexts makes students’ sense of community in their schools and classes an especially important concern for educators, school counselors, and psychologists, and for the development of prevention programs.

Sense of community is a construct relevant to young people’s sense of both residential and relational communities. Sense of community is negatively correlated with loneliness, worry, social isolation, antisocial behavior, and positively related to happiness, coping efficacy, social skills, social support, conflict resolution skills, academic self-efficacy, academic achievement, and safety in the classroom (Pretty et al., 1994, 1996). Several studies have also demonstrated students’ sense of community in school (and/or in classrooms) as being associated with greater happiness, coping efficacy, social skills, social supports, tangible assistance, intrinsic motivation, self-esteem, academic self-efficacy, interest in academic activities, and adherence to democratic norms and values (Bateman, 1998, 2002; Battistich, Solomon, Watson, & Schaps, 1997; Pretty et al., 1994; Royal & Rossi, 1996; Solomon, Watson, Battistich, Schaps, & Delucci, 1996) and less loneliness, distress, truancy, violence, substance abuse, and other problem behaviors (Battistich & Hom, 1997; Chipuer, 2001; Pretty et al., 1994, 1996; Resnick et al., 1997; Royal & Rossi, 1996; Wentzel, 1998). Moreover, the experience of belongingness is associated with more concern and respect for peers and teachers, more acceptance of those outside of their immediate friendship group, and more altruistic or prosocial behavior (Battistich et al., 1995; Watson, Battistich, & Solomon, 1998).

Despite evidence that neighborhood and school sense of community may be related (Pretty et al., 1994), there is also the possibility for sense of community within schools or other institutions to compensate for a lack of support, cohesion, and attachment in the home and community (Redman & Fisher, 2002). This important body of research offers strong support to the hypothesis that adolescents’ sense of community in the school is a central factor in both their emotional and academic development and has impacts beyond the academic setting. It is thus

important to identify characteristics of the individual and of the environment that can help us understand how sense of community in the school develops. The central question of this study is therefore, "What individual student factors and which characteristics of the social organization of schools are associated with greater sense of community?"

Several definitions and models of sense of community have been developed (for a review, see Fisher et al., 2002). Many researchers have borrowed, in part or in full, from McMillan and Chavis (1986) definition of a psychological sense of community, which includes four dimensions. Three of those dimensions (feelings of membership and identification, shared emotional connection, and needs fulfillment) have been recognized as integral in developmental theories of sense of community (Cartland et al., 2003; Chipuer & Pretty, 1999).

The fourth dimension (mutual influence), although clearly important to people's sense of well-being and related to some degree to the other dimensions, has generated both methodological and theoretical concerns. Chipuer and Pretty (1999) take issue with the content of some of the items included in the Sense of Community Index (SCI), especially for use with young people. The SCI was the original instrument created to briefly capture McMillan and Chavis' four dimensions among adult residents in street block communities and is still probably the most widely used measure of the construct. Even among adults, however, different studies have concluded that the definition proposed by McMillan and Chavis is overly broad (Fisher & Sonn, 2002; Perkins & Long, 2002). In particular, we share concerns about the content validity of including the influence dimension, which overlaps with other important constructs, such as self-efficacy/locus of control, collective efficacy, and empowerment. We prefer McMillan and Chavis (1986) simpler and more coherent statement that sense of community is "a feeling that members have of belonging and being important to each other, and a shared faith that members' needs will be met by the commitment to be together" (p. 9).

Individual and Family Predictors

Much of the literature suggests that demography influences adolescent sense of community. Boys are less likely than girls to experience a sense of belongingness (Goodenow & Grady, 1993; Wentzel & Caldwell, 1997) and sense of community tends to

decrease with age in adolescence (Battistich et al., 1995). There is also evidence that sense of community is related to socioeconomic status (Battistich et al., 1995; Goodenow, 1993a).

In general, research shows that teacher and peer support have a stronger and more direct influence on school experiences and engagement than does parental support (Osterman, 2002; Ryan, Stiller, & Lynch, 1994; Wentzel, 1994). But it is still important to consider the influence parents and family may have on sense of community in the school. Past research (Wentzel, 1998) shows how social support and sense of security with parents contribute to school engagement primarily through their effect on students' relationships with teachers and peers. Moreover, adolescents who experience greater autonomy from parental control may make stronger connections between their actions and personal goal attainment in school. Parents' expressions of value for autonomy and such parenting techniques as reasoning, encouragement, empathic limit setting, and including children in decisions and problem-solving are significantly related to students' perceptions of autonomy and competence (Grolnick, Ryan, & Deci, 1991). In contrast, parents' emphasis on obedience and conformity, punishment, the controlling use of rewards, and the unilateral imposition of parents' own agenda are associated with a reduced sense of autonomy and competence. Autonomy and competence may be thought of as developmental milestones toward psychological empowerment. Sense of community is strongly related to participation and empowerment among adults (Perkins & Long, 2002; Peterson & Reid, 2003). Thus, we expect an association between parenting style and adolescents' sense of community in school.

School-Class Democratic Climate

Recent research has advanced our understanding of children's and adolescents' conception of their own autonomy and their judgment about the fairness of social organization in various social contexts (Helwig, Arnold, Tan, & Boyd, 2003; Turiel, 1998). Conceptions of personal choice and autonomy are often seen as forming the foundation for democratic social organization, that is, group decision making in which individuals are given the voice in decisions that affect them (Kurtines, Berman, Ittel, & Williamson, 1995). Although classroom practices are extremely important, the culture of the school as a whole also plays a role in shaping students'

experience. If supportive interaction is key to the development of sense of community among students, schools may influence such development through the policies and practices they adopt, the values they express, and the possibilities they offer to students in terms of spaces and events (Furman, 2002; Pretty, 1990).

Vygotsky (1981) emphasized the importance of social interaction as a basis for learning. Teachers' behavior probably has the greatest impact in this process because it becomes a model for the relationship in the group (Westling-Allodi, 2002). A democratic climate in the school contributes to the development of responsibility and participation in school activities (Chiari, 1997; Torney-Purta, 2002). Opportunities to express points of view can help students develop a better appreciation of others and view their school as supportive. Battistich, Watson, Solomon, Schaps, and Solomon (1991) maintain that expressing personal opinions in a supportive school can help children to develop feelings of trust, mutual respect, and solidarity, all central components of sense of community. On the other hand, favoritism on the part of teachers, or the perception that the rules are not fair or not the same for all students, can negatively affect students' sense of community. For example, students who receive differential treatment from teachers on the basis of race, gender, class, ability, and appearance tend to be less engaged in class and have less sense of community (Altenbaugh, Engel, & Martin, 1995; Nichols & Good, 1998).

If schools and teachers can undermine students' sense of community in the school, presumably the reverse could also be true. The Child Development Project (Battistich, Schaps, Watson, Solomon, & Lewis, 2000; Solomon et al., 1996) has demonstrated that pro-social behavior is best learned in an environment that encourages, explains, and models caring. We must consider, however, the degree to which students' backgrounds and the organizational climate of classrooms and schools mediate the relationships between perceptions of school-level democracy and sense of community in school. This problem will be addressed by examining school democratic climate both at the individual and aggregate (class and school) levels.

Summary

To recap, the first objective of the study is to examine the development of sense of community in school in a representative sample of adolescents in

a region of Italy. In particular, we will examine the extent to which individual characteristics (such as perceived school climate; age; gender; and socioeconomic status, SES) and parental styles (parental monitoring and control) are associated with students' sense of community.

Few studies of sense of community have examined individual background and school-level organizational variables (e.g., climate and resources) simultaneously as predictors. Thus, the second goal of this study is to analyze the impact of social and physical characteristics of schools (social climate of fairness, participation, and expression, hereafter, "democratic school climate"), sex, and SES composition of the student body, school size, degree of access to school extracurricular activities, the schools' ties to the community, availability of resources and spaces, and whether the school is public or private on the development of students' sense of community—holding constant student background and family characteristics that might vary across schools.

METHODS

Research Design

The primary focus of this study is to examine student and school-level factors associated with students' sense of community in their schools. Because the data are clustered, with students having been sampled within classes within schools, we use the multilevel regression technique of hierarchical linear modeling (HLM; Raudenbush & Bryk, 2002). A brief description of the statistical models used is provided in the analysis' section.

Setting and Sampling

The data used are from a research project in the Veneto region of northeast Italy, which is part of the "Health Behavior in School-aged Children" (HBSC) project, a trans-national study carried out in collaboration with the European office of the World Health Organization (Aarø, Wold, Kannas, & Rimpelä, 1986). The national and international samples include no data on school characteristics. Therefore, only the Veneto regional data have been used for this study.

It is important to understand the particular characteristics of the Italian school system and how they may relate to adolescent sense of community at

various levels. Students in Italian schools stay in the same class setting, and with the same class peer group and teacher, throughout the elementary school grades, changing only with changes of school (from elementary to middle school, which typically occurs at age 11). Students and teacher also stay together for all the middle school years, and at least, the first 2 years of secondary school. Thus the teacher/student and student/student interactions that influence the organizational context of the class are likely to be more important and influential than in other countries where classes are reconstituted with different teachers and students each year.

The particular structure of Italian schools (above) is the main reason we decided to include an analysis of the relationship between individual sense of community and democratic school climate (as well as grade level) at the class/group level of analysis, separate from the individual and school levels. In fact, in contrast to other contexts (such as the neighborhood), school sense of community likely depends to some extent on classroom-level variables, such as interaction with teachers and classmates. We are thus interested in whether and how perceptions of school climate and sense of community may vary by class, or teacher, as well as by school. This focus on the relational dimension of belongingness in the school at the level of classmates and teachers is not a new approach (see Battistich et al., 1995; Goodenow, 1993b; Royal & Rossi, 1996) and provides an excellent opportunity to clearly separate the two levels of influence using multilevel analysis.

The study includes the three grade levels in which 11-, 13-, and 15-year olds are concentrated (corresponding to the 6th, 8th, and 10th grade or 1st and 3rd grade of Italian middle school, and 2nd grade of Italian secondary school). Participants were chosen in a three-stage procedure that maximized the likelihood of drawing a representative sample of children. First, the schools were randomly selected from the Regional School Office's database (96 out of 351 middle schools, and 109 out of 231 high schools). Then, in each of the sampled schools one class for each age group was selected randomly. Only 9% of schools sampled declined to participate. Finally, all students in the sampled classes were included in the study.

Parental consent for participation in the research was obtained for all students who completed the questionnaire (consent rate = 98.7%; not in school = 6.2%). The participants responded to the questionnaires during the regular school day, and

were assured of the confidentiality of their answers. Classroom teachers administered the questionnaires, after completing 2 hr of training.

Teachers in each school also were given a questionnaire that measured school characteristics, such as the size of the school, the composition (% of males), the availability of resources (e.g., a library and playground), degree to which extracurricular activities are offered at the school, and the external link of the school with the community.

Participants

The questionnaire was completed by a total of 7,097 students, although school-level information was not submitted for students in 69 out of 203 schools. After deleting missing data at the student and school levels, our analysis sample included 4,793 students in 248 classrooms in 134 schools. Means comparisons (ANOVAs) between included and excluded students on all variables at the different levels confirmed that excluded schools and students were similar to those included in the analyses (see Preliminary Analyses section). The average age within each of the three grade levels was 11.70 years ($N = 1,520$), 13.73 years ($N = 1,520$), and 15.85 years ($N = 1,693$). The analysis sample is made up of 2,401 boys (50.7%) and 2,332 girls (49.3%).

Measures

Data at the individual level were collected through a self-report questionnaire, devised in 2001–2002 by the HBSC international group, in which early adolescents' and adolescents' health behaviors are investigated. Only data related to sense of community, parental monitoring and control, democratic climate of the school, and demographic characteristics were analyzed for the present study.

Sense of Community in the School

Students' sense of community in the school was assessed by a six-item scale (Samdal, Wold, & Torsheim, 1998): (1) "I feel I belong at this school"; (2) "Other students accept me as I am"; (3) "Our school is a nice place to be"; (4) "The students in my class enjoy being together"; (5) "Most of the students in my class are kind and helpful"; (6) "When I need

extra help, I can get it from my teacher.” These items generally reflect three of the four dimensions in the McMillan and Chavis (1986) framework: membership, shared emotional connection, and fulfillment of needs. (We prefer to view the fourth dimension, group influence, as a separate, but related construct,⁴ which is closer to concepts of self-efficacy, collective efficacy, empowerment, and in the present study, Democratic School Climate section; this is further explained in the literature review and in the Discussion section). Responses were rated on a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree*). Alpha reliability for the six-item overall scale was .71, and all the items loaded on one factor in a principal components analysis. Responses were averaged for the measure of individual students’ sense of community.

A potential concern with this measure is that three items use the school as the referent and the other three use the class or teacher as the referent.⁵ Our main reason for using the 6-item scale is that it provides better variance and acceptable internal consistency (alpha = .71 vs. alphas for the three-item scales = .53 and .59). Furthermore, two separate three-item scales using the available items would not cover the three most common and agreed upon dimensions of the McMillan and Chavis framework in each scale. Thus, they would not be comparable to each other nor to other studies. The separation of school and classroom-level sense of community will instead be handled statistically using HLM (see Analytic Approach section).

Parental Monitoring

Five items (asked separately for each parent) assessed parental monitoring of adolescent leisure time after school (Rispen, Hermanns, & Meeus, 1997). The scale items included “How much does your mother/father really know about”: (1) “Who your friends are”; (2) “How you spend your money”; (3) “Where you are after school”; (4) “Where you go at night”; (5) “What you do with your free time.” Responses were rated on a 3-point scale (1 = *she/he knows a lot*; 2 = *she/he knows a little*; 3 =

she/he doesn't know anything). All items were reverse coded. Alpha reliability for the 10-item scale was .86. Responses were averaged for the measure of parental monitoring.

Parental Control

Four items (asked separately for each parent) assessed the level of parental control over the adolescent (part of the bonding scale proposed by Parker, Tupling, & Brown, 1979). The scale items included “My mother/father” (1) “Lets me do the things I like doing”; (2) “Likes me to make my own decisions”; (3) “Tries to control everything I do”; (4) “Treats me like a baby.” Responses were rated on a 3-point scale (1 = *almost always*; 2 = *sometimes*; 3 = *never*). The last three items were reverse coded. Alpha reliability for the eight-item scale was .60. Responses were averaged for the measure of parental control.

Democratic School Climate

Five items assessed individual perception of democratic school climate (Samdal et al., 1998). The scale items include (1) “In our school students take part in making rules”; (2) “The students get involved in organizing school events”; (3) “The rules in this school are fair”; (4) “I am encouraged to express my own views in my classes by my teachers”; (5) “Our teachers treat us fairly.” Responses were rated on a 5-point scale and reverse-scored such that 1 = *strongly disagree* and 5 = *strongly agree*. Alpha reliability for the five-item scale was .68 and all the items loaded on one factor in a principal components analysis. Items were averaged for the measure of individual perception of democratic school climate.

Control Variables

Analyses included three students level control variables: female (0 = male and 1 = female), age (as a continuous variable), and SES. SES is a composite measure obtained by combining two items. The first item was used to assess the education level of the father. According to the Italian education system, the responses were rated on a 5-point scale (1 = *elementary*; 2 = *middle school*; 3 = *technical school*; 4 = *high school*; 5 = *university*). The second item was used to assess the occupational status of the father. Occupations provided by the participants were coded according to an international protocol

⁴Chipuer and Pretty (1999), Long and Perkins (2003), and others have failed to empirically confirm the McMillan and Chavis (1986) factor structure. Chipuer and Pretty found that, across samples of both adolescents and adults, the Influence items of the Sense of Community Index load on multiple factors and those factors accounted for the lowest portion of common variance in the total SCI scale.

⁵We thank an anonymous reviewer for highlighting this concern.

(Mullan, Currie, Boyce, Morgan, Kalnins, & Holstein, 2001), with the professional categories being divided into five groups, according to occupational prestige: the first applying to unskilled occupations and the last to professional occupations.

Data at the class level included grade (corresponding to the following age groups: 1 = 11-year olds, 2 = 13-year olds, and 3 = 15-year olds) and aggregated student perceptions of Democratic School Climate. Data at the school level were obtained by aggregating Democratic School Climate and SES, as reported by student respondents, from the class to the school level and through a questionnaire administered to one teacher for each school measuring the following variables.

Extracurricular Activities

The six scale items included “Does the school organize . . .” (1) “sports events”; (2) “student newspaper”; (3) “theater events”; (4) “computer club”; (5) “foreign language clubs”; (6) “other school clubs.” Responses categories were *no* (0) and *yes* (1). A scale was created by summing the six items (range from 0 to 6).

School External Links

Three items assessed schools’ links to the community. The scale items included “Does the school organize . . .” (1) “activities with others schools”; (2) “activities with the entire community”; (3) “use of the school for community education activity.” Responses categories were *no* (0) and *yes* (1). A numeric scale was created by summing the three items.

Facilities

Two items assessed the schools’ physical space resources that might facilitate school-wide interaction and thus development of community: “Does the school have” (1) “a library”; (2) “a playground.” Responses categories were *no* (0) and *yes* (1) resulting in a 0–2 scale.

Control Variables

Analyses included three school-level control variables: percentage of females in the school, the size of the student body, and sector (0 = Public and 1 = Private).

Analytic Approach

The analysis involves simultaneously fitting three regression models for the dependent variable: a *within-class model*, a *between-class model*, and a *between-school model*. The within-class (Level 1) model estimates the influence of parental monitoring (MONITORING), parental control (CONTROL), and democratic school climate (DSC) on school sense of community (SSOC) for student i in class j in school k , controlling for student demographic characteristics (FEMALE, AGE, and SES). The variables parental monitoring and control are grand mean centered, implying that estimated classroom (Level 2) SSOC (π_{0jk}) is adjusted for between-classroom variation in parenting style. Perceived school climate (DSC), age, and SES were centered around the class mean, implying that the estimate of classroom-mean SSOC (π_{0jk}) is unadjusted for between-classroom variation in these variables (so that we may examine the between-classroom and between-school influence of the aggregates of these variables at Levels 2 and 3; see Raudenbush & Bryk, 2002). Thus, the individual-level model includes three predictors and three demographic control variables:

$$\begin{aligned} \text{SSOC}_{ijk} = & \pi_{0jk} + \pi_{1jk}(\text{MONITORING}_{ijk}) \\ & + \pi_{2jk}(\text{CONTROL}_{ijk}) \\ & + \pi_{3jk}(\text{DSC}_{ijk}) \\ & + \pi_{4jk}(\text{FEMALE}_{ijk}) \\ & + \pi_{5jk}(\text{AGE}_{ijk}) \\ & + \pi_{6jk}(\text{SES}_{ijk}) + e_{ijk} \end{aligned}$$

Preliminary analyses explored whether there were any interaction effects between the independent variables and age: results were not statistically significant.

The between-class, within-school (Level 2) model estimates the influence of class average perceptions of democratic school climate (MEANDSC2) on class-level adjusted sense of community, controlling for grade level (GRADE). MEANDSC2 was school mean centered (i.e., class deviation from the school average), and β_{01k} and β_{02} are estimated as fixed effects (i.e., that are constrained to have the same influence on sense of community within each school).

$$\begin{aligned} \pi_{0jk} = & \beta_{00k} + \beta_{01k}(\text{MEANDSC2}_{jk}) \\ & + \beta_{02}(\text{GRADE}_{jk}) + r_{0jk} \end{aligned}$$

In the between-school (Level 3) model, school-mean sense of community, adjusted for student and class characteristics (other than SES and sex), are modeled as a function of school-level variables. The variables included in the third level are democratic school climate aggregated from the class to the school level (MEANDSC3), mean school SES (aggregated from the class level), school EXTRACURRICULAR ACTIVITIES, school external links (EXLINKS), school FACILITIES, percent of females in the student body (FEMALES), school size, and PRIVATE (vs. public school):

$$\begin{aligned} \beta_{00k} = & \gamma_{000} \\ & + \gamma_{001}(\text{MEANDSC3}_k) \\ & + \gamma_{002}(\text{MEANSES}_k) \\ & + \gamma_{003}(\text{EXTRACURRICULAR} \\ & \quad \text{ACTIVITIES}_k) + \gamma_{004}(\text{EXLINKS}_k) \\ & + \gamma_{005}(\text{FACILITIES}_k) \\ & + \gamma_{006}(\text{FEMALES}_k) + \gamma_{007}(\text{SCHOOL SIZE}_k) \\ & + \gamma_{008}(\text{PRIVATE}_k) + u_{00k} \end{aligned}$$

This model will be used to identify which school-level characteristics influence students' sense of community in the school. Each of the Level 3 predictors, except for the percent of females and private sector, are grand mean centered, and all the Level 2 slopes are fixed (i.e., constrained to have the same effect across schools).

In prior research on sense of community in schools, the effects of school and classroom differences have often been blurred⁶ or ignored (Pretty et al., 1994, 1996; Royal & Rossi, 1996). A few studies have analyzed either school-level (Battistich et al., 1995, 1997; Bryk & Driscoll, 1988) or classroom-level (Solomon, Battistich, Kim, & Watson, 1997) effects on sense of community. In the present study, in addition to individual-level effects, we decided to model both school and classrooms as separate levels for several reasons. First, sense of community is conceptualized as having a relational component (e.g., shared emotional connection). Because Italian students spend both their middle school years and their high school years (at least the first 2 years) in classes with the same group of students, we expect variation in students' perceptions of sense of community between classes in the same school. We also expect

that sense of community is influenced by school-level characteristics that transcend each classroom. It is important to distinguish school-level from classroom-level from individual-level effects.

Our second reason is related to the procedures used to select classrooms in our sample. At the lower secondary level, two or four classes (one or two each in the sixth and eighth grades) were sampled within each school, and at the 10th grade one or two classes were sampled within each upper secondary school, depending on the school's size. A three-level HLM allows us to account for the fact that some schools in the sample are represented by one class, some with two, and others by four classes.

RESULTS

Preliminary Analyses

Descriptive statistics for the variables on each level are shown in Table I. Because of missing data at the third level (i.e., no school questionnaire), 69 schools (33%) were dropped from the analyses. The equal distribution across included and excluded schools (50% from middle school and 50% from high school), as well as similarities in the individual-level means for sense of community ($F_{(1,6934)} = 0.28$, *ns*), parental monitoring ($F_{(1,6635)} = 0.03$, *ns*), and control ($F_{(1,6721)} = 0.16$, *ns*), democratic school climate ($F_{(1,6899)} = 0.39$, *ns*), SES ($F_{(1,6788)} = 0.07$, *ns*), but also at the class level of sense of community ($F_{(1,375)} = 0.23$, *ns*), democratic school climate ($F_{(1,375)} = 0.14$, *ns*), and at the school level of sense of community ($F_{(1,201)} = .05$, *ns*), democratic school climate ($F_{(1,201)} = .10$, *ns*) suggest that the excluded schools were similar to those included in the analyses. Moreover, analyses were performed on the entire data set, excluding the variables from the school questionnaire, and individual- and class-level coefficients were similar.⁷ The sample used for those confirming analyses is composed of 6,144 students.

A preliminary step in HLM involves fitting an unconditional model and examining the variance of the dependent variable, partitioning it into student-, class-, and school-level components. In our sample, 84% of the variation in school sense of community lies at the individual level, 11% between-classes within-schools, and 4% between-schools. Although the estimated class and school-level variances of sense of community are statistically significant

⁶Although Bateman (2002) attended to school-level effects, her sample of only three schools made it difficult to validly interpret school-level differences.

⁷Analyses are available upon request from the authors.

Table I. Variables by Level: Descriptive Statistics

Variables	Mean	SD	Minimum	Maximum
Level 1—Individual				
SSOC	3.65	0.64	1	5
MONITORING	2.46	0.44	1	3
CONTROL	1.78	0.34	1	3
DSC	3.34	0.69	1	5
FEMALE	0.49	0.50	0	1
AGE	13.94	1.77	10.42	18.00
SES	2.85	1.02	1	5
Level 2—Class				
MEANSDC2	3.35	0.34	2.35	4.16
GRADE	2.05	0.82	1.00	3.00
Level 3—School				
MEANSDC3	3.30	0.29	2.35	3.81
MEANSES	2.80	0.44	1.80	4.14
EXTRACURRICULAR ACTIVITIES	4.06	1.68	0	6
EXTERNAL LINKS	2.13	0.74	0	4
FACILITIES	1.83	0.38	1	2
FEMALES	48.39	22.23	3	100
SCHOOL SIZE	480.09	303.57	52	1509
PRIVATE	0.09	0.29	0	1

($\chi^2_{(114)} = 535.01, p < .001$; $\chi^2_{(133)} = 202.72, p < .001$), and of sufficient size to proceed with multilevel analyses, it is clear that there is much greater variability between students within classes than between classes within schools and between schools. The estimated reliability with which schools can be distinguished on sense of community is .682.

Within-Class Analysis

The within-class HLM model for students' sense of community is shown in the first part of Table II. The model includes the three predictors and three demographic control variables. Each of the three predictors show significant effects on students' sense of community: students who report more parental monitoring (standardized coefficient = .08, $p < .01$), but less parental control ($-.04, p < .01$) from the parent, and have a perception that the school is democratic are more likely to report having a strong sense of community. The predictor with, by far, the strongest effect is the student's perception that the school's climate is democratic (.57, $p < .01$). Individual student (Level 1) predictors explained 34.2% of the within-classroom variance in students' sense of community.

Between-Class, Within-School Analysis

To evaluate the impact of between-classroom variation in students' perceptions of how democratic the schools' climate is on students' sense of

community, we included the class-level mean of democratic school climate as a predictor at Level 2 (MEANDSC2), controlling for the grade level of the class. Classroom-level democratic school climate has a moderate overall effect on adjusted class mean sense of community (standardized regression coefficient = .34, $p < .01$), explaining nearly 78% of the variability across classes. Grade level is not a significant independent predictor of school sense of community.

Between-School Analyses

Finally, we examine the degree to which school-level characteristics, including school-level mean democratic climate, SES, sex distribution of students, and all the structural characteristics of the school (extracurricular activities offered; external community links; school facilities, library and playground; school size; and private vs. public) explain between-school variation in sense of community, holding constant the above student and class variables. Between-school variation in students' perceptions of how democratic the school's climate is (.30, $p < .01$) and school-level SES (.05, $p < .05$) are significantly positively associated with adjusted school mean sense of community. All the others characteristics of the school included in the model were not significant independent predictors. The school-level variables in all explained 84% of the between school variance in adjusted school mean sense of community.

Table II. Multilevel Correlates of School Sense of Community

Variables	Coefficient	Standardized coefficient	SE	<i>t</i> ratio	<i>p</i>
Intercept	3.620		0.044	83.155	.001
Level 1—Individual					
MONITORING	0.123	0.084	0.018	7.013	.001
CONTROL	−0.068	−0.036	0.025	−2.697	.001
DSC ^a	0.532	0.574	0.015	36.423	.001
FEMALE	−0.028	−0.022	0.016	−1.692	.090
AGE ^a	−0.037	−0.102	0.020	−1.866	.062
SES ^a	0.008	0.013	0.009	0.922	.357
Level 2—Class					
MEANDSC2	0.642	0.341	0.052	12.386	.001
GRADE	−0.012	−0.015	0.018	−0.678	.498
Level 3—School					
MEANDSC3	0.660	0.299	0.060	11.027	.001
MEANSES	0.066	0.045	0.026	2.561	.011
EXTRACURRICULAR ACTIVITIES	0.003	0.009	0.008	0.317	.751
EXTERNAL LINKS	−0.013	−0.015	0.015	−0.830	.407
FACILITIES	0.023	0.014	0.035	0.666	.506
FEMALES	0.007	0.243	0.063	1.119	.264
SCHOOL SIZE	0.001	0.474	0.001	0.252	.801
PRIVATE	0.007	0.003	0.044	0.150	.881
Variance components					
Within class	0.351				
Between class	0.045				
Between school	0.019				
Total	0.415				
Percent of variance explained					
Within class	34.19				
Between class	77.77				
Between school	84.21				

^aClass mean-centered.

Results indicate that there are individual students-within-class, between-classes-within-school, and between-school effects of school democratic climate on students' sense of community. Figure 1 shows the relationship between democratic school climate and sense of community at individual and class levels. The slope of the lines represents the within-classroom relationship between perceptions of school democracy and sense of community, whereas the distance between the two lines represents the difference in sense of community between a class at the 25th percentile in mean school democratic climate and a school at the 75th percentile.

DISCUSSION

Summary of Results

This study demonstrates significant variation in school sense of community across all three levels (student, class, and school), with by far the largest

portion of variance at the individual student level. Sense of community varies more at the class than the school level, which is understandable given the particular structure of Italian schools where students spend most of their time in the same class with the same students. The perception of a democratic school climate was a significant simultaneous and independent predictor of school sense of community at all three levels. More parental monitoring and less parental control were also predictive at the individual level. Higher SES was predictive at the school level, but not at the individual level. Somewhat surprisingly, the more structural characteristics of school size, availability of extracurricular activities, facilities (library and playground), relationship with the community, and school sector (public-private) were all nonsignificant predictors.

The analyses also show that the relationship between a number of individual characteristics (parental style, perceived democratic school climate) and sense of community do not vary significantly

SCHOOL SENSE OF COMMUNITY

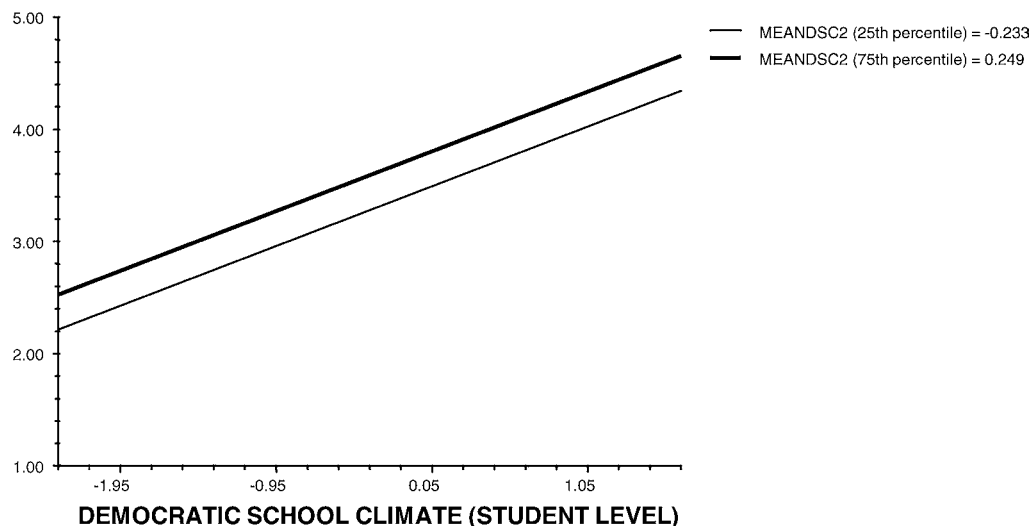


Fig. 1. Predicted values of school sense of community by individual-level perceptions of school democratic climate (*X*-axis) and class-level average democratic climate (at the 25th and 75th percentiles).

across classes and schools (i.e., there were no cross-level interactions). This indicates a robust relationship between these predictors and school sense of community. It suggests that both parenting styles and, especially, the ways students and teachers relate with each other play important roles in the development of sense of community in schools. Strategies that actively cultivate respectful, supportive relations among students, parents, and teachers may be critical to creating a generally positive attitude among students toward their school. That, in turn, may well create a halo effect in their attitude toward education in general, although that hypothesis requires further research.

The noneffect of school size warrants some attention as it contradicts Barker and Gump's (1964) classic study which found that students in smaller, "underpopulated" schools participated in more school activities, assumed more positions of responsibility, and expressed a greater "sense of obligation" (similar to sense of community) to their schools than did students from large schools. In the present study, school sense of community was also not significantly related to school size. These noneffects are clearly not due to a lack of variance in school size: the schools ranged in size from 52 to 1,509 students (with a standard deviation of 304). Although not quite as great a range as Barker and Gump's sample of schools in Kansas, USA (35–2,287 students), it should certainly be enough variance to find a linear

effect if one exists. One possible interpretation, deserving further investigation, is that because, according to Barker and Gump, a given student in a small school participates in a greater number of separate settings within the school, perhaps their community is more likely to be defined in terms of one or more of those settings rather than the school as a whole. If so, their greater sense of obligation to the school might be offset by their allegiance to the many groups to which they belong.

Finally, SES was not a significant predictor of school sense of community at the individual level, but was at the school level. Where disadvantaged adolescents are concentrated in the same schools, other problems, such as safety concerns or a lack of resources, may inhibit the development of sense of community. Yet none of the other structural characteristics of the school itself (facilities, external links, size, and public–private) were significantly related to school sense of community. What was most important was perceiving the school climate as democratic, and that was found in all kinds of schools.

Limitations and Strengths

The present data have several notable strengths and limitations. The principal limitation is that a sample from a region in northeastern Italy may not be generalizable to adolescents and schools in other

parts of the world where the culture, structure, and style of education may be very different. For example, in Italy, most extracurricular activities (including sports, drama, clubs, etc.) take place outside the school and student governance is organized more at the class level rather than at the school level. Future research on school sense of community should examine these differences in student's participation in class versus school life more carefully.

A minor caution is the missing teacher survey data from one third of the sample schools, although we verified similar results using the full sample without the school structural variables.

Third, and more important, future research is needed with more detailed information regarding school characteristics, perhaps using school records. The lack of significant correlations between sense of community and most school-level characteristics (e.g., extracurricular activities and school's links to the community) may be due to our use of simple availability of such activities and links rather than measuring the level of participation in such activities (by students or parents).

Fourth, the present cross-sectional design did not allow us to determine the stability of the effects of school democratic climate on students' sense of community. Longitudinal studies of sense of community in the school are needed to determine the causal relationship with perceived school climate.

An important fifth concern is that by excluding McMillan and Chavis' "influence" dimension from our measure of sense of community and relating that measure to democratic school climate, which includes items related to influence, we may be merely showing that one dimension of a broader definition of community is related to our narrower definition of community.⁸ We would argue, however, that (a) not only is it important to distinguish sense of community from individual and collective influence (which are important and independent constructs in their own right), but also that (b) our definition and measure of democratic school climate is not the same thing as individually felt mutual influence (the disputed theoretical sense of community dimension). In particular, our measure of democratic school climate is more oriented to capture an objective (generally agreed upon) climate of rules, behaviors, and perceptions at the school level, instead of an individual's personal

disposition to participate in group decision-making processes (as in McMillan and Chavis' framework).

Finally, only adolescents were used as informants for the key variables of sense of community and democratic school climate. Future research might use different informants, such as parents and teachers, to compare with adolescents' self-reports.

The strengths of the study include a large and representative Italian sample, including 134 schools and a range of ages across three different grade levels, and a design that nests students within classes within schools, which allows us to use multilevel analysis to gauge the simultaneous and separate influences of individual, class, and school factors on school sense of community. Because these data are part of a multinational study, they will also permit future cross-cultural research on the topic, although not with as many school-level predictors as we were able to use.

Conclusions

The results of this study are encouraging in that they provide potential areas for intervention to improve students' sense of community in schools. Individual sense of community in the school was related to factors within the individual, some of which may be amenable to change, but also to classroom and school characteristics, which are certainly amenable to change. At all three levels, democratic school climate was a moderate-to-strong predictor, which suggests that increasing student participation in making rules and organizing events, encouraging greater freedom of expression, and addressing the fairness of rules and teachers may increase school sense of community. According to several authors (see Schaps & Solomon, 2003), students develop a sense of community in schools that constantly meet their needs to be supported and to exert influence. Students with high sense of community may be more motivated to abide by the norms and values emphasized by the school.

We also found parenting style to play a role in that parents' monitoring of adolescent leisure time after school, contrary to control, was positively, if modestly, associated with school sense of community. According to a new conceptualization of parental monitoring (Kerr & Stattin, 2000; Stattin & Kerr, 2000), these findings suggest how efforts by parents to control adolescents can affect adolescents' outlook (including sense of community) and

⁸We thank the anonymous reviewers for clarifying and underscoring this potential concern.

adjustment. When adolescents have a relationship based on trust with their parents, their extrafamilial relationships in school are also better, which benefits their general well-being (Resnick et al., 1997).

The results found at the class and school levels suggest that sense of community is related to social climate characteristics of the school setting, which may be easier to address, as opposed to objective, structural characteristics (such as size, facilities, extracurricular activities, outreach to the community, or whether the school is public or private). The fact that SES is a significant predictor at the school level but not the individual level is also encouraging in that social class does not determine the individual student's sense of community within the school, but it serves as yet another caution about problems in concentrating disadvantaged students in the same schools.

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