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Effects of Interdisciplinary Teaching Team Configuration upon the Social Bonding of Middle School Students

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Abstract

This study compared two configurations of sixth-grade students and core teachers to measure the students' perceived levels of social bonding with their peers, their school, and their teachers. One configuration featured a team of four teachers, each specializing in a core subject area and teaching this subject to all 100 students on the team. The other configuration featured a team of two teachers, both delivering multiple core curricula to 50 students. The researcher used three measures of social bonding to compare the two configurations—approximately 250 sixth graders in the 100-student/four-teacher configuration and approximately 250 sixth graders in the 50-student/two-teacher configuration. A sample of ten teaching teams was matched on size, SES, and percentage of minority students. A matched-paired set of *t*-tests was conducted for each measure of social bonding to determine the effect of interdisciplinary team organization. A comparison of the combined scores of the five schools of the 50-student/two-teacher configuration with the combined scores of the five schools of the 100-student/four-teacher configuration revealed that students' scores were significantly higher on all three measures of social bonding for students of the 50-student/two-teacher interdisciplinary teaching team configuration.

Purpose of the Study

Teaming remains one of the hallmarks of the middle school movement. The presence of teaming in a school is among the first organizational steps toward increasing student achievement through students' enhanced sense of belonging (Carnegie Council on Adolescent Development, 1989; Jackson & Davis, 2000).

Arhar (1990) studied the impact of interdisciplinary teaming upon the formation of students' relationships with the members of their school community. She compared teamed and non-teamed middle school students as regards the students' perceived levels of social bonding with their peers, their school, and their teachers. While Arhar found no significant difference between the two groups in terms of the students' perceived levels of social bonding to their peers, students' perceived levels of social bonding to their school and to their teachers were higher in the schools that employed an interdisciplinary teaching team approach.

Arhar's study addressed the question "Do students in middle level schools with interdisciplinary teaming develop stronger social bonds to their peers, their school, and their teachers than students in traditional non-teamed schools?" (1994, p. 338). In response to Arhar's finding that students' perceived levels of bonding to their school and their teachers were stronger with teaming, this study explores the effect of team configurations upon students' perceived bonding to their peers, their school, and their teachers.

Review of the Literature

Interdisciplinary team organization is a way of organizing the faculty so that a group of teachers share (1) the same group of students, (2) the responsibility for planning, teaching, and evaluating the curriculum and instruction in more than one academic area, (3) the same schedule, and (4) the same area of the building (George & Alexander, 1993).

> The aim is to minimize the number of students who feel that no teacher knows them, that the teachers do not know how they are doing in other classes, or that no students know them well enough to accept them as friends ... Interdisciplinary teaming helps students build team spirit and improves attitudes and work habits because of the closer, more coherent supervision and caring that occurs on a team. (Epstein & Mac Iver, 1990, p. 34)

While academic achievement is often featured as the centerpiece of education, the primary facilitators of the learning enterprise are the guardians of academic rigor—the teachers. It is this understanding that led the Carnegie Council on Adolescent Development (1989) to declare specifically, "School should be a place where close, trusting relationships with adults and peers create a climate for personal growth and intellectual development" (p. 37). Middle school practitioners' efforts to meet young adolescents' affective needs connect to their supposed effect on student achievement. While some may hold that the focus of schools should be more on learning than yearning, others suggest that structural and procedural changes in middle schools support students' needs for socialization, companionship, and acceptance by adults, which are of paramount importance (Goodenow, 1993; Sabo, 1995; Tarter, Sabo, & Hoy, 1995).

Jensen (1998) noted a link between poor student relations and student failure. A student who enters the mainstream of middle school and does not achieve success through participation in the more conventional activities often develops a sense of alienation (Wehlage, Rutter, Smith, Lesko, & Fernandez, 1989). If the staff does not reach out, the student may become detached from the learning community. Wehlage et al. asserted, "Of great importance in student persistence is the amount of warmth of faculty-student interaction outside the classroom" (p. 189). School organization, then, must be flexible and geared to meeting the needs of students while supporting the students' adaptation to policies and procedures of the school. The formation of interdisciplinary teams has been proposed as one way of reducing student alienation and increasing students' sense of membership. Rather than expect students to adapt to the poorly suited conditions of large school populations with disjointed instruction, school structures are changed to meet the needs of young adolescents. Teams provide students with a greater sense of identity, belonging, and support. This includes a departure from the traditional subject-centered curricula to an interdisciplinary model better suited to meet the young adolescent cognitive need to view knowledge as an integrated whole (Arhar, 1990).

Social Bonding

Importance of social bonding to peers. Young adolescent learners value their school friendships and social relationships far more than school performance and teachers (Goodlad, 1984). This social bonding to peers influences young adolescents' willingness to take risks toward establishing diverse friendship patterns. Peer relationships help to develop and shape a student's sense of self as compared to the peer group. Their self-concept not only affects the development of self-esteem and identity, but also school performance (Hicks,

1997). Seriously affecting student motivation is the combination of the social environment in which learning occurs and young adolescents' increased awareness of social relationships and social influences (Linn & Songer, 1991). When students care about what others think about them and expect from them, they feel a personal stake in meeting those expectations. Attachments to school peers whose values are in concert with school values enhance school performance, while attachments to groups that are counterproductive to learning threaten academic performance (Arhar, 1990).

Importance of social bonding to school. Young adolescents experience a rapid physical, emotional, and intellectual growth at a level matched in scope only by the first three years of life. Students often find such changes both challenging and confusing. Their daily interactions and encounters at school influence their developing sense of belonging and competence. The schools, therefore, must provide stability and stimulation respecting the students' age-related concerns (Danielson, 2002). Students' sense of competence, valuing of school, and emotional well-being are enhanced when they have opportunities to develop their academic and social skills (Roeser & Eccles, 1998). As a result of improved self-concept and sense of school membership, students show increases in academic achievement, conduct, and peer relationships (Eccles, Midgley, Wigfield, Buchanan, Reuman, Flanagan, & Mac Iver, 1993). Schools and students have a reciprocal bearing upon one another.

While the direct relationship between these noninstructional elements of the classroom experience and student achievement is not well developed, research suggests that the feelings of belonging and of being cared for help students to assume the goals and values of their caregivers. These findings support the bridge between the affective domain and the cognitive domain and reveal that students do indeed care what their teachers know—when they know that their teachers care.

Importance of social bonding to teachers. While perceived support from peers predicts prosocial goal pursuit, perceived support from teachers predicts interest in class and social responsibility goal pursuits (Wentzel, 1997, 1998). The quality of children's relationships with adults influences their learning well before the middle school years. Research has supported that, beginning at birth, the strength of the attachments of children to their parents and other caregivers is essential to the positive development of these youngsters (Watson, Battistich, & Solomon, 1997). Teachers assume the in loco parentis role of caregiver. Bonding to teachers not only influences the psychosocial development of young adolescents, but their cognitive development as well. Additionally, the decline in student motivation appears to be linked to specific classroom characteristics, such as the quality of student-teacher relationships (Eccles et al., 1993). Students show more effort and greater achievement when they perceive that their teachers are interested and supportive, they belong to a group of peers, and adults encourage them to succeed and provide help when it is needed (Goodenow, 1993). Children do things for people they like and trust. They listen to people who matter to them and to whom they matter (Noddings, 1992). Such dynamics have inspired the dubbing of *relationships* as "the Fourth *R* of education" (Pairs for PEERS, 2004).

Teaming

Erb and Doda (1996) noted that teaming creates the conditions for social bonding.

> The relationship between teaming and student outcomes is not a direct one. While teaming does not cause teachers to become committed to engaging in teacher-student relationships that facilitate growth and individual student development, it is certain that teaming gives them the ability to translate this commitment into action. (p. 13)

William M. Alexander in his historic 1963 speech at Cornell University proposed a new middle school and recommended, "A team of three to five teachers could be assigned to each group of 75 to 150 pupils, organized either on a single grade or multi grade basis" (Alexander, 1995, p. 24). Following Alexander's call for reform, many schools adopted the interdisciplinary team format, but the size and configurations of the teams varied.

Bishop and Stevenson (2000) recognized the advantages teamed students have over those in disjointed departmental programs, but added that the size of interdisciplinary teams in general needs to be reduced.

> We believe that most teams are still too large and too fractured by master schedules and other external factors to fully achieve their potential ... Too often the most distinctive feature of middle level education is simply a more contemporary rhetoric. (p. 14)

Erb and Stevenson (1999) also found that teams of 120 or fewer students with a ratio of no more than 25 students to one teacher were engaged in the kind of instructional practices that are linked to positive student outcomes more often than larger teams or teams with higher student-teacher ratios. Other researchers have shown that even smaller teams of 90 or fewer were better able to manage the team coordination associated with best practices (Flowers, Mertens, & Mulhall, 2000).

Team size is often employed to accommodate teachers' certifications and their existing attitudes and experiences rather than to emulate established best practices (Arnold, 1997). For example, a teacher licensed to teach only secondary science will need to teach perhaps five sections of students in order to maintain full-time teaching status. The same may be true of the social studies, math, and language arts teachers on the teaching team, thereby laying the foundation for a team composed of five sections or approximately 125 students. Such an arrangement is not based as much on student needs as it is on the limitations imposed by teacher certification or teacher unions via contract language.

Sixth grade teachers as a rule have different certification or licensure (Flowers & Mertens, 2003). Theirs is akin to elementary school certification that is more broad-based than specialized. For this reason, it is quite common for sixth grade teachers to teach more than one content area. This allows flexibility in terms of team size. Certainly in some cases, a secondary school model is maintained even for these elementary certified teachers. Five teachers may take responsibility for a team of 125 students, with each teacher specializing in a given core subject area which they teach to all students on their team.

Among the voices calling for careful consideration of team size has been that of Arnold (1997) who stated that it is all too common for the typical four-teacher team (see Figure 1) to divide its time into fixed periods and isolated subjects, "thus putting old wine (departmentalization) into new wineskins (team organization)" (p. 444).

Teacher A	Teacher B	Teacher C	Teacher D
Math	Science	Language Arts	Social Studies
Math	Science	Language Arts	Social Studies
Math	Science	Language Arts	Social Studies
Math	Science	Language Arts	Social Studies
Reading	Reading	Reading	Reading

Figure 1. Sample teaching assignment for four instructors teaching 100 students.

Arnold and Stevenson (2001) offered support for partner teams consisting of two (see Figure 2) or three teachers (see Figure 3) and 40 to 75 students.

Teacher A	Teacher B
Math	Social Studies
Math	Social Studies
Science	Language Arts
Science	Language Arts
Reading	Reading

Figure 2. Sample teaching assignment for two instructors teaching 50 students.

Teacher A	Teacher B	Teacher C
Math	Science	Social Studies
Math	Science	Social Studies
Math	Science	Social Studies
Language Arts	Language Arts	Language Arts
Reading	Reading	Reading

Figure 3. Sample teaching assignment for three instructors teaching 75 students.

They held these teams to have distinct advantages over the larger teams. They also admitted that there have been some successful larger teams, but that "there is a marked tendency for such teams to divide the day into periods of less than an hour and to teach their subjects separately, thus replicating the junior high departmental format that deters curriculum integration" (p. 28).

In general, flexibility rather than uniformity seems to be the call for determining team size. "Teams should be large enough that good decision making can occur but small enough that every one knows each other and can meet (teachers) on a regular basis" (Dickinson & Erb, 1997, p. 535). "The rule of thumb, then, is to keep the size of teams as small as possible given the strengths of the teachers involved" (Carnegie Council on Adolescent Development, 1989, p. 130).

Teams of 100–125 students are very common (Danielson, 2002). While the designs of interdisciplinary teaching teams have continued to vary, the four-teacher team with one teacher specialist in each of the four core subject areas is the most common arrangement (Rottier, 2001). However, the two-teacher team is used increasingly in grade 6 as a sound transition from a single-teacher, self-contained classroom in the elementary school to the four- or five-teacher team commonly found in grades 7 and 8. This study was designed to examine the effect of these two different configurations of 100 students and four core teachers upon sixth grade students' perceived levels of social bonding with their peers, their school, and their teachers.

Four-teacher Team

The four-teacher team (see Figure 1) is the most commonly used and most logical composition with one teacher specialist in each of the four core areas. It allows teachers with a single subject certification to teach on the team. The four teachers may, of course, also engage in interdisciplinary planning and have an additional teaching responsibility beyond the core block to complete their workload. This model best utilizes teachers with strong content preparation in one subject area.

Two-teacher Team

The two-teacher team (see Figure 2) is used increasingly in sixth grade as a sound transition from a single teacher, self-contained classroom in the elementary school to the four- or five-teacher team commonly found in seventh and eighth grade. In this arrangement, one teacher may have primary responsibility for math and science, while the other is responsible for social studies and language arts. Each may also teach a section of reading. Subject areas taught can depend on the strengths and interests of each teacher. Both teachers would need multiple certifications or a general elementary certification allowing them to teach all subjects. This model enables teachers and a group of students to spend a larger portion of the day together, strengthening the bonds between them. Time can be used more flexibly, and more opportunities are available to make connections between the subjects (Rottier, 2001).

Methods

Design

A matched pairs design was selected for the present study, which attempted to establish a relationship between interdisciplinary team configurations and student social bonding to peers, to school, and to teachers. This design followed the one used by Arhar (1990) in her comparative study of middle grades students whose schools featured interdisciplinary teaming and middle grades students whose schools did not feature teaming. The present study's design was one in which middle schools featuring one interdisciplinary teaching team configuration were compared to middle schools featuring a different interdisciplinary teaching team configuration. A matched pairs design was used because interdisciplinary team configuration is not distributed randomly over schools, thus limiting random selection of participating schools as a means to control other variables that may influence social bonding. By matching schools on location, size, ethnicity, and percentage of students on free or reduced-price lunch, the researcher attempted to minimize the effects of these variables, which have been associated with students' ability to develop social ties with a school (Wehlage et al., 1989).

Population and Sample Selection

School selection was limited to middle schools in Wisconsin for the purposes of accessibility and limiting regional influences. Sixth grade teams were selected because the sixth grade level most often features the two interdisciplinary teaching team configurations under study.

Letters were sent to approximately 100 principals of Wisconsin middle schools with a population of over 500 students, selected randomly from the Wisconsin Department of Instruction's *Wisconsin School Directory* (2003). The principals of the schools were asked to describe the manner in which they configured their sixth grade interdisciplinary teaching teams. Sixty-three principals responded. The schools were grouped according to their interdisciplinary teaching team configuration models. Those schools featuring either or both of the two configurations compared in this study were recorded. Using Arhar's (1990) model, five pairs (10 middle schools) were recruited and established, each member of the pair similar in size, location (rural/urban/suburban), ethnicity, and socioeconomic status, but differing in the configuration of teachers for their approximately 100 sixth graders. Since all students were members of interdisciplinary teams, thereby ensuring a more cloistered arrangement with other students and teachers, greater emphasis was placed on

matching schools by location, ethnicity, and socioeconomic status than school size. One team of each matched pair used the approach in which each core teacher was responsible for one subject area and taught all 100 students. The other team of each pair used the approach of further dividing the team into two sections of approximately 50 students, with two of the team's four core teachers being responsible for delivering multiple core area curricula to their half of the team. Representatives of each school determined two sections of students (approximately 25 students in a section) to complete the Wisconsin Youth Survey.

Instrumentation

The instrument used is this study was the Social Bonding Scales (SBS) from the Wisconsin Youth Survey (see Appendix A) constructed by the National Center for Effective Secondary Schools at the University of Wisconsin (Wehlage et al., 1989). Arhar (1990) used this same instrument in her study of interdisciplinary teaming and the social bonding of middle level students. Wehlage and others (1989) found that students " ... who feel a sense of bonding to school or teachers are less likely to reject school and more likely to conform to certain otherwise unappealing rules associated with schooling" (p. 156). The researchers designed the Wisconsin Youth Survey through a series of studies at the University of Wisconsin-Madison in an effort to measure the impact of various interventions on at-risk students (p. 256). The full survey consists of 80 items measuring demographic characteristics, attitudes, and beliefs. The Social Bonding Scale is the sum of the items measuring social bonding to peers, school, and teachers. This computed variable acts as an overall measure of social bonding.

The Social Bonding Scale is composed of 25 Likert-scaled items, seven related to peer bonding, nine related to school bonding, and nine related to teacher bonding. It is scored by recoding all negatively worded items, then summing responses of all items in each scale. Thus, every student has three social bonding scores: one each for bonding to peers, school, and teachers.

The Social Bonding Scale has been used as a dependent measure of student bonding with three entities: peers, the school, and teachers. Studies by Wehlage et al. (1989) have shown this scale to have strong construct validity. The social bonding subscales have internal reliability, with alpha coefficients for each scale as follows:

Social Bonding to Peers	.72
Social Bonding to School	.76
Social Bonding to Teachers	.76

The first analysis provides a comparison of the combined set scores of the five schools featuring one interdisciplinary teaching team configuration with the combined set scores of the five schools featuring the second interdisciplinary teaching team configuration on each of the three bonding scales, with the student as the unit of analysis. Second, individual matched pairs were compared on each of the three bonding scales to determine the influence of interdisciplinary team configuration on each of the bonding scales, with the school as the unit of analysis. This analysis matched schools on size, SES, and percentage of minority student enrollment, all of which are suspected to be significant conditions in student bonding to schools. A count was made of the number of pairs that showed a significant difference favoring one interdisciplinary team configuration on the dependent variables.

For the remainder of this report, the interdisciplinary teaching team model in which four teachers were responsible for one subject area and taught all 100 students will be referred to as the "C4" model, "C" being the Roman numeral for 100 and "4" for the number of teachers. The interdisciplinary teaching team model that used the approach of further dividing the team of approximately 100 students into two sections of approximately 50 students, with two of the team's four core teachers being responsible for delivering multiple core area curricula to their half of the team will be referred to as the "L2" model, "L" being the Roman numeral for 50 and "2" for the number of teachers.

Description of Schools in the Study

School information includes size of school, size of sixth grade, grade span, percentage of minority students, and percentage of students on free or reduced-price lunch. Schools were also grouped according to location (rural, suburban, urban). This design was not used so as to include all three locations in the study, but rather to ensure that both schools of a match had the same location (e.g., schools 3-C4 and 3-L2 are both urban schools). Schools were also matched as much as possible according to the special education programs delivered through the respective teams. Information about the schools is summarized in Table 1.

Table 1
Demographic Information Used to Match Schools

School	Grade Span	School Size	Sixth Graders	% Minority	% Free & Reduced-Price Lunch
1–C4	6–8	903	279	10.5	17.4
1–L2	6–8	982	329	7.6	18.3
2–C4	6–8	857	282	35.9	52.6
2–L2	6–8	777	247	50.8	57.7
3–C4	6–8	837	238	96.9	87.5
3–L2	6–9	639	131	97.8	90.1
4–C4	6–8	730	219	13.2	35.8
4–L2	6–8	929	294	18.5	38.4
5–C4	6–8	741	237	9.7	25.1
5–L2	6–8	700	217	6.7	20.0

Two-Tailed *t*-Test Matched Pairs Analysis

In order to determine if interdisciplinary teaching team configuration produced different effects in each of the matched pairs, two-tailed *t*-tests were performed on each of the separate matched pairs on the three measures of social bonding. Results of the *t*-tests indicated that, as a set, the matched pairs of students of the C4 interdisciplinary teaching team configuration and the L2 interdisciplinary teaching team configuration differed on all three measure of social bonding: student bonding to peers, student bonding to school, and student bonding to teachers (see Table 2). The students' scores were significantly higher on all three measures of social bonding for the students of the L2 teachers' interdisciplinary teaching team configuration when compared to the C4 teachers' configuration.

Table 2
Total Groups t*–tests on Bonding to Peers, Bonding to Schools and Bonding to Teachers in 100 Students/Four Teachers and 50 Students/Two Teachers*

Var.	#Ss	Mean	SD	Diff.	StErDf	t Value	DF	Sig
Peer C4	228	3.11	.44	-.12	.044	-2.60	408	.010**
Peer L2	182	3.23	.45					
School C4	218	3.09	.50	-.17	.048	-3.53	397	.000***
School L2	181	3.36	.55					
Teacher C4	218	3.07	.48	-.12	.049	-2.43	396	.016*
Teacher L2	180	3.30	.53					

* P < .05 ** P < .01 *** P < .001

An overall summary of the results of the *t*-tests on each matched pair is displayed in Appendix B. Each matched pair was tested in the three areas of social bonding, which resulted in three comparative scores for each of the five matched pairs. The separate analysis of matched pairs showed that while there was a significant overall correlation of the combined scores of the two models on all three levels of student social bonding, interdisciplinary team configuration varied in its effects on matched pairs.

Findings

Students in schools featuring the L2 interdisciplinary teaching team configuration scored higher on bonding to peers in four of the five pairs, significantly so in two of the five matched pairs; students in schools featuring the L2 interdisciplinary teaching team configuration scored higher on bonding to schools in four of the five matched pairs (tying in one), significantly so in two of the five matched pairs; and students in schools featuring the L2 interdisciplinary teaching team configuration scored higher on bonding to teachers in three of the five matched pairs, significantly so in two of the five matched pairs. When comparing the combined scores of the five schools of one configuration with the combined scores of the five schools of the other configuration, the students' scores were significantly higher on all three measures of social bonding for the students of the L2 interdisciplinary teaching team configuration when compared to the C4 interdisciplinary teaching team configuration.

Effect Sizes

Effect sizes were calculated for all matched pairs on each variable that revealed a significant between-group difference. The resulting statistic indicates the degree to which interdisciplinary teaching team configuration accounts for variation in student social bonding levels (see Table 3).

Results indicate that the weighted effect sizes of all three measures of social bonding for each of the significant between-group differences are small. This suggests that the degree to which interdisciplinary teaching team configuration accounts for student social bonding is small, but nonetheless significant.

Table 3
Weighted Average Effect Sizes of Bonding to Peers, to School, and to Teachers

School Pairs	Number 100S/4T	Number 50S/2T	DF	Peer Effect Size	School Effect Size	Teacher Effect Size
1-C4	50	24	73	.076		
1-L2	47	24	70		.053	
	48	24	71			.093
4-C4	43	47	89	.033		
4-L2	42	47	88		.186	
	45	44	88			.079
Total C4s	228	182	409	.014		
Total L2s	218	181	398		.028	
	218	180	397			.012

Conclusion

All levels of analysis indicate that interdisciplinary teaching team configuration produced a significant effect on student social bonding. The effect varied from school to school and might be a result of other variables beyond the scope of this study. The characteristics of the students, the characteristics of the school environment, and the characteristics of the teachers are among the variables that were not measured and yet surely affect a student's sense of belonging.

Recommendations

This study did not take into account certain potent variables. Among these are the quality and quantity of teacher-student interactions. Additionally, no effort was made to determine if student social bonding was a criterion for the schools' selections of configurations. Future studies are encouraged to investigate the rationale for selected configurations. This would include an analysis of the affective goals set for students and a measurement of the effectiveness of the team configurations and other related approaches to achieving these affective goals.

The results of this study indicate a correlation between smaller team size and higher levels of student social bonding. Smaller team size creates greater opportunities for student social bonding, but does not ensure such an increase (Erb & Doda, 1996). Interdisciplinary teaching teams need to continually pursue those approaches that most positively influence students' relationships with their peers, their school, and their teachers. This process begins by ensuring that, by design, "each student is known well at school by at least one adult who is that youngster's advocate (the advisor), to guarantee that every student belongs to a peer group, to help every student find ways to be successful, and to promote coordination between home and school" (Stevenson, 1992, p. 293). Team teachers should strive to provide their students with before-school, during-school, and after-school programs that are rich in the three characteristics Benard (1991) found to manifest resiliency in at risk-students: caring relationships, high expectations, and high interest/engaging opportunities.

Members of one of the C4 teacher teams featured in this study mentioned that they prefer their arrangement because it requires them to prepare lessons for only two major subjects. Teacher job satisfaction is, of course, a valued entity. However, if a transition from a C4 model to an L2 model is made in order to better meet the

needs of students, the members of the interdisciplinary teaching team will need support. Such support could include visitations to other schools employing the L2 model, release time for staff development and planning, and encouragement and affirmation for their efforts to make the change. It falls to the administration to strive to create a "win/win" transition for the teachers and the students.

While this study showed the L2 teacher interdisciplinary team configuration to increase student social bonding levels, certain situations may warrant the C4 teacher arrangement. Ideally, all teachers are equipped with strong interpersonal skills that they incorporate into their teaching. This, unfortunately, is not always the case. Some teachers have marginal ability to connect with students. It stands to reason that increased time with the same group of students in this scenario would be a detriment to rather than an enhancement of student social bonding. This is not to say that the expectation for these teachers to improve their interpersonal skills should not be required.

Wentzel (1994) explains, "children's academic achievement in middle school is related significantly to their levels of emotional distress and self-restraint" (p. 278). Smaller teams not only increase the number of opportunities for teachers to assist their students in their development of positive self-concept and self-control, but they also increase the degree of the consistency of this assistance. The additional time smaller teams afford teachers to interact with students enables them to go beyond the "quick fix" discipline model to an approach that allows the student to better process his/her decision-making. Teachers can better employ intervention strategies designed to develop a student's internal rather than external locus of control. Programs, such as those based on Glasser's (1998) Choice Theory, promote such an internal locus of control, thus providing students with interpersonal skills that help them assess their choices in meeting their own needs as well as the needs of the group.

Smaller teams not only provide more time to develop relationships with students, but with their parents as well. Having fewer students results in serving fewer parents, thus freeing up teachers to better connect with parents. This is best done through building positive relationships with both the young adolecent and the parents. Peer alliances are powerful, but children are first and foremost the products of their parents. "Peers become increasingly important in adolescence. Nevertheless, values of an adolescent's peer group are more likely to support or complement parental values than to be in conflict with them, a finding that deviates sharply from earlier views of an oppositional peer culture" (Peterson & Epstein, 1991, p. 376). Teachers' relationships with parents not only build partnerships, but also provide insights into the home influences of the young adolescent.

Team teachers need to report even small gains to parents, whether these gains are academic or socio-emotional. Paulson (1994) has reported that higher levels of both maternal and paternal responsiveness were related positively to achievement outcomes and that "despite declines in parental involvement in higher grades, it continues to be important for achievement" (p. 262). Any positive feedback teaching teams can give parents offers an indication that not only is the young adolescent doing better, but that they as parents have a hand in their son or daughter's success. Understandably, the smaller the number of students on the teaching team, the easier it is to maintain strong teacher-parent ties.

Decision-makers would do well to present and discuss such subjects as *interdisciplinary teaching team configuration* in the context of their specific school's needs as its members collaborate to fashion their learning community. Like its students, each school possesses its own unique character traits, some deeply grounded—others in the formation process. Just as instruction is differentiated based upon the needs, strengths, and styles of learners, school reform efforts must be suited to the specific nature of each respective

school. Blanket approaches and packaged programs may offer a framework from which to pull promising components, but they can inhibit deep inquiry and learning. In addition, an *all or nothing* promotion of a prescribed formula for success may violate a school's historical traditions, rituals, and theoretical foundations (Oakes, 2000).

A Closing Thought

There is indeed strength in numbers. However, when those numbers equate to large middle school teams, the odds of students connecting with their peers, their school, and their teachers decrease. The first step in enhancing student social bonding in schools is quantitative in nature: Create "smaller communities for learning" (Jackson & Davis, 2000, p. 2). From that point, the approach is qualitative in nature, beginning with making sure that each and every youngster is "well known by at least one adult" (Carnegie Council on Adolescent Development, 1989, p. 40).

Artisans select their tools according to the job to be done. Interdisciplinary teaching team configurations are tools of sorts. If the job entails increasing students' levels of social bonding, a smaller team configuration has been shown to be the tool of choice. However, the ultimate value of the tool lies in the hands of the teachers who are using it.

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Appendix A
Wisconsin Youth Survey

We are interested in your opinions about school and your friends; there are no right or wrong answers. Please indicate whether you STRONGLY DISAGREE, DISAGREE, AGREE or STRONGLY AGREE by choosing the appropriate response. When you have chosen the appropriate response, black out the number on your answer sheet which best represents your opinion. If you have any questions or don't understand a word, please ask someone in charge.

	Strongly Disagree	Disagree	Agree	Strongly Agree
1. Students usually get along well.	1	2	3	4
2. Making friends is very difficult in this school.	1	2	3	4
3. I am in the wrong group to feelpart of this school.	1	2	3	4
4. A student can be himself/herself and still be accepted by other students in this school.	1	2	3	4
5. I have a lot of good friends in this school.	1	2	3	4
6. My best friends would stick by me if I got into really bad trouble.	1	2	3	4
7. I feel satisfied with school because I'm learning a lot.	1	2	3	4
8. Even if I could get a very good job at present, I'd still choose to stay in school.	1	2	3	4
9. I have put a great deal of effort into most things at school because they are important to me.	1	2	3	4
10. Most of my classes are boring.	1	2	3	4
11. I believe that what I'm learning in school will help me to be successful.	1	2	3	4
12. I feel teachers care about me.	1	2	3	4
13. Teachers are understanding, helpful and friendly to students like me.	1	2	3	4
14. Teachers frequently are available to students like me for individual conferences or just to talk.	1	2	3	4
15. My teachers often get to know me well.	1	2	3	4
16. There is a teacher I could go to if I got into really bad trouble.	1	2	3	4
17. Most teachers like me and the group of friends I go with.	1	2	3	4
18. Most of my teachers don't really expect very good work from me.	1	2	3	4
19. I care what most of my teachers think of me.	1	2	3	4

Appendix A *(continued)*

	Strongly Disagree	Disagree	Agree	Strongly Agree
20. I always seem to be left out of important school activities.	1	2	3	4
21. Some teachers would choose me as one of their favorite students.	1	2	3	4
22. Most people at school would like to include me in their activities.	1	2	3	4
23. Success in life does not have much to do with the things studied in school.	1	2	3	4
24. The best way to get through most days at school is to goof off with my friends.	1	2	3	4
25. I'm losing interest in school because my teachers keep going over the same old things.	1	2	3	4

Scales and Reliabilities

Social Bonding to Peers	(.72)	1, 2, 3, 4, 5, 6, 22
Social Bonding to Schools	(.76)	7, 8, 9, 10, 11, 20, 23, 24, 25
Social Bonding to Teachers	(.76)	12, 13, 14, 15, 16, 17, 18, 19, 21

Appendix B

Matched Pairs t-*Tests on Bonding to Peers, Bonding to School and Bonding to Teachers in 100 Student/Four Teacher, and 50 Student/Two Teacher Interdisciplinary Teaching Team Configurations*

Var.	#Ss	Mean	SD	Diff.	StErDf	t Value	DF	Sig
P 1-C4	50	3.10	.52	-.31	.115	-2.67	72	.009*
P 1-L2	24	3.40	.33					
S 1-C4	47	3.06	.53	-.40	.134	-2.89	69	.029*
S 1-L2	24	3.36	.55					
T 1-C4	48	2.90	.57	-.40	.139	-2.89	70	.005**
T 1-L2	24	3.30	.53					
P 2-C4	43	3.22	.37	-.05	.090	-0.52	78	.602
P 2-L2	37	3.27	.44					
S 2-C4	42	3.12	.58	-.07	.123	-0.58	73	.567
S 2-L2	33	3.20	.46					
T 2-C4	36	3.18	.55	.12	.129	-0.94	70	.352
T 2-L2	36	3.06	.54					
P 3-C4	42	2.90	.47	.02	.116	0.17	69	.866
P 3-L2	29	2.88	.49					
S 3-C4	40	3.18	.41	.08	.100	-0.76	68	.450
S 3-L2	30	3.26	.42					
T 3-C4	41	3.13	.34	.04	.102	0.42	67	.678
T 3-L2	28	3.09	.51					
P 4-C4	43	3.09	.39	-.17	.082	-2.01	88	.047*
P 4-L2	47	3.26	.39					
S 4-C4	42	2.87	.47	-.44	.096	-4.62	87	.000***
S 4-L2	47	3.31	.43					
T 4-C4	45	2.92	.45	-.28	.094	-2.93	87	.004**
T 4-L2	44	3.19	.44					

Appendix B *(continued)*

Var.	#Ss	Mean	SD	Diff.	StErDf	t Value	DF	Sig
P 5-C4	50	3.25	.39	-.06	.084	-0.70	93	.483
P 5-L2	45	3.31	.43					
S 5-C4	47	3.20	.46	.00	.092	0.00	92	1.000
S 5-L2	47	3.20	.44					
T 5-C4	48	3.25	.37	-.03	.082	-3.93	94	.695
T 5-L2	48	3.28	.43					

P = Peers
S = School
T = Teachers

C4 = 100 Students/Four Teachers
L2 = 50 Students/Two Teachers

* P < .05 ** P < .01 *** P < .001