Beyond Interdisciplinary Teaming: Findings and Implications of the NASSP National Middle Level Study

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This article reports trends and implications of interdisciplinary teaming practices in middle level schools, based on findings from a national survey. Noting that nearly 80% of schools currently implement teaming, the authors challenge principals and teachers to move beyond the simple formation of teams to the creation of an infrastructure that supports high-performing teams and thereby promotes improved student achievement.

When asked to identify characteristics of effective middle level schools, middle school advocates can readily enumerate a wide range of practices designed to meet the developmental needs of young adolescents. Typical lists include programmatic features such as curriculum integration, advisory programs, teaming, exploratory programs, and cocurricular experiences (Valentine, Clark, Irvin, Keefe, & Melton, 1993). In recent years, however, such programs have been increasingly criticized for placing too much emphasis on organizational structures while ignoring issues related to learning (Williamson & Johnston, 1999). Davis (2001) noted, "The middle school ideology has centered essentially on children, not curriculum" (p. 255).

Partly in response to this criticism, many middle level proponents have called for an increase in accountability and more emphasis on student achievement. In *Turning Points 2000,* for example, Jackson and Davis (2000) revised the original *Turning Points* recommendations to focus on ensuring success for every student. In addition, the National Forum to Accelerate Middle-Grades Reform (2002) urges the establishment of middle level schools that would be academically excellent, developmentally responsive, and socially equitable. Calling for new middle level reforms, Williamson and Johnston (1999) asserted:

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> Reforming middle grades programs must be driven by student achievement. While changing and modifying organizational patterns and refining and strengthening curriculum and assessment are essential, they are not sufficient. Teams are not implemented just to have teams. Grouping is not modified just to change practice. Such changes take place because they contribute to greater student achievement and success. (p. 15)

In the past few decades, one characteristic has emerged as a defining feature of the exemplary middle level school: interdisciplinary teaming. Described as a "signature practice" in the middle school movement (Valentine et al., 1993, p. 49), teaming provides an organizational framework through which schools can design and deliver effective learning to every student. However, simply subdividing a school into teams does not automatically ensure that classroom practices will be transformed.

Building on data collected through NASSP's *National Study of Leadership in Middle Level Schools* (Valentine, Clark, Hackmann, & Petzko, 2002), we present findings and discuss implications related to teaming practices that are presently used in the nation's middle level schools. We also include recommendations to assist administrators and faculty members in moving beyond the simple formation of teams to the development of teaming practices that promote improved student achievement. This article addresses many issues related to successful teaming: What subject areas are included on teams? How many teachers should comprise the team? How are teachers and team leaders selected? How are students assigned? What topics do (and should) teachers address during their planning time to ensure that students are successful?

Data Collection Method

Consistent with previous NASSP studies, we defined middle level schools as those serving young adolescents in any structural combination of grades 5 through 9. Principals of all middle level schools in the United States were invited to participate in this study, which involved the collection of survey data by means of the Internet. More than 1,400 principals completed the online questionnaire during the spring and summer months of 2000.

To ensure data integrity, a poststudy data analysis was conducted on grade organizational patterns (which grade levels were included in the responding schools), community type, and respondents' gender, including an analysis of respondents, nonrespondents, and comparison of responses from the first 100 and last 100 completed returns (Valentine & Lucas, 2001). An examination of the distributions of grade organizational patterns of respondents showed no significant differences from distributions in the total population of 14,107 middle level schools. Analysis of responses by community type disclosed a

slight underrepresentation of urban schools in the sample and overrepresentation of rural schools. Response rates differed by gender in the sample, with 75% of the returns completed by men and 25% by women. Although the gender distribution of the entire population of middle level principals could not be determined, approximately 65% of K–12 principals in the United States are men (National Center for Education Statistics, 2000). This suggests that males were overrepresented in this sample.

Team Characteristics: Subject Content and Student Composition

In this study, we determined that interdisciplinary teaming has been partially or fully implemented in 79% of the respondents' schools, an increase from 57% reported in the NASSP study conducted in 1992 (Valentine et al., 1993). Schools with 6–7–8 grade organizational patterns were most likely (84%) to utilize teaming, and schools with 7–8–9 grade patterns were least likely (66%) to use teaming. Regardless of grade-level organizational structure, however, interdisciplinary teaming has become an accepted practice at the middle level. This section reports teaming features related to grade levels, team subjects, and student composition.

Teaming by Grade Levels

Although interdisciplinary teaming appears to have become standard practice in middle level schools, the survey indicated no consensus on team composition from one building to another, or even within schools. When teaming is examined at the individual grade level, it is apparent that this practice has not been fully embraced as an integral component of the entire middle level experience. Teaming was most commonly implemented in grade 6 (79% of schools), followed closely by grade 7 (76%) and grade 8 (69%). In grade 5, 59% of schools used teaming, but only 22% of schools used this approach in grade 9. However, when these findings are compared with data from the previous NASSP study (Valentine et al., 1993), one can see that teaming has substantially increased at every grade level.

Team Subjects

The subjects most frequently included in the core curriculum of interdisciplinary teams were English/language arts, social science, mathematics, science, and reading; 47% of respondents reported that their teams used this format. Another common arrangement, used in 43% of teams, included the four disciplines of English/language arts, social science, mathematics, and science. Required curriculum content differences were apparent by grade organizational pattern, as shown in Table 1. Schools with 5–6–7–8 and 6–7–8 configurations were most likely to include reading with the four traditional core

Table 1. Interdisciplinary Team Subject Content by Grade Organizational Pattern (%)

Subjects	Overall	5–6–7–8	6–7–8	7–8	7–8–9	Other
Math, science, social science, English/language arts, reading	47	63	52	28	29	42
Math, science, social science, English/language arts	43	21	44	48	57	50
Social science, English/ language arts	8	11	5	10	29	8
English/language arts, reading	5	16	3	3	0	8
Math, science	4	11	3	3	0	0
Other subject content included	22	26	19	28	29	17

Note. Survey participants could select multiple responses, therefore some categories total more than 100%.

subjects, but 7–8 and 7–8–9 schools typically excluded reading from the team curriculum. This finding was not unexpected given that, while reading was required content in the fifth and sixth grades of more than 90% of schools, the requirement diminished with each successive grade. Only 59% of schools required a reading course in grade 8, and only 13% in grade 9.

Teaming Features Related to Students

Principals were asked to note the percentage of students who were taught by interdisciplinary teams, excluding those receiving special-education services. Sixty-one percent of respondents reported that three-fourths or more of the total student body was involved in teaming. These percentages were consistent across schools with a 5–6–7–8 grade pattern, a 6–7–8 grade pattern, and a 7–8 grade organizational pattern, but the percentage dropped in schools with a 7–8–9 grade pattern (27%). Ideally, students should receive instruction in the core disciplines exclusively from team teachers. In this study, however, team-based students in 17% of schools received instruction in a core subject from nonteam teachers.

Students can be assigned to team-taught classes either in heterogeneous or homogeneous groups. Research on grouping practices consistently supports heterogeneous groupings that take into consideration ethnicity, academic achievement, socioeconomic background, gender, and special-needs status (Jackson & Davis, 2000; Marzano, Pickering, & Pollock, 2001). Ninety-three percent of principals reported their students were assigned heterogeneously, although teachers could choose to group students by ability within the teams for selected subjects or curricular units.

It is desirable for all of the teachers on a team to have classrooms in the same area of a building (George & Alexander, 1993; Jackson & Davis, 2000) so that the team can establish its own identity. This sense of unity and connectedness helps students and teachers to form close relationships (Erb & Stevenson, 1999). Of the respondents in this study, 26% reported that all team classrooms met the ideal of being adjacent to one another, and 61% were successful in locating the majority of classrooms together. Only 13% were unable to arrange adjacent classrooms for most members of their teams.

Teacher Membership and Participation on Teams

Teaming can have positive effects for teachers, including increased job satisfaction and the creation of a positive and rewarding work climate (Flowers, Mertens, & Mulhall, 1999). This section reports data related to teacher membership, including the number of teachers on teams, teacher assignment, leadership, and provisions for common planning time.

Size of Teams

There is no universally accepted standard concerning the size of teams, although some investigators who write about middle level schools advocate that teams should be as small as possible (Jackson & Davis, 2000). The number of students assigned to a team will, to a large extent, determine the number of teachers who compose the team. In this study, the most common number of teachers serving on a team was four, with 35% of respondents noting this arrangement (see Table 2). Twenty-three percent of principals reported five-person teams, and 24% indicated their teams comprised six or more teachers. Thus, although Arnold and Stevenson (1998) have reported that small teams are becoming more prevalent, 82% of schools in this study utilized teams consisting of four or more teachers. However, 32% of principals in schools with 5–6–7–8 grade organizational patterns reported having three-person teams, more than twice as large a proportion as in schools with other patterns.

Teacher Assignment to Teams

Because teams cease to function effectively when teachers are incompatible (Clark & Clark, 1994), making teacher placement decisions is a critical responsibility. In the majority of schools, principals consulted with teachers before appointing teachers to new teams or filling vacancies on existing teams. When teams were formed, 59% of principals asked teachers for input on the appointment process. When vacancies arose, 61% of the administrators appointed replacements after obtaining input from the remaining teachers on the team.

Table 2. Numbers of Teachers per Team by Grade Organizational Pattern (%)

Members	Overall	5–6–7–8	6–7–8	7–8	7–8–9	Other
Two	3	0	4	0	0	8
Three	15	32	13	14	14	8
Four	35	21	34	34	43	59
Five	23	15	25	28	14	8
Six or more	24	32	24	24	29	17

Team Leadership

Teams must have strong leaders to coordinate program activities, perform quasi-administrative duties, and communicate with other teams and the building administration (George & Alexander, 1993). Teams that function with identified leaders typically devote more time to planning team activities and were more likely to report benefits from the use of teaming (Mac Iver, 1990). In this study, 71% of principals reported their schools' teams had designated team leaders; 29% reported that teachers shared the leadership responsibilities. In 48% of the cases, the teachers selected the team leaders, although this varied somewhat by grade organizational pattern. The administration appointed team leaders in 25% of schools, whereas teams rotated this leadership role among their members in 23% of cases. Monetary compensation was provided for team leaders in 22% of responses, and released time was provided for team leaders in 6%.

Team Planning Time

In addition to individual preparation time, providing common team planning time is essential to ensure that teams will function effectively and will demonstrate gains in student achievement (Flowers et al., 1999). This time should be used to design integrated curricular units, engage in mutual problem solving, conduct student–parent conferences, determine how the interdisciplinary blocks will be scheduled, discuss and resolve student needs, and reinforce the sense of unity among teachers and students. If common planning time is not made available, then teachers are forced to meet before school, after school, and over lunch, making it very difficult to coordinate team activities (Epstein & Mac Iver, 1990).

Fifty-nine percent of principals noted that both common and individual planning times were provided for team teachers. Thirty-seven percent said they provided common planning time for all team members but did not provide an additional period for individual planning. Eleven percent provided only an individual planning period that was not scheduled at a common time for all team members.

Working on team activities. Time spent planning team activities is important for teachers to function at the highest levels. For example, teams that meet a minimum of 2 hours per week report higher levels of job satisfaction than nonteaming teachers (Flowers et al., 1999). Principals reported that 55% of their teams worked together 2 to 4 hours each week, and an additional 22% spent in excess of 4 hours collaborating weekly. Only 23% devoted less than 2 hours each week to team planning.

Principals also reported the activities in which teachers participated during team meetings. The most common activity reported (38%) was discussing individual student needs and how to address them. Other activities included developing integrated learning/curriculum (22%), keeping written records (21%), meeting with students (6%), and meeting with parents (5%).

Team planning time with teachers of exploratory subjects. Some schools strive to provide teachers of exploratory subjects with common planning time so they can interact as a team and enhance the curricular connections among their disciplines. Fourteen percent of principals reported providing common planning time for teachers of exploratory subjects to meet with teachers of core subjects; 37% of the respondents provided common planning time for only the teachers of exploratory subjects to meet. Individual planning time for teachers of exploratory subjects, not shared with teachers of core subjects or other teachers of exploratory subjects, was provided by 47% of the respondents, and 2% of the respondents provided no planning time for their teachers of exploratory subjects.

Team effectiveness and length of time together. There can be tremendous variation in levels of effectiveness among teams (McEwin, 1997). Some teams reach consensus on their purposes and attain high levels of curriculum integration, whereas others retain practices commonly associated with departmentalized settings. Principals reported that most teams were continuing to evolve and to learn how to work together more effectively. Twenty-eight percent of principals noted that most teams in their respective schools were highly effective, 64% believed most were beginning to become effective, and only 8% stated their teams were just learning how to become effective. The majority of principals (65%) believed that, once teams were formed, the teachers should remain together at least 4 years; 39% stated the teams should work together 5 or more years.

Facilitating Instructional Delivery: Curriculum Design and Scheduling Practices

Teams allow smaller communities to form within the school, fostering supportive relationships among students (Jackson & Davis, 2000). However, teams have another important responsibility—the successful delivery of

the core curriculum to students. According to the National Middle School Association (NMSA), developmentally responsive middle level schools should provide a "curriculum that is challenging, integrative, and exploratory" (NMSA, 1995, p. 20). In contrast to a disciplinary approach that maintains distinct subject boundaries, curriculum integration connects classroom learning to real-life experiences that occur across disciplines (Beane, 1996; NMSA, 1995; Toepfer, 1992). Jackson and Davis (2000) noted, "For schools that understand the power of the big ideas for deepening the curriculum within disciplines, using that power to show connections across disciplines is a logical step" (p. 49).

A discussion of teaming features would not be complete without an examination of curriculum design and scheduling practices commonly used in middle level schools. This section reports this information for the principals responding to this study.

Curriculum Design Practices

Four curriculum design practices, from most structured to least structured, are:

- Discipline centered, in which instruction occurs in departmentalized settings
- Topic centered, in which instruction is mostly departmentalized but efforts are made to create linkages between the disciplines
- Theme centered, in which much of the curriculum is delivered in an interdisciplinary approach with disciplinary boundaries eliminated
- Student centered, in which teachers and students collaboratively identify themes or units of interest to students and content is truly integrated.

Principals estimated the percentage of instructional time that teachers used each of these four curriculum design practices (see Table 3). Regardless of the grade organizational pattern, the discipline-centered approach was the most widespread practice, being used 38% of the time. The topic-centered approach—which attempts to demonstrate crosscurricular linkages but retains departmental boundaries—was used 27% of the time. Theme-centered instruction was used 21% of the time, and the student-centered approach, considered to be in closest alignment with curriculum integration practices, was used only 14% of the time. It seems clear that curriculum integration is not consistently practiced in these middle level schools.

Scheduling Instruction

Curriculum design and delivery are heavily influenced by the method in which the instructional day is scheduled. The schedule should provide flexi-

Table 3. Curriculum Design and Delivery Practices by Grade Organizational Pattern (%)

Approach	Overall	5–6–7–8	6–7–8	7–8	7–8–9	Other
Discipline centered (most instruction in departmentalized settings)	38	41	36	40	45	40
Topic centered (content linked between disciplines but instruction mostly departmentalized)	27	27	28	24	29	27
Theme centered (interdisciplinary themes; instruction is truly interdisciplinary)	21	20	21	22	17	18
Student centered (teachers and students identify themes/units; instruction almost entirely in interdisciplinary teams)	14	12	15	14	9	15

bility so teachers can vary instructional formats to accommodate individual students' learning needs (Hackmann & Valentine, 1998) and so they are empowered to develop an integrated approach to curriculum. Middle level schools often dedicate large blocks of instructional time to interdisciplinary teams, affording team teachers the ability to rearrange their timeframes in the manner that best suits their instructional purposes (Jackson & Davis, 2000).

Principals were asked to identify the scheduling model that served most of their students, selecting from five general scheduling classifications. The daily disciplinary schedule is a departmentalized arrangement consisting of six to eight class periods, with students moving from teacher to teacher to study different subjects. The daily interdisciplinary schedule typically contains six to eight class periods, with core classes blocked for team flexibility and elective classes either grouped as blocks or scheduled as separate periods. The alternating-day disciplinary block schedule contains the equivalent of three or four daily blocked classes, with students attending different classes on alternating days, although in some schools all classes may be scheduled on a given day each week. Included in this classification, 4 x 4 semester schedules are more often associated with high schools but are beginning to appear in middle level schools. The alternating-day interdisciplinary block schedule contains the equivalent of three or four daily blocked classes, but team teachers maintain control of the interdisciplinary blocks of time. Finally, in the self-contained classroom schedule, one teacher teaches the core subjects to a specific group

of students, with special teachers possibly teaching exploratory subjects such as music, art, and physical education.

The daily disciplinary schedule, which is used in 46% of the schools, was the most common scheduling model among schools of all grade organization patterns (see Table 4). Among schools using a 6–7–8 grade organizational pattern, however, daily interdisciplinary schedules equaled this model in popularity, with 41% of these schools using each approach. Combining the two disciplinary scheduling models (daily, 46%, and alternating day, 11%) discloses that more than half (57%) of middle level schools were using a departmentalized approach to scheduling the instructional day.

Used in 38% of schools, daily interdisciplinary scheduling was most often applied in 6–7–8 pattern schools and was least often applied in 7–8–9 pattern schools. Alternating-day interdisciplinary schedules were used in 4% of schools, with the self-contained classroom used in only 1% of middle level schools.

Implications and Recommendations

The finding that 79% of schools in this study have implemented interdisciplinary teaming may be viewed by many as cause for celebration, but it should by no means be considered as conclusive evidence that schools have been successful in fully incorporating effective teaming practices into the middle level school experience. A closer examination of the data reveals several areas of concern, which lead to the following recommendations.

1. Both team and individual planning time must be provided for team teachers. Fully 41% of schools in this study did not schedule both an individual and a team planning period for their team teachers. Research has demonstrated that teams with high levels of team and individual preparation time more frequently integrate classroom instruction (Flowers, Mertens, & Mulhall, 2000a) and experience the largest gains in student achievement scores (Flowers et al., 1999). Erb (2001) called team planning time nonnegotiable in promoting effective middle school structures.

Teachers also must make the most effective use of their team time, maintaining their focus on issues related to the curriculum and learning (Jackson & Davis, 2000). Kain (2001) noted that teachers should "use team time to talk about teaching, not just troubles with kids" (p. 212). In addition, principals and faculty members also should facilitate discussions among team and exploratory teachers so that crossdisciplinary connections can be strengthened.

Without the provision for team planning time, teachers are forced to meet before school, after school, and during lunch to engage in teaming preparation and planning. If only team planning time is provided, with no individual planning period, then team teachers must carve out additional time for individual lesson planning and to complete other responsibilities.

Table 4. School Schedule Serving Most Students by Grade Organizational Pattern (%)

Type	Overall	5–6–7–8	6–7–8	7–8	7–8–9	Other
Daily disciplinary schedule	46	48	41	55	58	42
Daily interdisciplinary schedule	38	37	41	32	27	40
Alternating-day disciplinary schedule	11	10	12	11	12	9
Alternating-day interdisciplinary schedule	4	3	5	2	3	5
Self-contained classroom schedule	1	2	1	0	0	4

2. Team sizes should be smaller. Given the emerging research pointing to the effectiveness of small team sizes in promoting improved achievement (Flowers et al., 2000b), the trend toward teams of five to six (or more) teachers should be carefully evaluated. Smaller student teams reinforce a more personalized learning environment, in the process facilitating improved communication and coordination among teachers and students. Bishop and Stevenson (2000) advocated the use of two or three person "partner teams," arguing "most teams are still too large and fractured by master schedules and other external factors to fully achieve their potential" (p. 14). Because teachers teach more than one subject in these smaller team arrangements, it is also easier to integrate the curriculum (Jackson & Davis, 2000).

Increasing the team size further amplifies the difficulty in maintaining adjacent team classrooms, which can erode students' sense of team identity. In this study, approximately one in eight principals were unsuccessful in locating team classrooms in close proximity to one another. Assigning teams to their own wings or areas of the building is an essential step in forming learning communities (George, Stevenson, Thomason, & Beane, 1992).

3. Teams must be characterized by heterogeneous student placements. Although heterogeneous student placements are the norm in 93% of schools, 7% of schools have elected to form homogeneous teams. Social justice demands that principles of equity and excellence are present in every school. Arguing against homogeneous placements, Jackson and Davis (2000) asserted that "each team should be a microcosm of the overall school population, which means grouping heterogeneously with regard to ethnic and socioeconomic background, gender, special education status (if possible), and past academic achievement" (p. 130).

In their review of research related to ability grouping, Marzano et al. (2001) noted that homogeneous grouping practices have different effects on different students. They conclude that ability grouping might benefit

average-ability students, but that the performance of low-ability students typically suffers when they are subjected to tracking.

4. Team teachers must carefully examine their classroom practices, ensuring that the curriculum and instructional methods promote student learning. Although curriculum integration has been advocated as an effective approach to promote student understanding (Beane, 1996), 65% of middle level schools in this sample have not fully embraced this concept, choosing instead to adopt a departmentalized approach. Of these schools, 38% made no attempts at integration and another 27% used the topic-centered model to link content while maintaining departmental boundaries.

The true litmus test for teaming should be what occurs in the classroom. Consequently, teachers must continually and critically test and improve instructional methods and curriculum design to ensure that every student is learning well.

5. The school's scheduling model should empower the team. Only 42% of middle level schools participating in this study used interdisciplinary scheduling (daily period and alternating-day models) as their primary scheduling model. As a result, a high percentage of teams in this sample face the challenges of creatively achieving curriculum integration while operating within the constraints of departmentalized scheduling models. A scheduling structure should support teachers' efforts to deliver quality education to students, and a poorly designed schedule can be more hindrance than help to teachers (Hackmann & Valentine, 1998).

Rigid, departmentalized schedules create barriers to innovative teaching strategies and integrated instructional activities. Schools should incorporate flexible interdisciplinary scheduling models that permit team teachers to continually group and regroup learners, allowing them to fashion instructional timeframes in the manner that best meets instructional and learning needs.

Beyond Teaming

Data from this study show that middle level schools have made great strides in the past decade in embracing and implementing teaming practices. Teaming has clearly become part of the fabric of the middle grades experience for students and teachers. However, this study reveals that in many schools, although the teaming structure may now be in place, the teaming infrastructure has not yet been fully developed.

Given the fact that nearly four out of five responding principals reported that teams are in place in their schools, this study reinforces the assertion that "middle grades education is ripe for a great leap forward" (Jackson & Davis, 2000, p. 17). Now may be the time for many schools to move beyond teaming into the establishment of high-performing teams.

Principals and teachers should not merely be content to establish teams of teachers and students, checking off that feature on their schools' "middle school reform implementation" checklist. Forming teams is relatively simple, but fully incorporating interdisciplinary teaming practices that promote student achievement is an extensive and time-intensive process.

The development of effective teams is an evolutionary process (Jackson & Davis, 2000). Because high-performing teams do not simply happen overnight, their success depends on the support of both teachers and administrators. As team teachers strive to establish nurturing and effective learning environments for students, they also enhance their collaboration skills and learn how to become interdependent professionals (Maeroff, 1993). School leaders also must be aware of their critical role in promoting effective teaming practices (Turk, Wolff, Waterbury, & Zumalt, 2002).

Using the findings reported in this article, principals, teachers, and policymakers can compare the practices in their school settings with typical practices across the country. With these insights and with the knowledge of best educational practice for young students, educators can develop strategies to improve schools and enhance student achievement. For larger schools striving to create a feeling of individual-student focus and intimate learning communities, teaming provides a good option. Even in smaller schools, the essential aspects of the teaming process can be implemented effectively. Teachers who work together in teams, reflect on the success of each student, and adapt instruction as needed to promote student success will truly make a difference in the lives of their students.

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