

Prince George's County Public Schools

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## **RESEARCH REPORT**

*What Does The Research Tell Us About K-8 Grade  
Configuration And Student Achievement?*

*Division of Academics  
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## **Introduction**

*The Executive Cabinet and the Board of Education will use the report, among other tools and sources of information, to make decisions on grade configuration in Prince George's County Public Schools.*

## **Existing Research**

*Research on School Configuration for Young Adolescents*

## **Benefits of K-8 Grade Configuration**

*According to the research from *The K-8 Solution: The Retreat from Middle Schools*, Center for Education Reform, September 2008, educational researchers began looking at the middle school model and comparing it with K-8 schools. They found that there are benefits to the latter model.*

## **Challenges of K-8 Grade Configuration**

*In reviewing the research from the Office of Program Policy Analysis & Government Accountability (January 2005) surrounding other school districts (Cleveland, Milwaukee, Philadelphia, and Baltimore) that have adopted K-8 configuration to improve performance, several issues need to be addressed, some of which could substantially increase educational costs.*

## **Successful K-8 Models**

*While there has not been extensive research on the K-8 configuration, the research that exists suggests that the K-8 configuration is having a positive effect on academic achievement and overall engagement in school.*

## **Bibliography**



## PRINCE GEORGE'S COUNTY PUBLIC SCHOOLS Research Report

### What Does The Research Tell Us About K-8 Grade Configuration And Student Achievement?

#### I. Introduction

The Division of Academics was charged with gathering and synthesizing information about the effects of the Kindergarten through grade 8 school configuration. The Executive Cabinet and the Board of Education will use this information, among other tools and sources of information, to make decisions on grade configuration in Prince George's County Public Schools.

The search for definitive research bearing on this general question is rather limited. To date, there are no national, evidence-based studies addressing grade-span configuration issues, and few studies actually use empirical data. For example, many accounts of grade-span effects are descriptive cases of school districts that had changed grade configuration for one reason or another. However, various studies on the issues surrounding the grade configuration question were reviewed. A synthesis of the research follows.

#### II-A. Existing Research - *School Configuration for Young Adolescents*

Starting in the late 1980s and throughout the 1990s, educators began to focus a growing amount of attention on the proper grade span configuration for young adolescent middle grades students. Alarmed by the results from the TIMSS and the follow-up TIMSS-R which showed U.S. 4<sup>th</sup> grade students scoring on par with their international counterparts in mathematics and science achievement, only to slip far below the international average at the 8<sup>th</sup> grade level, combined with results from their own accountability testing, school systems began to rethink the middle school concept. The middle school concept had first gained currency in the 1950s and reached its apex in popularity in the 1980s. The concept is predicated on the assumption that middle grades "are not a time for academic learning so much as social adjustment, individual growth, coping with early adolescence, and looking out for the needs of the 'whole child'" (Yecke, 2005). These needs include: 1) competence and achievement; 2) opportunities for exploration and self-definition; 3) creative expression; 4) physical activity; positive social interaction with adults and peers; and 7) meaningful participation in family, school, and community activities (Jackson & Davis, 2000; Devos and Saleh, 2007). Schools would meet these needs by emphasizing team teaching, flexible scheduling, interdisciplinary instruction, and extra-curricular activity participation. But due to lagging and, in many cases, declining student academic performance in accountability testing, the middle school concept began to lose currency in the 1990s, and educators began rethinking the viability of the traditional K-8 concept.

Over the past 25 years, local and state school systems around the country have begun to gravitate toward the traditional K-8 configuration. Some of the more prominent migrations include Baltimore City, Cincinnati, Cleveland, Miami, Milwaukee, Oklahoma City, and Philadelphia; Connecticut, Massachusetts, Louisiana, and Maine. From these migrations, a number of studies have been conducted attempting to compare middle grades student achievement in middle schools with achievement of students attending traditional K-8 (or so-called "elemiddle") schools. These studies have been few and jurisdiction-specific. To date, there have been no studies conducted that are national in scope. For the most part, these studies have found



that students attending K-8 “elemiddle” schools outperform their counterparts who attend 6-8 or 7-8 middle schools. These findings should be viewed with caution, however, as most have not controlled for potentially intervening factors such as teacher and/or administrator quality, class and/or school size, school resources, etc.

The first of such studies was a New York City study (Moore, 1984) which compared nine K-8 schools and nine junior high schools on variables such as academic achievement, attitudes toward school, and attendance. Moore found that the K-8 students outperformed junior high school students in reading achievement, had a more positive attitude towards school, and had a better attendance record. The Moore study was followed shortly thereafter by a three-year longitudinal study of middle grades students in Milwaukee (Simmons and Blythe, 1987) which found that students attending either a K-6 or a K-8 configured school received more effective psychological support in their transition into adolescence, exhibited greater self-esteem, and tended to participate more in extra-curricular activities than their counterparts who attended the classic 7-9 junior high school. In a 2002 study of 6<sup>th</sup> grade Connecticut students, Howley found that students in either a K-6 or K-8 configuration achieved higher test scores than 6<sup>th</sup> grade students who attended a junior high or high school. Wihry, Coladarci, and Meadow obtained similar results in a 1992 study of 8<sup>th</sup> grade student achievement across 163 schools in Maine.

Perhaps the most rigorous of the locally focused studies are studies focused on the Philadelphia School District and the State of Massachusetts. The three most prominent Philadelphia studies reach varying conclusions regarding the relative efficacy of the K-8 school configuration in comparison to the basic middle school model. The first of the three (Offenberg, 2001) found that K-8 students from communities similar to their middle school counterparts outperformed their middle school peers in reading, math, and science. Offenberg’s study was more sophisticated than the earlier studies by Moore and Simmons and Blythe in that he used multiple regression analysis to control for the effects of race and poverty while attempting to compare the student achievement of K-8 students with that of middle school students. Offenberg also found that students from K-8 schools were more likely to gain admission to the school system’s special admit high schools and to have higher grade point averages during their ninth grade year. Finally, Offenberg found that as grade size increased in K-8 schools, performance differences between school types begins to narrow.

In another, more focused study of K-8 and middle school student achievement in Philadelphia, Balfanz et.al. (2002) compared academic achievement in high poverty K-8 schools with the academic achievement in high poverty middle schools. They found that the typical high poverty K-8 school outperformed the typical high poverty middle school, but this trend was not universal. Several high poverty middle schools performed on par with high poverty K-8 schools, some high poverty K-8 schools were in need of significant reform, and when K-8s and middle schools “that serve similar students from the same neighborhood are compared, no K-8 performance advantage on the PSSA is observed.” Upon further examination, the average size of the 8<sup>th</sup> grade in the examined K-8 schools was 60 students compared with an average grade size of 258 students in examined middle schools. Thus, the size of the eighth grade class could very well explain much of the difference in academic achievement.

In their study of Philadelphia K-8 and middle schools, Weiss and Kipnes (2006) found that although there were substantial differences in the socio-demographic characteristics of students in the two types of schools, differences in academic outcomes were minimal at best. The only significant difference found in the two school types was the impact student self-esteem which correlated with the ability of students to



navigate the difficulties associated with the eighth grade. Although self-esteem was highly correlated to student success in both configuration settings, high self-esteem was found to be of greater benefit to middle school students than it was to K-8 students.

Perhaps the most sophisticated of the Philadelphia studies is the one conducted by Byrnes and Ruby (2007) which included 40,883 eighth-grade students from 95 schools across five cohorts. The analysis accounted for student, cohort, and school-level variation while controlling for population demographics and school characteristics. Byrnes and Ruby found that older K-8 schools performed significantly better than middle schools, and that newer K-8 schools did not perform nearly as well as older K-8 schools despite having smaller grades and lower transition rates. The lower performance of newer K-8 schools was attributed to the effects of having higher percentages of disadvantaged students and teachers. When external population factors were controlled for, even the advantage of the older K-8 schools was significantly reduced. Finally, after controlling for school transition, and average grade size, "there were no discernable differences between K-8 schools and middle schools in terms of academic achievement."

Finally, Ellis et al. (2005) conducted an extensive analysis of the Massachusetts Comprehensive Assessment System (MCAS) achievement of urban and middle school students with special needs. The impact of the K-8 configuration was negative on all exams for students who did not possess any of the "special needs" characteristics. On the other hand, the effect of the K-8 configuration on students with special needs was uniformly positive, particularly for the special education student population. The researchers then identified high performing school districts and several high performing Boston schools that used the K-8 configuration in an effort to discern the strengths and weakness of the configuration from teachers and administrators. Teachers and administrators cited a sense of shared responsibility, better across-grade staff communication, instructional collaboration, greater stability, and the absence of the transition effect as factors that contributed to enhanced student academic performance. The researchers conclude that the K-8 configuration is no "magic bullet" for student success; rather "effective schools will show good results, regardless of grade configuration".

## IIB. Benefits of K-8 grade configuration

According to the research from *The K-8 Solution: The Retreat from Middle Schools*, Center for Education Reform, September 2008, education researchers began looking at the middle school model and comparing it with K-8 schools. They found that there are benefits to the latter model. Some of these benefits are:

- **Safety**—Parents and children feel safer in a K-8 school as they become older because they are secure in their location and enjoy continuity.
- **Fewer distractions** – Putting middle school students with younger children shields them from the distractions of high school students and the potential for drugs and other negative outside influences.
- **Engagement** – Studies have shown students do not suffer the same motivational declines in school work and extra-curricular activities when they stay in a K-8 school. Discipline problems and absences also are reduced.



- **Achievement** – Research has shown that students do not experience the same academic declines when the middle school transition is eliminated.
- **Economics** – In certain areas of the country, such as Detroit and Pittsburgh, where public school populations have declined over the years, combining middle school grades with elementary grades can eliminate the need to keep a building open that is not filled to capacity. By closing a school building, the district would save money.
- **Transportation** – School districts save on transportation costs due to the need for fewer buses, routes, and drivers to transport the students to and from school.

Furthermore, many urban school districts have moved to close troubled 6-8 middle schools and have reconfigured elementary schools to serve grades K-8 in their place. School districts such as Boston, Baltimore, Cincinnati, Cleveland, Milwaukee, Newark, New Orleans, New York City, Oklahoma City, and Philadelphia were some of the first urban districts to reconfigure schools in this way. Some of the benefits cited for the transformation to the K-8 configuration include:

- **Increased test scores** – Several studies on grade configuration have reported middle schools to be less effective in terms of test scores than K-8 schools in the same district. The evidence is especially strong for students in high-poverty schools and rural schools. (Tucker & Andrada, 1997; Wihry, Coladarci, & Meadow, 1992; Franklin & Glascock, 1998; Offenber, 2001).
- **Improved student discipline** – The belief is that closing middle schools and moving the students to smaller, less crowded K-8 schools with greater parental involvement and greater student accountability will lead to a reduction in undesirable outcomes and improved student discipline. For example, Franklin & Glascock (1998) found that sixth and seventh graders had fewer suspensions and better attendance in K-8 schools than in middle schools.
- **Relief of overcrowding in some large middle schools** – Most school districts have many more elementary schools than middle schools. Therefore, when districts face overcrowding issues at the middle school level, shifting students to smaller, less crowded elementary schools can reduce overcrowding in middle schools. (George, 2005).
- **Eliminating a big transition** – Shifting to a K-8 model would require one less school transition for students. Alspaugh (1998) found a significant achievement loss following each school-to-school transition. A statistically significant achievement loss was associated with the transition from elementary to middle school at the sixth grade, when compared to K-8 schools that did not have a transition after sixth grade. Blyth, Simmons, & Bush (1978) found that adolescent girls suffered from a drop in self-esteem, extracurricular participation, and leadership behaviors following the transition to middle school, but not when they remained in a K-8 school. For adolescent boys, a similar drop-off was found for extracurricular participation and grades. Since student performance, extracurricular participation, and self-esteem tends to drop off after students transition into middle school, it is thought that students who remain in their elementary schools would benefit academically from only going through one school transition rather than two transitions.



- **Longer and potentially more positive teacher-student relationships and increased parent involvement** – Students and parents who remain in a K-8 school for nine years are more likely to build and maintain more positive relationships with teachers over time and maintain higher levels of parental involvement than the typical middle school. (George, 2005).
- **Lengthier stay in a neighborhood school** – Many school districts have expressed a desire to preserve neighborhood schools. The shift to K-8 neighborhood schools allows students to stay in their neighborhood schools for a longer period of time. (George, 2005).
- **More collaboration between elementary and secondary teachers** – Bringing elementary and middle school teachers together could lead to greater collaboration and enriched curriculum opportunities for students. The typical elementary school could become a place where subject matter depth and expertise is more highly valued and effectively utilized than before the K-8 reorganization. Secondary teachers could come to see the value of the “whole child” perspective of the elementary schools. This new balance could enrich the perspectives and curriculum at the elementary and secondary level inside the K-8 school. (George, 2005).

### IIIC. Challenges of K-8 Configuration

In reviewing the research from the Office of Program Policy Analysis & Government Accountability (January 2005) surrounding other school districts (Cleveland OH, Milwaukee, WI, Philadelphia, PA, and Baltimore, MD) that have adopted the K-8 configuration to improve performance, several issues need to be addressed, some of which could substantially increase educational costs.

- **Ensure appropriate and challenging middle grades curriculum** – K-8 schools, particularly if they are smaller than current middle schools, may not be able to offer the variety of courses generally provided by larger middle schools. It would be important for the schools to have a rigorous academic curriculum in place, including prerequisite courses such as Algebra I and foreign languages, which students need to take advanced coursework in high school. Smaller K-8 schools may also lack the economy of scale to offer additional career-oriented courses such as exploratory or specialty classes typically offered by middle schools.
- **Upgrade facilities to accommodate older students** – Elementary schools that convert to K-8 schools may need to remodel facilities to provide restrooms and furniture needed for older, taller students. Converted schools may also need to equip science labs and appropriate athletic facilities for students in grades six to eight.
- **Revise attendance zones and transportation routes** – School districts would likely need to amend their school zones and transportation routes to reflect the new school configurations. For instance, a district converting K-5 schools to K-8 configurations will need to determine which middle grade students will attend which newly configured schools.
- **Continue other initiatives to improve performance** – While the experience of other states suggests that shifting to K-8 schools may help address lagging middle grade student performance, changing grade configurations alone does not alleviate the need for districts to take other steps to



improve student performance. These include initiatives to recruit and train high quality teachers and administrators and implement rigorous curricula and high educational standards. In addition, districts should assess educational practices found by researchers to be effective in promoting middle grade learning, such as interdisciplinary team teaching, shared planning, flexible scheduling, and accelerated instruction.

#### IV. Successful K-8 Models

While there has not been extensive research on K-8 configuration, the research that exists suggests that the K-8 configuration is having a positive effect on students' academic achievement and overall engagement in school. The different cities that have implemented this reform have seen improvements in discipline, self-esteem, motivation, attendance, and academics. Parents also are more satisfied with these schools and believe their children's safety and well-being have improved. (The K-8 Solution: The Retreat from Middle Schools, September, 2008). Nevertheless, some researchers are concerned that these reports do not account for all of the factors that may have led to student improvement. For instance, many of the K-8 schools tend to be smaller and because research has shown smaller schools can be more advantageous, it is difficult to say the K-8 model is the explicit cause for improved achievement, rather than a combination of both reforms. Also, some of these studies did not account for socio-economic differences between the students in K-8 schools and traditional middle schools, which may impact the findings. However, there is no question that there are positive benefits for students in the non-middle school configuration. Some examples of positive results of the K-8 school models are:

- In Portland, Oregon, freshman in high school with only one prior transition had statistically significant higher GPAs than freshmen who attended separate middle schools.
- In Cleveland, Ohio, sixth grade students in K-8 schools scored 18 percent higher in reading and 23 percent higher in math than their peers in traditional middle schools.
- Analyses showed that students in Philadelphia who remain in a K-8 school had higher achievement growth over time than if they attended an elementary school and a middle school.
- In Milwaukee, absenteeism and suspension rates were four and nine percentage points, respectively, higher in traditional middle schools.
- African American students in K-8 schools in Pittsburgh outperformed their peers in traditional public schools in math and reading.
- Students in K-8 schools in Miami-Dade County had significant short-term beneficial effects on achievement, attendance, and suspension rates. Sixth and seventh grade students showed greater improvement in mathematics and reading compared to the same grades in middle schools, but the two groups had identical scores in ninth grade, so the effects were not long term.
- A recent study looked at 95 schools across the country serving over 40,000 students. This report found that older K-8 schools perform significantly better than middle schools, and this advantage is explained by differing average grade size and school transition.



- The principal of Vista Verde, a K-8 school in Irving, California found that discipline, dress and language are better at the school, because the older children are expected to act as role models. Students are more active and willing to get involved in new activities because they feel comfortable with their teachers and their peers.
- In Connecticut, 6<sup>th</sup> grade students achieved higher test scores when grade 6 was in a school with lower grades (K-6, K-8) rather than when grade 6 was part of a junior high or high school.
- In a study of 163 schools in Maine, achievement on state exams was higher for 8<sup>th</sup> graders in K-8, K-9, and 3-8 schools than when 8<sup>th</sup> grade was part of a junior or senior high school.



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