The Relationship among Grade Configuration, School Attachment, and Achievement

Brian V. Carolan & Nataly Z. Chesky

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Focusing on middle grades students' sense of school attachment may be more effective than reorganizing school grade configuration.

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The *This We Believe* characteristic "organizational structures" calls for grade configurations that "foster purposeful learning and meaningful relationships" (National Middle School Association [NMSA], 2010, p. 31). Such structures primarily focus on internal mechanisms within a middle level school that promote healthy peer interactions and achievement, such as interdisciplinary teaming and social organizations. However, external modifications, such as school grade configurations, have also been intensely discussed. Ever since middle schools began replacing junior high schools 50 years ago, the same issues and concerns that motivated this change remain unresolved (Cuban, 1992). There still is no consensus as to which grade configuration best serves young adolescents.

States and school districts across the country have been reconsidering the practice of educating young adolescents in stand-alone middle schools, which typically span grades 6 through 8, and replacing them with K–8 schools. Now, reformers in Massachusetts, Pennsylvania, Ohio, Tennessee, Oklahoma, Maryland, and New York, and the large urban districts of Cincinnati, Cleveland, Philadelphia, and Baltimore are challenging the notion that grouping students in the middle grades in their own school buildings is the right approach (Rockoff & Lockwood, 2010).

The research on which these initiatives are based is inconsistent. Recent rigorous studies by Rockoff and Lockwood (2010) and Byrnes and Ruby (2007) have indicated that there are benefits associated with reverting back to K–8 schools; however, others have shown that the grade configuration alone makes little difference (Eccles, Lord, & Midgely, 1991). While there is certainly enough evidence to support the limited scale-up of K–8 schools (e.g., Cook, MacCoun, Muschkin, & Vigdor, 2008; Way, Ready, & Rhodes, 2007), this research base is neither substantial nor conclusive enough to move beyond these small-scale efforts. Moreover, there is still much to be learned about why certain grade configurations may work better than others. This would require one to look into the environmental characteristics of these schools to determine what makes them "work" and whether grade span has anything to do with it.

The purpose of this article is to focus on one of these characteristics, school attachment, which has historically received a great deal of attention in the educational research literature (e.g., McNeely, Nonnemaker, & Blum, 2002; Eccles, Early, Frasier, Belansky, & McCarthy, 1997). However, relatively little attention has been given to how and to what degree this characteristic influences the relationship between schools' middle level grade configurations and student achievement. Not only is this an under-investigated area of research, the research that has been be done on middle level grade configuration and its relationship to student outcomes is inhibited by issues related to research design. Many of these studies employ arguments that suggest a comparative framework, but few actually compare students in middle schools to young adolescents in other types of schools (notable exceptions include Weiss & Kipnes, 2006; Rockoff &

This article reflects the following *This We Believe* characteristics: Shared Vision, Committed Leaders, Organizational Structures

Lockwood, 2010). However, panel data from the Early Childhood Longitudinal Study, Kindergarten Class of 1998–1999 (ECLS-K) (Institute of Education Sciences, National Center for Education Statistics, 2009), provide an opportunity to do just that and to ask: How does school attachment influence the relationship between a school's grade configuration and student achievement in reading and mathematics?

K–8 vs. middle schools redux

Researchers and policymakers, once again, have come to question the rationale behind forming a separate school for young adolescents. Yecke (2006) asserted that middle schools are not fulfilling their original aim, which was to provide a climate that would foster the unique psychological and social dimension of preadolescents and, in tandem, raise the academic rigor that, perhaps, was not found in elementary schools. Popular sentiment contends that middle schools have not lived up to their objective, only serving as a structural "holding pen for preadolescent children" (Meyer, 2011, p. 43). Despite these criticisms, the number of stand-alone middle schools increased by 41% nationally in the 1990s (U.S. Department of Education, 2010). But several school districts, most notably Philadelphia and, to a lesser extent, New York City have moved in the opposite direction. School officials in these districts have questioned whether the middle school structure is indeed the best form of school for young adolescents.

Several studies have confirmed what these urban districts may have intuitively known—that the transition to middle school may do more harm than good, especially because it occurs during a critical point in children's development. In one of the first studies to employ a comparative framework, Blyth, Simmons, and Bush (1978) compared the effects of making a transition at different age ranges and within different school forms. They found that sixth grade students in K–8 schools were more influenced by their peers than their counterparts in K–6 settings, who were more independent and academically motivated. Anderman's (2002) study found that students who attended K–8 or K–12 schools had an increased level of psychological stability and performed at higher cognitive levels. Rockoff and Lockwood (2010) concluded in their study of New York City school children that students who moved to a middle school had a considerably greater decrease in academic performance

than their counterparts who stayed in their original elementary school. Alspaugh (1998) also confirmed that making a move during early adolescence has negative consequences.

Others, however, have reached different conclusions, attributing the declines associated with school transitions and grade configuration to particular school and classroom environment characteristics, such as the quality of students' relations with others and teacher quality (e.g., Williams, Kirst, & Haertel, 2010; Eccles et al., 1991). These studies suggest that transitions themselves are neither inherently good nor bad for young adolescents. As Eccles and associates noted, transitions to a more positive environment are as likely to produce positive change, as transitions to more negative environments are to produce negative change. Studies that have concluded there are benefits associated with K–8 schools versus middle schools typically have neglected these environmental characteristics, including school attachment.

School attachment

One conclusion that is apparent from the research literature is that a tension exists between the perceived benefits of creating a distinct educational institution to meet the specific needs of emerging adolescents and the

Students transition to middle level schools at a critical time in their lives.
photo by Alan Geho

supposed deleterious consequences of school transitions. What is less apparent is how and to what degree school attachment influences this tension.

Researchers use a variety of names and methods to describe school attachment, however, there are some consistent themes.[1] Various measures of school attachment include: students' sense of belonging and being a part of school, whether or not students like school, levels of teacher supportiveness and caring, presence of good friends in school, engagement in current and future academic progress, fair and effective discipline, and participation in extracurricular activities.

While school attachment may be a complex concept, young adolescents simply do better in school when they feel connected, feel they belong, and believe their teachers are supportive and treat them fairly. This reflects the *This We Believe* characteristic "school environment"—another essential characteristic of successful middle grades schools. While few would argue that school environment is not important, it remains unclear as to how this characteristic is related to student achievement and whether a school's grade configuration has anything to do with it.

To contribute to the research base on the relationship among grade configuration, school attachment, and students' achievement, two specific research questions were asked: What is the relationship between students' eighth grade school's grade configuration and their achievement in reading and mathematics? How does school attachment influence this relationship?

Research methods

To address these questions and confront the limitations inherent in previous studies, data from the Early Childhood Longitudinal Study, Kindergarten Class 1998–1999 (ECLS-K) are used. Developed under the sponsorship of the U.S. Department of Education, Institute of Education Sciences, and National Center for Education Statistics, the ECLS-K focuses on children's early school experiences, beginning with kindergarten and ending with eighth grade. ECLS-K is a multimethod and multisource study that includes interviews with parents, data from principals and teachers, student records, and direct child assessments. In addition to its panel design, the ECLS-K is based on a nationally representative sample of U.S. students.

Because the movement to revert back to K–8 schools is primarily a public school district phenomenon, only those students who attended a public school for eighth grade and had valid scores on the dependent variables are included in this analysis. Also, the analyses include only those students who attended a grades P/K/1–8/9 (referred to as K–8), 6–8, or 7–8 school, with the students in the grades 6–8 schools serving as the referent category. Students in these three configurations constituted nearly 80% of public school students in the full eighth grade sample. This subsampling strategy resulted in a final analytic sample that included approximately 6,290 students ($N = 6,298$ for reading, $N = 6,294$ for math).

Variables

In addition to a number of student- and school-level control variables, there are four other variables considered in this research. The first is a categorical variable that indicates the grade span of the student's eighth grade school. This variable was constructed from two different items on the administrator's survey, which asked respondents to indicate (1) the school's lowest grade from seven response options and (2) the school's highest grade from three response options. From these two items students were identified as having attended a K–8, 6–8, or 7–8 school.

The second variable, school attachment, is a composite measure derived from five different items on the questionnaire administered to students in the eighth grade. Ranging from never to always, respondents completed a four-point scale on items such as "How often did you feel like you fit in at school?" "How often did you feel close to your classmates at schools?" and "How often did you enjoy being at your school?" Scores on this variable represent the average of students' responses to these five items, with higher scores indicating higher levels of school attachment ($M = 3.05$, $SD = 0.56$, $\alpha = 0.70$).

The final two are the dependent variables, which are students' estimated scores on reading ($M = 168.18$, $SD = 28.17$) and mathematics ($M = 140.70$, $SD = 22.59$) assessments. The assessments used to measure achievement in reading and mathematics were based on item response theory, which involved a two-stage cognitive assessment approach. To increase measurement accuracy and reduce administration time, children's responses from a brief first-stage routing form were used to select the appropriate second-stage level form.

These assessments were informed by a panel of content area, child development, and middle level education experts, who recommended that the knowledge and skills assessed by the ECLS-K eighth grade assessments represent the typical and important academic goals of middle level curricula in English language arts and mathematics. Students' scores from the fifth grade are also included in the analysis, providing an important control for prior achievement.[2]

Analytical plan

In an attempt to better discern any effects that attending a middle school has versus attending a K–8 school, socioeconomic status and other key characteristics that could affect the outcomes are used as control variables. Also, because data from the ECLS-K data are nested, with a group of students clustered within schools, a multilevel analysis strategy is employed (Raudenbush & Bryk, 2002).[3] Finally, data are weighted at the student level with the appropriate longitudinal weight, allowing results to be generalizable to children who were enrolled in a U.S. kindergarten in 1998–1999, or first grade in 1999–2000.

Results

Two broad conclusions can be derived from this work. First, there is no significant relationship between attendance in K–8 school and achievement in either reading or mathematics. Second, school attachment, even more so than students' prior achievement, predicts a large and significant amount of change in students' eighth grade achievement. Both of these conclusions have implications for current reform efforts.

Figure 1 shows estimates of the models predicting reading achievement. Model 1 shows that, relative to students in grades 6–8 schools (the referent category in each of the models), grade configuration is significantly associated with reading achievement, with students in a grades 7–8 school predicted to score 2.4 points higher and students in K–8 schools scoring 6.1 points less. But this model is deceptive, as there are no controls for either student- or school-level characteristics. Once these controls are added to Model 2, these relationships change, and the disadvantage of attending a K–8 school is no longer apparent. But, oddly enough, there is still a significant and positive relationship between grades 7–8 schools and reading achievement.

Model 3 in that same table provides a baseline estimate for the relationship between school attachment and reading achievement. This model includes control variables, such as fifth grade reading achievement, but excludes the grade span variables. The baseline estimate is both large and significant; with every one point increase in school attachment, students' reading achievement is predicted to increase by 2.1 points. This is approximately three times as large as the relationship between fifth grade reading achievement and eighth grade reading achievement. The final model in Figure 1 incorporates the grade span variables, and the coefficient

Figure 1 Multilevel regression analysis of grade span and school attachment on eighth grade reading achievement

	Model 1	Model 2	Model 3	Model 4
Fixed Effects				
5th Grade Reading Score [a]	—	0.733 (0.012)***	0.731 (0.012)***	0.731 (0.012)***
K–8 grade span	-6.151 (1.670)***	-0.382 (1.750)	—	-0.289 (1.741)
7–8 grade span	2.337 (1.404)*	1.693 (0.865)*	—	1.612 (0.861)
School Attachment	—	—	2.090 (0.473)***	2.058 (0.475)***
Constant	167.927 (0.666)***	64.161 (4.001)***	57.343 (3.917)***	58.032 (4.236)***
Random Effects				
SD (constant)	14.681 (0.580)	4.912 (0.460)	4.749 (0.462)	4.854 (0.460)
SD (residual)	23.874 (0.261)	16.097 (0.197)	16.105 (0.120)	16.070 (0.196)

Note. N = 6,294. Values in parentheses are standard errors calculated using the Taylor series method. Referent category includes students in a grades 6–8 school.

[a] Additional student-level control variables for Models 2–4 include SES and indicators for male and race. School-level control variables include indicators for urbanicity, cohort size, and school size.

Significance: * *p* < .05   ** *p* < .01   *** *p* < .001 (two –tailed tests)

Figure 2 Multilevel regression analysis of grade span and school attachment on eighth grade mathematics

	Model 5	Model 6	Model 7	Model 8
Fixed Effects				
5th Grade Reading Score [a]	—	0.720 (0.008)***	0.719 (0.008)	0.718 (0.008)
K–8 grade span	-4.959 (1.298)***	-0.402 (1.190)	—	-0.347 (1.189)
7–8 grade span	2.504 (1.092)*	1.413 (0.587)*	—	1.369 (0.586)*
School Attachment	—	—	1.030 (0.315)***	0.954 (0.315)**
Constant	140.506 (0.519)***	53.747 (2.617)***	50.149 (2.560)***	58.032 (4.236)***
Random Effects				
SD (constant)	10.943 (0.458)	3.492 (0.285)	3.447 (0.283)	50.933 (2.778)***
SD (residual)	19.516 (0.210)	10.695 (0.130)	10.719 (0.128)	10.691 (0.129)

Note. N = 6,298. Values in parentheses are standard errors calculated using the Taylor series method. Referent category includes students in a grades 6–8 school.

[a] Additional student-level control variables for Models 2–4 include SES and indicators for male and race. School-level control variables include indicators for urbanicity, cohort size, and school size.

Significance: * $p < .05$ ** $p < .01$ *** $p < .001$ (two –tailed tests)

for school attachment is still positive, large, and highly significant. In this model, neither grade span variable is statistically significant, which calls into question whether the focus on grade configuration is warranted.

A similar picture emerges when examining the estimates derived from the models predicting mathematics achievement. Model 5, which has no student- or school-level control variables, predicts that students in a P/K/1–8/9 school will score 5.0 points less than those in a grades 6–8 school, while those in a grades 7–8 school will score 2.5 points higher. But, similar to the results for reading scores, the disadvantage for students in K–8 schools disappears when control variables are added to the model (Model 6). Those in a grades 7–8 school, however, still retain an advantage, as their scores are predicted to be 1.4 points higher than similar students in a grades 6–8 school.

The random effects noted at the bottom of the table suggest a more important point, one that also applies to the results reported in Figure 1: Much of the variation in achievement pertains to the students themselves. For example, based on the random effects estimates from Model 4, about 91% of the variation in reading scores is between students, with the remaining 9% attributable to schools. This is wholly consistent with estimates from the school effects literature (e.g., Snijders & Bosker, 1999) but considerably more than the 74% estimate from Byrnes and Ruby (2007) in their comparative study on Philadelphia's K–8 and middle schools.[4] At the same time, this is not to suggest that these relatively small

effects are negligible, and analyses that directly tested school effects were shown to be statistically significant.[5] However, the point is that the inclusion of just a small number of student-level control variables dampens whatever achievement advantages or disadvantages are associated with schools' grade configurations. As noted by Byrnes and Ruby (2007), if the majority of variation in achievement scores is attributable to students themselves, current ideas regarding middle school reform and linking schools' annual performances to rewards and consequences might be the wrong methods for reaching the right goals.

Turning to Model 7, the baseline estimate for school attachment, though positive and highly significant, is about half of what it was for reading achievement (2.1 vs. 1.0 points). However, this still represents about a 0.09 standard deviation change in mathematics scores. As Rockoff and Lockwood (2010) pointed out, this is comparable to the effects associated with raising teacher effectiveness by one standard deviation (Rivkin, Hanushek, & Kain, 2005; Rockoff, 2004) or moving to a school with a one standard deviation higher average test score (Hastings & Weinstein, 2008). This estimate is striking and worthy of attention from reformers seeking to rethink the organization of the middle grades.

The final model, Model 8, includes the grade span variables along with school attachment. Again, similar to the estimated impact on reading, attending a K–8 school is not significantly related to mathematics

achievement, whereas there is a significant and positive relationship between attending a grades 7–8 school and mathematics achievement. After controlling for grade span and a small number of student- and school-level variables, school attachment is still significantly related to mathematics scores; a 1.0 point increase in school attachment is predicted to increase mathematics scores by 1.0 point. The random components of this model also reflect the point emphasized earlier—that much of the variation in students' mathematics scores is attributable to students. In this case, the derived estimate is that 90% of the variation in mathematics scores is between students. This further calls into question whether policy emphases on school-level structural factors, such as grade configuration, are justified.

Discussion

Despite the caution warranted by these results, current efforts to reconfigure the grade spans of certain urban school districts serving young adolescents should proceed, as evidence from a small number of rigorous studies suggests there may be benefits. Byrnes and Ruby (2007) were correct when they noted that these studies have a high degree of internal validity; that is, a high power to uncover any true effects of grade span on students' achievement while also providing unbiased estimates of the true population parameters. The concern with these studies is external validity—the ability for these results to be generalized to other districts. While Philadelphia (Byrnes & Ruby, 2007; Weiss & Kipnes, 2006) and New York City (Rockoff & Lockwood, 2010) may make excellent cases from which to generalize to other large urban districts, they say little about how this reform may work in locales that serve other types of students in different conditions. The strength of the ELCS-K data reported here is that they are nationally representative. Policymakers must proceed cautiously as they jump on new trends in reform, carefully evaluating the evidence that best matches their students' demographics and not just those of the general population.

While data from the ECLS-K study have a number of strengths, due to the non-randomness of the data, these results do not demonstrate causality. Students are not randomly assigned to schools in the ECLS-K; therefore, these data have the same potential selection bias as all other observational studies. To limit the magnitude of this bias, this study employs the standard strategy of using control variables that have been associated with students' academic achievement in previous research. As with all analyses based on non-randomized data (and even for some studies based on randomized experimental data), caution is warranted in interpreting the estimated effects as causal; it is through the accumulation of similar estimates from studies with varying data and different plausible methodologies that a conclusion that estimated effects are causal becomes justified (Jennings & DiPrete, 2010).

This limitation notwithstanding, three points should give pause to reformers and educators as they continue to rethink the configuration of middle schools. First, investing in increasing students' attachment with school may be a more cost effective way to increase achievement than whole-scale reconfigurations of schools' grade spans. K–8 start-ups or conversions are neither cheap nor easy. Moreover, given the consensus in the research literature that school attachment is associated with a number of beneficial outcomes, including achievement, it makes more sense to focus reform efforts in this direction.

A second point to be taken from the results reported here is that the emphasis on grade span configuration may be over-stated. While there is a good deal of research literature suggesting that transitions from one school level to another are problematic for many young adolescents (see, e.g., Juvonen, Le, Kaganoff, Augustine, & Constant, 2004; Blyth et al., 1978), there is no such consensus as to which grade configuration, on average, best serves them. This speaks to the idea that most young adolescents experience a move to a more negative school environment, which is most likely to be a grades 6–8 school because it is the most prevalent configuration. Therefore, focusing on either the transition itself or the grade span may direct attention away from the most critical component—the school's environment. This makes focusing on school attachment all the more important.

Finally, policymakers would be well served to recognize the limits of school-level reforms. The results reported here did not document any advantage of the K–8 configuration; in fact, they contradict the findings reported by Byrnes and Ruby (2007). But, one must also consider the limited size of the K–8 advantage that they reported. For example, Byrnes and Ruby calculated that switching students to K–8 schools hypothetically would have reduced the percentage of students categorized as below-basic in reading from 56% to 51%. Though this is

sizable, it still leaves more than 50% of students scoring below basic and does little to address a significant achievement gap that exists for minority and high-poverty students.

These results call into question the preference for reverting back to K–8 schools. Getting young adolescents to enjoy school, develop positive adult and peer relationships, and feel safe—increasing their school attachment—appear to be the better options. Therefore, with the exception of large urban districts, which presumably have a variety of facility options within a geographical area, the conversion to K–8 schools, likely, is not on the table. However, all school districts that serve the middle grades can and should invest in ways to foster school attachment. The results reported here strongly suggest that this would be a good investment.

Notes

1. Even within the same dataset, school attachment is measured by different scales with different names. For example, within the National Longitudinal Study of Adolescent Health (Add Health) (Carolina Population Center, n.d.) study there are different measures used by a number of researchers.

2. Checks on the reliability and validity of both assessments are reported in Najarian, Pollack, Sorongon, and Hausken (2009). Descriptive statistics for all analytical variables are available from the authors upon request.

3. The models reported here proceed in a series of four steps. For the sake of brevity, the model building process involved more steps than what is reported. Generally, the modeling process followed Raudenbush and Bryk's (2002) suggestion to build the models from the first level up, starting with between-student-level variables and the school-level variables. Along the way and at each step, control variables that were not significant were removed one at a time. This kept the models as parsimonious as possible.

4. One reason for this difference is that Byrnes and Ruby (2007) employ three-level models (student, cohort, and school).

5. These initial analyses provided the justification for using a multilevel approach. Results are available from the authors upon request.

References

Alspaugh, J. W. (1998). Achievement loss associated with the transition to middle school and high school. *Journal of Educational Research, 92*(1), 20–26.

Anderman, E. M. (2002). School effects on psychological outcomes during adolescence. *Journal of Educational Psychology, 94*(4), 795–809.

Blyth, D. A., Simmons, R. G., & Bush, D. (1978). The transition into early adolescence: A longitudinal comparison of youth in two educational contexts. *Sociology of Education, 51*(3), 149–162.

Byrnes, V., & Ruby, A. (2007). Comparing achievement between K–8 and middle schools: A large-scale empirical study. *American Journal of Education, 114*(1), 101–135.

Carolina Population Center. (n.d.). The National Longitudinal Study of Adolescent Health. (Add Health). Retrieved from http://www.cpc.unc.edu/projects/addhealth

Cook, P. J., MacCoun, R., Muschkin, C., & Vigdor, J. (2008). The negative impacts of starting middle school in sixth grade. *Journal of Policy Analysis and Management, 27*(1), 104–121.

Cuban, L. (1992). What happens to reforms that last? The case of the junior high school. *American Educational Research Journal, 29*(2), 227–251.

Eccles, J., Lord, S., & Midgely, C. (1991). What are we doing to early adolescents? The impact of educational contexts on early adolescents. *American Journal of Education, 99*(4), 521–542.

Eccles, J. S., Early, D., Frasier, K., Belansky, E., & McCarthy, K. (1997). The relation of connection, regulation, and support for autonomy to adolescents' functioning. *Journal of Adolescent Research, 12(*2), 263–286.

Hastings, J. S., & Weinstein, J. M. (2008). Information, school choice, and academic achievement: Evidence from two experiments. *The Quarterly Journal of Economics, November,* 1373–1414.

Institute of Education Sciences, National Center for Education Statistics. (2009). *Early childhood longitudinal study, kindergarten class of 1998–99 (ECLS-K). Kindergarten through eighth grade full sample public-use data and documentation* [Data files.]. Available from http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2009005

Jennings, J. L., & DiPrete, T. (2010). Teacher effects on social and behavioral skills in early elementary school. *Sociology of Education, 83*(2), 135–159.

Juvonen, J., Le, V. N., Kaganoff, T., Augustine, C. H., & Constant, L. (2004). *Focus on the wonder years: Challenges facing the American middle school.* Santa Monica, CA: RAND Corporation.

McNeely, C. A., Nonnemaker, J. M., & Blum, R. W. (2002). Promoting school connectedness: Evidence from the National Longitudinal Study of Adolescent Health. *Journal of School Health, 72*(4), 138–146.

Meyer, P. (2011). The middle school mess. *Education Next, Winter,* 40–47.

Najarian, M., Pollack, J. M., Sorongon, A. G., & Hausken, E. G. (2009). *Early childhood longitudinal study, kindergarten class of 1998–99 (ECLS-K) psychometric report for the eighth grade.* Washington, DC: National Center for Education Statistics.

National Middle School Association. (2010). *This we believe: Keys to educating young adolescents.* Westerville, OH: Author.

Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods* (2nd ed.). Newbury Park, CA: Sage.

Rivkin, S., Hanushek, E. A., & Kain, J. F. (2005). Teachers, schools, and academic achievement. *Econometrica, 73*(2), 417–458.

Rockoff, J. E. (2004). The impact of individual teachers on student achievement: Evidence from panel data. *American Economic Review Papers and Proceedings, 94*(2), 247–252.

Rockoff, J. E., & Lockwood, B. (2010). Stuck in the middle: Impacts of grade configurations in public schools. *Journal of Public Economics, 94,* 1051–1061.

Snijders, T. A. B., & Bosker, R. J. (1999). *Multilevel analysis: An introduction to basic and advanced multilevel modeling.* Thousand Oaks, CA: Sage.

U.S. Department of Education, National Center for Education Statistics. (2010). *Digest of education statistics, 2009.* Washington, DC: Author.

Way, N., Reddy, R., & Rhodes, J. (2007). Students' perceptions of school climate during the middle school years: Associations with trajectories of psychological and behavioral adjustment. *American Journal of Community Psychology, 40*(3/4), 194–213.

Weiss, C. C., & Kipnes, L. (2006). Reexamining middle school effects: A comparison of middle grades students in middle schools and K–8 schools. *American Journal of Education, 112*(2), 239–272.

Williams, T., Kirst, M., & Haertel, E. (2010). *Gaining ground in the middle grades: Why some schools do better. A large-scale study of middle grades practices and student outcomes.* Mountain View, CA: EdSource.

Yecke, C. P. (2006). Mayhem in the middle: Why we should shift to K–8. *Educational Leadership, 63*(7), 20–25.

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