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ABSTRACT

This booklet is the fourth in a series of "hot topic" reports, that address current educational concerns. The booklet examines questions relating to grade configurations, its purpose being to increase awareness and understanding of the issues surrounding grade span. It explores the ways that schools have addressed concerns associated with particular grade spans and suggests avenues for further inquiry. The text focuses on historical trends in grade configuration and the various contexts of grade spans, such as whether a school is in a rural or an urban area. Most research on grade span focuses on the middle grades and addresses such questions as: Which grades should be grouped together in one school? How many grades should be in one school? and How many school transitions will students make during the K-12 years? Some tips for starting a school with a grade span new to a school system are offered, followed by an overview of grade-span considerations. The bulk of the volume describes eight schools' experiences with grade spans, discussing such issues as how the grade span came about and how the schools were structured to meet the needs of the particular grades it contains. (RJM)

JULY 1997

BY REQUEST...

GRADE CONFIGURATION: WHO GOES WHERE?

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INFORMATION SERVICES

NORTHWEST REGIONAL EDUCATIONAL LABORATORY

FOREWORD

This booklet is the fourth in a series of "hot topic" reports produced by the Northwest Regional Educational Laboratory. These reports briefly address current educational concerns and issues as indicated by requests for information that come to the Laboratory from the Northwest region and beyond. Each booklet contains an explanation of the topic's importance, a sampling of how Northwest schools are addressing the issue, suggestions for adapting these ideas to schools, selected references, and contact information.

One objective of the series is to foster a sense of community and connection among educators. Another objective is to increase awareness of current education-related themes and concerns. Each booklet will give practitioners a glimpse of how fellow educators are addressing issues, overcoming obstacles, and attaining success in certain areas. The series' goal is to give educators current, reliable, and useful information on topics that are important to them.

INTRODUCTION

What is the best configuration of grades for K-12 schooling? Is it an elementary school, followed by a middle school, followed by a four-year high school? Or are there advantages to a K-8 school, followed by a four-year high school? Which middle-school configuration better promotes social adjustment—grades six through eight, five through eight, seven through eight, or seven through nine? Are there advantages to alternative grade spans at the elementary level, such as K-3 and four through six? What is the function of a ninth-grade center? In which setting do sixth- or eighth-graders achieve best? Why do we have age-related grades?

Research has not provided definitive answers to the myriad possible questions about grade span, but the questions have never gone away. They are questions which arise whenever school reform, increasing or declining enrollment, or financial considerations bring about a reorganization of existing schools, the building of new schools, or consolidation of districts. As one article on the subject puts it, "Grade organization remains a controversial topic in American education as it has for at least 80 years" (Jenkins & McEwin, 1992).

A quick glance at the grade spans of schools in the Northwest region reveals a variety of configurations including traditional forms of grade organization. This variety reflects the fact that each community considers different factors when making grade span decisions and that no one grade configuration is right for all. Thus it is not the intent of this booklet to hold up any one grade configuration as superior, or to discuss in depth each of the grade configurations that exist. It is meant instead, to increase awareness and understanding of grade span as an issue, provide examples of ways schools have addressed concerns associated with particular grade spans, and suggest avenues for further inquiry.

Historical Trends in Grade Configuration

As noted above, when it comes to grade span, diversity rules. One study found that seventh- and eighth-graders in the United States attend schools with about 30 different grade spans (Mac Iver & Epstein, 1993). At some schools grade span comes about by choice, at others as a result of practical and administrative considerations such as building costs, enrollment trends, or distance from other schools.

Despite this diversity, some trends have emerged. The major changes in grade organization in the 20th century are clearly the rise and decline of the junior high (typically grades seven through nine) and the rise of the middle school (typically grades six through eight). Junior highs, which emerged in the first few decades of the century, grew in number until the early 1970s (Hough, 1995). In 1920, four out of five high school graduates had attended a K-8 elementary school and a four-year high school. By 1960, four out of five had attended an elementary school, a three-year junior high, and a three-year senior high (Alexander & McEwin, 1989). The decline of the junior high coincided with the rise of the middle school which came on the scene in the mid 1960s. Today, the middle school is the dominant form of middle grades education in terms of numbers of students enrolled.

The middle school trend reflects not only a shift in the placement of the sixth- and ninth-grader but also a conceptual change. The junior high was conceived of as a preparation for high school and usually imitated the structure of one, with departmentalized classes and uniform daily class periods. The middle school, on the other hand, was conceived as a more child-centered institution with "responsive practices" such as interdisciplinary team teaching, advisory programs, and flexible

scheduling. The middle school also offers a more varied curriculum and more electives or exploratory classes than are usually available at junior high schools.

What are the trends of the future? Anecdotal evidence indicates some districts and experts are taking a second look at the K-8 and "elemiddle" configurations, the latter defined as a school that meets the needs of young adolescents but includes lower grades (Hendrie, 1996; Hough, 1995). Ninth-grade-only campuses are also turning up in some areas, and not always as a result of space and enrollment considerations (Viadero, 1993).

Context

A grade span that is desirable or possible in one setting may be undesirable or not possible in another. For instance, some experts on rural schools feel that in a rural setting the middle school concept is inappropriate and can actually damage community values. This is because when a middle school is opened the local elementary school often becomes too small for state support and must eventually be consolidated, thus undermining the sense of community identity, the feeling of ownership, and the levels of parent participation associated with a local elementary school (DeYoung, Howley, & Theobald, 1995).

In a rural area the grade-span issues may be very different from those in an urban area. Most parents will not be in favor of their child attending a larger middle school or high school if it involves the child having to commute long distances everyday or to live elsewhere during the week. In such a case, whatever expanded course offerings and social opportunities the larger, more distant school might provide, a school closer to home will still likely be seen as preferable.

Another example in which context may play a role is socioeconomic status, as was found in one study that looked at achievement differences between sixth-graders in elementary schools as opposed to those in middle schools:

> "Becker (1987) reported a significant advantage to locating the sixth grade in the elementary, rather than middle, grade span. Interestingly, Becker also found that the elementary-school advantage declined as student socioeconomic status (SES) rose. In fact, sixth-graders in the upper tail of the SES distribution performed

slightly better in non-elementary settings"
(Wihry, Coladarci, & Meadow, 1992).

Becker speculated that the student achievement differences his study revealed might be related to differences in teacher training and expectations in elementary and middle schools.

Grade-Span Research and Issues

Schools or districts may seek information about grade span when a new school is being built, an existing school is changing grade span, or a school is improving its program to make it more appropriate for the particular grade span.

Most of the research on grade span focuses on the middle grades. Much of that research identifies practices associated with certain grade spans—for instance that schools with grades six through eight have more interdisciplinary teaming than those with grades seven through nine or offer more electives than K-8 schools. Even results such as these may vary depending on the scope and location of the study. (Compare Epstein & Mac Iver, 1990 to Hough, 1995). Very little research attempts the more difficult task of determining if a cause-and-effect relationship exists between grade configuration and academic achievement, while controlling for other factors such as school size, student socioeconomic status, teacher experience, and so on (Wihry, Coladarci, & Meadow, 1992).

Even the studies that do attempt to isolate the effect of grade span by controlling for other variables are suggestive rather than definitive. Different studies control for different variables and their results do not translate into clear policy guidelines. For instance, if a controlled study showed that sixth-graders had higher achievement test scores or fewer discipline problems in a K-6 school than in a middle school setting, we would still not have information about how this configuration affects students at other grade levels.

The topic of grade span is a complex one. Issues associated with grade span include the following:

- **Which grades should be grouped together in one school?**

  Considerations might include whether the oldest students will function as positive or negative role models, whether the academic and social needs of each grade level can be met in a developmentally appropriate manner, and whether the grouping is consistent with community needs and values. Factors that may affect a decision about grade span may be the interests and training of the staff, the size and design of the building, financial resources, the size of the student population, and the location of the school in relation to other schools.

- **How many grades should be in one school and how many classrooms per grade?**

  Schools with many grade levels will have more opportunities for cross-age activities such as older students helping out in younger students' classrooms and participating in tutoring activities. Schools with big grade spans may be able to sustain more parent involvement in the upper grades than is typical in middle or high schools. On the other hand, because schools with very wide grade spans usually have fewer students and classrooms per grade, there may be fewer opportunities for elective or exploratory courses. In addition, fewer classrooms per grade means fewer opportunities to match students to teachers according to learning and teaching styles, to place students with others with whom they work well, or to separate students who don't get along. Opportunities for teacher collaboration or mentoring at a specific grade level are also reduced.

One-and two-grade schools present the challenge of how to preserve a sense of continuity and stability when all or half of the student population turns over every year. On the other hand they may offer the opportunity for a special focus on problems particular to that grade level, such as the high dropout rate of ninth-graders (Viadero, 1993).

- **How many school transitions will students make during the K-12 years?**

  The smaller the number of grades in each school within a K-12 system, the more transitions students will make during their schooling. Transitions can be stressful. These stresses can be mitigated by practices such as between-school visits, mentoring by students from the school at the more advanced level, special assemblies for new students, communication between the faculties and administrations of the two schools, and grouping students into teams or houses in large schools.

"[A]lthough grade organization has some important connections to particular programs and practices, on average, grade span need not be the determinant of responsive education," (Epstein & Mac Iver, 1990) concludes one pair of writers on the subject. Yet neither is grade-span irrelevant. In fact, as seen in the "Northwest Sampler" section of this booklet, the characteristics of a grade span must be carefully considered in shaping an effective instructional program.

Tips for Implementation

Following are some broad tips for starting a school with a grade span new to a K-12 system, reorganizing the grade configuration of an existing school, or revamping an existing program:

- Read grade-configuration literature (see "References" section) while keeping in mind that sound educational practices are more important than grade span
- Visit or call other schools with the same configuration for information sharing about what works and what doesn't
- Consider what configuration fits best with community geography and values
- Be aware of developmental differences or similarities between students at different grade levels when developing curriculum, scheduling, and behavioral expectations; also consider how building layout and staff interests and training might best dovetail with these developmental characteristics
- Develop articulation and transition activities between schools in the K-12 sequence

The list of questions on pages 10-11 suggests the types of issues schools should examine when contemplating any sort of grade-span actions.

Grade-Span Considerations

Some factors to weigh and think about, many of them interrelated, include the following:

1. Will the configuration increase or decrease transportation costs? How far will students have to travel? This may be a more important issue in a community with a very dispersed population.
2. Will the configuration likely increase or decrease parent involvement? The proximity and size of the school may be factors, as well as the motivation and interest level of the parents.
3. How many students will be enrolled at each grade level and what implications does this have for course offerings and instructional grouping?
4. Are any data available that suggest whether the configuration might boost achievement scores for a significant portion of the community's students or depress the performance of others? For instance, some studies suggest that some middle-level students—low socioeconomic background sixth-graders in Pennsylvania, and eighth-graders in Maine, a predominantly rural state—benefit significantly from an elementary rather than middle school setting (Becker, 1987; Wihry, Coladarci, & Meadow, 1992).
5. Will the configuration lead to the loss of a neighborhood school or the closing of other schools in the system?
6. How many points of transition and articulation will occur in the K-12 system? How will these be addressed? What mechanisms or channels of communication will be used to ensure that students move smoothly through the system, in terms of both academics and social and emotional adjustment?

7. Does the configuration allow for interaction between a range of age levels and a variety of grouping options? A school with more than one or two grade levels has the opportunity to increase the self-esteem and responsibility of older students by using them as tutors or mentors for younger students.
8. How will the presence or absence of older students affect younger students in a particular school? A school with few grade levels may benefit because older students are not present to model negative behaviors associated with their age group; on the other hand it may suffer from the lack of older role models for academic excellence and leadership.
9. Is the design of the school building(s) suited to managing students in the selected grade span? For instance, does it have several wings, useful for dividing a large middle school into "houses" or for keeping younger students in self-contained classrooms?

Conclusion

No particular sequence of grade spans is perfect or in itself guarantees student achievement and social adjustment. With thought and effort effective practices can be implemented in a variety of grade configurations. What is important—as seen in the following "Northwest Sampler"—is to be aware of the potential benefits and difficulties of different configurations and to make each configuration, whether it comes about from choice or necessity, work as well as possible for all students.

THE NORTHWEST SAMPLER

Much can be learned about the challenges of serving particular grade spans from the experiences of individual schools. This booklet's "Northwest Sampler" features schools of different grade spans from around the region. The descriptions focus on information such as the following:

- How the school's grade span came about
- How the school is structured to meet the needs of the particular grades it contains
- Potential weaknesses or problems of the grade span and how the school addresses them
- Learning opportunities offered by the grade span and how the school takes advantage of them
- Activities to facilitate transition from the previous school or to the next school in the K-12 sequence
- Observed outcomes and keys to success (these are as reported by the principal, and not necessarily based on quantitative information or empirical research)

The sampler features eight schools with seven different grade spans. The schools range in size from 82 to 1,200 students and are found in settings ranging from urban to rural and isolated. The number of grades in the schools ranges from one to 11. Because schools of different grade spans often face similar grade-configuration issues, the sampler can be of value even to readers whose particular grade-span interest is not represented.

Location

Girdwood Elementary
P.O. Box 189
Girdwood, AK 99587

Contact

Jim Cox, Principal
Phone: 907/783-2313
Fax: 907/783-2454

Grade span: K-8

Girdwood, Alaska, is a ski resort and bedroom community 30 miles from Anchorage. Girdwood Elementary is a K-8 school with 142 students. Though all grades are housed in one building, the seventh and eighth grades are run in a manner similar to a junior high, separate from the other grades.

Younger Girdwood students spend most of the day in self-contained classrooms. Specialists are in charge of P.E., music, and the library. Junior high students begin the day in one room with 20 to 30 minutes of planning, then group and regroup for classes on a flexible schedule. For the most part the seventh- and eighth-graders are grouped together based on personalities—which students cooperate and work well with each other. Arrangements vary depending on the year's enrollment. The teachers (1.5 FTE) do some teaming on particular units of study, depending on the subject and the interests of the students. The school is currently considering, and the principal favors, combining the sixth, seventh, and eighth grades for greater flexibility in scheduling and to better use staff skills and expertise.

The school is too small to offer ongoing elective classes, but teachers try to make arrangements for independent study or community experiences based on students' individual interests. Though the school has its own library, a municipal library

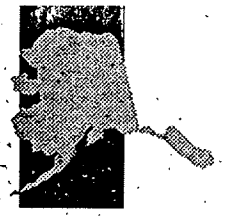
attached to the school building is a useful resource for students, especially those at the junior high level.

Girdwood has high parent involvement, which adds tremendous resources and support to the school. This involvement does not drop off in the middle grades as often happens when students attend stand-alone middle schools. Parents help out with activities such as sports, spelling bees, reading programs, and a Career Day for junior high students. Teachers know the families in Girdwood and look out for all the students. Raising children is truly a community process.

After eighth grade, Girdwood students must make a 1.5 hour bus ride every morning to the nearest high school. During the year Girdwood teachers have ongoing dialogue with those at the high school about individual students and which programs and courses would be most appropriate in high school. The community is discussing adding a ninth grade to Girdwood Elementary, and possibly the other three high school grades, so that students would not have to make the long commute.

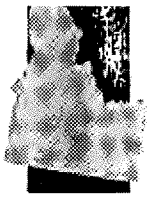
Observed Outcomes

- Some children become too familiar with the school setting and don't expand their horizons socially and academically; they don't get exposure to a wide array of teachers, teaching styles, and specialty fields
- High school teachers report to Girdwood staff that, in general, Girdwood students perform well
- Parents of students at all grade levels are very involved with the school



Keys to Success

- The staff communicates well with each other and with the community
- The staff is flexible and willing to take on new challenges and responsibilities
- The school's smallness results in a family atmosphere; the principal feels the K-8 school might not work as well with a larger enrollment because younger children might feel overwhelmed
- The school receives much support and help from parents and other community members



Location

Elk City School
P.O. Box 419
Elk City, ID 83525

Contact

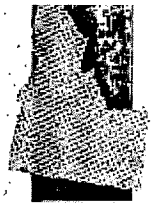
Susan Borowicz, Principal
Phone: 208/842-2218
Fax: 208/842-2225

Grade span: K-10

Elk City School, with 82 students at 11 different grade levels, is located in a remote logging area, a one-and-a-half hour drive from the nearest four-year high school. The school currently has a morning kindergarten; a first-and-second grade blend in the morning with first-graders alone in the afternoon and second-graders with third-graders in the afternoon; one teacher each for the fourth and fifth grades; one-and-a-half teachers for seventh and eighth grade and 0.5 FTE for the two high school grades which depend heavily on distance learning. These class arrangements vary depending on each year's enrollment.

For the upper two high school grades, students must take a bus to one of two four-year high schools and board with another family during the week. The transition is a difficult one socially and emotionally; about one of every three students who leave after the sophomore year do not graduate.

The principal describes the small school as having a family atmosphere, with both the advantages and disadvantages that suggests. Parents volunteer in other classes besides those of their own children. Students are close; the older ones look after the younger ones, but they also bicker as family members do. Over the years, teachers communicate to each other about individual students—what worked and what didn't work, and what the stu-



dent's strengths and problems are. The downside of the familiarity is that it may be difficult for a student to get a fresh start.

The six teachers and one principal/teacher work as a schoolwide team, meeting at least once a week after school to discuss classroom activities and to integrate the arts into all areas of the curriculum.

The school makes the most of its large grade span through cross-age activities, ability grouping, and schoolwide activities. Fifth- and sixth-graders are grouped for science. Certain seventh-, eighth-, ninth-, and 10th-graders are grouped for an enriched language arts class. High school students help out in the primary and intermediate grades with tutoring activities. Once a month the school has a morning arts assembly at which all classes perform. All classes start the day with 20 minutes of sustained silent reading and each class memorizes at least one poem a month. Using three grants and financial assistance from the local mill, the school has instituted a curriculum that integrates the arts with writing and literature across the curriculum. The science and social studies curriculum revolves around schoolwide thematic units that are interwoven with art and literature.

Though the school is not able to offer electives, it covers the basics. Providing K-10 education plays an important role in keeping families in the community. Ten years ago, before distance education was available, the school was K-8. At that time many families left town when their children were in the middle school grades because they did not want their children to have to live away from home beginning in ninth grade.

Because freshman and sophomores can now be educated in Elk City, more families are staying. The state has also granted pilot status to Elk City School to offer more than the allowable number of distance courses. The community and the major employ-

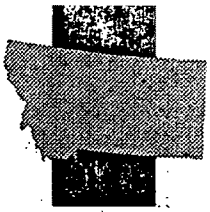
ers in the area—the U.S. Forest Service and the logging industry—are hoping the school can eventually be extended to cover all four high school grades, perhaps by using courses available on the Internet.

Observed Outcomes

- Students are comfortable with technology and are accustomed to many instructional delivery methods. Middle school students have courses from live teachers and by satellite. High school students also take correspondence courses and computer-driven courses which link them by computer to a teacher.
- Older students become role models for younger students.
- The transition to high school, the only school transition in 11 years, looms large for students' entire school career and is stressful and can cause conflict even before it happens.

Keys to Success

- The staff works well together and stays focused upon what's best for children
- The district administration supports the teachers and the mission of the school
- An integrated K-10 program promotes continuity from grade to grade
- The staff is flexible and committed to serving students of all age levels
- A high degree of teamwork is necessary for the success of a small K-10 school; a trusting atmosphere enables students and teachers to take risks and tackle new challenges
- Teachers have weekly collaborative time built into their schedule



Location

Monforton School
6001 Monforton School Road
Bozeman, MT 59715

Contact

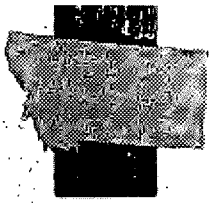
Kathy Pattee, Principal
Phone: 406/586-1557
Fax: 406/587-5049

Grade span: K-8

Monforton School is located in a rural, bedroom community of Bozeman with a highly diverse socioeconomic makeup. For funding purposes, Monforton is three schools—a K-2, three through six, and seven through eight. However, in all other respects it is run as a single K-8 elementary school with 215 students in two adjacent buildings, one for K-2 and one for three though eight. All teachers are certified elementary teachers with many holding master's degrees. The district hires elementary-certified staff both for scheduling flexibility and because it prefers the "whole child" approach such teachers bring with them. The staff of 17 meets weekly as a K-8 staff and works as a team on all decisions about curriculum and procedures. The school does not ring class period bells. The schedule is flexible, with teachers often extending or shortening classes.

At the beginning and middle of the school year each teacher meets with the teacher at the next grade level. They confer about the strengths and weaknesses of the class that has just progressed and about particular students.

Monforton's K-5 grades are taught in a self-contained setting. The teachers work together to plan activities and thematic units. Monforton's middle school grades, six through eight, are semi-departmentalized. Each of the three middle grades' teachers is

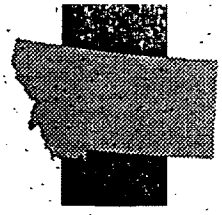


assigned to both a grade level and a subject area—social studies, mathematics, or science. At grade level they teach reading, writing, English, keyboarding, spelling, and study hall. Students are taught music, P.E., and library skills by specialists. Some ability grouping is done in reading and math. (Qualifying eighth-graders have the opportunity to take algebra.)

The older children are held to different requirements and have different consequences than the younger ones. They are expected to be leaders in the school, to exhibit responsible behaviors, and to take care of the younger children. They know they will be held accountable if they pick on a younger student. The sixth- through eighth-graders are accountable for completing their work and turning it in on time. Every Friday they receive a slip telling them if all their work is in. If it is not, they must complete it by Monday at 3:15. If students continue to neglect their work, they lose privileges, receive tutoring, and their parents are called every day.

The principal feels this system of keeping track of students and their work, though it requires much effort, works well. Students don't fall through the cracks and they meet with a great deal of success and support.

Monforton has many cross-age activities. Second-and fifth-grade book buddies write and illustrate books together, sit together at assemblies, and do research projects in the library. Eighth-graders work with first- and second-graders on the computer. In addition, a Big Brother-Big Sister program matches honor students at Bozeman High School with at-risk children at Monforton. The high school students visit Monforton twice a week for an hour each time, and once a month the Monforton students venture to the high school to meet with their mentors. The mentors assist their mentees with school assignments, eat lunch with them, play with them on the playground, and call



them at home once a week just to visit. Group activities are held throughout the summer months.

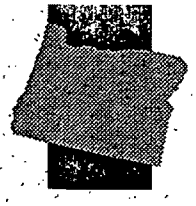
The principal would like to do more activities with the high school that would ease the transition to this institution of 1,000 students. This spring, the high school is implementing a "shadowing" program for all rural eighth-graders. Eighth-grade students will be matched with a high school student for one full day. They will attend classes together, have lunch together, and meet the following fall for a welcome to the new school and new year.

Observed Outcomes

- The local high school finds Monforton students as well or better prepared than others, especially in technology and writing
- A survey of graduates from the past 10 years found former students highly satisfied with the caring atmosphere and academic preparation at Monforton
- Test scores are always above the state averages

Keys to Success

- The school is run as a partnership with parents, community, and staff
- The school has low staff turnover; the principal attributes this to teachers' high degree of autonomy in curriculum planning and other areas, and to good salaries



Location

Damascus Middle School
14151 S.E. 242nd Avenue
Boring, OR 97009

Contact

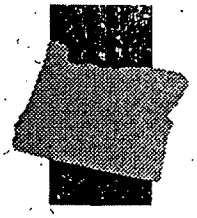
Steve Powell, Principal
Phone: 503/658-3171
Fax: 503/658-6275

Grade span: Five through eight

Damascus Middle School became a four-year middle school many years ago because the local elementary school no longer had room for the fifth grade. Since that time, the middle school has developed practices to address the diverse needs of its 370 students who range in age from 10 to 14. Fifth- and sixth-graders have a program more like that of a traditional elementary school while seventh- and eighth-graders have a program with many of the recognized middle school features.

Damascus fifth- and sixth-graders are in a wing of the school separate from the seventh- and eighth-graders. They have homeroom teachers for most of the day. Their art, music, computer, and P.E. classes, lunch period, and recess are separate from those of the seventh- and eighth-graders. Some classes are blended fifth and sixth grade and others are fifth or sixth only. All fifth- and sixth-grade teachers have elementary education certificates. Fifth- and sixth-grade students attend all school activities except school dances.

Fifth- and sixth-grade math classes have two components—a computational part for which students are grouped homogeneously, and an open-ended, problem-solving part for which students are grouped heterogeneously. For the three days a week of computation, homogeneously grouped students meet in sepa-

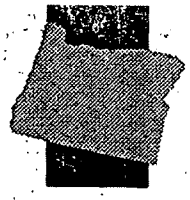


rate classrooms; for the two days a week of open-ended math, a lead teacher and two support teachers hold class in the cafeteria with a heterogeneous group of 60 students.

In the seventh and eighth grades, some classes are blended heterogeneously, while others are taught at grade level. Math classes—pre-algebra, algebra, and integrated algebra—are grouped by ability rather than grade level. Some teachers are in interdisciplinary teams. Teachers who are more comfortable teaching traditional subject matter specialties do so, but coordinate with other teachers; for instance, a history teacher and an English teacher, though not team teaching, might schedule their course material so that students are learning about World War II in history class while reading Anne Frank's *Diary of A Young Girl* in English class.

The principal wants to use the precepts of good middle schools, but also wants teachers to teach to their strengths. He sees both pros and cons to blended classes and is looking at the alternative of looping grade-level classes so as to allow for more depth in the curriculum while maintaining continuity for students by keeping them with the same teacher for two years.

The principal is working toward more coordination between the fifth-sixth and seventh-eighth grade schedules to allow for the most options for staff and students. For instance, partial coordination now allows two seventh- and eighth-grade teachers to participate in the computational element of fifth- and sixth-grade math, during which time a teacher from the lower grades offers an elective drama class to seventh- and eighth-graders. For the upper grades, the principal would like to switch from an eight-period day to one with fewer, longer periods and an advisory period, but is constrained from doing so by the fact that the school uses two teachers from the local high school part time and the day must be structured around their schedules.



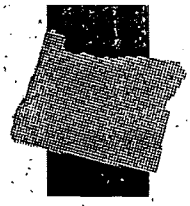
Every staff member, including the principal, is a "portfolio manager" for 15 students. The portfolio managers meet with students at least monthly to review their progress toward meeting state benchmarks and to help them prepare their portfolios for student-led conferences.

Observed Outcomes

- Having grades five through eight together has minimized some negative behavior often seen in older students in this age range
- Through specific school activities, younger students are exposed to older role models and older students increase self-esteem by helping out in the school

Keys to Success

- Older and younger students are separated in different sections of the building
- Small school size allows students to be recognized and valued
- Teachers have time to plan and to interact with colleagues



LOCATION

Hollyrood Elementary School
3560 N.E. Hollyrood Court
Portland, OR 97212

CONTACT

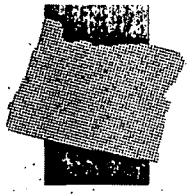
Margaret Dey, Administrator
Phone: 503/916-6766
Fax: 503/916-2635

GRADE SPAN: K-3

In 1986, staff at Hollyrood School—which had been a K-5 school—voted to become a K-3 school so that they could focus more intensively on the developmental needs of the young child. To this end the school's eight full-time and three part-time teachers have pursued extensive professional development, focusing on school restructuring, Tribes learning groups, mixed-age classrooms (of which the school has several), math/science/technology integration, and arts integration.

The Hollyrood staff attempts to create a learning environment that is experiential and developmentally appropriate. Teaching strategies include cooperative learning, inquiry-based science and math, and the storyline strategy—an interdisciplinary approach to organizing the primary school subjects of reading, writing, and mathematics around social studies or science concepts such as the family or community.

The school administrator feels that the smaller age span makes it easier to create a learning community. Teaching strategies and student interests for K-3 are more similar from grade to grade compared to the upper primary grades when there is a heavier emphasis on content areas. A key to developing a strong learning community at Hollyrood is Tribes, a process whereby changing learning groups of three to six students of diverse back-



grounds and social and academic abilities work together developing collaborative problem solving and decisionmaking skills. Teachers, who have all taken Tribes training, use Tribes activities daily in the classroom, weekly at staff meetings, and monthly at site council meetings. One staff meeting a month is designated Tribes inservice; the Tribes philosophy is also a part of the parenting program the school offers.

Though Hollyrood is a small school with a small grade span, its programs reach beyond the school to involve students with people of different ages and backgrounds. Every day, at least 10 students from neighboring Grant High School provide mentoring and tutoring at the school in return for community service credit. As well, the school has 15 reading buddy volunteers from the Northeast Senior Service Center who help students who have reading difficulties on a weekly basis. An in-school banking program through Washington Mutual Savings Bank provides math and economics experiences.

Hollyrood students must make two transitions before high school, first to the local K-5 school for fourth and fifth grade and then to middle school. The school has a number of activities to ease transition anxiety for both students and parents. These include pen pals, pairing third-graders with buddies from the third grade at Laurelhurst Elementary (the school to which Hollyrood students will be going for fourth and fifth grade), site visits, an all-school field trip to Laurelhurst, having students from Laurelhurst come to Hollyrood to answer questions, and a parent-to-parent night.

Hollyrood's statistics are impressive. Third-grade students scored number one in the city on reading tests and second in math in 1996; statewide, scores were in the top 10 percent. The parents of the 200 students contribute more than 5,000 volunteer hours annually. They help out in the classroom, with a year-

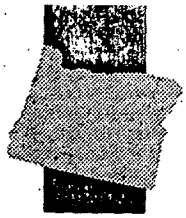
round ecology and science gardening project, and with numerous special events and programs, including a Women's History Week project.

Observed Outcomes

- Increased teacher satisfaction is reflected in low staff turnover
- Student test scores increased significantly after the changeover to the K-3 structure, particularly in the last four years
- Parents convey their high satisfaction and support of the school and its mission; 100 percent of parents are involved in some aspect of the school
- The outside community recognizes and supports the school
- Staff and parents have a positive attitude despite the negative effects of budget cuts
- The school has minimal discipline problems

Keys to Success

- The region director, site council, PTA, parents, and school board support the school
- An ongoing staff development program focuses on integrated instruction
- Coordinated, long- and short-range lesson planning across the grades is ongoing; collaborative, team lesson planning allows teachers to use their depth of experience and new skills creatively
- The transition to the K-5 school is carefully planned
- Teachers use authentic assessment practices
- The PTA provides extensive classroom program support; parents lead numerous after-school activities



Location

Oregon City High School
Moss Campus
19761 S. Beavercreek Road
Oregon City, OR 97045

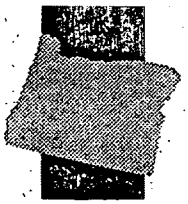
Contact

Sharon Rodgers, Principal
Ray Taroli, Vice-Principal
Phone: 503/657-2437
Fax: 503/657-2429

Grade span: Ninth grade only

Like some other ninth-grade centers around the country, the Oregon City High School's freshman campus, housing 539 students, was created in response to practical considerations. The school, operating since 1990 as a ninth-grade center, was previously a junior high (grades seven through nine). When the district wanted to convert its junior highs to middle schools with grades seven through eight it formed a task force, visited ninth-grade centers elsewhere, and decided to convert two of its junior highs to middle schools while placing its ninth-graders at the third building. Curriculum between the freshman and the senior high school campuses is well-coordinated and some teachers teach at both campuses. Both campuses use a block schedule.

The freshmen only campus allows the ninth-graders to have a high school experience without the constraints of dealing with younger students. School staff characterize the school atmosphere as positive, with no older students to pick on the ninth-graders and no younger children to be picked on. There is very little fighting. When students move on to the senior high they have had a year to gain confidence and they know everyone at



their grade level instead of only the one-third they would have known from a feeder school.

Teachers at the freshman campus enjoy being with the younger students. In the early years of the school the students were eager to be involved in activities at the senior high; now they prefer to be more independent and feel comfortable where they do not have to worry about older students as a threat.

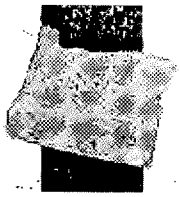
Advantages to the single-grade school are that teachers can focus on freshman behavior and in the smaller school can deliver lessons to all students on issues such as harassment, AIDS, and substance abuse. Parents of female students seem to appreciate that older males are not present.

Disadvantages to the school are that the curriculum focuses mainly on academic requirements and ninth-grade-level teaching; few electives are offered. Students who excel are not able to take more advanced classes on the campus. The school does offer band, choir, drama, and sports activities, and students can go to the senior high, which is four miles away, for assemblies, dances, and sports events. The vice-principal feels the students do not mature as quickly when placed with their own age group, possibly because they lack older role models for behavior and academic challenge.

If the district can pass a bond measure it will phase out the ninth-grade center and build another high school.

Observed Outcomes

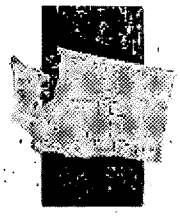
- The ninth-grade center has less fighting than did the previous junior high school.



- Lack of older role models can be both positive and negative. On one hand, ninth-graders do not have to deal with the intimidation that often comes from older students, but on the other hand when a particular ninth-grade class does not have a strong student leadership base, negative peer pressure can produce inappropriate attitudes toward academic achievement and positive behavior.

Keys to Success

- Curriculum is coordinated with that of grades 10-12.
- The staff wants to teach ninth-graders.
- Freshmen are frequently transported to the senior high for assemblies. They have the opportunity to be involved in co-curricular and extra-curricular activities at the 10-12 campus as well.
- Teachers at the two high schools have opportunities to collaborate.
- The administration is integrated so as to promote seamless policies, curriculum, and expectations.
- The high school site councils work together. Oregon City High School has a freshman site council that meets once a month and a senior high site council that meets once a month. The two groups combine once a month in order to collaborate, maintain programs that are seamless, and ensure that both campuses have the same goals and philosophy.
- Freshman who are very advanced in certain subject areas have the opportunity to complete one or more courses at the senior high.



Location

Eckstein Middle School
3003 N.E. 75th Street
Seattle, WA 98115

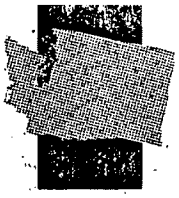
Contact

Lynn Caldwell, Principal
Phone: 206/281-6120
Fax: 206/281-6693

Grade span: Six through eight

With close to 1,200 students, Eckstein Middle School is the largest of Seattle's middle schools. Eckstein has adopted structures and practices that create a positive, student-centered learning environment, making it one of the most desirable of the city's middle schools with a waiting list of 100 to 200 students every year.

Like many large middle schools, Eckstein is divided into three grade-level houses. Each house has its own administrator and counselor and each is divided into interdisciplinary teams with 120 students assigned to a team of teachers—math, language arts, and social studies at the sixth- and seventh-grade level, and language arts and social studies at the eighth-grade level. The team members collaborate to help students achieve academic and personal goals. The school believes the team structure improves student-teacher relationships, motivation, attendance, behavior, attitudes toward school, peer relationships, and understanding of individual student needs. Perceived advantages for teachers are increased intellectual stimulation, improved student discipline and instructional delivery, and personal relationships with colleagues. Protecting the integrity of the teams is the school's highest priority.



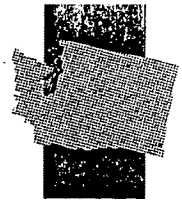
The teachers on a team have a common prep time and are usually housed in the same wing of the school so that students do not have to go far for most classes. A half-hour period in the morning with one of the team teachers or an elective teacher serves as an advisory, homeroom, or study period.

To ease transition for sixth-graders the school devotes the first day of the school year to orientation and has a weekly house assembly for sixth-graders only. Aside from P.E., sixth-graders take classes only with other sixth-graders. Seventh- and eighth-graders take electives with mixed grades. Within the team structure, Eckstein has language arts and social studies for capable students and honors math at each grade level.

The curriculum at Eckstein is structured to assure that the door to higher education stays open for all students. For instance, all eighth-grade students—no matter what math class they take—are exposed to algebra concepts. All sixth-graders take a 10-week foreign language exploratory class in which they are exposed to French, German, Japanese, and Spanish. Students are encouraged to hold aspirations to higher learning; for instance, they attend precollege activities such as college fairs, usually attended only by high school students.

Observed Outcomes

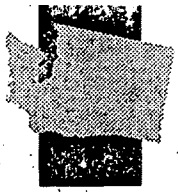
- Eckstein students ranked above average in feeling safe at school, according to the district's annual student survey
- The Eckstein faculty is highly professional
- The relationship between staff and students is better than average for the district, according to the district's annual student survey; teachers "treat students like their own kids"
- Scores on standardized tests of reading, language, math, and science are above average for the district and the state



- The percentage of students performing at a "satisfactory" level (based on grade point average, course completion, and test scores) is higher than that of other district middle schools

Keys to Success

- The staff is committed to the team structure and house organization
- The faculty promotes appropriate course-taking patterns that leave the doors open to education beyond high school



Location

Komachin Middle School
3650 College Street, S.E.
Lacey, WA 98503

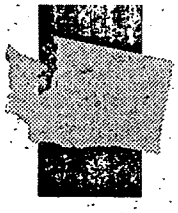
Contact

Norm Bykerk, Principal
Phone: 360/438-8800
Fax: 360/438-8802

Grade span: Seven through eight

Komachin Middle School is a two-year school with a socially and ethnically diverse population of 780 students. Komachin divides its students into three houses of mixed seventh- and eighth-graders, each in a wing of the school. Each house has at least two teachers in each of four content areas: science, math, language arts, and social studies. The house teachers work as a team. Four of the eight teachers at a time have a common prep period. All classes, except for P.E., exploratory mini-courses, and other enrichment such as music, take place in the wing. The school has assigned a counselor to each house. The counselor for the house has an office in the wing and is available to students full time. The day begins with a 31-minute advisory period for orientation activities, transition activities, fund raising, service learning projects, and other activities.

Before the school opened in 1992, staff members found they could not define any significant learning differences between seventh- and eighth-graders. As a result, they decided to reorganize the district's existing curriculum by integrating content areas. For instance, in other district middle schools life sciences is taught in seventh grade and physical sciences in eighth grade. At Komachin the two are blended in a two-year science class and organized around broad themes along with social studies,



language arts, and math. For the 1996-97 school year the themes for the core courses were explorations (the self), connections (the group), and changes (the community). Curriculum threads include environmental education (quality of life), the idea of diversity (recognizing and appreciating differences), and the idea of service (doing for others).

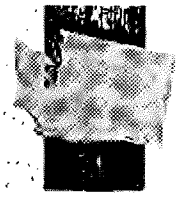
The grade levels as well as the curriculum at Komachin are integrated. Each class is composed of 50 percent seventh-graders and 50 percent eighth-graders. The curriculum occurs in a loop, but one year is not a prerequisite to the next or a progression from the last. If seventh-graders start school during the second year of the curriculum, they will do the first year as eighth-graders.

Komachin tries to create as much continuity as possible during the students' brief stay by placing them with the same group of teachers for the entire two years. The school also tries to delay high school transition activities until as late in the eighth-grade year as possible. This way students don't have the sense that their time at the school is over before it actually is.

Komachin does not offer many electives. The focus is on the integrated curriculum. The applied technology and art teachers, for example, do not teach their own self-contained classes but work full time on a flexible schedule with the team teachers to support content areas.

Observed Outcomes

- Students learn to work well in groups. They have a sense of what quality is, and they are comfortable with public speaking because of Komachin's emphasis on performance-based assessment. The high schools have noted these qualities.
- Test scores are as good or better than those of other middle schools in the district.



KEYS TO SUCCESS

- The faculty maintains a clear vision and keeps its focus on curriculum and instruction. For instance, the staff does not have traditional faculty meetings. They have content meetings.
- Because of levy failure teachers no longer have a weekly late start day for planning; however, the principal feels that such planning time is especially important when teachers are using an integrated curriculum and performance-based assessment.

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DOCUMENT RESUME

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ABSTRACT

The effect of grade span configuration (grouping of grades in schools) and school-to-school transition on student achievement was investigated. The Michigan Education Assessment Program test was used to collect data on the passing rate of students in 232 schools in a large urban inner city school district in the midwest. The results indicate that grade span configuration and school-to-school transition had significant positive and negative effects on student achievement respectively. The paper discusses implications for school districts. (Author)

The Effect of Grade Span Configuration and School-to-School Transition on Student Achievement

Stephanie D. Wren

Wayne State University

Abstract

The effect of grade span configuration and school-to-school transition on student achievement was investigated. The Michigan Education Assessment Program test was used to collect data on the passing rate of students in 232 schools in a large urban inner city school district in the midwest. The results indicate that grade span configuration and school-to-school transition had significant positive and negative effects on student achievement respectively. Implications for school districts were discussed.

The academic achievement of students in inner-city public schools has been a source of debate for politicians, school administrators, and parents. Much research has been conducted to determine which variables effect the academic achievement of students. Of the most notable variables (parent, peer, and community), the effect of school-related variables on the academic achievement of inner-city students is one of the most debated.

This article will address two school related variables-transition and grade span configuration-that receive little attention from school administrators. However, these two variables may have a major impact on student achievement as opposed to the school-related variables that receive the most attention-professional development, school improvement programs, and school reform--but may have the least impact on student achievement.

Studies have been conducted to assess the influence of variables such as teacher professional development, school programs, and school reform on student achievement. Desimone, Porter, Garet, Yoon, and Birman (2002) found that teachers were more likely to use specific teaching practices that were focused on during professional development workshops. If teachers are implementing teaching practices learned through professional development, then there is the potential for student achievement to be influenced. Yet, professional development alone is not enough to improve student achievement.

In an attempt to effect student achievement, urban school districts buy into and implement many different school programs. Some of the programs claim to effect students' social and emotional learning, improve staff relationships with the parents, or parent relationships with the child. The programs are evaluated by school district

personnel and conclusions are drawn regarding the success or failure of the program. Mattingly, Prislin, McKenzie, Rodriguez, and Kayzar (2002) analyzed 41 K-12 parent involvement program evaluations performed by each respective school district. Although all of the school district evaluations concluded that the programs were successful in improving student achievement, Mattingly et al. (2002) concluded there was little evidence to support the school districts' findings. Consequently, there is cause for concern as to whether student achievement is being positively influenced by some school programs.

Given the push towards educational accountability, school reform has been feverishly debated. Schools, school boards, and school districts in Detroit, New York, Cleveland, and other cities have been taken over by the state or by the school district. The objective is to reform or reconstitute failing schools with the purpose of improving student achievement. Malen, Croninger, Muncey, and Jones (2002) conducted an expoloratory case study on three schools in a large metropolitan school district. Those three schools were targeted for reconstitution by the school district. Malen et al. (2002) found that many factions within the school district-union representatives, school administrators, teachers-were negatively impacted by the reconstitution efforts. The authors also found that the new faculty and staff brought in as replacements were not motivated or as committed as is presumed under reconstitution. Once again, there is concern for whether student achievement is being positively influenced under those conditions.

If there is any effect that professional development, school improvement programs, or school reform has on student achievement, it appears to be indistinct. Given

the district resources that are being utilized to improve student achievement via the abovementioned, other areas that can have an effect on student achievement in urban inner city public schools, yet has received little attention in the literature or within the school districts, are school-to-school transition and grade span configuration and their impact on student achievement.

In a study of 15 schools in Missouri with grade spans 7-12, 9-12, and 10-12, Alspaugh (2000) found that the higher grade at which a student transitions to high school the more likely the student would dropout of high school. In the study, the author found that students in 7-12 high schools had a lower occurrence of high school dropout than students who transitioned to high school in the 10th grade. Alspaugh (2000) surmised that because the students in the 7-12 high school did not transition to an intermediate middle school those students were able to acclimate themselves to high school sooner than the students in the 10-12 or 9-12 high schools. Previously, Alspaugh (1998) determined that not only did the number of school transitions effect the high school dropout rate, but also transition in conjunction with school size.

If transition can effect the dropout rate, then it can also effect achievement. Alspaugh (1998) found that Missouri students in the K-8 grade span who transitioned to high school without attending an intermediate middle school experienced less of an achievement loss than students who had to attend a middle school or junior high school. So, along with transition, grade span configuration appears to have an impact on student achievement.

The aforementioned studies focused primarily on rural or small town school districts. Little detailed information was given or has been reported in the literature

regarding large urban inner city districts and the effects of school-to-school transition or grade span configuration on achievement. So, the purpose of this study is to investigate the effects of grade span configuration and transition on student achievement. More specifically, the research questions that will be investigated are:

1. What is the relation between grade span configuration and student achievement?
2. What is the relation between school-to-school transition and student achievement?
3. What is the effect of school-to-school transition and grade span configuration on student achievement?

Given the drive towards educational accountability, no stone can be left unturned. If grade span configuration and/or school-to-school transition can positively influence student achievement, then school district administrators should give serious thought to reconfiguring schools within the district to maximize student achievement.

Method

Participants

The sample consists of 232 out of 264 schools from a large inner city public school district in the Midwest. Thirty-one schools were eliminated from the study because those schools did not have measurements on the dependent variable. The student body within the school district is approximately 91% African-American.

Materials

The Michigan Educational Assessment Program (MEAP) test from 2001 was used to collect data on student achievement. The MEAP test is administered to students in grades 4, 5, 7, 8, 11.

Procedure

The independent variables, grade span configuration and school-to-school transitions, were based upon the configuration of the 232 schools within the sampled school district. The configurations ranged from pk-4 up to 9-12 and their ranges were numbered accordingly. For school-to-school transitions, elementary schools were coded as 1 because the students transitioned from home to pre-kindergarten, kindergarten, or first grade. Middle schools were coded as 2 because the students transitioned from home to elementary school then to middle school. High schools were coded as 3 because the students transitioned from home to elementary school, to middle school, then to high school. Sixty-nine percent of the various grade span configurations occurred at the elementary school level. So, if a school did not have a pre-kindergarten, kindergarten, or first-grade level, then that school was coded as a transition 2 school.

The dependent variable, student achievement, was measured using the percentage

of students who passed the MEAP in 2001 in their respective schools. This data was collected from the Standard and Poor's School Evaluation Services website. It is found by dividing the total number of included scores that met state standards in all subject areas of the test by the total number of scores for each grade and subject within the given school.

Results

The average grade span configuration was 6.32 years with a standard deviation of 1.99 years. With a sample of size 159, the average percent of students passing the MEAP in transition 1 schools was 36.6% with a standard deviation of 16.4 percent. The average percent of students passing the MEAP in transition 2 schools was 21.9% with a standard deviation of 8% and a sample of size 45. With a sample of size 28, the average percent of students passing the MEAP in transition 3 schools was 24.5% with a standard deviation of 14.3%. The overall average percent of students passing the MEAP was 32.3% with a standard deviation of 16.2%. The average number of school-to-school transitions was 1.44 with a standard deviation of .70. SPSS was used to perform all of the statistical analysis.

Research Question One: What is the relation between grade span configuration and student achievement?

A simple linear correlation was performed to evaluate the relationship between grade span configuration and student achievement. The data revealed a significant positive correlation (.26, $p<.01$) between grade span configuration and achievement.

Research Question Two: What is the relation between transition and student achievement?

A simple linear correlation was performed to evaluate this relationship as well.

The data revealed a significant negative correlation (-.35, $p<.01$) between transition and student achievement.

Research Question Three: What is the effect of school-to-school transition and grade span configuration on student achievement?

A multiple regression analysis was performed to evaluate the effect of transition and grade span configuration on student achievement with the objective of determining which predictor had the greatest impact on achievement. When transition and grade span configuration were simultaneously regressed upon student achievement it was revealed that transition was a significant predictor of student achievement ($R^2 = .12$, $p< .05$).

Scheffe's post hoc comparison test was performed to determine where student achievement differences exist with respect to school-to-school transition. Significant differences were observed between 1 school-to-school transition and 2 and 3 school-to-school transitions with mean differences of 14.7% and 12.1% ($p < .05$) and standard deviations of .25% and .30% respectively. No significant differences existed between the 2 and 3 school-to-school transitions.

Discussion

As grade span configuration increases so does achievement. The more grade levels that a school services the better the students perform. The more transitions a student makes, the worse the student performs as evidenced by the negative correlation for research question two. When these independent variables are assessed independent of one another, the results express the same conclusion and that is the longer a student stays in a given school the better the student performs. Furthermore, from the post hoc comparisons, it appears as if student achievement in the elementary schools is significantly better than student achievement in middle and high school.

Yet, when these variables are evaluated simultaneously the results are different. Only school-to-school transition is a significant predictor of student achievement when measured in conjunction with grade span configuration.

In elementary schools, the students are in a cozy, nurturing environment with very few stressors. In a middle or high school, the students are in a formal, impersonal environment with a great deal of stressors (navigating through the school, forming peer relations, organizational adjustments, etc.). Hence, it seems as if the stressors involved in school-to-school transition are so critical that they neutralize or even diminish the achievement gains that were made in elementary school. Moreover, Alspaugh (1998) found that students who transitioned from multiple elementary schools and merged into one middle school experienced greater achievement loss compared to those students who transitioned from a single elementary school into one middle school. Hence, this is an important finding because large urban inner city public schools typically merge multiple elementary schools into one middle school which can seek to explain some portion of the achievement loss associated with elementary to middle school transition.

In a study of eighth-grade transition programs and high school retention, Smith (1997) found that middle schools with transition programs which targeted students, parents, and staff produced high school students with higher GPA's and fewer high school dropouts. This was in contrast to middle schools that did not have transition programs or had transition programs which only targeted parents, students, or staff but not all three.

In conclusion, school district administrators may decide that the size of the school district does not feasibly or financially permit reorganization on the basis of grade span

configuration. Or, school district administrators may leave the selection of transition programs up to the individual school. But, when student achievement is at risk, decisions cannot be made cavalierly or off the cuff. Grade span configuration and school-to-school transition must be given serious consideration given their obvious impact on student achievement.

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Author Note

Stephanie D. Wren is a graduate student at Wayne State University in Detroit, Michigan majoring in education evaluation and research. The manuscript being submitted, The Effect of Grade Span Configuration and School-to-School Transition on Student achievement, 12 pages long with no tables or figures.

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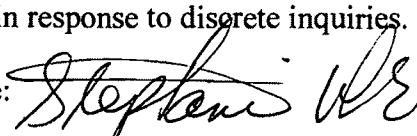
Signature:  Position: Student

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The Efficacy of Philadelphia's K-to-8 Schools Compared to Middle Grades Schools

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The Efficacy of Philadelphia's K-to-8 Schools Compared to Middle Grades Schools

Philadelphia's K-to-8 schools serve fewer students per grade than middle grades schools. They typically serve students for more than twice as many years and from smaller feeder neighborhoods. These conditions offer K-to-8 schools better opportunities for teacher-teacher, teacher-student, and teacher-parent relations.

By Robert M. Offenberg

This study is a group of natural experiments designed to compare and contrast the achievement of students in public K-to-8 schools with the achievement of students in separate public middle grades schools in Philadelphia. The middle grades schools in this study include schools with fifth through eighth grades as well as those with sixth through eighth. They are commonly called "middle schools," but their fidelity to the middle school philosophy has not been examined. This study explores the effects of the two types of schools on achievement at the end of the eighth grade (the culmination of the middle grades experience) and on ninth grade achievement, when sustained high school effects begin to be apparent. The individual experiments were conducted to meet the needs of the management of the School District as it planned new schools and changed the organization of existing

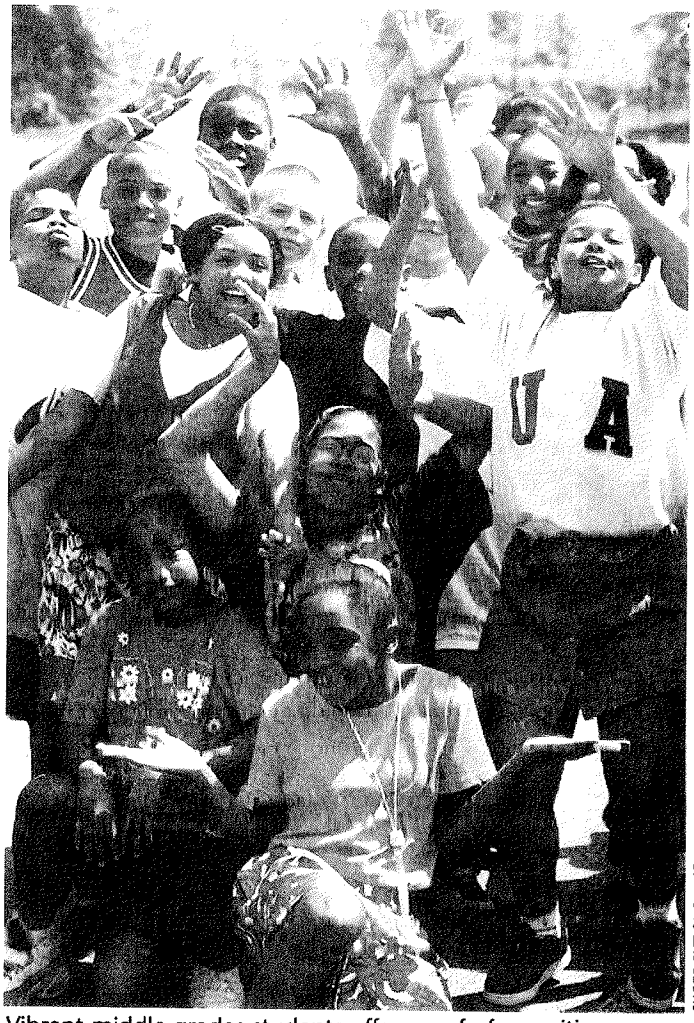

PHOTO BY DOLORES C. MARTIN

Vibrant middle grades students offer proof of a positive school climate.

ones. Thus, the experiments emphasized the realities of middle years education as it existed in the School District of Philadelphia.

The Issue

In a recent pair of articles, Beane (1999a, 1999b) discussed the reasons middle schools are under attack nationally, and since he is a supporter of the middle school concept, the reasons why they should continue to exist. In his view, the factors that led to the emergence of middle schools are complicated, reflecting a variety of inconsistent agendas, and there is still disagreement among professionals about the purposes that they serve. But the purpose that Beane believes they *should* serve is clear, and his views are echoed by other middle school advocates such as Mizell (1999). They hold that middle schools should be providers of a democratic, egalitarian, child-centered pedagogy.

The current literature on middle grades education tends to ignore comparison of middle schools with other school organizations in favor of addressing the educational, social, and emotional factors of early adolescence. For example, Epstein (1990) and MacIver and Epstein (1991) have emphasized the importance of educational practices that can be carried out in any school in which middle grades education takes place. A more recent collection of articles in the March 1997 *Phi Delta Kappan* (special section, pp. 517-556) by specialists such as Lipsitz, Felner, Mizell, Jackson, and others did not compare middle schools to other types of schools such as K-to-8. Rather, the collection offered in-depth reviews of successful pedagogy, professional development, leadership, and instructional strategies that typically do not depend on the grade level configuration of the school in which they are implemented. The ideas in these *Kappan* papers hearken back to *Turning Points: Preparing American Youth for the 21st Century* (Carnegie Council on Adolescent Development, 1989) a report that was clearly about "middle grade schools" (pg. 9) and not about schools that include middle grades along with other grades. The authors were especially influenced by a concern that large middle grades schools needed to be made functionally smaller, create better student-faculty bonds, and develop more relationships that are effective with parents.

They also appear to have been influenced by some of the conclusions but not the methodology of Simmons and Blyth (1987), who carried out longitudinal research comparing Milwaukee junior high students with peers attending K-to-8 schools. When Simmons and Blyth contrasted K-to-8 students with junior high enrollees, the K-to-8 students were found to be at an advantage on several social and academic indices. K-to-8 students showed higher GPAs and achievement test scores (especially in mathematics), while displaying greater self-esteem, higher extra-curricular participation, greater leadership levels, and lower rates of victimization. Simmons and Blyth attributed their findings to the greater intimacy of the K-to-8 environment, to students having greater opportunity to be "top dog" in their schools for longer periods, and to their not having to face the stress of school transition until they were developmentally more suited for it. At the time, they speculated that replacing junior high school with middle grades schools might avoid some of the problems then associated with junior highs.

Simmons and Blyth attributed their findings to the greater intimacy of the K-to-8 environment and to students not having to face the stress of school transition until they were developmentally ready for it.

The present group of studies is a partial replication of Simmons and Blyth that uses student outcome data to see whether Philadelphia's middle grades schools have succeeded in closing the gap that Simmons and Blyth found between K-to-8 schools and junior high schools.

Data sources and methodologies common to all the naturalistic experiments

All of the research to be presented shares a common experimental approach. First, and foremost, it is comprised of studies of schools, not individual children or students. For this reason, all of the analyses were based on school data, not individual data, an

approach that differs from most of the research encountered in the literature. I preferred this approach for two reasons, although individual student data were available for many of the dependent variables. I felt that it was important to focus on the differences among schools as institutions, not on the behavior of individual students within schools. Moreover, in making the school the unit of observation, I solved problems associated with non-independence of student observations, and the presence of important variables whose meaning changes with the shift from the individual to the institutional level. For example, knowing the relationship between a student's membership in a minority group and his or her achievement does not convey the same meaning as knowing the performance of a school with minority student enrollment of 90%.

During the years studied (1996, 1997, 1998 & 1999) there were 37 to 42 middle grades schools and 40 to 43 K-to-8 schools that served as subjects of the experiments, making the number of *schools* in these studies comparable to the number of student subjects in many studies of achievement. The number of schools varied from year to year, because the then current definition of "school" changed. Sometimes annexes and the sites of schools that had several locations were treated as separate "schools" for reporting purposes; on other occasions, all of them were combined for reporting purposes. As will be evident from the findings, none of these year-to-year differences influenced the findings of this research. A handful of specialized schools providing middle grades education in K-to-12 and combined middle-high organizations was excluded from all phases of the research.

Before this research began, it was apparent that children in the eighth grade of K-to-8 schools in Philadelphia on average, had better academic achievement than eighth grade children in middle grades schools . For example, students in K-to-8 schools appeared to perform better than students in middle grades schools on standardized measures such as the Stanford Achievement Test (SAT-9). The "arm-chair" explanation in Philadelphia was socioeconomic: K-to-8 schools did better than middle grades schools because they had more middle class enrollments. This explanation was so common that these studies began as an attempt to disentangle the effect of the type of school from the social class of the community that schools served. It is the theme of the first part of the results.

The analyses used throughout the study are regression models that control for the differences in the socioeconomic status of schools in Philadelphia and then to find statistically reliable variations, if any, in the performance of K-to-8 schools and middle grades schools. The socioeconomic variable that was controlled in every model was the Title 1 Eligibility Poverty Index, which is based on the percent of students who receive public assistance and are eligible for reduced price lunch. Some of the analyses were replicated with the ethnic background (percent African American and Latino) of the students in each school included as well. The addition of the ethnic background variable never changed the significance or magnitude of the effect of type of school to a meaningful degree.

All the analyses lead to the conclusion that the better SAT-9 scores of K-to-8 schools were not merely artifacts of the social class of the student bodies they served.

The dependent variables used in this study were obtained from computer-managed databases maintained by the School District. The data sources used for this study contained School Poverty Index, school-level average NCE Stanford Achievement Tests scores, components of the School Performance Index used to assess the progress of schools; the probability that students would attend special admission college preparatory high schools; and grade point averages earned by students at the end of the first year of high school. I will discuss each variable the first time it is used in the following sections.

Findings

Standardized achievement test score differences and social class. The first goal of this effort was to test the hypothesis that the trend for K-to-8 schools to score better than middle grades schools on the Stanford Achievement Tests (SAT-9) was an artifact of the social class of their student bodies. I postulated that if the only reason K-to-8 schools outperformed middle grades schools was that they typically served

students of a higher socioeconomic status, then systematic differences between the two types of schools should disappear in an analysis that included and removed the effects associated with the School Poverty Indexes.

Ninth grade GPAs, credits earned, and standardized reading, math, and science scores all tended in the direction favoring K-to-8 alumni.

This hypothesis was tested using 1997 eighth grade SAT-9 results. The findings were replicated using eighth grade SAT-9 results from the following year. All of the analyses *disconfirmed* the hypothesis, leading to the conclusion that the better SAT-9 scores of K-to-8 schools were not merely artifacts of the social class of the student bodies they served. While social class is an important predictor of achievement, it is not the only reason why the two types of schools differ. The average size of the differences between the two types of schools, after the effect of the Poverty Index has been controlled statistically, were from three and one-half to eight and one-half NCE points higher for K-to-8 schools than the average scores for middle grades schools, depending on the sub-test.

The presence of sizable numbers of low-income students in a school reduced its average scores by between 0.27 and 0.41 points *per percent* of low-income students in the school, after the effect of school type has been controlled.

Next, the 1997 results were reanalyzed to include percent minority (African American and Latino) students in each school as well as poverty. Percent minority did *not* add significantly to the models, and did not change the conclusions.

Performance index achievement component gains. The purpose of a second component of the study was to see how successful K-to-8 schools and middle grades schools had been in taking advantage of the opportunities afforded by the *Children Achieving* reforms. It was hypothesized that even though the K-to-8 schools had higher achievement levels than middle grades schools, the gap between them would begin to close as a result of *Children Achieving.*

The hypothesis tested was that the gap between K-to-8 and middle grades schools narrowed during the first *Children Achieving* cycle. The spring 1998 end-of-cycle reading, mathematics, and science components of the Performance Index were the outcome variables. Analyses removed the effects of the spring 1996 beginning-of-cycle performance level, the Poverty Index, the joint effect of the Poverty Index and the beginning-of-cycle level, and the district-wide eighth grade improvement trend from each school's spring 1998 Index value. With these effects removed it was possible to answer the question: Did the gap between the achievement of eighth grade students in K-to-8 schools and middle grades schools become smaller?

The results showed that it did not. Both types of school made gains in each Index component, but K-to-8 school gains were larger than middle grades school gains across the board. For mathematics, the gap grew larger to a statistically significant degree. There were trends for K-to-8 schools to grow more than middle grades schools on the reading and science components as well, but these trends were not statistically significant. The significant value for mathematics shows that, on average, this component of the Performance Index increased four points more for K-to-8 schools than for similar middle grades schools.

Enrollment in special admission college preparatory high schools. The purpose of this part of the study was to compare the rates at which students who completed K-to-8 and middle grades schools attended specialized college preparatory high schools when they entered ninth grade in fall 1997. These high schools all have admission requirements based on marks, achievement test scores, and in some cases, evidence of talents or interests. These schools specialized in creative and performing arts, non-traditional courses of study, engineering and science, international affairs, college motivation, and high levels of academic achievement. One school with high-achievement admission requirements was not included because its ninth grade students had all been promoted from its own middle grades program. The hypothesis being considered was that K-to-8 students and middle grades school students were equally likely to be enrolled in one of these schools once the effect of socioeconomic status was controlled.

To test the hypothesis, a new variable was computed: the percentage of each school's eighth grade students who attended one of the special admission high schools the following year. The relationship between this variable and type of eighth grade school was examined, with the effect of poverty controlled statistically. Results demonstrated that the percentage of K-to-8 students who went on to attend special admission high schools was, on average, more than *11% higher* than the percentage from middle grades schools. Thus, the hypothesis that the enrollment pattern was merely an artifact of community differences was disconfirmed. In addition, the enrollment data were reanalyzed to include percent minority (African American and Latino) students in each school as well as poverty. Percent minority did *not* add significantly to the model, and did not change the conclusions.

Ninth grade achievement. This group of analyses compared the ninth grade performance of the students who had emerged from the two types of schools serving the middle grades. It is based on students who attended eighth grade in a Philadelphia public school—K-to-8 or middle grades school—during 1995-96 and ninth grade in a Philadelphia public high school during 1996-97. These analyses tested the hypothesis that (controlling for the effects of enrolling in high schools with different missions and the effects of socioeconomic status) the achievements of K-to-8 alumni and middle grades school alumni would be equal.

Six outcomes were studied: attendance, credits earned, GPA, and SAT-9 open-ended response scores for reading, mathematics, and science. For each outcome variable, there were two observations per high school: the average value for its K-to-8 school alumni and the average value for its middle grades school alumni. In addition to the outcome variables, for each high school, the average value of the K-to-8 and middle grades school alumni's eighth grade school Poverty Index was computed to take into account differences in the social class of children who came from each school environment.

With the unique character of the high schools and the poverty levels of middle grade schools controlled, the analyses showed that the K-to-8 alumni's GPA was about *one tenth of a letter grade higher* than the middle grades school alumni's GPA, a statistically significant difference ($p<.02$). While no statistically significant differences were obtained for attendance, credits earned, reading NCE, math NCE or science NCE, all but the trend for attendance were in the direction favoring K-to-8 alumni.

School size. In the School District of Philadelphia, K-to-8 schools, as a group, tend to be smaller than middle grades schools. In fall 1999, the correlation between school type and *total school* population was .441, a statistically significant but moderate relationship. The size of the K-to-8 schools ranged from 252 to 1,419 students, while the middle grades schools ranged from 389 to 1,482 students.

The relationship between school type and the number of students in the *eighth grade* was much stronger. The number of children in K-to-8 school eighth grades ranged from 23 to 147, in middle grades schools from 116 to 421. The correlation coefficient was .848 for eighth grade when the school Performance Index test score data were obtained. A correlation coefficient this size means that about three-fourths of the variation in numbers of students per grade could be explained by the type of school alone. In this study, the number of students in a grade largely overlaps the type of school or grade configuration.

The question to be addressed is, "Do these differences in size, either the number of students in a school or in a grade within a school, account for the Performance Index differences in K-to-8 and middle grades schools serving similar communities?" Or, are there some other, unexplored characteristics responsible for them? What follows is the attempt to answer this question for each of the components of the spring 1999 Performance Index based on the eighth grade SAT-9.

These findings suggest that the number of students in a grade, but not in a total school, might be a component of the differences between K-to-8 and middle grades schools.

In the first set of analyses, the effects of social class were removed by controlling for the value of the Poverty Index so that the effects of school

organization (K-to-8 or middle grades), the size of the total school enrollment, and the interaction of school organization and total school size could be explored. If the effects attributed to school organization were really proxies for the effects of total school size, the main effect for size would be statistically significant and the significance of the difference between the types of schools would be reduced. The interaction component of these analyses should be capable of detecting different effects of school size among K-to-8 and middle grades schools. For example, if school size were more important in middle grades schools than in K-to-8 schools, the interactions should detect the difference.

All the analyses produced similar results. The difference between K-to-8 and middle grades schools was significant, or just missed the traditional value ($p<.05$) for statistical significance—essentially reconfirming the analyses of SAT-9 Reading, Mathematics, and Science score findings presented above. However, neither the size of total enrollment of a school nor the interaction of size of the total enrollment and type of school ever approached statistical significance. Together these findings suggest that the difference between K-to-8 schools and middle grades schools is not likely to be due to the total number of students attending them.

To explore whether the difference between K-to-8 and middle grades schools was a proxy for the number of students in a grade and student achievement, I replicated the analyses described above, but this time I used the eighth grade enrollment of the schools instead of total enrollment. As with school size the three analyses showed a trend for K-to-8 schools to outperform middle grades schools serving similar communities: two of the trends were statistically significant, and one, for eighth grade reading, just missed the traditional value of significance. While none of the analyses of simple effects for number of eighth grade students was significant, two of three interaction analyses contained evidence that as the number of students in the eighth grade of a K-to-8 school became larger, performance of students in the two types of schools converged. This is demonstrated by the significant ($p<.05$) interaction between the type of school and the number of students in the grade for science; a substantial, similar effect for mathematics that just misses the traditional level of significance, and a smaller, non-significant effect for reading. As the size of the eighth grades get larger, the two types of schools become more alike.

These findings suggest that the number of students in a grade, but not in a total school, might be a component of the differences between K-to-8 and middle grades schools that were observed throughout the study. However, they probably reflect dissimilar processes in the two types of schools because the statistically significant findings are interactions. Unfortunately, additional natural experiments conducted within School District of Philadelphia are not likely to disentangle the processes associated with the type of school and those associated with the number of students per grade because of their strong relationship.

Conclusions and implications

This was a group of natural experiments based on the achievement of students completing eighth grade in schools of the District of Philadelphia. It began as a study to assure that the difference between K-to-8 school and middle grades school achievement was not merely an artifact of the social class of the students they served. It evolved into a family of studies that addressed new questions raised by school district staff as they considered the best ways to deliver middle years education.

The findings have been very consistent. Every experiment yielded statistically significant evidence and non-significant trends showing that, as a group, K-to-8 schools are more effective than middle grades schools serving similar communities. Analyses of the effects of school size suggested that the number of students in a grade, but not the total number in a school, contributed to, but probably did not explain the difference between the two types of schools.

However, there were many *individual* schools with outcomes not fitting the trend (see Brown pp. 14-22 in this issue for a look inside Tilden Middle School in Philadelphia). Thus, the group of natural experiments suggests that it has been *easier* to provide effective middle grades education in a K-to-8 environment, though it is possible to provide it in a middle grades school. The Simmons and Blyth comparison of K-to-8 schools with junior high schools and the Carnegie Council *Turning Points* may provide hints about why this should be true.

Philadelphia's K-to-8 schools serve fewer students per grade than middle grades schools, so

they have fewer teachers per grade. They typically serve students for nine years while middle grades schools serve them for three or four. They tend to serve students who reside in a smaller feeder neighborhood than middle grades schools. These conditions offer K-to-8 schools more opportunities for teacher-teacher, teacher-student, and teacher-parent relations, and more supportive interpersonal environments to evolve.

The house organizations and small learning communities advocated by middle school specialists are, in a sense, attempts to create a group of K-to-8-like learning environments within an organization that tends to be bureaucratic because of its size and the character of the community it serves. I think a field-based study of our middle grades schools would show most having small-learning-community organizational structures, but not the supportive, interpersonal relationships that the middle school approach is supposed to develop. I believe there are several reasons why. Teachers and students probably move among a school's small learning communities more often than their K-to-8 peers change schools, making teacher-teacher and teacher-student bonds difficult to maintain. Middle grades parents are less likely to be on campus than are K-to-8 parents because middle grades schools tend to be outside their immediate neighborhoods, and because their children attend them for only a few years. So, as a group, urban middle grades schools are less likely to have developed the environments that the Carnegie Council and Simmons and Blyth advocated unless regular attention had been given to maintaining it. Consequently, organizational character of the learning environment is probably the root of the findings of this study.

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