The Impact of School-to-School Transitions on Academic Achievement: An Analysis of Various Grade-Span Configurations Utilized by Public School Districts in New York State

by

James J. DelViscio

A Dissertation

Submitted to the University at Albany, State University of New York

In Partial Fulfillment of

the

Requirements for the Degree of

Doctor of Philosophy

School of Education

Educational Administration and Policy Studies

2013

Dissertation Committee

Dr. Gilbert Valverde, Faculty Mentor and Chair

Dr. Kathryn Schiller, Committee Member

Dr. Alan Wagner, Committee Member

ProQuest LLC.
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106 - 1346

The Impact of School-to-School Transitions on Academic Achievement: An Analysis of Various Grade-Span Configurations Utilized by Public School Districts in New York State

by

James J. DelViscio

ABSTRACT

At the beginning of the 20th century, there were essentially two types of organizational structures for primary and secondary education in the United States. There were either one-room K-12 schools or in larger systems K-8 buildings feeding into four-year high schools. Despite numerous experiments since then in reconfiguring schools resulting in a wide variety of grade-grouping combinations, there continues to be no consensus on one preferred organizational model for schools within districts. More importantly, there has been relatively little empirical research done to determine whether the way schools are configured or whether the number of schools a child attends, which can range from one to five or more between kindergarten and high school, has any significant impact on academic performance. The analyses of academic and demographic records of 598 New York State's school districts over four years from the 2007-08 through 2010-11 school years has provided evidence that the number of structured school-to-school transitions that are made through primary and secondary school has a statistically significant influence on academic performance, as measured by the total percentage of students who graduate within a specified period of entering high school.

The negative influence of increases in the number of transitions on graduation rates for total student populations, as well as various subgroup cohorts, becomes clear when controls are introduced for the strongest predictors of student success, the percentage qualifying for free and reduced lunch aid and the percentage of teachers with the most advanced educational training. This finding is consistent with a growing body of research that has suggested that each transition that a student makes to a new school has a negative influence on academic achievement. While regression analyses of cohorts of white

student graduation rates also revealed a statistically significant negative influence that greater numbers of transitions had on graduation rates, findings were inconclusive across the four years of the study for other subgroup cohorts, including students with disabilities, economically disadvantaged students and black students. The strength of the analyses of these subgroups was potentially flawed because cohort graduation rates were not reported by many districts, in accordance with State Education Department policies that allow suppression of such results if the subgroups have five or fewer students in them.

In another series of regression analyses, the percentage of high school graduates in the general education and special education populations earning Regents diplomas with advance designation was found to be positively correlated with the number of school-to-school transitions, but these results were only statistically significant in two of the four years evaluated.

ACKNOWLEDGEMENTS

I have now confirmed what many before me have warned, that the academic journey that culminated with this study can often be a single-mindedly solitary process. I have also fortunately discovered that key to reaching this point with my sanity still intact was to have many wonderfully supportive people to help push and pull me through countless roadblocks, down many tiresome valleys and over dozens of daunting mountains along the way.

With the last most difficult leg of my journey so fresh on my mind, I thought it appropriate to begin at the end by expressing my sincere gratitude to the three members of my doctoral committee, for so ably helping me so to complete this final hurdle in pursuit of my Ph.D. To start, I would like to thank Dr. Alan Wagner, my first doctoral studies professor, who served as the wise mentor and welcoming program guide for the cohort of New Paltz College students with whom I began the unique educational collaboration that brought us all to Albany in 2009. Dr. Wagner was very involved again at the close of my studies, helping particularly in working out the many confusing and long-winded explanations of my analytical findings. I am also grateful to Dr. Kathryn Schiller, whose masterly counsel first kept me afloat nearly two years ago when I was drowning in a sea of statistical possibilities, trying to find focus for my research goals. Dr. Schiller has been there for me many times since then, right up to the end, helping me make sense of all those numbers and formulas, or at least the key ones I needed to understand, that SPSS kept so unrelentingly spitting out at me once I learned which buttons to push. I am especially grateful to my faculty mentor and committee chair, Dr. Gilbert Valverde, who somehow found the time, while juggling a way-over-full plate of

his own academic duties as the chair of the Education Department, to keep me focused on "the prize" with his constant positive encouragement and valuable research insights over the past two years, and, as importantly, to keep the other committee members equally focused on my goal when they needed to be at the end. Although he was only involved, as an reader at my dissertation proposal defense, I would also like to thank Dr. James Butterworth for his great questions, suggestions and key contributions of background information that helped drive my research forward.

They were not involved at the end, but I want to also acknowledge the encouragement and great support I received from Dr. Michael Muffs, Dr. Jan Hammond and Dr. Rose Rudnitski, who prepped me so well for higher academic goals in the New Paltz College school administrator program and later recommended that I join the New Paltz/Albany doctoral cohort.

My journey figuratively and literally to Albany for my doctorate, I am convinced, would not have been successfully completed, if it had not been for the constant support, stubborn encouragement, and the often kidding but always caring commiseration by the members of "the cohort": Kathy Affigne, Michael Burns, Luis Inoa, Harry Leonardatos, Joseph Lloyd, Michelle Martoni, Melissa Pittman, Annie Streiff, and Elizabeth vonWurmb. Thanks all, I couldn't have made it without you through all those classes in New Paltz and Albany, or all the traveling together up and down the Thruway to get to where we all felt so driven to go. Thanks especially to Luis and Michael for the extra time spent together convincing each other that our goals were worthy enough to keep pursuing. While he was not a member of my official cohort, I can't miss the opportunity

to also thank my “brother” Dr. Richard Martin, for firmly reminding me, every time we have spoken in the last five years, that I have the drive and the gifts to be a doctor too!

I began this note by thanking those who helped me finish this work. I am also grateful to my children, Erica, Thomas and Jeffrey, who were among my first “encouragers” and who continue to inspire me now by always trying to reach new levels of excellence in their own chosen careers. Finally, and most importantly, I am forever grateful to my wife, Lorry Martin, for being my best friend, best fan and my very best supporter through every high and every low of both my long-winding, distraction-filled career journey and our equally adventurous and always interesting life’s journey together.

Table of Contents **Page #**

Table of Contents **Page #**

Table of Contents **Page #**

Tables **Page #**

Tables **Page #**

Tables **Page #**

Tables **Page #**

Tables **Page #**

Tables **Page #**

Tables **Page #**

Figures

Figures **Page #**

INTRODUCTION

In New York State, as in many other areas around the country, there has been growing dissatisfaction for more than the last two decades with the academic achievement of students in traditional middle school and junior high school settings, which has resulted in decisions by dozens of districts to restructure their schools to reduce or eliminate the number of separate middle grade buildings. (Gootman, 2007; George, 2005; Pate, Thompson, and Homestead, 2004). Further fueling the fire for school restructuring, there have been a number of studies, over the same period that have found evidence that achievement levels drop with each transition from one school to the next, between kindergarten and high school (Rockoff and Lockwood, 2010; Cook, 2005; Brown, 2004; Herszinhorn, 2004; Wren, 2003; Alspaugh, 1998; Alspaugh and Harting, 1995).

In New York City, for example, in large part because of the dissatisfaction with both academic and behavioral problems involving students in middle school settings, a major restructuring effort over the last dozen years has resulted in the creation of more than 100 new K-8 facilities. The shift has been given further impetus by the publication of two major studies that have focused on the connection between student achievement and school building grade configurations by Rockoff and Lockwood (2010) and Schwartz et al. (2009). Both studies have provided empirically strong evidence, based on longitudinal data collected from the nation's largest school system, that the fewer the number of school-to-school transitions that students make between kindergarten and the eighth grade, the greater is their academic achievement by the time they are ready to enter high school.

In my home district in Newburgh, two elementary schools have been converted to K-8 facilities in the last three years, and another K-6 elementary school began restructuring last year with the goal of becoming a fully enrolled K-8 facility by 2014. Throughout this process in Newburgh, there have been no public reports released explaining in any detail the reasons for the conversions or any studies conducted to attempt to determine the effects on academic achievement, student behaviors, or school climate resulting from the restructuring.

Yonkers is another small city school system in New York that has reorganized its schools over the last half dozen years to the point where it now has nearly twice as many students in PreK-8 facilities as it does in the more traditional elementary/middle school track. In 2010 district officials announced plans to eventually convert all schools to PreK-8 structures, after an internal study was completed that concluded that its PreK-8 schools outperformed its PreK-5 and middle schools on all measured variables, including absenteeism, suspensions, tardiness, and Grade 3-8 English Language Arts and Mathematics state assessment scores from 2009. (Yonkers, 2009).

RATIONALE FOR PRESENT STUDY

Because relatively few of the studies done so far have gone beyond examining data from eighth grade or high school freshmen cohorts to determine the effect of different school grade configurations on academic achievement, my own research has been constructed to assess whether there are more long-term effects that can be linked to the number of transitions students experience over their entire primary and secondary educational experience by focusing mainly on the culminating measure of academic success in the primary and secondary education system – high school graduation rates.

Findings would also help more clearly address the potential benefits, if any, of eliminating middle schools as a way to reduce transitions and improve individual student academic results in the process, as has been an increasingly popular approach taken in the past dozen years by districts that have created more K-8 schools. Between 2000 and 2009, for example, the number of PreK/K or Grade 1 to 8 schools around the United States increased by 16.6 percent, from 5,198 to 6,063, while the number of middle-grade configured schools (grades 4, 5, or 6 to grades 7 to 8) increased by only 11.6 percent, from 11,696 to 13,060. As telling, according to 2008 data from the National Center for Education Statistics (NCES), while the number of middle schools climbed more than 21 percent, from 10,499 to 12,773, between 1997 and 2007, the number of combined elementary/secondary schools created during the same period more than doubled from 2,980 to 5,984.

In New York, the focus of my study, the rate of growth of the number of PreK/K or grade 1 to 8 schools has been nearly four times as rapid, increasing from 107 to 199 between 2000 and 2009, as has been the rise in the number of middle-grade configured schools, which increased 24 percent from 603 to 749 during the same period. (NCES, 2002, 2009).

It is my hope that the findings of the study will expand on the body of literature and empirical research on the effect of transitions on students, and be of particular use to district leaders in New York, who may be considering restructuring plans that result in having fewer school-to-school transitions between kindergarten and the twelfth grade for the primary purpose of improving academic achievement.

IMPETUS FOR RESEARCH

Plans for the current study were initially undertaken with the intention of replicating research done by Brown (2004), in which academic records from 460 Ohio school districts were analyzed in an attempt to determine the possible effect of the number of school-to-school transitions within each district on graduation rates and other key high school achievement measures. Brown concluded, as the result of conducting a number of regression analyses, that districts having fewer transition points because they contained schools with broader grade spans, experienced statistically significantly higher graduation rates than those districts with larger numbers of school-to-school transitions built into their systems. Because his study only involved districts in Ohio, Brown acknowledged that the results could not be generalized, and he recommended that similar studies be conducted in other states around the country. His study also only involved the analyses of data for one school year, which prevented the researcher from being able to show any consistency in findings over an extended period.

Another shortcoming of the Brown study was that instead of comparing districts having one, two, three, four or more transitions points with each other, as I have, he created two groups of districts – one with two or less transitions and one with more than two transitions. By grouping districts as he did, he precluded any possibility of doing a statistical comparison of the two largest categories of districts, those with only one transition point, primarily districts with K-8 schools and high schools or K-6 schools and junior-senior high schools, and the most popular schools-configuration type and the one that has come under the most restructuring scrutiny, districts with traditional elementary, middle schools/junior high, and high school organizational structures

Finally, Brown makes no distinction in his study between district-wide achievement levels for students in general education and special education populations or involving districts with lower and higher SES levels. In my research, I have included analyses of disaggregated data on graduation results for several subgroups, including special education student populations, also white and black student populations to explore whether there is any evidence that any of these groups of students benefit more academically from being in districts with fewer or greater numbers of school-to-school transitions over the course of their kindergarten through twelfth grade educational experiences. Some additional subgroup analyses have also been conducted examining graduation rates for the four-year period of students identified in the state's BEDS reports as being "economically disadvantaged," since there is some research that suggests that these students might be effected differently by transitions than the general student population.

Becker (1987), for example, in an analysis of achievement levels of more than 8,000 sixth graders in both elementary schools and middle schools in Pennsylvania, found that students with lower social backgrounds and abilities performed better staying in elementary schools for sixth grade, while sixth graders with higher social backgrounds and abilities fared better in middle schools. One shortcoming of the Becker study is that it did not go farther in evaluating whether there were any long-term effects on student achievement related to the whether they stayed in an elementary school in sixth grade or transitioned to a middle school for sixth grade. While my study does not address the issue of whether transitioning at specific grades has any long-term effect on student achievement, the dataset that I have constructed does include an additional variable that identifies the point at which transitions are made. This would allow the same state

database reports to be used in a future study aimed at assessing the possible academic effect of transitioning to new schools at specific grades.

In 1998, Alspaugh reported a statistically significant achievement loss in the transition to high school in an ex post facto study of students in several Missouri school districts moving to the ninth grade from middle schools and K-8 facilities. He also found that dropout rates were higher for students who had made the extra transition from elementary through middle schools, compared to those students in K-8 schools, and achievement losses were lower for students who transitioned through K-8 schools to high school. However, his report did not follow the students to see whether the academic achievement losses carried through to impact graduation rates or other end-of-high-school assessments.

Earlier, Alspaugh and Hatting (1995) reported student achievement losses associated with the transition from elementary schools to intermediate schools, but they also found that the student achievement scores generally recovered to pre-transition levels within a year. In this case again, no attempt was made to determine whether there were any long-term effects related to the number of transitions that students made.

More recently, Weiss and Bearman (2007) performed an analysis looking for the possible effects of transition on ninth grade students from 80 high schools around the country. In analyzing academic records and other data involving more than 20,000 students obtained from the National Longitudinal Study of Adolescent Health, the researchers found no statistically significant difference in academic and nonacademic outcomes for students who remained in the same school in ninth grade, compared to those who transitioned to high schools in the ninth grade. Weiss and Bearman speculated that the few differences they found in a small number of subgroup results provided

evidence that some adolescents who were struggling academically or socially in eighth grade benefitted from getting a fresh start in a new school. As with many of the studies on the possible effect of transitions on students, the Weiss and Bearman research provided no data on academic or nonacademic effects beyond the ninth grade.

In a more recent study, Weiss and Baker-Smith (2010), examining Philadelphia Longitudinal Study (PELS) data for students attending K-8 and middle schools, found a statistically significant difference in school form as a predictor of academic success in high school, with K-8 school eighth graders more likely to attend the city's prestigious magnet high schools, where educational outcomes were greater. Although the 2010 study used 1996 and 1997 data, it did not include any information about long-term effects, most specifically follow-up graduation rates, or the type of schools students attend in the middle grades. The authors also admitted that their research provided no additional insight of underlying reasons why students in Philadelphia's K-8 schools would be more likely to attend the select magnet high school.

Schiller, in 1999, also focused on the critical freshman year of high school in using 1988 NELS data to measure the academic success of students who had transitioned in a variety of feeder patterns from elementary and middle schools. As a result of her analysis, she reported that when a large number of students moved together to the same high schools that there was little change in the academic standings, as measured in mathematics grades, for both low-achieving students and those who had been maintaining high grades in middle-level schools. When smaller groups of students scattered to a number of high schools containing fewer of their former classmates, however, she found that lower academic achieving students seemed to fare better, while those who had been top students in middle schools slipped in the ranks. In her study, controls for school

characteristics, such as size, were used and individual students were also surveyed, both before and after the transition, but the resulting information collected was not part of the final analyses. As a result, there was no way to tell how much of an effect, if any, the changing social surroundings in their new schools had on students' academic achievement.

Larger districts also generally have more schools at each level, which would make it more likely that students encounter a different set of classmates as they move from one level to the next. The new social setting at each new level, in addition to having a new set of teachers, who have less preconceived ideas of their new students' abilities, might also be a critical factor in helping produce significant changes in achievement levels.

The size of schools, not the number of transitions students make in advancing from kindergarten through the twelfth grade, has been advanced by other researchers as having an important role in academic achievement for different student populations. In one study of the effect of school system size, for example, Friedkin and Necochea (1988) found empirical support that larger school systems in California benefit high SES populations, while lower SES populations are negatively affected by large systems. In their study report the researchers speculated that this negative influence of larger schools on lower SES populations could be at least partially attributed to the fact that resources and special services available in such large districts, especially inner city urban ones, must be shared by a higher numbers of students with greater learning needs and problems.

In my analyses of New York State public school graduation rates from 2008 through 2011, I found in all four years surveyed that districts with greater numbers of school-to-school transitions tended to have higher graduation rates for total student populations. However, that association becomes negative when controlling on

characteristics of the school population and school demographics and levels of teacher qualifications. This same pattern, which can be attributed to a possible suppressor effect that the variables had on each other, was also evident in disaggregated subgroup analyses involving white student cohorts in each of the 598 districts examined. Statistical findings were not as clear for other subgroups analyzed, including students with disabilities, economically disadvantaged student cohorts, and black and Hispanic student populations, in part, possibly, because large numbers of districts in the study were not required to report graduation rates for many students in these subgroups. This option to withhold some graduation reports was available to the districts because of State Education Department disclosure policies that allow such scores to be suppressed from the districts' if only five or fewer students are represented in these subgroup cohorts.

While the reported graduation rates were based on the percentage of students who had been in the ninth grade four years prior to the years being evaluated, the students were not necessarily in the same districts when they were in ninth grade. Since this study attempted to measure the success of students who have been in the same district for extended periods of time, this fact must be considered in drawing any conclusions on the effects of transitions on a stable student population. This shortcoming, however, is addressed to some extent in two of the four years in which BEDS data were available for specific cohorts of students, who were tracked between 2006 and 2010 and also between 2007 and 2011. The resulting cohort graduation rates reported in 2010 and 2011 were specifically for students who had been in the same district high school for the previous four years. In statistical analyses done for these two cohorts, patterns were very similar to the regular graduation rates findings, with the number of school-to-school transitions

statistically significantly related to the graduation rates in regression studies completed for the two special cohort groups in question.

In another series of correlation and regression analyses of the same district populations, I found that the number of school-to-school transitions within the districts studied was a statistically significant positive predictor of student success, as measured by the percentage of graduates who were awarded advanced designation Regents diplomas. One reason why the advanced diploma rates were higher, even though general graduation rates weren't significantly different from one district type to the next, could be attributed to the fact that the districts in this study with greater numbers of school transition points also tended to have significantly higher percentages of highly experienced and properly certified teachers, factors that have both been strongly linked in previous research to higher student achievement levels.

Perhaps as critical in understanding why the districts with more transitions had higher rates of students being awarded advanced Regents diplomas is that the study did not contain the largest and poorest urban city districts in the state including New York City, Buffalo and Yonkers, which also have a disproportionately higher number of academically disadvantaged students. Many of the largest districts that were included in the study are in relatively wealthy suburban counties, such as Westchester and Nassau. These are also the districts that had the most school-to-school transition points, but unlike some of the larger urban districts also included in the study, they had lower poverty rates than the one- and two-school rural upstate districts to which they are being compared.

I also looked for evidence in my research of the possible effects of transitions on special education students, who, some research (Weiss and Bearman, 2007) has suggested, might benefit from fresh starts in new schools, especially if they are

challenged more academically by new teachers who don't have a preconception about the extent of their disabilities. Only a study tracking individual students would provide conclusive evidence of this transition effect. My own correlation and regression analyses of graduation rates for this subgroup of students was also inconclusive, primarily because the numbers of classified students in this subgroup for most of the one-school districts and districts with only one transition point were so small that their graduation rates were not reported. This was the case, as stated earlier, because the State Education Department allows the suppression of testing and graduation information to the public in order to protect the identity of individual students in such small groups. While the analyses of graduation rates for students with disabilities across the different district types were inconclusive, it is still worth noting that there were statistically significantly higher percentages of these students who received Regents diplomas with advance designation in two of the four years analyzed.

In addition, part of my preliminary analysis involved disaggregating data to identify districts with high levels of economically disadvantaged students, in order to determine if the number of transitions has any significant effect on their academic success. Again, I have found evidence of a statistically significant effect of the number of school-to-school transitions on districts' graduation rates for some years, but interestingly only with the population of students with disabilities and only involving the percentage of students who are awarded advanced designation diplomas.

One impetus for my study has been a growing interest in the ongoing movement by districts around the country in the last dozen years to eliminate middle schools and reduce the number of school-to-school transitions between kindergarten and the twelfth grade. This shift has primarily been accomplished by opening more K-8 schools and

reconfiguring other schools to keep students in one building from grades 5 or 6 through grade 12, with the intention, at least in part, of positively impacting student academic achievement. The movement has been particularly pronounced in many of the largest cities, including New York, Boston, Philadelphia, Baltimore, Cincinnati, and Milwaukee (Carr, 2007; Gewertz, 2004; Pate et al, 2004; Hendrie, 1996). As a result, in these large districts, as well as in many smaller ones around the country, hundreds of schools have been reconfigured, hundreds of thousands of students, especially those in the middle elementary grades, have been shifted to fit the new building configurations, and hundreds of millions have been spent in the process of retrofitting. As often as not, these changes have been put into motion with relatively little empirical evidence that the new school configurations will produce the kind of improvements in student achievements and behaviors that most of the reorganizing is intended to address.

It was my hope, when I began this study, that the research I completed on the possible effects of the number of school-to-school transitions that take place in each New York district being analyzed would provide valuable information for public school administrators about the usefulness of making school grade-span configuration changes in which the primary goal is to improve student academic achievement levels. The impact of possible school reconfigurations in New York is expected to become an even more critical issue in the coming years, as the State Education Department moves ahead in a stated goal to encourage the consolidation of districts with enrollments of less than a thousand students, and other district school closing and restructuring decisions are made due to the loss of both federal and state funding aid over the last half dozen years. In my own region, for example, at least a half dozen districts are in the process of closing or

considering the closure of elementary schools and also making decisions about the organization of grades in schools that remain open.

My analyses of graduation records for a four-year period in New York State have provided some evidence that experiencing greater numbers of school-to-school transitions between kindergarten and the twelfth grade has a positive academic effect for some portions of the student population, particularly involving both general education and special education students being awarded advanced designation diplomas. As important and intriguing for future research, have been the statistically significant findings, when strong suppressor variables are accounted for, that increased numbers of school-to-school transitions have a negative impact on academic success for overall student populations, as measured by total graduation rates in New York State's public school districts over the same four-year period.

LITERATURE REVIEW

HISTORICAL BACKGROUND

From the 1900s through the middle of the 20th century, K-8 schooling was sufficient for most of the population in the U.S. Up until the 1940s, the K-8 model was effective in educating most people in a predominantly rural population dependent on agriculture (Calhoun, 1983). When the shift away from the K-8 model began in earnest after World War II, it was definitely pronounced. In 1920, 80 percent of all high school graduates had attended a K-8 school. By 1980, more than 80 percent of all students in the country were enrolled in school systems other than K-8s, in which they progressed from an elementary school, to a two or three-year middle school or junior high and finally a three or four-year high school (Elovitz, 2007).

While junior high schools were established in the U.S. as early as 1895, it wasn't until the 1940s and 1950s that they became the preferred middle-grade model. The shift in this country away from the traditional K-8 school model, that had been the structure of choice in the nation's public and private school systems since the late 1800s, started in earnest in the early 1940s. At that time, increasing economic pressure to better prepare students to enter the workforce after graduation sparked the development of the junior high schools, which were often organized as educational processing systems aimed at quickly sorting seventh and eighth graders into trade or professional tracks in preparation for high school, trade schools, and careers beyond (Calhoun, 1983; Howley, 2002; Elovitz, 2007). Another argument offered for the development of junior high schools was that having separate schools for students in grades seven through eight or nine would better prepare young adolescents for high school by replicating the environment of the

secondary schools without having to be exposed to older students. (Bedard and Do, 2005).

By the early 1970s, the interest in junior high schools as high school feeders peaked with nearly 8,000 of the facilities for seventh through eighth or ninth graders in operations in the United States, according to National Center for Education Statistics data (2006). It was about this time that sixth graders became the focus of many educational reformers' attention and the idea of separate middle schools designed to meet the academic and developmental needs of this group, along with those of seventh and eighth graders began to take hold. (Elovitz, 2007)

Proponents of the middle school model, led by The National Middle School Association, recommended that good middle schools not just replicate the junior high school model already in existence. Chief among the guidelines was that middle schools have faculty specifically trained to work with young adolescents, rather than have teachers, administrators and support staff whose experience and background is primarily in secondary education, The national association has also advocated that good middle schools should be smaller than high schools and developed to have a warm, supportive and safe learning environment with teams of teachers working with students for two or three year. All of this, it was argued would provide an easier transition for elementary students, rather than moving directly to high schools, where departmentalization and the focus on academic courses, led by content-area specialists, tend to produce a less personalized learning environment. (Erb, 2006; Hough, 2005; Ecker et al, 2002)

While there seems to be relatively little documented evidence that many districts around the country did much more in converting junior high schools to middle schools other than simply adding sixth and sometimes fifth graders and moving ninth graders to

their high schools, the shift to the newly designated middle grades model was a relatively rapid one. In the 1967-68 NCES' Digest of Education Statistics, there were no grade 6-8 middle schools listings. Two years later there were more than 2,000. By 2006-07, there were 12,773. Over the same period the number of junior high schools dropped from 7,750 to 3,112.

Unfortunately, as the number of middle schools continued to climb through the late 1990s and early 2000s, dissatisfaction with many of the schools also rose steadily. Academic concerns about both primary and secondary education in the United States became especially strong in 1983 with the publication of the report "*The Nation at Risk*," but middle schools were not singled out at the time. The criticism of middle schools became more of a focus when accountability standards increased, resulting largely from implementation of federal No Child Left Behind (NCLB) reporting mandates in the early 2000s that exposed the academic achievement deficiencies of many eighth graders attending such schools.

As the criticism of middle schools has grown, district leaders have looked in a number of different directions to find solutions to slipping academic achievement and growing behavioral problems. Some have suggested that the problem with middle schools has little to do with the grade configuration itself, but more with the fact that many never adopted the principles or implemented the best practices that were supposed to have set them apart from junior high schools and high schools as educational facilities especially suited for addressing the needs of older adolescents (Clark et al, 2001; Ecker et al, 2002; Pate et al, 2004; Reising, 2002).

Many of those best practices for working with young adolescents had been further developed by the National Middle School Association and included: offering

multifaceted guidance and support services; fostering stronger school-initiated family and community partnerships like those already existing in many elementary schools; having educators specifically trained to work with this age group; having team teaching strategies with teachers working with students for two or more years to provide continuity of instruction and stronger student-teacher connections; and employing adult advocates or mentors to work with each student.

Despite the arguments that it has been the lack of implementation of the middle school curriculum and organizational model and not the structure of the model itself that has resulted in its shortcomings, a growing number of school districts around the country have moved away from the middle school configuration over the last decade and have been busy retrofitting hundreds of K-5 and K-6 elementary school buildings to accommodate K-8 programs (See figure 1). While the number of K-8 schools in the U.S. was still relatively small at around 5,000 in 2005, this represented a very healthy increase of 17 percent over a ten-year period in which the total number of elementary schools had only increased by 9 percent (Chaker, 2005). By 2009, the number of public PK/K-8 schools in the United States increased another 16.4 percent, while the number of middle elementary schools (grades 4, 5 or 6 through 6, 7 or 8) increased by only 10.6 percent (NCES, 2010).

In New York State, the focus of my study, more than 20 percent of the 598 districts in 2009, not including the larger urban districts, were identified has having only one transition point between schools from kindergarten to the twelfth grade, with most having the transition point either at ninth grade from K-8 schools or at sixth or seventh grade into combined junior/senior high schools. Another 12.4 percent were mostly rural, one-school K-12 districts. And while the number of middle-grade configured schools

continued to grow in the nearly ten years between 2000 and 2009 in New York, increasing 24 percent from 603 to 749, the number of PreK/K-8 schools grew at a rate nearly four times that of middle schools, going from 107 to 199 over the same period. (NCES, 2002, 2009). (See figure 2)

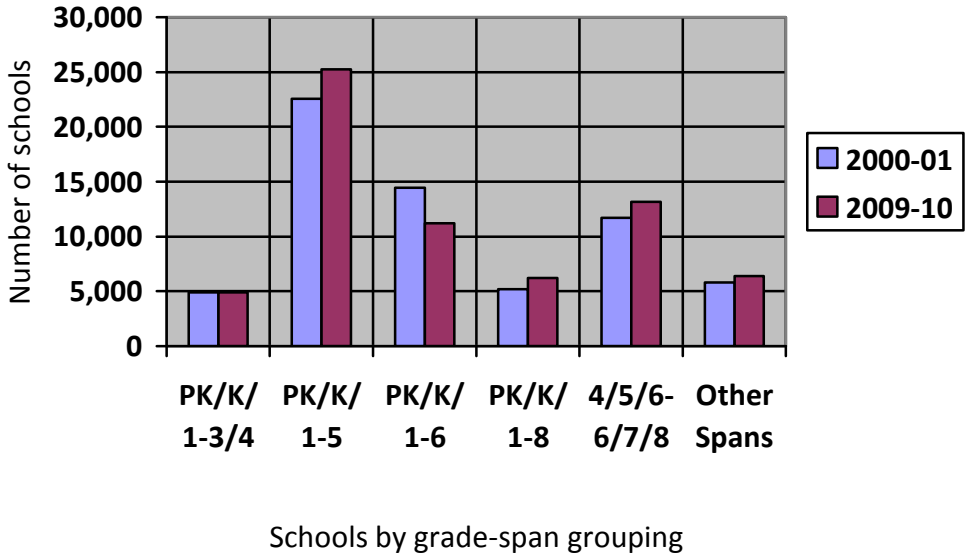


Figure 1. Changes in the grade-span configurations of public elementary schools in the U.S. between 2000-01 and 2009-10

SOURCE: U.S. Dept of Education, National Center for Education Statistics, 2002, 2010

Milwaukee began shifting to K-8 school in the 1990s because administrators wanted to enable more children to attend neighborhoods schools, based in large part on parents' requests, and also to address rising transportation costs resulting from having to bus students to schools of their choice because of federal mandates (Gewertz, 2004). By 2008, the number of K-8 buildings had grown in the city from a dozen to more than 60 (Carr, 2007). At a cost of 530 million dollars, Oklahoma City started a seven-year plan in 2001 to retrofit all schools to serve K-8 populations, and to close all middle schools in

the process, because district leaders believed this was the best solution for addressing the high drop-out rate (Watson, 2009).

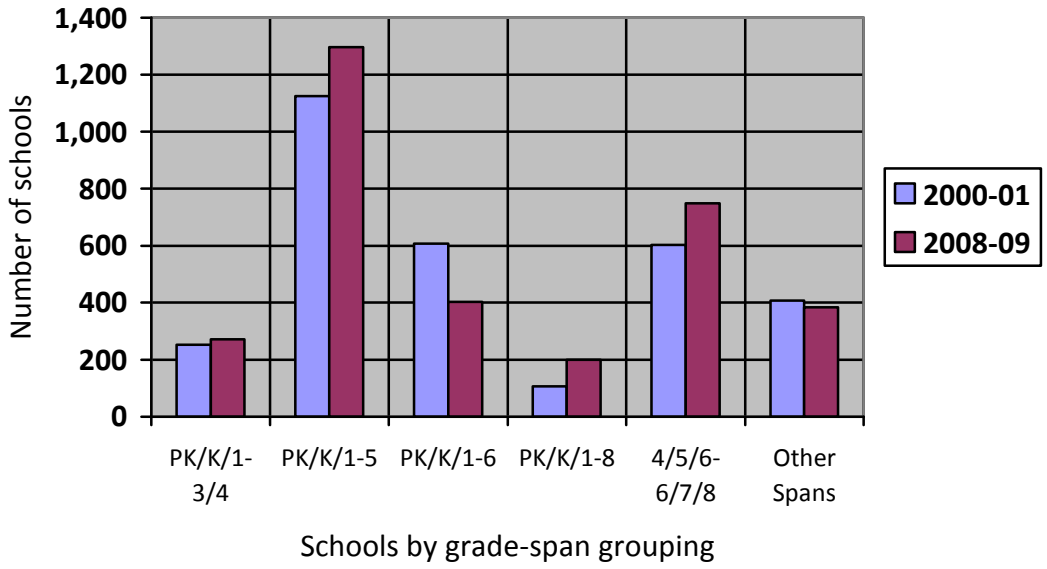


Figure 2. Changes in the grade-span configurations of public elementary schools in NYS between 2000-01 and 2008-09.

SOURCE: U.S. Dept of Education, National Center for Education Statistics, 2002, 2009

In Cleveland, a 1 billion dollar bond was passed in 1998 to reconfigure schools, with the plan of creating enough K-8 schools to be able to eventually phase out all middle schools (Pardini, 2002). The shift in Cleveland to K-8s got an additional boost when an analysis conducted by an independent consulting firm hired by the district found that reading and mathematics achievement scores of sixth graders in the newer K-8 schools were significantly higher than the scores of sixth graders still in the district middle schools (Poncelet, 2004). Unfortunately, the Cleveland study, just like the in-house one done by Yonkers in 2009 that produced similar results, included no follow-up analysis to measure whether the difference in achievement levels between students in K-8 or middle

schools remained significant beyond the one year following the transition year being evaluated.

The driving force behind the restructuring in most cases, as stated earlier, has been the belief that young adolescents would do better academically and developmentally in schools with wider grade spans, such as K-8 schools and grade 5-12 junior senior high schools, than those who attend K-5 or K-6 schools and then transfer from elementary to middle schools or junior highs and finally to high school, as has been the standard practice in most school systems in the United States since the 1940s. While preliminary research, case studies, and qualitative and anecdotal evidence gathered in many of the schools that have eliminated middle schools by changing over to the wider grade span models appeared initially to bear out this hypothesis (Connolly et al, 2002; Franklin and Glascock, 1996; Pate et al, 2002; Yonker, 2009), more recent empirical studies have suggested that there is no simple solution to the academic problems plaguing middle schools.

REASONS FOR SHIFT FROM MIDDLE SCHOOL MODEL

Some school districts around the country, including most notably ones in Philadelphia and Chicago, never completely abandoned the K-8 school concept. Many others, however, didn't begin looking seriously at alternatives to the popular middle school model until the early 2000s, when the increase in accountability standards, resulting largely from the implementation of federal No Child Left Behind (NCLB) reporting mandates, exposed the academic achievement deficiencies of many eighth graders attending middle school.

In Boston, the early drive to shift students from middle schools to K-8 facilities came after a school system analysis of Massachusetts Comprehensive Assessment

System (MCAS) test results and NCLB data showed that students in the existing K-8 schools tended to outperform their peers in middle schools (Jan, 2004). Interest in K-8 schools since then has continued to strengthen in Boston with the number of K-8 facilities increasing from less than 10 in 2005 to 26 in 2012 (Murray, 2012). According to school officials, speaking at a public hearing on the subject this past June, roughly half of new Boston Public School families are now choosing the urban district's K-8 schools, compared to 30 percent, who opt to enroll their children in the city's K-5 schools.

In an early assessment of achievement in the Baltimore City Public Schools, comparing end-of-year state test scores for students in K-8 buildings with those in K-5 and grade 6-8 schools, Connolly et al (2002) found that students in the K-8 schools had significantly higher reading, language arts, and mathematics scores.

In a statistical study of both urban and rural public schools throughout the state of Louisiana for the 1992-1993 school year, Franklin and Glascock (1996) reported that students in the sixth and seventh grades performed better in elementary and K-12 schools than in middle and secondary schools in both achievement and persistence. In the analysis, the researchers controlled for both student SES and school size. The researchers reported no significant difference in academic achievement between students in K-12 and secondary schools, however, regardless of SES and school size.

While the perception that the upper grade students in K-8 schools do better academically than their sixth, seventh and eighth grade counterparts in middle schools, questions about whether larger, impersonal middle schools increase behavior problems have also been on the rise over the same period (Weiss and Kipnes, 2006). Simmons and Blyth (1987) reported that girls who attended K-8 schools had a healthier transition to high school with less behavior problems and higher levels of self-esteem reported than

did girls who attended middle schools. In a small 1991 pilot study in Cincinnati, it was found that older students had better attendance records and fewer disciplinary problems in the six schools that were converted to K-8 facilities (Gewertz, 2004).

In addition to concerns about the academic performance of students in middle schools, other problems have been cited in the criticism of this school structure. Anderman (2002) and Arcia (2007) found students in middle schools being suspended at substantially higher rates than those in K-8 schools. Students in the sixth grade have been a particular focus of research about whether they do better in K-6 or K-8 settings or being moved to middle schools. In an extensive study of all Louisiana public schools in the 1992-93 school year, Franklin and Glascock (1996) found that sixth grade boys had higher suspension rates in middle schools than elementary schools, but suggested that the difference was possibly related to the effect of transitions, school organization, and school size. The researchers also speculated in their study but did not attempt to control for possible stricter behavior standards that might have been in place in the middle schools that new sixth graders might not have fully internalized.

More recently, in an analysis of administrative data from 117 public school districts in North Carolina, Cook et al (2007) found that sixth grade students attending middle schools were much more likely to be cited for discipline problems than those attending elementary schools, and that the difference remained after adjusting for the socioeconomic and demographic characteristics of both students and schools. The North Carolina researchers also determined in their analysis that the higher referral rates recorded by sixth graders in middle schools persisted at least through the ninth grade**.** In another study in which they used the NCES' Common Core of Data from more than 10,000 districts around the country, Bedard and Do (2005) found that students who

moved to middle schools in the sixth grade rather than staying in elementary schools until the seventh grade and then moving to junior high schools had approximately 1 to 3 percent lower on-time high school graduation rates.

LACK OF CLEAR VISION OF MIDDLE SCHOOL MODEL GOALS

As the criticism of middle schools has grown, district leaders have looked in a number of different directions to find solutions to slipping academic achievement and growing behavioral problems. Some have suggested that the problem with middle schools has little to do with the grade configuration itself, but more with the fact that many never adopted the principles or implemented the best practices that were supposed to have set them apart as educational facilities especially suited for addressing the needs of younger adolescents. These would include guidance services geared specifically to their development level, teacher mentoring and team teaching that would allow students to work with the same instructors over a two or three-year period. (Clark et al, 2001; Ecker et al, 2002; Pate et al, 2004; Renchler, 2002; Reising, 2002). Middle schools have also been criticized for focusing too much attention on social development and not enough on developing student academic skills (Yecke, 2006).

TRANSITION EFFECT PUSHING RECONFIGURATION INTEREST

Without specifically identifying middle schools as potential weak links in the K-12 education system, some researchers have offered evidence, as I have also attempted to do in my study, that the number of school-to-school transitions that students experience, whether from K-3 schools to a grade 4-6 buildings or from middle schools to high schools may be one underlying reason for achievement loss and greater discipline problems for students new to any school (Barber and Olsen, 2004; Coladarci and

Hancock, 2002; Alspaugh,1998). Compounding the normal transitions problem, others argue, is that during a period in their lives when middle-grade aged adolescents are already experiencing many physical, emotional, and intellectual development changes, that moving to a new school environment may be unnecessary, and potentially harmful (Juvonen et al, 2004).

In an early study of the possible negative effects on academic achievement of transitions from elementary to middle schools, Alspaugh and Hartings (1995) reported that there was a consistent achievement loss associated with the transition from self-contained elementary schools to intermediate-level schools in reading, mathematics, science, and social studies scores, whether the transition was at grade 5, 6, 7, or 8. Confusing the initial results, the researchers discovered, was that student achievement scores generally recovered to their pre-transition levels in the year following the transition.

In another study, Paglin and Fager (1997) reported in a controlled study that sixth grade students in both elementary and combination K-12 schools outperformed students in middle schools and junior high schools, but the study didn't examine how the configuration affected other students at different grade levels. The authors used their findings to speculate that the number of transitions made by the middle and junior high students was a significant factor in the score differences, but didn't test the theory by evaluating students at more than one specific transition point. The study evaluated eight schools with seven different grade spans with student populations of 82 to 1,200. The study did not, however, control for school size, socioeconomic factors and other variables, so the achievement effects could be attributed to other factors.

In a follow-up larger ex post facto study comparing three different groups of students from 16 school districts in 1998, Alspaugh reported a statistically significant achievement loss in combined core subject tests associated with the transition from elementary school to middle school at sixth grade, as compared with those students in K-8 schools who did not have a school-to-school transition at the sixth grade, but his analysis showed no significant difference in mathematics test scores for students in K-8 schools compared to those in middle schools. The achievement losses reported were based on average mean scores in Missouri's standardized subject area achievement tests between fifth and sixth grades and again between eighth and ninth grade for the sample schools/districts. The conclusions drawn were based on the assumption that students didn't grow enough academically because their scores weren't as high in the next grade level tested.

The author also reported that the transition loss in achievement was greater when students from multiple elementary schools were transferred into a single middle school than when students in one elementary school moved as a single cohort to middle school. Alspaugh did not speculate about why the transition to middle school effected the single cohort group less negatively, but those who champion K-8 school advantages, including Abella (2005) and Poncelet (2004), have argued that students tend to be less stressed, and potentially more academically successful as a result, when they remain in more familiar surroundings during their normally very developmentally and socially stressful middle school years. The students who moved as a group from one elementary school to one middle school in the Alspaugh study, could have benefited in a way similar to those who remain with the same peers in a K-8 school by staying in familiar social surroundings in their new schools.

In 2007, Weiss and Bearman, in research looking for the possible effects of transition on ninth grade students from 80 high schools around the country, found almost no difference in academic and nonacademic outcomes for students who remained in the same school in ninth grade, compared to those who transitioned to high schools. Acknowledging the possible shortcomings of their research, Weiss and Bearman, suggested that while they found little harmful effect in studying a single transition, multiple transitions might have more of an impact on academic achievement.

SCHOOL SIZE, NOT GRADE SPAN CALLED CRITICAL

One of the main criticisms of much of the recent research that has compared achievement levels in K-8 schools with middle schools is that schools with the K-8 schools tend to be smaller, and it has been argued that the size of a schools is much more important in predicting the success of students than the number of grade levels that are contained in the school. Fowler and Walberg (1991), in examining 300 public schools in New Jersey, was able to corroborate previous research that found smaller districts and smaller schools, regardless of socioeconomic status, were more efficient in enhancing educational outcomes. In an earlier study, Grabe (1981) compared a sample of 1,562 ninth and twelfth graders and found only that students from smaller schools were more involved in school activities and had better self-concepts.

In 1996, Howley, in research focusing on influences related to achievement in high school, found evidence that smaller size schools seemed to improve performances of students in impoverished communities. In 2001, Offenberg determined that eighth graders showed higher achievement in K-8 schools than in middle schools, but the researcher also acknowledged that a contributing factor in the higher achievement might be the smaller number of students in K-8 schools than in the middle schools examined.

In another study of the relation between school size and student achievement, Borland and Howsen (2003) reached the conclusion that there is an optimal school size with respect to the maximization of student achievement. This study used statistical formulas in an analysis of achievement levels of more than 31,000 third graders in 654 Kentucky schools to conclude that 760 was the optimal school size in elementary schools. Other variables factored into the analysis included: teacher ability and experience, class size, strength of unions, income, poverty levels, parental college degrees, the percentage of administrators in a district, the percentage of Catholics and non-whites, the population of districts studied, and the Herfindahl index, which measures the degree of educational market competition. The results from all this number crunching, they claimed, is that "as school size increases, at first, student achievement also rises, for increases (in enrollment) up to 760 students, and decreases thereafter." The researchers gave no indication in their report about how large the difference in achievement was between schools of different sizes.

In one of the first large empirical studies comparing academic achievement in K-8 schools and middle schools, Byrnes and Ruby (2007) reported that established K-8 schools in Philadelphia had higher achieving eighth graders than middle schools in the same large city district. The researcher concluded, however, that most of the advantage could be explained by student demographics, transition effects, and school size, noting that most of the high achieving schools in the study were much smaller than the middle schools to which they were being compared, and they also had significantly lower percentages of disadvantaged and minority students than the established K-8 schools.

Chen and Weikart (2008), in studying school disorder and student achievement in 212 New York City middle schools, found that smaller schools had the hypothesized

effect of also having less behavior incidents and better attendance, but the researchers cautioned that reducing school size to improve learning may prove to be ineffective if that's the only change that is made.

More recently, Stewart (2009), in an analysis of student achievement in Texas high schools, measured by Texas Assessment of Knowledge and Skills standardized tests, found that smaller rural schools had the highest percentage of students passing all four core skills tests than both urban and suburban districts.

TROUBLED URBAN DISTRICTS DESPERATE FOR SOLUTIONS

While acknowledging that there are many variables that can effect achievement levels of middle grade-aged students, school district leaders around the country, especially in large city districts, including Philadelphia, Baltimore, Boston, Milwaukee, and New York City have continued to look at shifting to K-8 buildings as a potential solution to academic failures and behavioral problems associated with middle schools. (Baltimore City Schools, 2001; Carr, 2007; Gewertz, 2004; Gootman, 2007; Simmons and Blyth, 1987; Turque, 2008).

Early studies in a number of larger urban school systems offered some good reasons to support the renewed interest in K-8 education. In Milwaukee, researchers conducted a longitudinal analysis of 924 students, who either attended K-8 schools or attended K-6 schools and then proceeded to a middle school for seventh and eighth grade (Simmons & Blyth, 1987). The researchers found that the K-8 students had higher academic achievement, measured both by grade point averages and standardized test scores.

As the resurgence of interest in K-8 schools gathered steam, other research supported the restructuring move for academic reasons. One, done by Tucker and Andrada (1997) on grade configuration, showed middle schools to be less effective in terms of test scores achieved by sixth graders than K-6 and K-8 schools in the same district. The researchers speculated, without conducting any research to support their claims, that the difference in achievement levels were due in some part to "the fact that the K-6 and K-8 schools felt more accountable for the sixth graders in their schools" than those who were responsible for the new middle school students.

In Baltimore, researchers conducted a longitudinal study of two cohorts of students: 2,464 who attended K-5 schools and then went on to middle schools, and 407 students who attended K-8 schools (Baltimore City Schools, 2001). After controlling for baseline achievement, the researchers found that the K-8 students scored much higher than their middle school counterparts on standardized achievement measures in reading, language arts, and math. In addition, the researcher found that more than 70 percent of the K-8 students were admitted into Baltimore's most competitive high schools, compared with 54 percent of the middle school students. What was lacking in this study, as in a number of others conducted at the time, was any longitudinal evidence that students in K-8 schools continued to be more successful throughout high school than the ones who transitioned from elementary through middle schools before entering high school.

In his research on the effectiveness of different school configurations, Howley (2002, 1996) analyzed small studies in six different states, and in each reported that students in grades 6, 7, and 8 had higher levels of academic achievement when they were in K-8 or K-12 buildings than those who attended middle schools in the same districts.

Again, there was no follow-up to measure success in high school of students who experienced one, two or three transitions between kindergarten and high school.

K-8 REVIVAL BASED ON EARLY POSITIVE ASSESSMENTS

Beginning in the mid and late 1980's, a number of districts that had both K-8 and middle school buildings, especially in large urban areas, began doing their own studies and found that K-8 students were outperforming those in traditional middle schools (Cook, 2005; Moore, 1984; Pate et al, 2004; Poncelet, 2004). Howley, in two separate studies (1996 and 2002), reported higher academic achievement by students in K-8 and K-12 buildings than those who attended middle schools in the same districts in small studies in six different states.

While the perception that the upper grade students in K-8 schools do better academically than their sixth, seventh, and eighth counterparts in middle schools, a host of other reasons have also been offered for the new interest in the K-8 configuration. Simmons and Blyth (1987), while looking for possible achievement gains in a study they were conducting, also reported than girls who attended K-8 schools had a healthier transition to high school that did girls who attended middle schools, as evidence in having higher measures of self-esteem and being more involved in extracurricular activities and student leadership roles once they entered high school. In a small 1991 pilot study in Cincinnati, it was found that older students had better attendance records and fewer disciplinary problems in the six schools that were converted to K-8 facilities (Gewertz, 2004).

More recently, in a study comparing suspension rates for students in the sixth and seventh grades in K-8 schools with those experienced by similar populations in middle schools, Arcia (2007) found that the students in the middle schools, regardless of

associated factors, had substantially higher suspension rates than their K-8 school counterparts. Arcia's sample for the study came from one large urban school district that had both K-8 and K-6 and middle school buildings. The populations of the sixth graders in the two different school types were similar in racial composition, percentages of free and reduced lunch programs, and percentages of LEP and special education students. In the seventh grades, however, student populations differed significantly in terms of their demographics, according to Arcia, so that the relevant analyses were conducted by race and ethnicity for only the two major ethnic groups – blacks and Latinos. There were no other controls that were identified in the study.

Additionally, in research conducted by Bedard and Do (2005), evidence was found that moving to a middle school system in Wisconsin, resulting in students shifting from elementary schools in the sixth grade rather than the seventh or eighth grade, decreased on-time high school completion rates by 1 to 3 percent. The researchers suggested several explanations for the possible drop in on-time high school graduation rates, but since individual students were not tracked nor was any qualitative study also conducted, the causes could only be speculated. They included the possible effects of the change in the structure of the school from a more intimate, self-contained class setting to the larger, more impersonal, departmentalized buildings at an younger age when children were not as well prepared, more academic tracking in middle schools that might benefit some students at the expense of others, and the impact of different retention policies in middle school sixth grade classes compared to those for elementary school sixth graders.

Dejong and Craig (2002), in writing about how schools should be organized, list a number of benefits of K-8 education, including the ability in such schools to have greater curriculum articulation across a wide range of grades, the easier fostering of a

"neighborhood school" advantage because of having more students live closer to their school for a longer period of time, and the reduced transportation costs that results from having fewer students bused to centralized middle schools. The strong desire voiced by many community residents that smaller schools are more conducive to the creation of caring learning is a another claim often cited as a good reason for replacing large middle schools with a number of smaller K-8s (Balfanz, 2001).

Parental enthusiasm for the restructuring has also been a driving force in pushing administrators in the Boston school system to more than double the number of K-8 buildings in between 2001 and 2005. Since then the number has more than doubled again to 26. In 2005, a preliminary report from the Middle Grades Task Force, for example, included data that there was an average of 8.33 students seeking every open seat in Boston's K-8 schools, but only 0.64 students seeking an open seat in the existing middle schools (Jonas, 2007). More recently, school officials have stated that when given the choice, nearly 50 percent of the families coming into the Boston schools system select K-8 schools for their children, compared to about 30 percent who enroll in K-5 or K-6 schools (Murray, 2012).

In the Washington, D.C., in the face of a steady decline in enrollment that resulted in the closing of three K-8 schools, the school district nevertheless made the decision to spend $58 million to reconfigure five other elementary schools into K-8 buildings by 2009. Michelle A. Rhee, the district's chancellor at the time, in pushing for the reconfiguration, said parental interest was still very strong in wanting to keep their children in expanded versions of their own elementary schools, and the changes were also part of a larger reorganization that included the closing of more than two dozen other schools in response to the district-wide enrollment decline (Turque, 2008).

While reconfiguring schools around the country has increasingly been considered with a purpose of improving academic achievement, just as often it has, and continues to be done for purely demographic reasons, such as changing enrollment. In the Capistrano Unified School District in California, for example, the move to offer K-8 schools as an option for parents began as a consequence of overcrowding at the district's 10 middle schools, while enrollment was also declining in the elementary schools (Fleming, 2005). In one K-5 school that once housed 1,300 students, aging out of the local population had resulted in the school enrollment dropping to fewer than 800. Its feeder middle school, on the other hand, housed 1,800 students. Rather than reconfiguring the elementary school into another middle school, the district decided to make the elementary school a K-8 facility, which allowed it to reduce the size of the middle school population in the process.

MIDDLE SCHOOL MODEL DEFENDED ON SEVERAL FRONTS

Defenders of middle schools suggest that it is important to develop middle schools with sense of mission and give parents choices (Ecker et al, 2002; Erb, 2006; Jacobson, 2005). They have also argued that those schools that more fully implement middle school model best practices outperform others containing adolescent students (Hough, 2005), whatever their grade-span configuration. Middle schools are also still viewed by many parents and students as better able to offer increased opportunities for social interactions, and broader academic choices than larger schools appear to offer (Akos and Galassi, 2004). In at least one study (Simmon and Blyth, 1987), middle schools were found to be doing a better job of providing professional development opportunities than elementary schools, where academic and developmental goals are often focused more on younger students and less on young adolescents.

Balfanz (2002) has suggested that conversion of selected high poverty middle schools into K-8 facilities could play a significant role in improving academic achievement of middle grade students, but he argued that simply converting schools is not enough, and the change must be part of a comprehensive reform plan for the middle grade students.

A number of district, that have the ability to do so, are continuing to offer options for parents to either keep their children in newer K-8 buildings or transfer to their middle schools. The Fountain Valley School District in California, for example, provides parents of fifth graders with information about the similarities and differences between the two school models and has open house orientations at both the elementary schools and the middle schools (Ecker et al., 2002). In my own local school district, Newburgh, parents are also allowed to elect to keep their children in the newly created K-8 schools or move to the remaining junior high schools, when they reach the seventh grade.

RECENT RESEARCH QUESTIONS K-8 ADVANTAGES

In an examination of state tests scores for high poverty schools in Philadelphia, Weiss and Kipnes (2006) found that the identified highest poverty K-8 school evaluated in the study outperformed the middle schools with the most similar socioeconomic population. In the same study, the researchers reported that the most academically successful five high poverty middle schools only performed as well as the middle economic level K-8 schools in the survey. Brynes and Ruby (2007) also found that middle school students in Philadelphia performed as well as students in newly organized K-8 schools.

A number of critics of the K-8 movement have also argued that there are still no definitive research findings that confirm whether young adolescents in such grade-

configured buildings do better, all other things being accounted for, than in middle schools (McEwin et al, 2005). Hough (2005), after examining more than 3,700 studies that addressed a variety of middle-level education issues, argued that best practices that are consistent with the middle school philosophy, can be implemented in a wide variety of grade-span configured schools. Hough, who coined the term "elemiddles," to describe K-8 schools that offer the best elements of both early elementary schools' child-focused supportive setting and middle school broader content-specific education, has suggested that a national data base be established to enable researchers to study issues associated with grade-span configurations in a more comprehensive, systematic and unbiased manner, before any wholesale restructuring takes place.

Hough (2003) had argued in earlier works that it might be easier to introduce students to some levels of departmentalization and the kind of more specified curriculum that they will need to get used to in high school, while keeping them in K-8 "elemiddle" schools because of the kind of climate for working both with younger children and adolescents is already well established. In such a setting, where there is a difference between elementary and middle level organizational and curriculum delivery practices, he argued that the nurturing environment can help students make the transition between levels without changing schools.

In referring to the findings by Byrnes and Ruby (2007) in Philadelphia that the best performing schools were the well-established K-8s, Hough has also suggested that new K-8 schools need to be in operation at least four or five years before it can be determined whether they produce more beneficial academic results than those experienced by students taking the more traditional elementary/middle school route to high school in the same districts.

SOME K-8 BENEFITS SHORT-LIVED, ADVANTAGES DISCOUNTED

In a study completed in 2006 by MacIver and MacIver, state test results and other data were collected on more than 1,500 randomly chosen eighth graders who attended either middle schools or K-8 schools in Philadelphia during the 1995-96 school year. Results from the study suggested that the K-8 schools came out ahead on most academic and well-being measures, from grades to suspension rates. When the numbers were adjusted, however, for the fact that the size of grade groups in the middle schools was four times larger than in the K-8 schools, and the larger number of disadvantaged minority students in the middle schools at the time was also factored in, the K-8 schools' advantage disappeared in all but two areas: self-esteem and perception of school safety (Viadero, 2006).

In a study of K-8 schools in Miami-Dade County, Abella (2005) reported significant short-term beneficial effects on achievement, attendance, and suspension rates, when compared to other middle schools in the same school system. She also observed, however, that while sixth and seventh graders showed greater improvement in mathematics and reading compared to the same grades in middle school, that the two groups had almost identical scores by the time they reached the ninth grade. Abella suggested that further research should be done to determine if these short-term gains remain true after taking into account other possible explanations, such as greater enrollment numbers in middle schools, and the level of teaching experience in those being compared.

In another study, students attending K-8 or K-12 schools reported a slightly greater sense of belonging than did students attending other types of schools (Anderman, 2002). Results of the study suggested, however, that after other variables had been

controlled that different grade configurations were only weakly related to perceived belonging.

While one recent large-scale study found that suspension rates were much higher for sixth and seventh graders in middle schools than similar populations of students in K-8 facilities, Arcia (2007) cautioned that the results could be misleading if it was determined in future research that middle schools have higher expectations for self-regulation, more rules that can be broken, and possibly lower thresholds for assigning suspension.

One criticism of K-8 schools is that they may not be adequately preparing children for high school, because they are often newer and smaller than traditional middle schools and can't always offer as broad a range of class subjects and extracurricular activities (Chaker, 2005). There is also disagreement, however, about the benefits of economics of scale that first pushed districts to consolidate schools. Some research has shown that presumed superiority of larger schools, based on ability to provide more resources, is often an "illusion." (Barker and Gump, 1964).

In another study of the effect of school system size, Friedkin and Necochea (1988) found empirical evidence showing a positive effect of size in California on academic performance for larger school systems with high SES populations. Conversely, they found negative effects of size on student performance in systems with lower overall SES populations, which they speculated might be caused by these systems providing "few opportunities and many constraints." While they didn't provide details of what those opportunities and constraints might be, the researchers suggested that the size of school systems increase, so does the occurrence of students with learning disabilities and that lower SES populations have consistently been found to contain a disproportionate

number of special needs students. This would result in larger numbers of students having the same level of services and resources that are available to high SES systems that have fewer special needs students.

SCHOOL PRACTICES, NOT STRUCTURE, CALLED INTO QUESTION

Hough (2005) has argued that best practices that are consistent with the middle school philosophy can be implemented in a wide variety of grade-span configured schools. Even if changing the grade configurations of schools might be considered academically beneficial, such changes simply might not be logistically feasible. Demographics or inadequate infrastructure can be an especially limiting factor, according to Jacob Jacovino, an administrator in the Philadelphia School District, where reconfiguring schools has been an ongoing project for the last ten years. Jacovino offered that K-8 schools are not feasible in all neighborhoods because either feeder patterns do not lend themselves to such structures or existing elementary schools are too small to accommodate additional grades (Pardini, 2002).

While there are been increasing numbers of studies that have found the reduction of transitions within the primary grades, as seen primarily in the development of more K-8 schools, to be of statistically significant benefit to students academically, some recent research work has have not reached these same conclusions. Whitley et al (2007) used nationally representative survey data from schools throughout Canada and found no statistically significant difference in academic achievement between those entering junior high schools in seventh grade and those staying in K-8 schools.

In a quantitative analysis of K-8s and middle schools throughout the state of Montana by Watson (2009), almost no benefits were found in one grade-span grouping over another. Left open, however, were answers to the question of why lower SES

students were more successful in K-8 settings, while higher SES students had better test results in middle schools. One potentially critical variable that was not addressed in this study was the difference in levels of teaching experience in different urban and rural schools.

In a study of how young adolescents experience school in both elementary schools and middle school settings in 2005, that McEwin, Dickenson and Jacobson claimed that their research was not intended to prove one school configuration better than another. The authors, nevertheless, concluded that "it would be shortsighted, at best, to believe that the grade configuration of a school does not affect programs and practices." They added that "One might say that grade configuration per se may not make 'the difference,' but it does make 'a difference."

TRANSITION EFFECTS HOLD KEY FOR FUTURE RESEARCH

When I began studying the possible effects of different configurations of primary schools on student achievement, I initially focused my attention mainly on the recent resurgence of interest in the K-8 model as a possible solution to academic problems being experienced by older adolescents in middle school, the preferred academic setting for students in grades 6 through 8 for the last 30 years or more. A growing body of empirical research that has only begun to reach the reporting stage in the past dozen years, while not directly promoting the K-8 model as the most effective grade configuration of the future, has provided stronger evidence that the less transitions students make from school to school between kindergarten and the eighth grade, the more academic success they will experience, all other things being equal.

Brown, in his 2004 analysis of transition effects in Ohio schools, found that students in districts with a greater number of transition points had lower scores on annual

state tests than those in the districts he studied that had fewer transition points. In 2005, Cook led a study commissioned by the Milwaukee school system and after looking at data from 85 schools reported that K-8 students outscored their middle school counterparts, even after controlling for poverty, ethnicity, special education status and English proficiency barriers. Wren, whose 2003 study of 232 Michigan schools has been cited by many as evidence of the harmful effects of transitions, was very limited in its generalizability because it only examined schools in one large inner city district. Not mentioned in most of the references is that Wren's conclusions were drawn based on achievement levels of students in elementary, middle and high schools in taking one standardized state test in one year, with no discussion of the many reasons why inner-city students might score lower on standardized tests, or any reference to the fact that having relatively lower scores on such tests as students progress from elementary school through high school is a common phenomenon in school districts around the country.

Making a stronger case for the effect of transitions on inner-city students, was the first major study of the impact of grade span on student achievement in New York City, the largest school district in the country. The New York University-based researchers (Schwartz et al, 2009) found that students in the New York City schools with longer grade spans, especially K-8 schools, outperformed students in schools with shorter grade spans. As a result of the findings, the researchers recommended "creating more K-8 schools and minimizing structural articulations in the K-8 years to improve student performance."

In another study, conducted by Rockoff and Lockwood, first reported in 2010, with the same New York City school population as its focus, the Columbia University researchers came to essentially the same conclusion that the "negative effects of entering

middle school are large and highly statistically significant at both the sixth and seventh grades." In reaching their conclusions, the researchers cited statistics that math achievement fell by 0.1777 standard deviations and English achievement dropped by 0.162 standard deviations following transitions at the seventh grade level and by even higher amounts when students transition in sixth grade. The findings were based on variations in annual standardized test scores over time for those students who moved to middle schools in either the sixth or seventh grades. Rockoff and Lockwood actually calculated potential lost earnings of as much as $25,848 for students who attended New York's middle schools, based on estimates of reduced average achievement that would persist past the eighth grade. They then suggested that middle schools would have to be administered much more economically in order to make up the earnings difference.

It has been my intent to follow the lead of these latest studies and examine the transition effects of schools in New York State to determine if the impact of transitions that has been documented in the city can be generalized to a variety of other urban, suburban and rural districts in the state. In addition to the replication of and expansion on the most recent studies on transition effects in New York schools, a promising line of future research using qualitative methods could explore why and how the number of school transitions affects student outcomes.

DATA COLLECTION AND ANALYSIS PLAN

In my preliminary study, involving descriptive, correlation, and regression analyses of 598 selected New York school districts, my intention was to examine possible effects of the different number of school-to-school transitions on the academic achievement of students in each of the districts experience, as measured primarily by the percentage of general education students who received either a Regents diploma or a Regents diploma with advanced designation in 2009. For the present study, I initially planned to conduct correlation and regression analyses, using Regents diploma and advanced diploma data from 2008, 2010 and 2011, for both general education and special education student populations in New York State's 598 selected districts. This more comprehensive study was intended to replicate the collection and analysis of data similar to that which I had done with 2009 diploma rates data from the selected districts in order to evaluate the level of consistency of quantitative analyses findings for these measures of student success over a four-year period.

Since the pilot study was completed in 2011, however, I have made a shift in the primary focus of analyses, after it became evident that other measures of student success available from the New York State BEDS reporting databases would potentially provide more meaningful information concerning the possible effect of school-to-school transitions on academic achievement in the districts than did the percentage of diplomas awarded. One of the limitations of using only data on the awarding of Regents diplomas in New York State, as I had originally intended, is that the percentages provided include only the number of graduating students who receive either a Regents or local diploma for any given year. This reporting does not take into account at all how many years it might have taken for the graduates to earn the diploma or how many students in any district

have either dropped out or how many may be old enough to graduate but have not yet qualified to receive Regents diplomas. The measure of graduation rates, which is also made available through the state's public reporting databases, includes all students in a district who have fulfilled all necessary graduation requirements either within four years of entering high school or within five years, if they are also receiving an extra technical training program certification. In addition to including the graduation rates for the entire student population in each district, the state's school accountability database also provides graduation rates for more than a half dozen subgroups, including white, black, Hispanic and other ethnic minority cohorts, as well as economically disadvantaged student populations and students with disabilities.

Additional correlation and regression analyses were conducted following the preliminary study for both general and special education student populations using several other variables to measure academic success, including the percentage of high school students who passed key Regents examinations and the percentage of graduates who said they were planning to attend 4-year colleges. The results of these preliminary statistical analyses were not included in the final report, however, because no clear statistically significant correlations between students' academic success and school-to-school transitions were uncovered.

POPULATION AND SAMPLE SELECTION

The population selected for this study originally included all 685 New York public school districts. The final population used in the analysis, however, only includes those districts in which all students would normally experience the same number of school-to-school transitions between kindergarten and high school. Excluded first from the study because they didn't include all grades between kindergarten and the twelfth grades were

24 districts that only contained schools with grades ranging from PreK or kindergarten to sixth grade, another 14 PreK/K to grade 8 or 9 only districts, and 10 districts containing only junior/senior high schools in which the lowest grades were fourth, sixth or seventh.

Another 41 districts, including New York City, were also excluded from the study because they contain schools of varied grade-span configurations that would allow students to take more than one possible track through the system that might involve attending two, three or four different schools between kindergarten and high school. Since districts and not students are the unit of analysis in this study, it was not possible with the data provided to determine how many school transitions individual students might actually experience in these mixed school grade-configured districts so that they could be reasonably grouped with districts in which there was only one school-to-school transition path from kindergarten through high school. Of these 41 districts, 10 have schools that would allow students to make one or two possible school-to-school transitions between kindergarten and twelfth grade, while students in another 26 districts could end up attending three or four different school, depending on what K-12 track they took. Three others had schools so configured that students can conceivably attend three, four or five schools between kindergarten and twelfth grade. In the two largest districts, New York City and Buffalo, families can elect to send their children to any schools in the system, and there are enough different grade-span variations in the schools that could result in students attending two, three, or four different schools over the course of their elementary and high school education.

In addition to New York City and Buffalo, ten other larger urban school districts were excluded from my analyses because these systems provided multiple school-to-school transition options. Another 52 city school districts are configured to provide

students with single school-to-school transition tracks, and therefore included in this study helped to provide a balance between urban, suburban and rural districts in the overall sample. Unfortunately, none are large districts with more than 9,000 students enrolled. In fact, the three largest districts in the study, with enrollments of more than 20,000 students are suburban districts in relatively affluent communities.

DATA SOURCES, SELECTION AND CONSTRUCTION OF VARIABLES

Primary data used to complete this study was taken from the New York State Basic Educational Data System (BEDS) Reports from 2008, 2009, 2010, and 2011, which were first accessed through the public website www.p12.nysed.gov/irs/reportcard/. Additional data specifically related to the state's 2009 BEDS report comes from www.nystart.gov/publicweb/DatabaseDownload.do?year=2009. The data source of an ancillary study of New York State grade 8 mathematics assessment scores is accessed from www.nystart.gov/publicweb/DatabaseDownload.do?year=2006. All downloadable BEDS files included information aggregated to the school and district level. The state website files are in the Microsoft Access format that were first converted to Excel spreadsheet files by the researcher before finally being uploaded to the SPSS Premium Statistics, Version 19.0 format for analysis.

Using files obtained from several New York State BEDS data sets, multiple databases were constructed by merging fields that included several performance measures from each of the four targeted school years, including graduation rates for all students and for subgroup cohorts of white, black, Hispanic, economically disadvantaged and disabled students.

Other database files used in exploratory correlation and regression analyses included the percentage of district students receiving Regents diplomas, the percentage of

district students receiving Regents diplomas with advanced designations, and the percentage of graduating students who reported that they planned to attend a 4-year college after completing high school. The variable for attending college was created by combining variables that provided district percentages of students who planned to attend college in state and out of state.

Additional measures of performance were created to identify percentages of district students who passed key comprehensive English and both beginning and advanced mathematics Regents exams. This was done by adding together separate variables numbers provided in the BEDS reports that identified the percentage of district students scoring from 65 to 84 as well as the percentage of district students scoring from 85 to 100 on the state assessment. The Comprehensive English Regents exam is a requirement for getting both types of Regents diplomas that is usually administered in the ninth or tenth grade. The beginning and advanced mathematics Regents assessments were called Math A and Math B in 2008 and 2009. Beginning in 2010, the names of the comparable beginning and advanced mathematics courses were changed to Integrated Algebra and Algebra 2/Trigonometry. In order to graduate, all students must pass the beginner math course, which is normally administered in the ninth or tenth grade. Only students seeking to earn the advanced Regents Diploma need to take an additional advanced mathematics course.

A number of possible moderating variables describing district characteristics, student demographics and teaching staff qualifications were also merged into the study databases for initial correlation analysis purposes including:

(1) Percent of students on free or reduced-price lunch programs;

(2) Percent of total student suspensions, and attendance rates by district;

(3) Total district enrollment;

(4) Average class sizes for the elementary grades (1-6) and four key eighth and tenth grade courses including English, math, social studies and science;

(5) Percent of teachers with masters degrees plus 30 credits or doctorates;

(6) Percent of core classes not taught by "highly qualified" teachers;

(7) Percent of teachers with no valid certification;

(8) Total annual teacher turnover rate by district;

(9) Turnover rate of teachers with fewer than five years experience; and

(10) Percent of teachers with fewer than three years teaching experience.

For the final regression analyses studies, the dependent variables used that consistently produced the highest correlation rates with various independent measures of student academic success were:

(1) Percent of students in district free and reduced lunch programs;

(2) Percent of teachers with Master's degrees plus 30 credit hours or doctorates;

(3) Average class size for district elementary cohort classes and key eighth and tenth grade classes.

The key independent variable used to assess the possible effect of school-to-school transitions was created by examining grade-span characteristics for each of the schools in New York State's 598 selected districts to create the following "total schools attended" variable categories: 1.00 for the 74 K-12 school districts in which all students remain in the same school from kindergarten through twelfth grade; 2.0 for the 124 districts containing both lower elementary schools and junior high/high schools. (These districts have only one transition point that is either at the ninth grade for systems with K-8 schools or at the sixth or seventh grade for districts with elementary schools and

combined junior/senior high schools); 3.0 for the 300 districts with three different levels of school and two transition points (usually with grade spans configured in the traditional K-5/6, 6/7-8, and 9-12 pattern); 4.0 to identify the 94 districts that have four building levels with three transition points; and 5.0 for the six districts with five different schools levels between kindergarten and the grade 12 (See table 1).

Table 1. Types of NYS district variable groups based on number of school-to-school transitions between PK/K and grade 12

Number of school-to-school transitions in each district group between K and 12	Frequency	Percent	Cum. Percent
0-transition districts	74	12.4	12.4
1-transition districts	124	20.7	33.1
2-transition districts	300	50.2	83.1
3-transition districts	94	15.7	99.0
4-transition districts	6	1.0	100.0
Total	598	100.0	

Source: NYS BEDS 2009 from www.nystart.gov/publicweb/DatabaseDownload.do?year=2009.

Moderating independent variables also considered in the correlation and regression analyses were socioeconomic status (SES), as measured by the percentage of students in each district's free or reduced lunch programs, since both measures have been found in previous research to have effects on the level of students' academic success (Weiss and Kipnes, 2006; Moore, 1984; Coleman et al., 1966).

Class size has also been identified as predictor of academic success (Rubenstein et al, 2009; Friedkin and Necochea, 1988), but only 200 of the 598 districts included in this study reported class size totals for all grades. Another variable considered for inclusion in the analyses was constructed by finding the mean of separate average class size variables available in the state BEDS reports for the following: common branch, which is the number of students in self-contained classes in grades 1-6 divided by the number of those classes, and also the number of students registered in the key core subject eighth and

tenth grade math, English, science and social studies classes, divided by the number of those classes.

Finally, total district enrollment and individual school size were also considered as a possible moderating independent variable, because while some research (Stewart, 2009; Watson, 2009; Borland and Howsen, 1996; Fowler and Wolberg, 1991) provides evidence that smaller rural schools have higher achievement rates than larger urban and suburban schools, others like Chen and Weikart (2008) argue that the reduction of school size may prove to be ineffective, if implemented without any other changes in school culture or practices or measures to avoid the loss of critical support services that are easier to support financially in larger schools. Total district enrollment figures were included in available BEDS databases, but using the size of individual schools within each of the districts included in this study would have been too unwieldy to consider and probably unreliable as a good measure of comparison, especially at the elementary level, since many larger districts included in the study were just as likely to have several elementary schools that were the similar in size to the one elementary school in a small district. The average high school enrollment was considered as another possible proxy variable to represent the size of schools at that level within a district. This variable also seemed particularly appropriate since the primary measures of student success were focused on high school level achievements. In the end, following exploratory analyses, neither total enrollment nor total high school enrollment figures were used in the main regression analyses since district class size averages more consistently showed statistically significant correlations with the targeted measures of student success across all four years included in the study.

OPERATIONAL DEFINITIONS

Definitions for the dependent and independent variables used in the regression and correlation analyses in both the preliminary study and the more comprehensive final analyses of four years of New York State public school district data are provided below.

Dependent Variables

Total District Student Population Graduation Rates: The graduation rate for total district graduate-level populations, as defined by the New York State Department of Education, consists of all students in the year of reporting, including general education and students with disabilities, qualified to receive local or Regents diplomas, divided by the number of total population cohort members (See table 2). The total cohort is made up of all students currently in the district who have entered grade 9 within four years of the graduation reporting date or within five years, if they are receiving a technical program certification in addition to a diploma.

Total District White Student Subgroup Cohort Graduation Rates: The graduation rate for all white district graduate-level populations consists of all white students in the year of reporting, including general education and students with disabilities, qualified to receive local or Regents diplomas, divided by the number of total white population cohort members. The total cohort is made up of all white students currently in the district who have entered grade 9 within four years of the graduation reporting date or within five years, if they are receiving a technical program certification in addition to a regular diploma.

Total District Black Student Subgroup Cohort Graduation Rates: The graduation rate for all black district graduate-level populations consists of all black or African-American students in the year of reporting, including general education and students with

disabilities, qualified to receive local or Regents diplomas, divided by the number of total population cohort members. The total cohort is made up of all black students currently in the district who have entered grade 9 within four years of the graduation reporting date or within five years, if they are receiving a technical program certification in addition to a

Table 2. Descriptive statistics for NYS district graduation rates for all district students and key subgroups 2008-2011(ave.)

	Mean	Std. Dev.	Min.	Max.	Number
All Student Graduation Rates	83.34	9.75	20	100	585
White Student Graduation Rates	84.77	8.58	54	100	574
Black Student Graduation Rates	70.33	14.69	21	94	64
EC Disadvantage Graduation Rates	70.90	12.20	21	96	222
Disabled Student Graduation Rates	58.97	18.16	13	95	190
2006-10 Cohort Graduation Rates	86.09	9.18	9	100	592
2007-11 Cohort Graduation Rates	86.56	8.68	73	100	592

Source: 2009-2011 NYS BEDS from www.nystart.gov/publicweb/Database.Download

diploma (See Table 2).

Total District Economically Disadvantaged Student Subgroup Cohort Graduation Rates: The graduation rate for all identified student with disabilities cohort graduate-level populations consists of all students reported to the Department of Education in the Student Information Repository System (SIRS) as being members of this group during the reporting year receiving local or Regents diplomas, divided by the total number of white student cohort members. The total cohort is made up of all economically disadvantaged students currently in the district who have entered grade 9 within four years of the graduation reporting date or within five years, if they are receiving a technical program certification in addition to a diploma (See Table 2). Economically

disadvantaged students are those students who have an approved application on file in the district or other county, state or federal documentation acceptable to qualify for the federal free or reduced-price lunch (FRPL) program aid.

Total District Students with Disabilities Subgroup Cohort Graduates: The graduation rate for all disadvantaged student cohort graduate-level populations consists of all students reported to the Department of Education in the Student Information Repository System (SIRS) as being members of this group during the reporting year, including general education and students with disabilities receiving local or Regents diplomas, divided by the total number of students with disabilities in the district, who have entered grade 9 within four years of the graduation reporting date, or within five years, if they are receiving a technical program certification in addition to a diploma.

Special 2006-2010 and 2007-2011 Student Cohort Graduate Groups: Regular district graduation rates provided in the state's BEDS databases are based on the number of graduates who were in the ninth grade four years prior to the reported graduation date. In that report, however, students who were in other schools or districts when they were ninth graders could also be included in the graduation rate calculation. The state also required districts to create a separate database record only containing students who had been registered in their districts for the full four years prior to their graduation in 2010 and in 2011. These cohorts included both regular and special education students.

Percentage of Regents Diplomas: In order to receive Regents diplomas in New York State, students must complete courses in English, social studies, science, mathematics, physical education, a foreign language, health, and the arts. They must also pass five Regents exams, with a score of 65 or higher, in English, American history, world history, mathematics, and science.

Percentage of Regents Diplomas with Advanced Designation: In order to receive a Regents diploma with advanced designation, students must pass all of the required Regents exams described above, and also pass two extra advanced mathematics exams, one advanced science course exam and complete two extra class units in a foreign language. This diploma is different than a Regents diploma with honors, which doesn't require students to take advanced courses, but only to maintain a 90 or above average in the core courses that they do take.

Percentage of Students Passing Comprehensive English Regents: Passing the comprehensive English Regents is a requirement for receiving both a Regents and advanced Regents diploma. It is normally taken in the ninth or tenth grade. For this study, a passing percentage variable was created by aggregating two variables – one containing the percentage of district students scoring from 65 to 84 and the other showing the percentage of students who scored from 85 to 100 in the test. Since this is the only high school level English Language Arts Regents exam that students are required to pass in Percentage of Students Passing Comprehensive English Regents: Passing the comprehensive English Regents is a requirement for receiving both a Regents and advanced Regents diploma. It is normally taken in the ninth or tenth grade. For this study, a passing percentage variable was created by aggregating two variables – one containing the percentage of district students scoring from 65 to 84 and the other showing the percentage of students who scored from 85 to 100 in the test. Since this is the only high school level English Language Arts Regents exam that students are required to pass in order to graduate, it was included as a dependent outcome variable in my initial study to determine if the results of such an important core assessment is influenced at all by the school path that students take to get to high school.

Table 3. Descriptive statistics for NYS district diplomas and 2009 Regents tests passing rates

	Mean	Std. Dev.	Min.	Max.	Number
Percent Regents Diplomas	90.03	15.577	0	100	599
Percent Reg. Dipl. Adv. Desig.	45.94	18.408	0	97	591
Percent Pass English Regents	95.004	5.37278	50	100	504
Percent Pass Math A Regents	70.1291	18.07293	8	100	333
PercentPass Math B Regents	69.468	18.2525	8	100	359

Source: 2009 NYS BEDS from www.nystart.gov/publicweb/Database.Download

Percentage of Students Passing Math A and Math B Regents (2008, 2009) and Percentage of Students Passing Integrated Algebra and Algebra 2/Trigonometry Regents: The Math A Regents, which was changed to Integrated Algebra Regents after 2009 is the basic mathematics coursework assessment that all students are required to pass in order to obtain a regular Regents disploma. The Math B Regents, which was changed to Algebra 2/Trigonometry after 2009, must be passed by New York State students in order to receive a Regents diploma with advanced designation. For this study, a passing percentage variable was created by aggregating two variables – one containing the percentage of district students scoring from 65 to 84 and the other showing the percentage of students who scored from 85 to 100 in the test. Only 333 districts out of the 598 sampled in a preliminary study of 2009 BEDS data have percentages listed for students passing the MathB exam, not because they didn't have students taking the test, but because the New York State Education Department suppresses in its public database any percentage scores from individual tests that contain five or less students in a particular group or sub-group cohort. This was not as much an issue in the compilation of test result percentages for the English Regents exam, because a larger number of students in each cohort are required to take this exam, including those who are seeking a regular

Regents diploma, as well as those seeking to earn the Regents diploma with advanced designation. (See Table 2).

Percentage of High School Graduates Planning to Attend 4-Year Colleges: While not a true quantitative measure of academic success, this variable was included in this study to determine if there was any significant correlation between the percentage of district students who received regular or advanced Regents diplomas and also whether the self-reporting by twelfth grade students of this aspiration goal was influenced at all by the number of school-to-school transitions experienced. The variable was created by aggregating two separate variables available in the yearly BEDS databases that reported on the number and percentage of graduating students who planned to attend 4-year colleges either in-state or out-of-state. Other aspiration goal choices identified by students that were considered for analyses in this study included: planning to attend 2-year colleges, attending other post-graduate professional programs or trade schools, becoming employed after high school, or entering the military service.

Independent Variables

School-to-school transitions: The independent variable identifies the number of different schools that a student would be expected to attend in a district between kindergarten and the twelfth grade. It was, created by first examining the grade spans listed by New York State for all 685 school districts to create a span-break variable, which used number coding to delineate districts with different points at which students articulated. A span-break variable given the number of 1.6, for example, identifies a district in which students, beginning in kindergarten, make only one school transition through high school, attending a K-5 elementary school and then a Grade 6-12

Table 4. Descriptive statistics for selected 2009 NYS public school district independent variables

	Mean	Std. Dev.	Min.	Max.	Number
School-to-School Transitions	2.727	.9065	0	4	598
% Teachers w/ Masters plus 30cr.	23.56	19.89	0	93	598
% Free and Reduced Lunch.	30.216	17.754	0	100	598
Total District Enrollment	2,309.33	2,166.32	61	15,346	598
Total District HS Enrollment	740.61	679.44	0	4,819	597
Student-Teacher Ratio	11.153	1.617	3.21	15.24	598
Average Size Core Classes	18.93	2.955	4.4	29.22	595

Source: NYS BEDS, 2009 from www.nystart.gov/publicweb/DatabaseDownload.do?year=2009

junior/senior high school. Another grade-span variable given the number 2.69 identifies districts with K-5 schools, Grade 6-8 middle schools, and Grade 9-12 high schools.

Since this preliminary study was designed to measure the possible effect of transitions, and not whether there is a difference in achievement effect if a transition takes place at different points, in grade 6 or grade 7 for example, the second variable was created by aggregating span-break variables to group together those in which students would normally attend 1, 2, 3, 4 or 5 schools between kindergarten and the twelfth grade.

District Size: Information taken directly from the state Education Department BEDS database listing total student enrollment for each district was used for the district size measurement in this study. District size (See table 4) was selected as a possible variable for this study's regression analyses because there has been some research that suggests it has an influence on student academic success. Fowler and Walberg (1991), for example, have found evidence that smaller districts are more efficient in enhancing educational outcomes. Others, including Friedkin and Necochea (1988), have made

claims that larger school systems, because they have more resources to offer, benefit high SES populations.

Socioeconomic Status (SES): The only measures readily available from the BEDS databases linked to student socioeconomic status are the percentage of students who receive free lunch and those who receive lunch at a reduced cost. These measures have been shown to be among the strongest predictors of academic success (Weiss and Kipnes, 2006; Moore, 1984; Coleman et al., 1966). Since qualification for both programs requires parents to show documentation of family income below specific federally designated poverty levels, or show prove of participation in other public assistance programs, data taken from these variables can be assumed to provide a reasonably accurate measure of the levels of economic needs for students in each sampled district. For this study, the variables for free and reduced cost lunch were aggregated to create a summed variable, which has been labeled in all charts as "SES level" for convenience sake (See table 4). Some researchers have argued that using the free and reduced lunch measure underestimates poverty levels, because some parents don't apply for the program out of a concern that such a designation will stigmatize their children, and because the measure can also suffer from other deficiencies that might bias key inferences that can be made in studies in which it is used as the only poverty indicator (Harwell and LeBeau, 1997). Others, including Caldas and Bankston (2010), in their research found statistically strong correlations between participation in free and reduced lunch programs and various other measures of poverty, including family income and parents' educational and occupational levels. For this study it was determined that any underestimation of poverty due to the possible refusal by some families to participate in the program would likely be consistent

from district to district and therefore still provide as a measure of relative poverty levels when comparing districts in this study.

Teacher Proficiency: There were several variables in the NYS BEDS databases that could have been used to compare levels of teaching inexperience or lack of qualified teachers from one district to another, including the percent of teachers in each district with less than three years experience, the percent of classes taught by teachers without appropriate certification, and the percent of core classes not taught by "highly qualified" teachers, wiith the designation "highly qualified" defined by the state as those teachers who are fully certified to teach in their content area of expertise. There was one variable in the state's staffing database, however, that I felt provides the most useful information on the level of teaching proficiency and high level of experience in each district. It is a variable created to identify the percentage of teachers with the most advanced educational training in each district, those with master's degrees plus 30 hours of professional development or a doctorate. This variable, which will be referred to throughout the rest of this discussion as "masters plus teachers," was used in the statistical analysis, because previous research has linked the level of teacher proficiency to student's academic success (Greenwald and Laine, 1996; Edmond, 1979). As it turned out, this variable was also consistently among the highest correlates to various academic success measures for the four years of data evaluated in this study.

Average Class Size for Core Classes: The class size variable used in this study's statistical analyses was created by combining New York State BEDS database variables for the mean for each district's elementary cohort (K-6) and the core eighth and tenth grade English language arts, math, science and social studies class size averages (See Table 4). The decision to include a class size variable in the analyses was made in light of

previous research findings that class size has a potentially significant association with academic achievement (Rubenstein et al, 2009; Brown, 2004). A variable contained in the state's BEDS database for all district The average class size for all grade levels, while available on the New York state BEDS database was unreported at all grade levels by so many districts that it was not deemed an accurate indicator. Fortunately, a comparable list of variables for key classes in each district was found to be as useful as a proxy for total class averages. This variable includes average class sizes for district grade 1-6 cohorts and representative samples of middle and secondary school classes (Grade 8 Math, Grade 10 Science, Grade 12 Social Studies), which is developed by dividing the total district registration for each targeted class and dividing this by the number of classes with registration.

INDEPENDENT VARIABLES DESCRIPTIVE STATISTICS DETAILS

Before beginning the discussion of this study's research design and the analysis of correlation and regression statistics for the targeted New York public school district dependent and independent variables, it is important in evaluating the findings to understand more fully some of the key differences in student and staffing characteristics among the districts being compared. To this end, a more complete explanation of the descriptive statistics that were touched upon earlier in this report has been developed, with the main focus on the relative size of the districts being evaluated, the racial and socioeconomic background of the students whose achievements are being measured, and the level of instructional expertise and other staffing qualifications in each district type.

By far the most powerful predictor of academic success, as evidenced in many previous studies, (Chen and Weikart, 2008; Friedkin and Necochea, 1988; Becker, 1987; Coleman et al, 1966), is the socioeconomic status of the student population being examined. In this study of 598 public school districts, while the effect of race on achievement is difficult to determine, since none of the districts included, with the exception of the six outlier districts with the largest number of school-to-school transition points, have more than 8 percent of Black or Hispanic students (See figure 3). Much more pronounced is the variation in SES levels from one district type to the next. The same graph illustrates that, with the exception again of the six districts with five grade spans, the districts having the highest percentage of students qualifying for free or reduced lunch program are the smallest, mostly rural 74 one-school K-12 districts. The one-school districts, which are almost exclusively located in rural western and northern counties in the state, averaged more than 40 percent of students on free or reduced lunch programs. Further complicating the identification of the possible impact of school-to-

school transitions on academic achievement in this study's regression models is the fact that the 124 districts with the second fewest number of transitions in their K-12 tract have the next highest percentage of students on free and reduced lunch programs at more than 35 percent, compared to only approximately 27 percent in both the 300 three-span districts and 94 four-span districts.

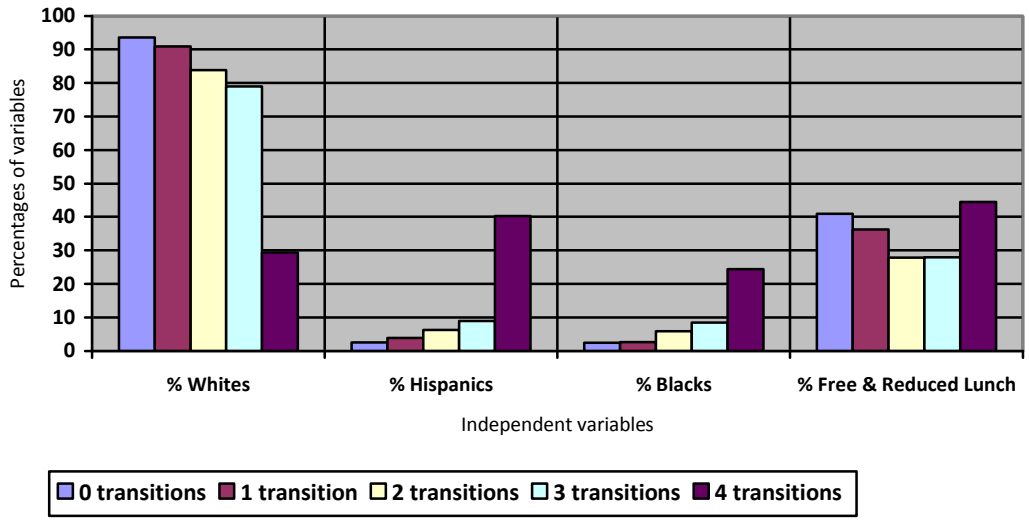


Figure 3. Percentages of key independent student demographic variables by district transition number groups, averaged for four school years from 2008 through 2011.
Source: 2009-2011 NYS BEDS from www.nystart.gov/publicweb/DatabaseDownload.

Breaking down further the differences in SES levels for the five district types being analyzed, figure 4 shows that only 4 percent of the one-school districts and 14 percent of the two-school span districts had less than 20 percent of their students included in free and reduced lunch programs, according to 2010 BEDS report figures. This compares to 35 percent and 43 percent of the three- and four-span districts, which are mainly located in more affluent suburbs of New York City, Buffalo and Rochester (see county map on

page 70). The same graph further illustrates that the one- and two-school span districts, both have higher rates of students in the 51-70 percent free and reduced lunch category, at 18 percent and 15 percent respectively, compared to 11 percent for both the three- and four-school span districts.

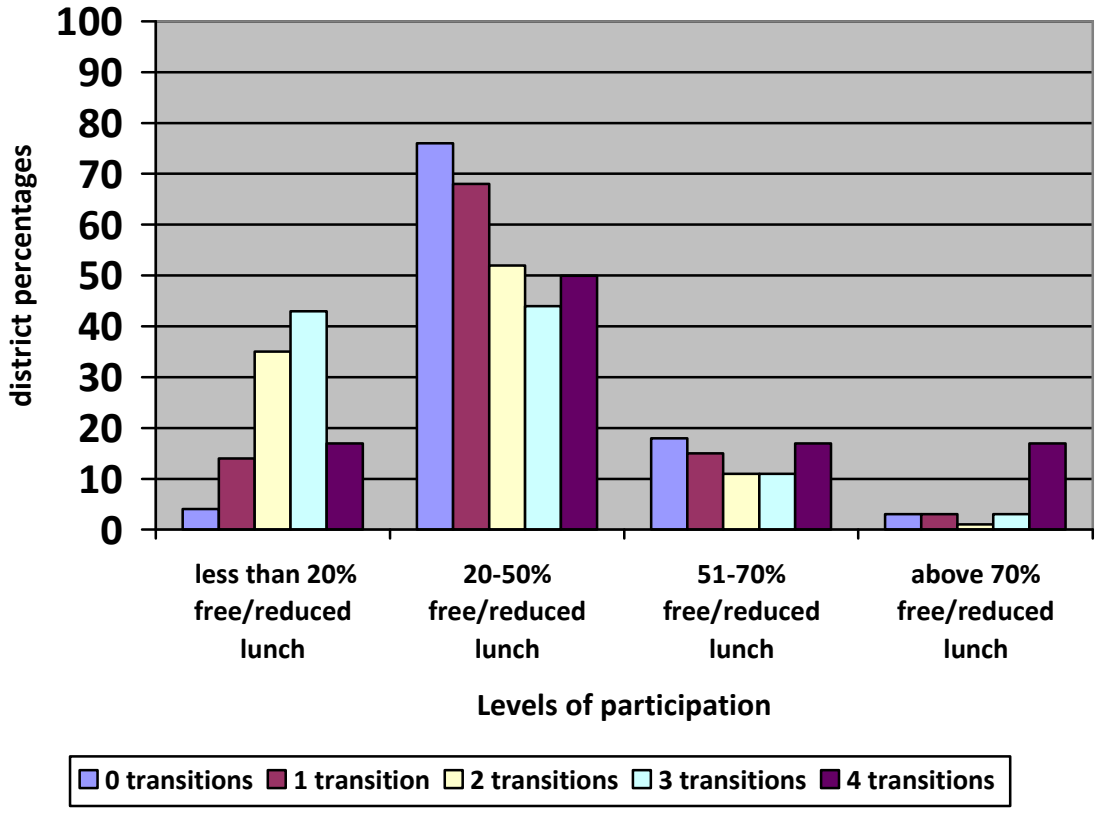


Figure 4. Percentages of free/reduced lunch (FRL) program participation by district school-number groups, averaged for 2008 through 2011. Nearly 80 percent of the one-school districts in the study, for example, have between 20 and 50 percent FRL participation.
Source: 2008-2011 NYS BEDS from www.nystart.gov/publicweb/DatabaseDownload

The size of schools has also been linked in a number of studies to differences in academic achievement (Rubenstein et al, 2009; Fowler and Walberg, 1991; Edington and

Gardener, 1984; Barker and Gump, 1964). In my own research, I have found that there is a wide disparity in enrollment levels between the 198 New York State public school districts with one or two school included in this study and the 394 three- and four-school span districts, with 100 percent of the one-school districts and 73 percent of the two-school districts having less than 1,000 students, while only 12 percent of the three-school districts and less than 1 percent of the four school-level districts had less than to1,000 students enrolled in 2010. Conversely, 53 percent of the three-school districts and 67

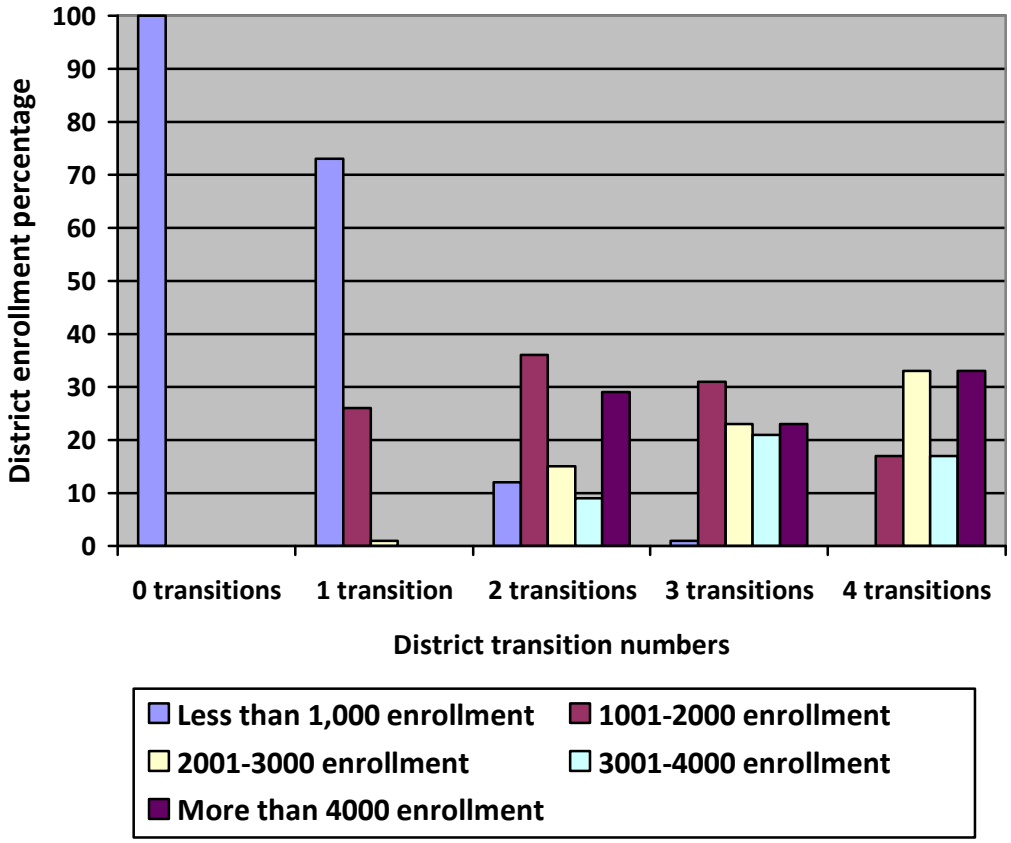


Figure 5. Percentage of small through large enrollment levels in NYS school districts by school number-range groups. One hundred percent of all one-school districts, for example, have less than 1,000 students enrolled.

Source: 2008-2011 NYS BEDS from www.nystart.gov/publicweb/DatabaseDownload

percent of the four-school districts have more than 2,000 students, with 29 percent and 23 percent respectively having student enrollments of more than 4,000 students (See figure 5). One of the main problems with using total district enrollment as a measure of school size is that larger districts studied usually have a greater number of schools than the smaller districts and therefore individual school enrollment can often be similar in both types.

A better criterion of the size of representative schools in the different districts is provided in the high school enrollment figures provided in the state's BEDS databases for the periods studied. Since all but the largest districts generally only have one high school, the figures given provide a fair representation of school size for the schools that are most critical in this study's main assessment measure of high school graduation rates.

In the end, another measure of size, the average number of students in a classroom, which has also been cited in numerous studies as having a potential influence on student achievement levels (Rubenstein et al, 2009; Finn and Gerber, 2005; Nye et al, 2000; Fowler and Walberg, 1981), was used in this study to test its effect as a confounding variable in the span-group regression analyses. As expected, because of their relatively small enrollment, average class sizes for the one- and two-school span districts were also significantly smaller than that of the generally larger three-, four-school span districts. The average class sizes for elementary level cohorts and key eighth and tenth grade core courses was 16.3 students in one-school districts and 17.7 in two-school span districts, compared to 20.9 and 20.8 in three- and four-school span districts respectively.

The level of teaching qualifications and advanced professional development training are two other key variables that have been positively linked to student achievement in a number of studies (Doherty and Hilberg, 2007; Harris and Sass, 2007;

Schmitt, 2004; Simmon and Blyth, 1987). In my research, to determine what confounding effect, if any, that the levels of teaching staff qualifications that varies from one school district transitions type to another has on graduation rates and other measures of student success, a number of staffing variables were evaluated. Instructional staffing variables available on the New York State BEDS databases that were considered as measures of teaching experience and academic qualifications included: the percentage of instructors

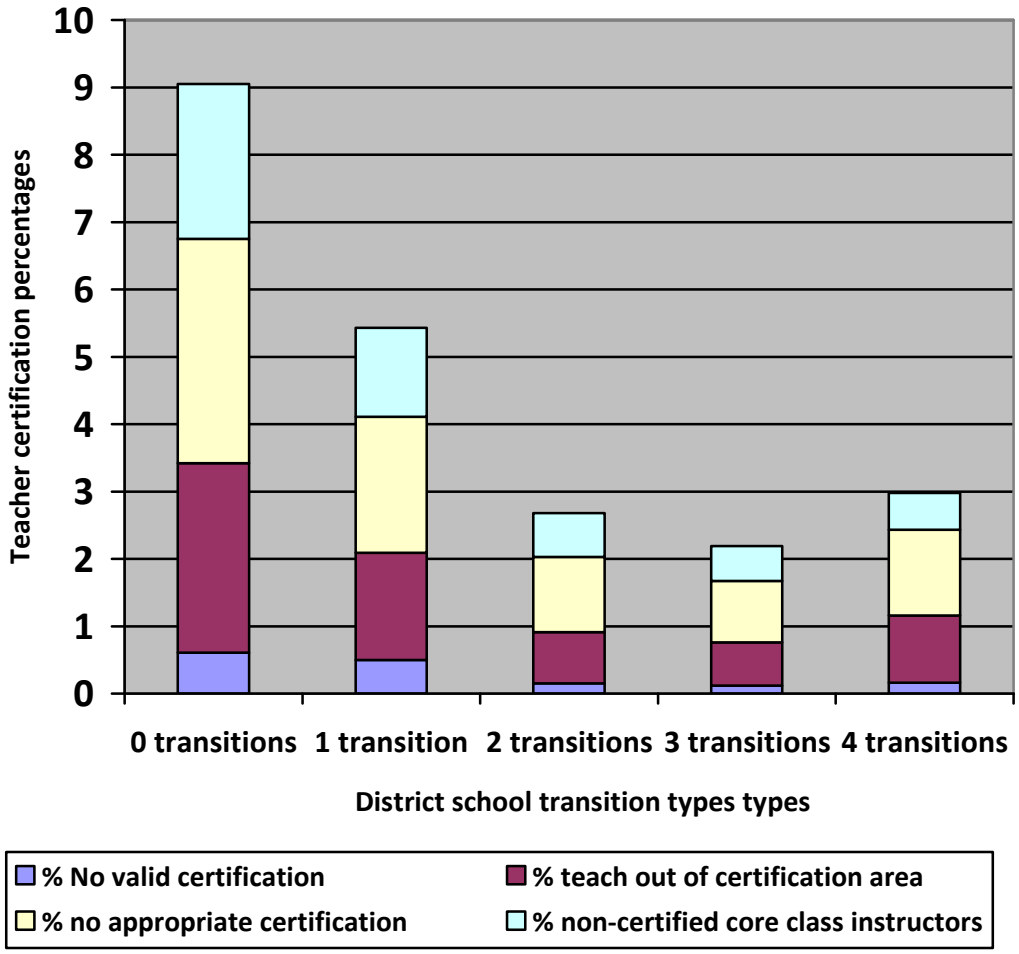


Figure 6. Key teacher instructional qualification variables by percentage of non-compliance for each NYS district school-transition number group, averaged over four years for 2008 through 2011. One-span districts, for example, have the highest total percentage of instructors without correct certification credentials for the four key variables.
Source: 2008-2011 NYS BEDS from www.nystart.gov/publicweb/DatabaseDownload

with no valid or appropriate teaching certificate; the percentage of teachers teaching out of their certification area; the percentage with less than three years experience, the percentage of teachers with Masters degrees plus 30 credits or doctorates, and the percentage of core courses in each district being taught by teachers not certified in those core subject areas. Also analyzed were two measures of teacher stability in districts – turnover of teachers with less than five years experience and overall yearly turnover rates.

Consistently, as figure 6 shows, the percentage of teachers in the districts included in this study who are not fully certified or were identified as teaching out of their certification areas in the New York BEDS databases examined, are highest in the one-school districts and decreases as the district spans grow, with the exception of the six outlier five-school span districts. The percentage of "unqualified" teachers, however, is very small in all district types, and therefore the difference in percentages is also relatively small from one district type to the next. In one-school districts, for example, the average percentage of teachers with no valid certification listed across four key years of data collection is 0.061 for one-school districts and drops to 0.016 for four-school level districts. The difference in the percentage of teachers with no appropriate certification for the grade level or subject that they were teaching was more pronounced, with one-school districts having an average of 3.33 percent of their staff fall into this category, while only 0.9 percent of teaching staffs in four-school transition districts listed as having no appropriate certification.

Measures of teaching staff stability in the districts examined (See figure 7) showed a pattern inversely related to the number of school-to-school transitions in each span roup examined, but again the percentage differences were not large. The percentage of

teachers with less than three years experience averaged 7.8 percent for 2008, 2009, 2010 and 2011 in one-school districts and dropped gradually across district types to 3.6 percent in five-school span districts. Turnover rates of teachers with less than five years experience across the four years went from an average of 14.6 percent in one-school districts to 23.1 percent in five-school span districts, and overall turnover rates climbed from 10.1 percent in one-school districts to 16.9 percent in five-school span districts.

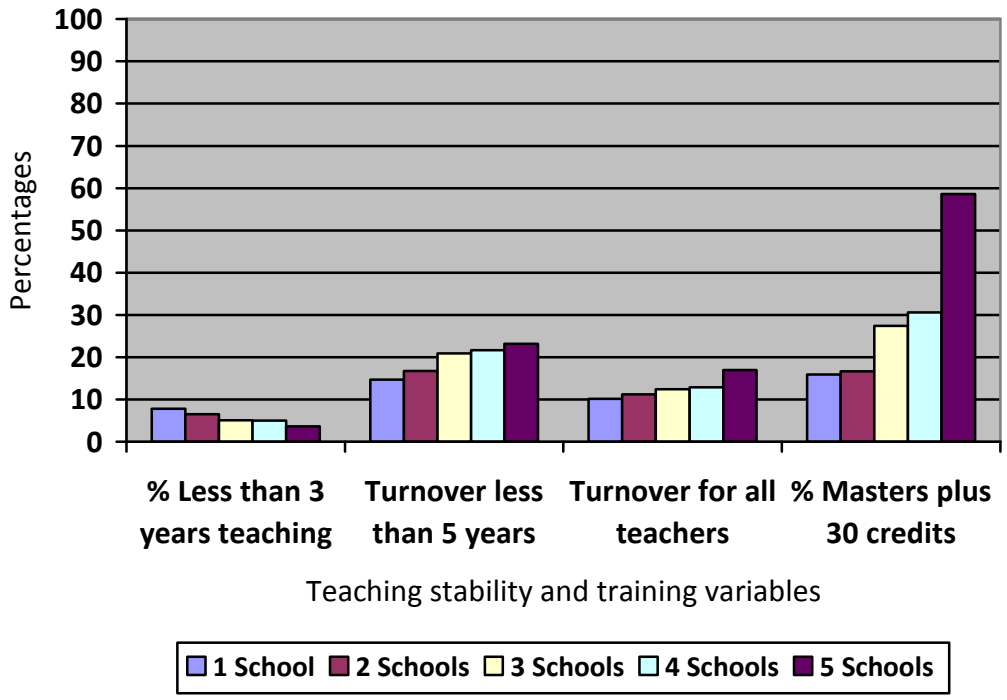


Figure 7. Percentages of instructional staff stability and training variables by each district school-transition number group, averaged over four school years from 2008 through 2011.
Source: 2008-2011 NYS BEDS from www.nystart.gov/publicweb/DatabaseDownload.

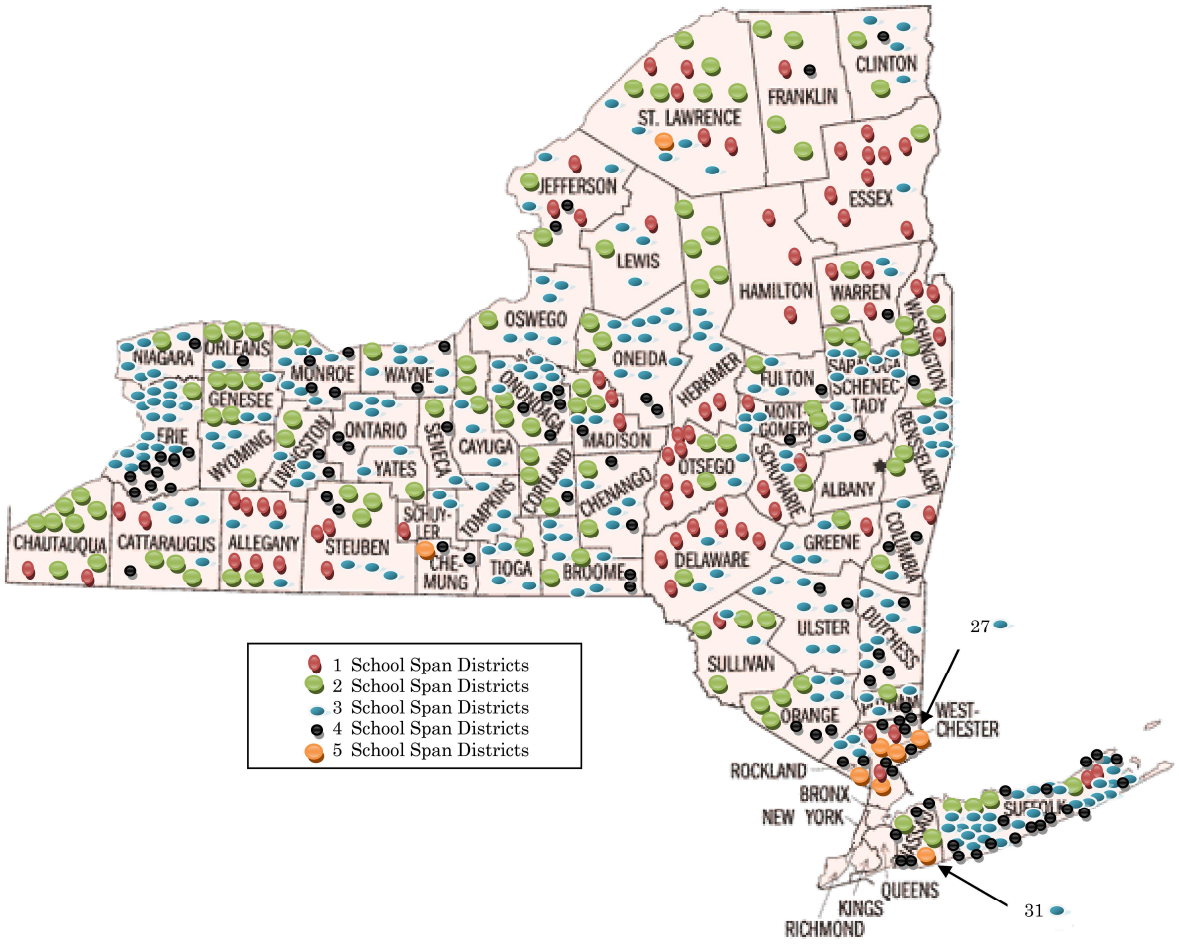
The largest percentage difference in instructional staff backgrounds from one district type to the next was in the one area of teacher qualifications that is included in the NYS BEDS databases – the percentage of teachers who hold Masters degrees plus 30 professional development credit hours or who have doctorates. The smaller and

generally mostly rural one-school districts, not surprisingly had the lowest percentage (15.9) of teachers with this highest certification level of experience, while the five-school span districts reported an average of 58.6 teachers with Masters plus 30 credits plus doctorates on their staffs. More significantly, the two district types with the fewest school-to-school transition points, the one- and two- school districts, had only about half the percentage of teachers with advanced professional degree certifications as did the most common district types to which they are being compared in this study, the three- and four-school districts, with average percentages across 2008, 2009, 2010 and 2011 of 15.9, 16.7, 27.5 and 30.6, respectively.

While many of the staffing qualification variables showed statistically significant correlations with the selected measures of academic success targeted in this study, the one that consistently showed the most robust correlations and therefore was selected for inclusion in the regression analyses for this study was the percentage of teachers in each district type with Masters plus 30 professional credit hours.

Figure 8. Distribution of NY Districts across State by School Grade-Span Configuration

Source: 2008-2011 NYS BEDS from www.nystart.gov/publicweb/DatabaseDownload.



RESEARCH DESIGN

Guiding this study is the research question: What effect, if any, does the number of school transitions from kindergarten to the twelfth grade have on New York districts' rates of students passing required state examinations and obtaining Regents diplomas. Since the study involves an analysis of data previously collected by the New York State Department of Education that cannot be manipulated, it can be classified as a post-hoc correlation study.

The unit of analysis for this study is the school district, because number of school-to-school transitions only can be calculated appropriately at that level with the information available from the New York State BEDS data sets. To this end, all variables from the 2007- 2008, 2008-2009, 2009-10, 2010-11 and 2011-2012 NYS BEDS databases will be aggregated to the district level, as they were in the pilot study using databases from the 2008-09 BEDS report. To study the influence of the number of school-to-school transitions on district achievement, a regression equation *(1)* was developed initially for my pilot study including what were determined to be the three most relevant independent variables at the time, which was based on initial correlation analyses as well as previous research findings that have suggested that student socioeconomic status (SES), district size and student-teacher ratios all can have an influence on academic achievement. The equation model *(1)* for the preliminary study is described as follows:

$$\textit{Achievement/graduation rate} = \beta_1 (\textit{SES District}) + \beta_2 (\textit{District Size}) + \beta_3 (\textit{student-teacher ratio}) + \beta_3 (\textit{\# of transitions}) + e(\textit{error term}). \quad (1)$$

For the more comprehensive study of data from four years of NYS BEDS information, the district student-teacher ratio variable was replaced by one aggregated for average class size for elementary level cohorts and the key core subject English, mathematics, social studies and science classes for each district's eighth and tenth grades. This measure also proved to be a stronger predictor of student achievement than the total district size, which was also dropped in final regression analyses. Added to the statistical analyses was a variable measuring teacher experience, earlier designated as Masters plus teachers, after this measure was found in initial correlation studies for all four years to be a more robust overall predictor of student success than a half dozen other teaching experience and educational background variables available on the New York State BEDS database for the years being studied. The equation model (2) for the full study is described as follows:

$$\textit{Achievement/graduation rate} = \beta_1 \textit{ (SES District)} + \beta_2 \textit{ (Average Core Class Size)} + \beta_3 \textit{ (Teacher Experience)} + \beta_4 \textit{ (\# of transitions)} + e\textit{(error term).} \quad (2)$$

PRELIMINARY STUDY RESULTS SUMMARY

In examining staffing variables from the 2008-09 NYS BEDS report, initial correlations showed that the number of school-to-school transitions within district groups was positively related to both the percentage of teachers with Masters degrees plus 30 professional development credits ($r = .28$, $p < .001$), and the overall teacher turnover rate ($r = .16$, $p < .001$). Negative correlations were found between the school transitions variable and the percentage of district teachers without appropriate teaching certificates for the subject area they were teaching ($r = -.31$, $p < .001$), as well as the percentage of core classes not taught by "highly qualified" teachers ($r = -.24$, $p < .001$). (See Appendix D, table D1)

The correlations between the number of school attended in the five different district types and several key district demographic variables were also highly statistically significant. The school transitions variable was positively correlated to total district enrollment ($r = .15$, $p < .001$), average class size for core subject areas ($r = .47$, $p < .001$), the percentage of black students ($r = .23$, $p < .001$and the percentage of Hispanic students ($r = .27$, $p < .001$). The school-to-school transitions variable was negatively correlated to the percentage of students on free/reduced price lunch programs ($r = -.23$, $p < .001$).). (See Appendix D, tables D1, D2 and D3)

Finally, in the area of student achievement, there were statistically significant positive correlations between the number of school transition points within districts and both the percentage of general education students receiving Regents diplomas with advanced designation ($r = .24$, $p < .001$), the percentage of general education graduating students in each district who said they were planning to attend 4-year colleges ($r = .26$, $p< .001$, and the percentage of students in each district who passed the 2009 Math B

Regents ($r = .15$, $p < .001$). There was, however, no statistically significant correlation between the number of school transition points within the districts studied and either the percentage of regular Regents diplomas granted to students or the percentage of students passing the state's Regents Comprehensive English assessment in 2009. (See Appendix D, table D2)

Multiple regression analyses were conducted next to determine whether two outcome variables, the percentage of Regents diplomas and the percentage of Regents diplomas with advanced designation granted by 598 New York State school districts could be predicted by a number of independent variables, including the number of school-to-school transitions in each district, district SES percentages, percentage of Masters teachers with more than 30 advanced training credits or doctorates (referred to as %Masters+30cr. in all formula and table references), average class size, and total district enrollment.

The first multiple regression analysis was conducted predicting the percentage of Regents diplomas from the independent predictor variables: district SES, the number of school-to-school transitions, and the percentage of Masters plus teachers within each district. Overall the regression explained a statistically significant amount of the variation in the dependent variable $F(587, 586, 585) = 18.62$, $p < .001$, $R^2 = .09$. Of the individual predictors investigated, both FRL/SES levels ($\beta = -.32$, $t(586) = -7.30$, $p < .001$) and %Masters+30cr. were highly statistically significant. ($\beta = .-19$, $t(585) = -4.32$, $p < .001$) school transitions was not significant. ($\beta = .03$, $t(586) = .65$, $p = .51$) (See Appendix D, tables D3, and D4)

A second multiple regression analysis, using 2009 graduation data, was conducted with the percentage of Regents diplomas with advanced designation as the dependent

variable to determine the predictive influence, if any, of the independent variables: the number of school-to-school-transitions, district SES and percentage of Masters plus teachers. Overall the regression was significant, $F(588, 587, 586) = 102.63$, $p < .001$, $R^2 = .34$. Of the predictors investigated, both FRL/SES levels ($\beta = -.58$, $t(588) = -15.43$, $p < .001$) and school transitions ($\beta = .13$, $t(587) = 3.56$, $p. <. 001$) and were highly statistically significant, and %Masters+30cr. ($\beta = -.08$, $t(586) = -1.98$, $p \leq .05$) was moderately statistically significant in this regression model. (See Appendix D, tables D5 and D6)

A third multiple regression analysis was conducted predicting the percentage of Regents diplomas from the independent variables: number of school-to-school transitions, average class size, and total district enrollment in each district. Overall the regression was significant, $F(588, 587, 586) = 4.01$, $p < .01$, $R^2 = .02$. Of the three predictors investigated in this model, only average class size was significant. ($\beta = .156$, $t(587) = 3.01$, $p \leq .01$) Without the two variables, the model explained 5.7 percent of the variance in advanced diploma award rates ($r^2 = .057$). With the effect of student-teacher ratios added , only 5.9 percent of the variance was accounted for, and with the addition of total enrollment rates, the model accounted for a little more than 7 percent ($r^2 = .073$) of the variance in percentages of advanced diplomas given. (See Appendix D, tables D7 and D8)

A final multiple regression analysis was conducted to determine the predictor influence on the percentage of Regents diplomas with advanced designation from the independent variables: number of school-to-school-transitions, student-teacher ratio, and total district enrollment for each district in the study sample. Overall the regression was significant, $F(589, 588, 587) = 15.48$, $p < .001$, $R^2 = .07$. Of the predictors investigated,

span group was highly statistically significant ($\beta = .17$, $t(588) = 3.6$, $p < .001$) and total enrollment were significant. ($\beta = .15$, $t(587) = 3.0$, $p < .05$) Student-teacher ratio was not a significant predictor. Without the student-teacher ratios and district size variables, the model explained 5.7 percent of the variance in advanced diploma award rates ($r^2 = .057$). With the effect of student-teacher ratios added only 5.9 percent of the variance was accounted for, and with the addition of total enrollment rates, the model accounted a little more than 7 percent ($r^2 = .073$) for the variance in percentage of advanced diplomas given. (See Appendix D, tables D9 and D10)

Regression analyses of two other outcome variables, the percentage of students who passed the Comprehensive English Regents and the percentage who passed the advanced MathB Regents, were not conducted in this preliminary study, because, while they both followed the same correlation patterns as those found between the number of school-to-school transitions and passing percentages for regular Regents diplomas and advanced Regents diplomas, the correlations were weaker, and the additional regression studies seemed redundant.

BIVARIATE EXPLORATORY ANALYSES WITH DEMOGRAPHIC AND ACHIEVEMENT DATA

In expanding on my pilot correlation analyses that was completed using 2008-09 public school district data, a more comprehensive statistical study was conducted of correlations between independent staffing and demographics variables and various measures of student achievement, using NYS BEDS data for the school year from 2007-08 through 2011-2012, to determine first if the correlation results were statistically significant across multiple years of reporting in the 598 districts examined.

In the full study, correlations between the zero- through four-school transition district groups and key staffing and demographic variables remained statistically significant across the four years of BEDS data evaluated, but, as predicted, were also less robust in the analyses that excluded the one-school districts. The number of school transition points in each of the five district types, for example, was positively correlated to the percentage of district teachers holding a Masters degree plus 30 professional development credits or doctorate across all four years studied. (See table 5). When the one-school districts were excluded from the analyses, correlations were slightly weaker but still highly statistically significant between the remaining district schools number variable and the Masters degree teacher credentials variable. (See table 5)

Negative correlations reflecting a lower level of teacher qualifications in the districts with fewer school-to-school transition points were also statistically significant across the four years of data collection for the full five district types analyses, as well as for the correlation analyses that excluded one-school districts. This was evident in the results of the correlation study between the span group variable and the percentage of teachers without valid certifications in each district type for the five district types group

Table 5. Teacher qualification variables correlated to district school-to-school transition variables

District school-transitions variable	**% Masters plus 30 credits or doctorate**		
0-4 school transitions	Pearson r value	Significance (2-tailed)	Cohen effect size
2007-08 school year	.30	p < .001	± .3 (medium)
2008-09 school year	.28	p < .001	± .1 (small)
2009-10 school year	.28	p < .001	± .1 (small)
2010-11 school year	.30	p < .001	± .3 (medium)
1-4 school transitions			
2007-08 school year	.25	p < .001	± .1 (small)
2008-09 school year	.25	p < .001	± .1 (small)
2009-10 school year	.26	p < .001	± .1 (small)
2010-11 school year	.27	p < .001	± .1 (small)
	% no valid teacher certification		
0-4 school transitions	Pearson r value	Significance (2-tailed)	Cohen effect size
2007-08 school year	-.27	p < .001	± .1 (small)
2008-09 school year	-.18	p < .001	± .1 (small)
2009-10 school year	-.22	p < .001	± .1 (small)
2010-11 school year	-.17	p < .001	± .1 (small)
1-4 school transitions			
2007-08 school year	-.19	p < .001	± .1 (small)
2008-09 school year	-.14	p < .001	± .1 (small)
2009-10 school year	-.16	p < .001	± .1 (small)
2010-11 school year	-.14	p < .001	± .1 (small)

Source: NYS BEDS, 2008-2011 from www.nystart.gov/publicweb/DatabaseDownload.

analysis (See table 5) and the four district groups analysis (See table 5); the percentage of teachers teaching our of their certification area (See table 6), and the percentage of teachers teaching subjects for which they were not appropriately certified in both the five-school group study and in the four-school group analysis (See table 6).

Statistically significant negative correlations were also found between the number of school-to-school transition points in the five district groups being examined and the percentage of core classes being taught by teachers who lacked the appropriate subject area credentials, as well as in the correlation analysis that excluded the one-school districts (See table 7). Correlation rates across the five district grade span types for the four years studied for three measures of teacher stability availability were almost all statistically significant, as well. The correlation, for example, between to the

Table 6. Teacher qualification variables correlated to district school-to-school transition variables

District school-to-school transition variable	**%Teaching out of certification area**		
0-4 school transitions	Pearson r value	Significance (2-tailed)	Cohen effect size
2007-08 school year	-.41	p < .001	± .3 (medium)
2008-09 school year	-.31	p < .001	± .3 (medium)
2009-10 school year	-.31	p < .001	± .3 (medium)
2010-11 school year	-.37	p < .001	± .3 (medium)
1-4 school transitions			
2007-08 school year	-.37	p < .001	± .3 (medium)
2008-09 school year	-.24	p < .001	± .1 (small)
2009-10 school year	-.22	p < .001	± .1 (small)
2010-11 school year	-.28	p < .001	± .1 (small)
	%Teaching subjects with no appropriate certification		
0-4 school transitions	Pearson r value	Significance (2-tailed)	Cohen effect size
2007-08 school year	-.45	p < .001	± .3 (medium)
2008-09 school year	-.39	p < .001	± .3 (medium)
2009-10 school year	-.44	p < .001	± .3 (medium)
2010-11 school year	-.32	p < .001	± .3 (medium)
1-4 school transitions			
2007-08 school year	-.27	p < .001	± .1 (small)
2008-09 school year	-.24	p < .001	± .1 (small)
2009-10 school year	-.28	p < .001	± .1 (small)
2010-11 school year	-.23	p < .001	± .1 (small)

Source: NYS BEDS, 2008-2011 from www.nystart.gov/publicweb/DatabaseDownload.

number of school-to-school transition points within the selected districts and the overall teacher turnover rate was highly statistically significant for the full five- district span group study, with the exception of the 2007-08 school year and for all four years in the analyses that excluded one-school districts (See table 7).

Correlations between the span group variables and the one measuring the rate of teacher turnover with less than five years experience was less consistently strong across the four years for both the five- span analysis and the correlation analysis that excluded one-school districts (See table 8). Correlations were negative, on the other hand, between the full five-district schools-transitions groups and the percentage of teachers across four years, and highly with less than three years experience while still being highly

Table 7. Teacher qualification and stability variables correlated to district school-to-school transition variables

District school-to-school transitions variable	**% teaching core classes out of certification area**		
0-4 school transitions	Pearson r value	Significance (2-tailed)	Cohen effect size
2007-08 school year	-.32	p < .001	± .3 (medium)
2008-09 school year	-.24	p < .001	± .1 (small)
2009-10 school year	-.32	p < .001	± .3 (medium)
2010-11 school year	-.33	p < .001	± .3 (medium)
1-4 school transitions			
2007-08 school year	-.19	p < .001	± .1 (small)
2008-09 school year	-.16	p < .001	± .1 (small)
2009-10 school year	-.20	p < .001	± .1 (small)
2010-11 school year	-.22	p < .001	± .1 (small)
	Overall teacher turnover rate		
0-4 school transitions	Pearson r value	Significance (2-tailed)	Cohen effect size
2007-08 school year	.09	p = .09	± .0
2008-09 school year	.16	p < .001	± .1 (small)
2009-10 school year	.20	p < .001	± .3 (medium)
2010-11 school year	.19	p < .001	± .3 (medium)
1-4 school transitions			
2007-08 school year	.18	p < .001	± .1 (small)
2008-09 school year	.14	p < .001	± .1 (small)
2009-10 school year	.15	p < .001	± .1 (small)
2010-11 school year	.12	p < .001	± .1 (small)

Source: NYS BEDS, 2008-2011 from www.nystart.gov/publicweb/DatabaseDownload.

statistically significant in three of the four years in the correlation analysis that excluded one-school districts (See table 8).

School-to-school transition group variable correlations with key district demographic variables across the four years of analysis were also consistent, showing evidence of significant differences in total district enrollment, core class sizes, the percentage of students enrolled in free and reduced lunch program and the percentage of black and Hispanic minority students as the number of school-to-school transitions increased from the one-school districts around the state to the districts with five identified transition points. And while the correlations were less robust in the analysis that

Table 8. Teacher qualification and stability variables correlated to districts school-to-school transition variables

District school-to-school transitions variable	**%Teacher turnover with less than 5 years experience**		
0-4 school transitions	Pearson *r* value	Significance (2-tailed)	Cohen effect size
2007-08 school year	.08	p < .19	± .0
2008-09 school year	.09	p < .05	± .0
2009-10 school year	.23	p < .001	± .1 (small)
2010-11 school year	.24	p < .001	± .1 (small)
1-4 school transitions			
2007-08 school year	.07	p < .25	± .0
2008-09 school year	.06	p < .19	± .0
2009-10 school year	.20	p < .001	± .1 (small)
2010-11 school year	.16	p < .001	± .1 (small)
	%Teachers with less than 3 years experience		
0-4 school transitions	Pearson *r* value	Significance (2-tailed)	Cohen effect size
2007-08 school year	-.16	p < .001	± .1 (small)
2008-09 school year	-.18	p < .001	± .1 (small)
2009-10 school year	-.29	p < .001	± .1 (small)
2010-11 school year	-.34	p < .001	± .3 (medium)
1-4 school transitions			
2007-08 school year	-.12	p < .001	± .1 (small)
2008-09 school year	-.11	p < .01	± .1 (small)
2009-10 school year	-.21	p < .001	± .1 (small)
2010-11 school year	-.25	p < .001	± .1 (small)

Source: NYS BEDS, 2008-2011 from www.nystart.gov/publicweb/DatabaseDownload.

excluded one-school districts, they still were statistically significant in three of the four years studied. The strongest correlations were with the district enrollment and core class size variables. In the full grade-span group analysis the correlation with district enrollment was highly statistically significant for all four school years analyzed and for three of the four years of the correlation analysis that excluded one-school districts . Span group variable correlations with district core class size averages were even stronger across the four years for the full analysis, as well as for the four span-group analysis (See table 9).

Table 9. Building demographic variables correlated to NYS districts school-to-school transition variables

District school-to-school transitions variable	**Total district Enrollment**		
0-4 school transitions	Pearson *r* value	Significance (2-tailed)	Cohen effect size
2007-08 school year	.48	p < .001	± .3 (medium)
2008-09 school year	.15	p < .001	± .1 (small)
2009-10 school year	.49	p < .001	± .3 (medium)
2010-11 school year	.49	p < .001	± .3 (medium)
1-4 school transitions			
2007-08 school year	.36	p < .001	± .3 (medium)
2008-09 school year	.10	p < .05	± .1 (small)
2009-10 school year	.37	p < .001	± .3 (medium)
2010-11 school year	.38	p < .001	± .3 (medium)
	Average district core class size		
0-4 school transitions	Pearson *r* value	Significance (2-tailed)	Cohen effect size
2007-08 school year	.45	p < .001	± .1 (small)
2008-09 school year	.48	p < .001	± .1 (small)
2009-10 school year	.46	p < .001	± .1 (small)
2010-11 school year	.49	p < .001	± .3 (medium)
1-4 school transitions			
2007-08 school year	.45	p < .001	± .3 (medium)
2008-09 school year	.48	p < .001	± .3 (medium)
2009-10 school year	.46	p < .001	± .3 (medium)
2010-11 school year	.49	p < .001	± .3 (medium)

Source: NYS BEDS, 2008-2011 from www.nystart.gov/publicweb/DatabaseDownload.

While this study did not include many of the largest urban school districts in the state, which contain the highest percentage of black and Hispanic students, span group correlations for the percentage of both black and Hispanic students from the one-school district type through the ones with five school-to-school transitions included in my evaluation were highly statistically significant. This was very consistent across all four years of NYS BEDS data evaluation for the correlation with percentages of black students for both the full span group analysis and the one that excluded the one-school districts (See table 10), as well as for the Hispanic student population in the full span group analysis, and the one that excluded one-school districts (See table 10).

Table 10. Student demographics variables correlated to district school-to-school transition variables

District school –to-school transitions variable	**% Black student enrollment**		
0-4 school transitions	Pearson *r* value	Significance (2-tailed)	Cohen effect size
2007-08 school year	.22	p < .001	± .1 (small)
2008-09 school year	.23	p < .001	± .1 (small)
2009-10 school year	.23	p < .001	± .1 (small)
2010-11 school year	.23	p < .001	± .1 (small)
1-4 school transitions			
2007-08 school year	.23	p < .001	± .1 (small)
2008-09 school year	.23	p < .001	± .1 (small)
2009-10 school year	.24	p < .001	± .1 (small)
2010-11 school year	.23	p < .001	± .1 (small)
	% Hispanic student enrollment		
0-4 school transitions	Pearson *r* value	Significance (2-tailed)	Cohen effect size
2007-08 school year	.29	p < .001	± .1 (small)
2008-09 school year	.27	p < .001	± .1 (small)
2009-10 school year	.28	p < .001	± .1 (small)
2010-11 school year	.29	p < .001	± .1 (small)
1-4 school transitions			
2007-08 school year	.28	p < .001	± .1 (small)
2008-09 school year	.27	p < .001	± .1 (small)
2009-10 school year	.27	p < .001	± .1 (small)
2010-11 school year	.28	p < .001	± .1 (small)
	Free/Reduced Lunch program participants		
0-4 school transitions	Pearson *r* value	Significance (2-tailed)	Cohen effect size
2007-08 school year	.23	p < .001	± .1 (small)
2008-09 school year	.23	p < .001	± .1 (small)
2009-10 school year	.22	p < .001	± .1 (small)
2010-11 school year	.21	p < .001	± .1 (small)
1-4 school transitions			
2007-08 school year	.11	p < .01	± .1 (small)
2008-09 school year	.13	p < .001	± .1 (small)
2009-10 school year	.12	p < .01	± .1 (small)
2010-11 school year	.11	p < .01	± .1 (small)

Source: NYS BEDS, 2008-2011 from www.nystart.gov/publicweb/DatabaseDownload.

Interestingly, while the percentage of black and Hispanic students increased from one district span group type to the next, and blacks and Hispanics remain consistently among the lowest socioeconomic populations in the state, the percentage of students enrolled in free and reduced lunch programs was found to be negatively correlated to the

span group variables for both the full span group analysis and the one that excluded one-school districts (See table 10).

STUDENT SUCCESS/TRANSITIONS GROUP CORRELATIONS COMPARED

Building on the results of my pilot study, associations between the number of school-to-school transitions and key measures of student academic outcomes – specifically graduation rates and Regents test scores – are estimated through correlations. The correlations proved to be statistically significant in the analyses of four years of NYS BEDS data for general student populations for 2007-08, 2008-09, 2009-10 and 2010-11. Less consistent, but still worth highlighting, were the results from the correlation analyses comparing several academic success measures for special education populations in the five different district span group categories. In this series of correlation studies, data from all five different span groups were evaluated and parallel correlation analyses were also completed for the span group variables in which the 74 one-school districts were excluded.

One of the few correlations that remained statistically significant across the four years of this study resulted from the analyses of the relationship between the number of school-to-school transitions that students make and the percentage of general education students who were awarded Regents diplomas with advanced certification in the target districts containing one, two, three, four or five school-to-school transition points. Students receiving Regents diplomas with advanced certification are those who would normally be considered the most academically advanced in their schools, since in order to receive a Regents diploma with advanced designation, students must pass all of the required five core subject Regents exams in English, American history, world history,

mathematics and science, but also pass two extra advanced mathematics exams, one advanced science course exam and complete two extra class units in a foreign language. This diploma, as explained earlier, is different from a Regents diploma with honors, which is awarded to students who maintain a 90 or higher average in core subject courses but does not required that the courses be at the advanced level.

This schools-transition groups and advanced diploma correlation was found to be statistically significant across all four years in the full five district group analyses, and also in the correlation analysis that excluded one-school districts analysis (See table 11). Span group correlations involving district data on the percentage of general

Table 11. District school-to-school transitions variable and general education student success variable correlations

District school-to-school transitions variable	**General education students advanced graduation rates**		
0-4 school transitions	Pearson *r* value	Significance (2-tailed)	Cohen effect size
2007-08 school year	.21	p < .001	± .1 (small)
2008-09 school year	.24	p < .001	± .1 (small)
2009-10 school year	.23	p < .001	± .1 (small)
2010-11 school year	.22	p < .001	± .1 (small)
1-4 school transitions			
2007-08 school year	.14	p < .003	± .1 (small)
2008-09 school year	.13	p < .005	± .1 (small)
2009-10 school year	.13	p < .004	± .1 (small)
2010-11 school year	.16	p < .001	± .1 (small)
	General education students Regents graduation rates		
0-4 school transitions	Pearson *r* value	Significance (2-tailed)	Cohen effect size
2007-08 school year	.04	p < .30	± .0
2008-09 school year	.07	p < .10	± .0
2009-10 school year	.09	p < .05	± .0
2010-11 school year	.08	p < .06	± .0
1-4 school transitions			
2007-08 school year	.03	p < .60	± .0
2008-09 school year	.08	p < .10	± .0
2009-10 school year	.05	p < .30	± .0
2010-11 school year	.05	p < .50	± .0

Source: NYS BEDS, 2008-2011 from www.nystart.gov/publicweb/DatabaseDownload.

education students receiving regular Regents diplomas, on the other hand, were much less consistent across the four years and, in fact, was only moderately statistically significant in the 2010-11 school year in the full five districts group correlation analysis and not statistically significant in any of the correlations, when one-school districts were excluded analysis (See table 11).

While correlations involving the percentage awarded of both types of Regents diplomas were both positive and consistent, if not always statistically significant, across the four years of data studied, relatively few statistically consistent correlations were found for any of the specific Regents exams required for graduation for general education populations. Correlation analyses involving the Comprehensive Regents English exam for the period covered provided a good case in point. Correlations were positive in some years and negative in others, but were only moderately statistically significant in 2009-10 and 2010-11 for the full five span-group study analysis (See table 12). There were no statistically significant correlations found in the analysis that excluded one-school districts analysis (See table 12).

It is important to note here, as first suggested earlier in this report, that one of the problems with getting the most accurate assessment of correlations for specific Regents exams is that many district percentages were excluded from the publically released BEDS reports, presumably because Regents results were suppressed in districts with very small numbers of students in different subgroups taking specific tests. This would be consistent with New York State Education Department policies not to publish data for groups with five or fewer students or data that would "allow readers to easily determine the performance of a group with five or fewer students." Because of this, there was great inconsistency in the number of district Regents English exam results available from one

Table 12. General education student success variables correlated to district school-to-school transitions variable

District school-to-school transitions variable	**General education students English Regents passing rates**		
0-4 school transitions	Pearson *r* value	Significance (2-tailed)	Cohen effect size
2007-08 school year	.11	p < .20	± .1 (small)
2008-09 school year	.00	p < .95	± .0
2009-10 school year	-.17	p < .05	± .1 (small)
2010-11 school year	-.20	p < .02	± .1 (small)
1-4 school transitions			
2007-08 school year	.02	p < .90	± .0
2008-09 school year	-.06	p < .18	± .0
2009-10 school year	-.17	p < .06	± .1 (small)
2010-11 school year	-.23	p < .009	± .1 (small)
	General education students math Regents passing rates		
0-4 school transitions	Pearson *r* value	Significance (2-tailed)	Cohen effect size
2007-08 school year	.19	p < .05	± .1 (small)
2008-09 school year	.15	p < .001	± .1 (small)
2009-10 school year	.23	p < .05	± .1 (small)
2010-11 school year	.10	p < .30	± .1 (small)
1-4 school transitions			
2007-08 school year	.02	p < .90	± .0
2008-09 school year	-.04	p < .60	± .0
2009-10 school year	.01	p < .90	± .0
2010-11 school year	-.03	p < .80	± .0

Source: NYS BEDS, 2008-2011 from www.nystart.gov/publicweb/DatabaseDownload.

year to the next, ranging from as few as 138 districts in 2007-08 to as many as 504 of the 598 districts included in the state's 2008-09 BEDS database. This was an even bigger problem with other Regents exams that were not required for graduation for all students. As a result, while the district results of the advanced math Regents administered by the state, which was called Math B in 2007-08 and 2008-09 and Algebra/Trigonometry since then, showed statistically significant correlations with the school transitions variable for three of the years evaluated in the full transition analysis (See table 12), the fact that math Regents scores were available from as many as 332 districts in the 2009-10 BEDS database to as few as 99 in 2009-10 might have produced less reliable statistical results

across all four years of analyses. This lack of consistency in available math Regents results might also explain why the correlation analyses for the study that excluded one-school districts produced "r" scores and significance levels (See table 12) that, unlike most of the other correlation analyses, were not at all similar to the numbers produced in the full study analysis. In addition to this inconsistency from one year to the next due to small numbers of districts reporting specific Regents test results, the statistics, even when reported, may have been based on very small numbers of cases, which means that they would have large standard errors.

While statistical findings involving the actual awarding of diplomas and specific secondary school Regents testing measures of success were mixed, correlations between several so-called aspiration goals and district grade span group variables were stronger. Correlations, for example, across four years of analyses between the span group variable and the percentage of general education students in each district type who reported that they were planning to attend a four-year college after graduation were highly statistically significant in both the full span-group study analysis, and the smaller four span-group analysis (See table 13). Interestingly, self-reporting by the district students over the four-year period showed an opposite effect with increasingly smaller percentages of students in districts with greater number of school-to-school transition point indicating they planned to attend two-year colleges. This was highly statistically significant in both the full span-group study analysis (See table 13) and the one that excluded one-school districts analysis (See table 13).

While correlations were statistically significant across the four years of analyses for several measures of academic success for the general education population in the state's

Table 13. General education student aspiration variables correlated to district school-to-school transitions variable

District school-to-school transitions variable	**% General education students planning to attend 4-year college**		
0-4 school transitions	Pearson *r* value	Significance (2-tailed)	Cohen effect size
2007-08 school year	.26	p < .001	± .1 (small)
2008-09 school year	.26	p < .001	± .1 (small)
2009-10 school year	.26	p < .001	± .1 (small)
2010-11 school year	.26	p < .001	± .1 (small)
1-4 school transitions			
2007-08 school year	.21	p < .001	± .1 (small)
2008-09 school year	.23	p < .001	± .1 (small)
2009-10 school year	.22	p < .001	± .1 (small)
2010-11 school year	.23	p < .001	± .1 (small)
	% General education students planning to attend 2-year college		
0-4 school transitions	Pearson *r* value	Significance (2-tailed)	Cohen effect size
2007-08 school year	-.17	p < .001	± .1 (small)
2008-09 school year	-.21	p < .001	± .1 (small)
2009-10 school year	-.18	p < .001	± .1 (small)
2010-11 school year	-.20	p < .001	± .1 (small)
1-4 school transitions			
2007-08 school year	-.19	p < .001	± .1 (small)
2008-09 school year	-.20	p < .001	± .1 (small)
2009-10 school year	-.19	p < .001	± .1 (small)
2010-11 school year	-.19	p < .001	± .1 (small)

Source: NYS BEDS, 2008-2011 from www.nystart.gov/publicweb/DatabaseDownload.

targeted public school districts, findings were less consistent in correlation analyses focusing on the district schools' identified special education or students with disabilities populations. This may have been due in part to the fact that the statistics would have been more error prone, based on the small number of cases involved in the analyses. In the analyses involving the district span-group variables and district-reported percentages of special education students being awarded Regents diplomas with advance designation, which was highly statistically significant for general education populations across all four year, correlations here were only statistically significant in three of the four years for the full span group study, and in only two years for the analyses that excluded one-school districts (See table 14).

Schools-transition group correlations for district special education students receiving regular Regents diplomas were slightly stronger, on the other hand, than for general student populations, which had been statistically significant for only one of the four years analyzed. The correlations were statistically significant for 2008-09 and 2010-11 in the full five-district group study and again in 2010-11 for the analysis involving the four district groups (See table 14).

Table 14. Special education student cohort success variables correlated to NYS district school-to-school transitions variable

District school-to-school transitions variable	**Special education students advanced diploma rates**		
0-4 school transitions	Pearson *r* value	Significance (2-tailed)	Cohen effect size
2007-08 school year	.12	p < .005	± .1 (small)
2008-09 school year	.09	p < .05	± .0
2009-10 school year	.05	p < .25	± .0
2010-11 school year	.19	p < .001	± .1 (small)
1-4 school transitions			
2007-08 school year	.10	p < .05	± .1 (small)
2008-09 school year	.07	p < .20	± .0
2009-10 school year	.03	p < .60	± .0
2010-11 school year	.13	p < .01	± .1 (small)
	Special ed. students regular diploma rates		
0-4 school transitions	Pearson *r* value	Significance (2-tailed)	Cohen effect size
2007-08 school year	-.03	p < .50	± .0
2008-09 school year	.10	p < .05	± .1 (small)
2009-10 school year	.03	p < .50	± .0
2010-11 school year	.17	p < .05	± .1 (small)
1-4 school transitions			
2007-08 school year	.02	p < .70	± .0
2008-09 school year	.04	p < .40	± .0
2009-10 school year	.02	p < .70	± .0
2010-11 school year	.09	p < .06	± .0

Source: NYS BEDS, 2008-2011 from www.nystart.gov/publicweb/DatabaseDownload.

In the analyses of potential correlations between the schools-transition variables and district passing scores for special education students taking key Regents exams, the results were as consistent as they were across four years for the general education students. Correlations were statistically significant in two of the four years for the

percentage of students passing their Comprehensive English Regents in the full five-district group analyses, and only in one year for the correlation analysis that excluded one-school districts (See table 15).

Since Regents mathematics test results were not available in sufficient district sample sizes, due to the fact that many scores were not reported because cohorts

Table 15. Special education student success variables correlated to district school-to-school transitions variable

District school-to-school transitions variable	**Special education students English Regents passing rates**		
0-4 school transitions	Pearson *r* value	Significance (2-tailed)	Cohen effect size
2007-08 school year	.31	p < .001	± .3 (medium)
2008-09 school year	.01	p < .95	± .0
2009-10 school year	.28	p < .001	± .1 (small)
2010-11 school year	.12	p < .15	± .1 (small)
1-4 school transitions			
2007-08 school year	.16	p < .05	± .1 (small)
2008-09 school year	-.06	p < .10	± .0
2009-10 school year	.07	p < .40	± .0
2010-11 school year	.03	p < .70	± .0
	Special education students math/science Regents passing rates		
0-4 school transitions	Pearson *r* value	Significance (2-tailed)	Cohen effect size
2007-08 school year	.07	p < .07	± .0
2008-09 school year	.15	p < .01	± .1 (small)
2009-10 school year	.23	p < .01	± .0
2010-11 school year	.18	p < .05	± .1 (small)
1-4 school transitions			
2007-08 school year	.03	p < .80	± .0
2008-09 school year	-.04	p < .60	± .0
2009-10 school year	.09	p < .30	± .0
2010-11 school year	-.06	p < .50	± .0

Source: NYS BEDS, 2008-2011 from www.nystart.gov/publicweb/DatabaseDownload.

contained five or fewer students, to examine possible correlations between grade-span groups and special education student scores, the earth science Regents was used as the target variable in 2009-10, while the integrated algebra Regents was used in the other three years evaluated. Correlations were statistically significant in each of the four years

with the exception of 2007-08 in the full five grade-span group comparison, but in none of the correlations when the one-school span districts were excluded (See table 15).

Table 16. Special education student aspiration variables correlated to district school-to-school transitions variable

District school-to-school transitions variable	**% Special education students planning to attend 4-year college**		
0-4 school transitions	Pearson *r* value	Significance (2-tailed)	Cohen effect size
2007-08 school year	.12	p < .01	± .1 (small)
2008-09 school year	.17	p < .001	± .1 (small)
2009-10 school year	.10	p < .05	± .1 (small)
2010-11 school year	.17	p < .001	± .1 (small)
1-4 school transitions			
2007-08 school year	.15	p < .001	± .1 (small)
2008-09 school year	.14	p < .001	± .1 (small)
2009-10 school year	.11	p < .01	± .1 (small)
2010-11 school year	.13	p < .005	± .1 (small)
	Special ed. students planning 2-yr college		
0-4 school transitions	Pearson *r* value	Significance (2-tailed)	Cohen effect size
2007-08 school year	.09	p < .05	± .1 (small)
2008-09 school year	.09	p < .05	± .1 (small)
2009-10 school year	.19	p < .001	± .1 (small)
2010-11 school year	.12	p < .01	± .1 (small)
1-4 school transitions			
2007-08 school year	.15	p < .001	± .1 (small)
2008-09 school year	.09	p < .06	± .1 (small)
2009-10 school year	.12	p < .01	± .1 (small)
2010-11 school year	.11	p < .05	± .1 (small)

Source: NYS BEDS, 2008-2011 from www.nystart.gov/publicweb/DatabaseDownload.

As was the case in the statistical analyses involving the comparison of aspiration goals for general education students and the span group variable, correlations were also consistently strong across the four years of this study between span groups and reported plans by graduating special education students to attend college. Correlations were statistically significant in both the full span-group analysis for special education students planning to attend four-year colleges, and in the smaller four span-group analysis (See table 16). Interestingly, correlations involving special education students planning to attend two-year colleges were generally positively statistically significant for the four

years evaluated, while these correlations had been negative for general education students. This was the case in both the study involving all five span groups and the one in which one-school districts were excluded (See table 16).

POTENTIAL MULTICOLLINEARITY PROBLEMS ADDRESSED

In the course of producing bivariate correlation reports for key staffing and school demographic variables and various measures of student achievement for the full four years of available NYS BEDS data, potential multicollinearity problems that might have been clouding the initial correlation findings were uncovered. As a result, before any regression studies were conducted, a series of partial correlation analyses were completed for each of the years of data collected to more clearly identify the predictor effect of the number of school-to-school transitions after controlling for the key demographic and staffing variables that had already been identified as consistently having strongest correlations to the primary measures of academic success. The variables used as controls, as first identified earlier, were the percentage of students receiving free and reduced lunch aid in the target districts, the percentage of teachers with the masters or doctorates plus at least 30 extra professional development credit hours, and the average size of district core classes.

Multicollinearity, Fields (2009) notes, may result when there are strong correlations between two or more predictor variables that are being used in regression analyses. As collinearity increases, so does the potential for increased standard errors in the regression results' *b* coefficients. Multicollinearity also can limit the size of the R value in regression analyses and, most significantly, can make it difficult to identify the variance effects that can be attributed to individual predictors in a multiple regression study.

Suppressors can also have an important effect on the estimates, such that associations may differ in magnitude and significance. The potential impact of suppressors in multiple linear regression analyses was first examined by Conger in 1974 and Velicer in 1978. Both demonstrated that the suppressor phenomenon is not as

uncommon as was long thought and that it can show up in regression analyses having multiple independent variables that in combination with each other produce a suppressor effect on another independent variable. Furthermore, Maassen and Bakker (2001) suggested that the suppressor effect can be so strong that a regression coefficient for a weakly correlated independent predictor variable can not only become larger than expected in the adjusted model, but can change direction from a statistically significant positive to negative or negative to positive correlation in the process, once additional independent controls are installed.

In a number of my own partial correlation studies of other key independent variables on the relationship between increased school-to-school transitions and measures of academic success, my findings seemed to bear out a suppressor phenomenon first described by Rosenberg (1973) in which a strong relationship between variables emerges, where only a null or weak one existed in isolation, once other variables were controlled for. A very clear example of the unexpected effect of suppressors was uncovered when I conducted a partial correlation analysis keyed to my district span-group variable and district graduation rates for total student cohorts across four years of New York State BEDS reports from 2008-09 through the 2010-11 school year. Zero-order correlations for all four years respectively were weakly positive without rising to the level of statistical significance (See table 17). When three key predictor variables, the percentage of district students receiving free or reduced lunch aid, the percentage of teachers with masters or doctorates plus 30 professional development credits, and the average size of core subject classes were controlled for in the calculation, a very different set of results were uncovered with all four years of correlations now negative and highly statistically significant (See table 17).

Table 17. NYS district school-to-school transition variables and total student population graduation rate zero-order/partial correlations

District school-to-school transitions variable	**Total student cohort[1] graduation rates: zero-order correlations**		
0-4 school transitions	Pearson *r* value	Significance (2-tailed)	Cohen effect size
2007-08 school year	.03	p < .50	± .0
2008-09 school year	.06	p < .15	± .0
2009-10 school year	.05	p < .30	± .0
2010-11 school year	.08	p < .07	± .0
	Total student cohort[1] graduation rates: partial correlations[2]		
0-4 school transitions	Pearson *r* value	Significance (2-tailed)	Cohen effect size
2007-08 school year	-.21	p < .001	± .1 (small)
2008-09 school year	-.16	p < .001	± .1 (small)
2009-10 school year	-.15	p < .001	± .1 (small)
2010-11 school year	-.12	p < .001	± .1 (small)
	White student cohort[1] graduation rates: zero-order correlations		
0-4 school transitions	Pearson *r* value	Significance (2-tailed)	Cohen effect size
2007-08 school year	.08	p < .05	± .1 (small)
2008-09 school year	.13	p < .01	± .1 (small)
2009-10 school year	.14	p < .01	± .1 (small)
2010-11 school year	.11	p < .01	± .1 (small)
	White student cohort[1] graduation rates: partial correlations[2]		
0-4 school transitions			
2007-08 school year	-.16	p < .001	± .1 (small)
2008-09 school year	-.10	p < .05	± .1 (small)
2009-10 school year	-.09	p < .05	± .1 (small)
2010-11 school year	-.12	p < .01	± .1 (small)

[1]*Student cohorts include both general and special education students*
[2]*Other variables used in partial correlations with transition variable were: %Free/Reduced Lunch (SES), average core class size, and % teachers with Masters plus 30 credits or doctorates*
Source: NYS BEDS, 2008-2011 from www.nystart.gov/publicweb/DatabaseDownload.

An even more striking example of the suppressor effect became evident in comparing the partial correlation results between the grade span group variable and district graduation rates for the largest identified subgroup cohort, included in this study for the four-year period, the districts' white student populations. Zero-order correlations were positively statistically significant for all four years respectively (See table 17). When three key predictor variables, the percentage of district students receiving free or reduced lunch aid, the percentage of teachers with Masters or doctorates plus 30 credits, and the average size of core subject classes were controlled for in the calculation, the

resulting R values for all four years of correlations were now shown to be negatively statistically significant (See table 17).

No similar patterns, however, emerged across all four years in the partial correlation analyses of the other available student subgroup graduation rate variables. The school-to-school transition variable correlation with graduation rates for disabled students became statistically significant when the three other key predictor variables were controlled for in 2008-09 ($r = .17$, $p < .05$) and 2010-11 ($r = .16$, $p < .05$), and in the correlation with economically disadvantaged student cohort graduation rates in 2009-10 ($r = .17$ $p < .005$). The reliability of statistical findings in correlations involving these two variables, as well as ones testing for correlations with black and Hispanic subgroup cohort variables, unfortunately is suspect because so few of the 598 districts included in the study reported results for these subgroups. As stated earlier, this occurred because of state policies allowing the suppression of such public reporting when the cohorts contained five or fewer students. For example, an average of only 184 of the 598 districts in the study released results for disabled student populations over the four years of BEDS data reporting, and an average of only 216 public school districts reported graduation rates for economically disadvantaged student populations.

The number of districts that had large enough black or Hispanic student populations to be required to publically report graduation rates for those cohorts through the four-year period was even smaller, with an average of only 58 districts reporting black student population results and 64 reporting results for Hispanic student subgroup cohorts. Compounding the problem of getting any reliable statistical results for the evaluation of the possible effect of span groups for these subgroup variables was the fact over the four years an average of less than 1 percent of the one-school districts and

districts with only one school-to-school transition point reported results for minority populations or economically disadvantaged or disabled student cohorts.

The percentage of New York State Regents diplomas awarded in 2008-09, and not the graduation rate of district students, was the primary measure of academic success used in my exploratory statistical analyses. Further evidence of the strength of the suppressor effect is illustrated again in the partial correlation analyses results of the 2008-2009 data, as well as in evaluating data for the other three years included in the full study, for the relationship between the district grade span group variable and the percentage of district general education student graduates who were awarded Regents degrees with advanced designation. Qualifying to receive such degrees, as described earlier in this report, requires students to pass several advanced high school math, science and foreign language courses in addition to passing the five core Regents tests, required for a regular Regents degree.

Initially, in conducting bivariate correlation analyses, the relationship between the district school transitions variable and the percentages of advanced Regents diplomas granted was highly statistically significant for all four years (See table 18). When partial correlations were conducted, however, controlling for the three consistently most robust independent predictor variables, the percentage of students receiving free and reduced lunch aid in the target districts, the percentage of teachers with the masters or doctorates plus at least 30 extra professional development credit hours, and the average size of district core classes, correlation strengths dropped for all four years of data, with only two years, 2008-09 and 2009-10 remaining statistically significant (See table 18). This pattern continued in the examination of the relationship between the number of school-to-school transitions and another measure related to student success that was first included for

Table 18. District school-to-school transitions variable and general education student success variable zero-order/partial correlations

District school-to-school transitions variable	**General education student advanced Regents diploma rates: zero-order correlations**		
0-4 school transitions	Pearson *r* value	Significance (2-tailed)	Cohen effect size
2007-08 school year	.21	p < .001	± .1 (small)
2008-09 school year	.24	p < .001	± .1 (small)
2009-10 school year	.23	p < .001	± .1 (small)
2010-11 school year	.22	p < .001	± .1 (small)
	General education student advanced Regents diploma rates: partial correlations[2]		
0-4 school transitions	Pearson *r* value	Significance (2-tailed)	Cohen effect size
2007-08 school year	.10	p < .05	± .1 (small)
2008-09 school year	.08	p < .06	± .0
2009-10 school year	.12	p < .01	± .1 (small)
2010-11 school year	.05	p < .30	± .0
	General education students planning to attend 4-year college: zero-order correlations		
0-4 school transitions	Pearson *r* value	Significance (2-tailed)	Cohen effect size
2007-08 school year	.26	p < .001	± .1 (small)
2008-09 school year	.25	p < .001	± .1 (small)
2009-10 school year	.25	p < .001	± .1 (small)
2010-11 school year	.27	p < .001	± .1 (small)
	General education students planning to attend 4-year college: partial correlations[2]		
0-4 school transitions			
2007-08 school year	.04	p < .40	± .0
2008-09 school year	.01	p < .90	± .0
2009-10 school year	.07	p < .08	± .0
2010-11 school year	.05	p < .30	± .0

[2]*Other variables used in partial correlations with transition variable were: %Free/Reduced Lunch (SES), average core class size, and % teachers with Masters plus 30 credits or doctorates*

Source: NYS BEDS, 2008-2011 from www.nystart.gov/publicweb/DatabaseDownload.

evaluation in the pilot study, the percentage of general education students in each district who are planning to attend a four-year college after graduating. In bivariate correlations using district data for the years 2007-08 through 2010-11, R values were all statistically significant (See table 18). When partial correlation analyses were completed, using the three key demographic and staffing variables, statistical significance disappeared in each of the four years (See table 18). The correlation pattern over four years was similar in the

comparison analyses involving the independent district grade grouping span and the percentage of special education students planning to attend four-year colleges. Bivariate correlations were statistically significant across all four years of data from 2007-08 through 2010-11, but the correlations all lost any level of significance, and two of the correlation R values had also shifted from positive to negative, once the three key staffing and demographic variables were controlled for (See table 19).

Comparisons of bivariate and partial correlation results were much more inconsistent in the study of the relationship between the district grade span group variables and other students success measures that were first addressed in my pilot study. The analysis of the independent span group variable and the percentage of general education students awarded regular Regents diplomas reached a level of statistical significance in bivariate correlations only for 2010-11($r = .10$, $p < .05$), while the partial correlation for that year's data was slightly weaker, but still statistically significant ($r = 09$, $p < .05$). Statistical comparisons between the independent district grade span group variable and the percentage of special education students being awarded advanced Regents diplomas shifted from significant for the bivariate correlation to lacking in statistical significance in the partial correlation with controls in 2007-08, and in a similar pattern in 2008-09, while reversing that pattern in 2009-10 (See table 19). In 2010-11, the bivariate analysis of the independent and target variables were highly statistically significant, but only moderately significant when controls were added in the partial correlation study (See table 19). The statistical analyses of the correlation between the number of school-to-school transitions and the percentage of special education students in each district planning to attend a four-year college after graduating produced results similar to the analyses

Table 19. NYS district school-to-school transition variables and special education student success variables zero-order and partial correlations

District school-transitions variable	**Special ed student advanced Regents diploma rates: zero-order correlations[2]**		
0-4 school transitions	Pearson *r* value	Significance (2-tailed)	Cohen effect size
2007-08 school year	.12	p < .01	± .1 (small)
2008-09 school year	.09	p < .05	± .1 (small)
2009-10 school year	.05	p < .30	± .0
2010-11 school year	.17	p < .001	± .1 (small)
	Special education student advanced Regents diploma rates: partial correlations		
0-4 school transitions	Pearson *r* value	Significance (2-tailed)	Cohen effect size
2007-08 school year	.05	p < .20	± .0
2008-09 school year	.03	p < .60	± .0
2009-10 school year	.10	p < .05	± .1 (small)
2010-11 school year	.08	p < .06	± .0
	% Special education students planning to attend 4-year college: zero-order correlations[2]		
0-4 school transitions	Pearson *r* value	Significance (2-tailed)	Cohen effect size
2007-08 school year	.12	p < .01	± .1 (small)
2008-09 school year	.17	p < .001	± .1 (small)
2009-10 school year	.10	p < .05	± .1 (small)
2010-11 school year	.17	p < .001	± .1 (small)
	% Special education students planning to attend 4-year college: partial correlations		
0-4 school transitions			
2007-08 school year	-.07	p < .20	± .0
2008-09 school year	.01	p < .95	± .0
2009-10 school year	-.06	p < .20	± .0
2010-11 school year	.02	p < .70	± .0

[2]*Other variables used in partial correlations with transition variable were: %Free/Reduced Lunch (SES), average core class size, and % teachers with Masters plus 30 credits or doctorates*

Source: NYS BEDS, 2008-2011 from www.nystart.gov/publicweb/DatabaseDownload.

conducted for general education students with statistically significant bivariate correlations in all four years losing their significance once control variables were applied. In zero-order correlations using district data for the years 2007-08 through 2010-11, *r* values were all statistically significant (See table 19). When partial correlation analyses were completed, using the three key demographic and staffing variables, statistical significance disappeared in each of the four years (See table 19).

FINAL REPORT REGRESSION ANALYSES RESULTS

This study aims to estimate the effects, if any, of the number of school-to-school transitions that New York State public school students typically follow on several learning outcomes. For the purpose of the study, transitions, as described previously, refer to the formal movement of students from one school to the next at successive identified levels, between kindergarten and the twelfth grade. The transitions studied do not refer to the number of times students may move between schools at any one grade level or the movement into or out of school districts.

Building on the analyses of simple associations between learning outcomes and the number of school-to-school transitions experienced in five different grade-grouping configured district models, as well as on associations between student outcomes and other school, student and staffing demographics categories, this chapter presents the results of a series of multivariate regression analyses. The first series of analyses focus on the possible influence of school-to-school transitions on total district student population graduation rates reported for 2007-08, 2008-09, 2009-10 and 2010-11. Other regression analyses are then conducted for several subgroups, including two special cohorts of students who remain in the same district through four years of high school, and also regression studies of separate cohorts of white students, students with disabilities, and economically disadvantaged students. A final series of multi-variate regression analyses is conducted to determine if there is a statistically significant relationship between the number of school-to-school transitions that students experience through elementary and high school and the percentage of both general education and special education students who are awarded Regents diplomas with advanced designation and regular Regents diplomas.

TOTAL DISTRICT STUDENT POPULATION GRADUATION RATES ANALYSES

After identifying statistically significant correlations between independent district schools grade-grouping span variables and a number of target variables measuring academic success, several series of multivariate regression studies were completed, using four years of public school data from the annual New York State BEDs reports, to determine the consistency of results for the 2007-08, 2008-09, 2009-10 and 2010-11 school years. The first series of analyses focused on whether the graduation rates for total student cohorts in each of the 598 district being evaluated can be predicted by the number of school-to-school transitions that students in each district experience between kindergarten and the twelfth grade. Other independent variables used in the regression analyses, that have previously been determined to have a strong suppressor effect on the transition variable predictor's potential influence on graduation rates, included the state database's primary SES indicator, the percentages of district students receiving free or reduced lunch program aid. Included in the final regression studies, as well, were two other control variables related to teacher qualifications and class size, that were also both shown to be statistically significantly correlated to academic success measures in my preliminary analyses. The specific variables, provided in the New York State BEDS reports, included the percentage of teachers with Masters degrees or doctorates plus at least 30 additional professional development credits, and the average class size in each district for its elementary grade cohort, and also English, math, science and social studies core classes in grades 8 and 10.

As can be clearly seen in table 20, the school-to-school transition variable in each of the four years evaluated did not reach a level of significance by itself, when measured against the target dependent variable, total student graduation rates. When the FRL/SES

level control variable was added to the regression model, however, the schools-transition variable's p-value, reached statistically significant levels for all four years evaluated ($p < .001$; $p < .001$; $p < .001$; and $p < .002$)

Table 20. **Total student population cohort graduation rates** regression coefficient estimates[1] for number of NYS district school-to-school transitions with and without key control variables - 2007-08 through 2010-11

2007-08	β	*t*	*p*-value	95% CI	Std Error
Number of transitions without control variables	.011	.254	.799	-.814(1.056)	.476
Number of transitions with SES added	-.174	-5.508	.000***	-2.707(-1.284)	.362
Number of transitions with class size added	-.195	-5.770	,000***	-2.997(-1.475)	.388
Number of transitions with %masters + added	-.199	-5.822	.000***	-3.051(-1.512)	.392
2008-09	β	*t*	*p*-value	95% CI	Std Error
No control variables	.061.	1.477	.140	-.222 (1.564)	.455
After SES added	-.119	-4.007	.000***	-1.956 (-669)	.328
After class size added	-.118	-3.688	.000***	-1.999 (-.605)	.355
After %masters + added	-.123	-3.776	.000***	-2.052 (-.648)	.357
2009-10	β	*t*	*p*-value	95% CI[1]	Std Error[1]
No control variables	.053	1.281	.201	-.277 (1.318)	.406
After SES added	-.114	-3.834	.000***	-1.686 (-.544)	.291
After class size added	-.104	-3.267	.001**	-1.638 (-.408)	.313
After %masters + added	-.117	-3.668	.000***	-1.768 (-.535)	.314
2010-11	β	*T*	*p*-value	95% CI	Std Error
No control variables	.048	.886	.376	-.614 (1.621)	.568
After SES added	-.120	-3.566	.000***	-1.960 (-.566)	.354
After class size added	-.105	-2.729	.007*	-1.895 (-.308)	.403
After %masters + added	-.119	-3.101	.002**	-2.037 (-.456)	.402

* significant **moderately significant ***highly significant

[1] ***All values listed are for the school transitions variable with and without controls for all four years***

Overall the first regression targeting the 2008 total student cohort graduation rates explained a statistically significant amount of the variation in the dependent variable $F(582, 581, 580, 579) = 125.64$, $p < .001$, $R^2 = .47$. Of the individual predictors investigated, FRL/SES levels ($\beta = -.67$, $t(580) = -18.87$, $p < .001$) and school transitions

were highly statistically significant. (β = -.20, t(581) = -5.82, p < .001). Both the teacher experience variable and the average class size variable were not significant predictors in this model. (See table 21 and also Appendix C, tables C1a, C1b)

Table 21. Predictor influence on **total student population graduation rates, 2007-08,** by NYS district school-to-school transitions and control variables - regression summary

	r^2	$r^2\Delta$	β*	t*	F	Sig.*	FΔ	SE
Model 1	. .00[a]	.000	.011	.254	.07	.799	.065	10.25
Model 2	.46[b]	.459	-.174	-5.51	248.78	.000	497.433	7.53
Model 3	.46[c]	.461	-.195	-5.77	167.42	.000	.2.989	7.52
Model 4	.47[d]	.461	.-.199	-5.82	125.64	.000	.625	7.52

a. **Predictors: (Constant), school transitions**
b. **Predictors: (Constant), school transitions, SES/FRL levels**
c. **Predictors: (Constant) school transitions, SES/FRL levels, average class size**
d. **Predictors: (Constant) school transitions, SES/FRL levels, average class size, % masters + 30 cr.**
β, t values and sig. levels are listed for the school transitions variable in table's four regression models

A regression analysis, using the same variables, applied to 2009 graduation rates for all district students, yielded similar, if slightly more robust, overall results. The analysis explained a statistically significant amount of the variation in the dependent variable F(583, 582, 581, 580) = 154.42, p < .001, R^2 =.52. Of the individual predictors investigated, FRL/SES levels (β = -.73, t(582) = - 21.81, p < .001) and school transitions

Table 22. Predictor influence on **total student population graduation rates, 2008-09,** by NYS district school-to-school transitions and control variables - regression summary

	r^2	$r^2\Delta$	β*	t*	F	Sig.*	FΔ	SE
Model 1	.004[a]	. .004	.061	1.48	2.18	.140	2.18	9.82
Model 2	.515[b]	.511	-.119	-4.01	308.59	.000	612.71	6.86
Model 3	.515[c]	.000	-.118	-3.67	205.38	.000	.01	6.86
Model 4	.516[d]	.001	.-.123	-3.78	154.42	.000	1.27	6.86

a. **Predictors: (Constant), school transitions**
b. **Predictors: (Constant), school transitions, SES/FRL levels**
c. **Predictors: (Constant) school transitions, SES/FRL levels, average class size**
d. **Predictors: (Constant) school transitions, SES/FRL levels, average class size, % masters + 30 cr.**
β, t values and sig. levels are listed for the school transitions variable in table's four regression models

were again both highly statistically significant. (β = -.12, t(583) = -3.78, p < .001). Neither the teacher educational experience variable nor the average class size variable was significant predictors in this model. (See table 22 and also Appendix C, tables C2a, C2b)

A third regression analysis, using variable data from New York State's 2009-10 BEDS report, was consistent in the showing significant predictor values for the free and reduced lunch and the school transitions variables, but the teaching experience variable also rose to a level of significance. The analysis explained a statistically significant amount of the variation in the dependent variable F(581, 580, 579, 578) = 159.00, p < .001, R^2 =.52. Of the individual predictors investigated, FRL/SES levels (β = -.72, t(580) = - 21.78, p < .001) and school transitions (β = -.12, t(581) = -3.67, p < .001), were again

Table 23. Predictor influence on **total student population graduation rates, 2009-10**, by NYS district school-to-school transitions and control variables - regression summary

	r^2	$r^2\Delta$	β*	t*	F	Sig.*	FΔ	SE
Model 1	.003[a]	.003	.053	1.28	1.64	.201	1.64	8.73
Model 2	.516[b]	.513	-.114	-3.83	309.15	.000	614.93	6.09
Model 3	.517[c]	.001	-.104	-3.27	206.18	.001	.63	6.09
Model 4	.524[d]	.007	-.117	-3.67	159.00	.000	8.96	6.05

a. Predictors: (Constant), school transitions
b. Predictors: (Constant), school transitions, SES/FRL levels
c. Predictors: (Constant) school transitions, SES/FRL levels, average class size
d. Predictors: (Constant) school transitions, SES/FRL levels, average class size, % masters + 30 cr.
β, t values and sig. levels are listed for the school transitions variable in table's four regression models

highly statistically significant, while %Masters+ was moderately statistically significant, (β= -.10, t(579) = 2.99, p < .01). The average class size variable was not a statistically significant predictor. (See table 23 and also Appendix C, tables C3a, C3b.)

The fourth regression analysis of graduation rates for total district student cohorts, using variable data from state's 2010-11 BEDS report, produced results consistent with

the other three graduation years evaluated in the showing significant predictor values for the free and reduced lunch and the span group variables. The analysis explained a statistically significant amount of the variation in the dependent variable F(582, 581, 580, 579) = 159.10, $p < .001$, $R^2 = .52$. Of the individual predictors investigated, FRL/SES levels ($\beta = -.74$, $t(581) = -22.86$, $p < .001$) and school transitions was moderately statistically significant. ($\beta = -.10$, $t(582) = -2.90$, $p < .01$). Neither the teacher experience nor the average class size variables were significant predictors in this model. (See table 24, and also Appendix C, tables C4a, C4b)

Table 24. Predictor influence on **total student population graduation rates, 2010-11**, by NYS district school-to-school transitions and control variables - regression summary

	r^2	$r^2\Delta$	β*	t*	F	Sig.*	FΔ	SE
Model 1	$.002_a$	.002	.048	.866	.79	.376	.785	8.71
Model 2	$.630_b$	.628	-.120	-3.57	288.84	.000	575.567	5.31
Model 3	$.631_c$	.001	-.105	-4.17	192.63	.007	.709	5.27
Model 4	$.640_d$	.009	-.119	-3.10	149.89	.002	8.63	5.26

a. **Predictors: (Constant), school transitions**
b. **Predictors: (Constant), school transitions, SES/FRL levels**
c. **Predictors: (Constant) school transitions, SES/FRL levels, average class size**
d. **Predictors: (Constant) school transitions, SES/FRL levels, average class size, % masters + 30 cr.**
**** β, t values and sig. levels are listed for the school transitions variable in table's four regression models***

SPECIAL STUDENT COHORT GRADUATION RATES ANALYSES

The data collected for the state's graduation rates, as stated in the variable definitions of this report, is based on calculating the total number of students in each district who were in the ninth grade four years prior to the graduation reporting date, divided by the number of graduates for that year. Graduating students in this calculation, however, may not have been in the same reporting district when they entered ninth grade. Districts in 2010 and 2011 were also asked to calculate graduation rates only for the students who had been in their districts four years prior to the reporting periods as a

Table 25. **Special four-year student cohort graduation rates** regression coefficient estimates[1] for number of NYS district school-to-school transitions with and without key control variables – 2006/2010 and 2007/2011

2006-2010 cohort	β	*T*	*p*-value	95% CI	Std Error
No control variables	.039	.953	.341	-..400(1.153)	.395
After SES added	-.108	-3.445	.001**	-1.623(-.445)	.300
After class size added	-.121	-3.542	,000***	-1.811(-.519)	.329
After % masters + added	-.133	-3.868	.000***	-1.930(-.630)	.331
2007-2011 cohort	β	*T*	*p*-value	95% CI	Std Error
No control variables	.065	1.196	.232	-.407 (1.673)	.529
After SES added	-.100	-2.870	.004**	-1.648 (-.308)	.341
After class size added	-.100	-2.528	.012*	-1.745 (-.218)	.388
After % masters + added	-.114	-2.863	.004**	-1.873 (-.347)	.388

* significant **moderately significant ***highly significant

[1] ***All values listed are for the school transitions variable with and without controls for all four years***

measure of district student population stability. While the regression analyses for this new set of variables targeted slightly different groups of students, the results were quite similar to the full graduation rate study. In both years, as illustrated in table 25, the key independent grade-span variable, which is the focus of this study, did not reach levels of statistical significance as a predictor of full-student cohort graduation rates until other independent variables were added to the regression model for each year ($p < .001$ and $p < .004$).

More specifically, the regression analysis of graduation rates for the 2006-2010 special district student population cohort, employing the same control variables, explained a statistically significant amount of the variation in the dependent variable $F(588, 587, 586, 585) = 123.77$, $p < .001$, $R^2 = .46$. Of the individual predictors investigated, FRL/SES levels ($\beta = -.65$, $t(587) = -18.95$, $p < .001$) and school transitions ($\beta = -.13$, $t(588) = -3.87$, $p < .001$) were both highly statistically significant predictors and %Masters+ was statistically significant. ($\beta = .09$, $t(585) = 2.46$, $p < .05$). The

Table 26. Predictor influence on **special four-year student cohort graduation rates, 2006/2010,** by district school-to-school transitions and control variables- regression summary

	r^2	$r^2\Delta$	β*	t*	F	Sig.*	FΔ	SE
Model 1	$.002_a$	.000	.039	.953	.908	.341	.908	8.67
Model 2	$.452_b$	.011	-.108	-3.45	241.98	.001	11.87	6.43
Model 3	$.453_c$	.001	-.121	-3.54	161.62	.000	..949	6.43
Model 4	$.458_d$	.006	-.133	-3.87	123.77	.000	6.04	6.40

a. **Predictors: (Constant), school transitions**
b. **Predictors: (Constant), school transitions, SES/FRL levels**
c. **Predictors: (Constant) school transitions, SES/FRL levels, average class size**
d. **Predictors: (Constant) school transitions, SES/FRL levels, average class size, % masters + 30 cr.**
β, t values and sig. levels are listed for the school transitions variable in table's four regression models

average class size variable was not a significant predictor in this model. (See table 26 and also Appendix C, tables C5a, C5b)

The regression analysis findings for the targeted dependent variable graduation rates for the 2007-2011 special district student population cohort was similar to that of the 2006-2010 cohort study, explaining a statistically significant amount of the variation in the dependent variable $F(587, 586, 585, 584) = 144.94$, $p < .001$, $R^2 = .50$. Of the individual predictors investigated, FRL/SES levels ($\beta = -.71$, $t(586) = -21.75$, $p < .001$) was highly statistically significant again and school transitions ($\beta = -.09$, $t(587) = -2.65$, $p < .01$) was a moderately statistically significant predictor. In this analysis, however,

Table 27. Predictor influence on **special four-year student cohort graduation rates, 2007/2011,** by district school-to-school transitions and control variables- regression summary

	r^2	$r^2\Delta$	β*	t*	F	Sig.*	FΔ	SE
Model 1	$.004_a$	.004	.065	1.20	1.43	.232	1.431	8.10
Model 2	$.606_b$	.010	-.100	-2.87	260.31	.004	8.24	5.11
Model 3	$.606_c$	.000	-.100	-2.53	173.03	.012	.000	5.12
Model 4	$.614_d$	.008	-.114	-2.86	133.98	.004	7.237	5.07

a. **Predictors: (Constant), school transitions**
b. **Predictors: (Constant), school transitions, SES/FRL levels**
c. **Predictors: (Constant) school transitions, SES/FRL levels, average class size**
d. **Predictors: (Constant) school transitions, SES/FRL levels, average class size, % masters + 30 cr.**
β, t values and sig. levels are listed for the school transitions variable in table's four regression models

neither the teacher experience nor the average class size variables were significant predictors. (See table 27 and also Appendix C, tables C6a, C6b)

WHITE STUDENT COHORT GRADUATION RATES ANALYSES

After completing the statistical studies of graduation rates for total district student populations, a separate series of regression analyses was conducted to determine whether the graduation rates for the largest of the subgroups disaggregated from the state's total graduation rates, identified as white students cohorts (WHITE_PI_G_RATE, labeled in

Table 28. White student cohort population graduation rates regression coefficient estimates[1] for number of NYS district school-to-school transitions with and without key control variables - 2007-08 through 2010-11

2007-08	β	*T*	*p*-value	95% CI	Std Error
Number of transitions without control variables	.084	-2.022	.044*	.024(1.689)	.424
Number of transitions with SES added	-.103	-3.188	.002**	-1.692(-.402)	.328
Number of transitions with class size added	-.110	-3.188	,002**	-1.814(-.431)	.352
Number of transitions with %masters + added	-.134	-3.930	.000***	-2.035(-.679)	.345
2008-09	β	*T*	*p*-value	95% CI	Std Error
No control variables	.132.	3.189	.002**	.513 (2.159)	.419
After SES added	-.055	-1.729	.084	-1.182 (.075)	.320
After class size added	-.069	-2.035	.042*	-1.380 (-.025)	.345
After % masters + added	-.084	-2.484	.013*	-1.515 (-.177)	.341
2009-10	β	*T*	*p*-value	95% CI	Std Error
No control variables	.142	3.409	.001**	.570 (2.120)	.394
After SES added	-.039	-1.234	.218	-.951 (.217)	.297
After class size added	-.050	-1.493	. 136	-1.098 (.150)	.318
After % masters + added	-.072	-2.206	.028*	-1.298 (-.075)	.311
2010-11	β	*T*	*p*-value	95% CI	Std Error
No control variables	.124	2.286	.023*	.170 (2.263)	.532
After SES added	-.047	-1.243	.215	-1.197 (.270)	.373
After class size added	-.076	-1.754	.080	-1.579 (.090)	.424
After % masters + added	-.100	-2.386	.018*	-1.788 (-.172)	.411

* significant **moderately significant ***highly significant

[1] ***All values listed are for the school transitions variable with and without controls for all four years***

all regression tables as grad rates - white), in each of the 598 district being evaluated can be predicted by the number of school-to-school transitions that students in each district experience between kindergarten and the twelfth grade over the four-year span. Findings were not statistically significant across the four years evaluated as they were in the previous two regressions, as illustrated in Table 28. When the three other independent control variables, the SES measure, the percentage of teachers with Masters degrees or doctorates, and the average core class size in each district were inserted into the regression models, the school transition variable remained statistically significant as a predictor of graduation rates for the four years evaluated ($p < .001$; $p < 013$; $p < 028$; and $p < .018$). Overall the first regression targeting the 2007-08 white student cohort graduation rates explained a statistically significant amount of the variation in the dependent variable $F(571, 570, 569, 568) = 130.63$, $p < .001$, $R^2 = .48$. Of the individual predictors investigated, FRL/SES levels ($\beta = -.61$, $t(570) = -16.80$, $p < .001$), school transitions ($\beta = -.13$, $t(571) = -3.93$, $p < .001$) and %Masters+ ($\beta = .20$, $t(568) = 5.70$, $p < .001$) and were highly statistically significant. The fourth independent variable, average class size variable, was not a significant predictor in this model. (See table 29 and also Appendix C, tables C7a, C7b)

Table 29. Predictor influence on **white student cohort graduation rates, 2007-08**, by NYS district school-to-school transitions and control variables – regression summary.

	r^2	$r^2\Delta$	β*	t*	F	Sig.*	FΔ	SE
Model 1	.007	.007	.084	2.022	4.09	.044	4.087	8.95
Model 2	.449$_b$	.010	-.103	-3.19	232.31	.002	10.17	6.67
Model 3	.449$_c$	.000	-.110	-3.19	154.82	.002	.357	6.68
Model 4	.479$_d$	.030	-.134	-3.93	130.63	.000	32.41	6.50

a. **Predictors: (Constant), school transitions**
b. **Predictors: (Constant), school transitions, SES/FRL levels**
c. **Predictors: (Constant) school transitions, SES/FRL levels, average class size**
d. **Predictors: (Constant) school transitions, SES/FRL levels, average class size, % masters + 30 cr.**

* ***β, t values and sig. levels are listed for the school transitions variable in table's four regression models***

A second regression analysis, using the same variables, applied to 2009 graduation rates for all white district student cohorts, also explained a statistically significant amount of the variation in the dependent variable $F(574, 573, 572, 571) = 136.58$, $p < .001$, $R^2 = .49$. Of the individual predictors investigated, FRL/SES levels ($\beta = -.63$, $t(573) = -17.94$, $p < .001$) and %Masters+ ($\beta = .16$, $t(571) = 4.59$, $p < .001$) were both highly statistically significant and school transitions ($\beta = -.08$, $t(574) = -2.48$, $p < .05$) was moderately statistically significant. The average class size variable was again not a significant predictor in this model. (See table 30 and also Appendix C, tables C8a, C8b)

A third regression analysis, this time using variable data from New York State's 2009-10 BEDS report, was consistent with the 2009 graduation data in the showing

Table 30. Predictor influence on **white student cohort graduation rates, 2008-09**, by NYS district school-to-school transitions and control variables – regression summary.

	r^2	$r^2\Delta$	β*	t*	F	Sig.*	FΔ	SE
Model 1	$.017_a$	.017	.132	3.19	10.19	.002	10.17	8.90
Model 2	$.469_b$	.451	-.055	-1.73	252.91	.084	487.05	6.54
Model 3	$.470_c$	.001	-.069	-2.04	169.15	.042	1.33	6.54
Model 4	$.489_d$	.019	.-.084	-2.49	136.58	.013	21.07	6.43

a. Predictors: (Constant), school transitions
b. Predictors: (Constant), school transitions, SES/FRL levels
c. Predictors: (Constant) school transitions, SES/FRL levels, average class size
d. Predictors: (Constant) school transitions, SES/FRL levels, average class size, % masters + 30 cr.
β, t values and sig. levels are listed for the school transitions variable in table's four regression models

significant predictor values for the free and reduced lunch, level of teacher professional training, and the span group variables. The analysis explained a statistically significant amount of the variation in the dependent variable $F(568, 567, 566, 565) = 147.38$, $p < .001$, $R^2 = .51$. Of the individual predictors investigated, FRL/SES levels ($\beta = -.63$, $t(567) = -18.14$, $p < .001$) and %Masters+ ($\beta = .20$, $t(565) = 5.79$, $p < .001$) were again highly

statistically significant, while school transitions (β = -.07, t(568) = -2.21, p < .05) was moderately statistically significant. The average class size variable was not a statistically significant predictor. (See table 31 and also Appendix C, tables C9a, C9b)

Table 31. Predictor influence on **white student cohort graduation rates, 2009-10**, by NYS district school-to-school transitions and control variables – regression summary.

	r^2	$r^2\Delta$	β*	*t**	F	Sig.*	FΔ	SE
Model 1	$.020_a$	.020	.142	3.41	11.62	.001	11.62	8.23
Model 2	$.481_b$	.461	-.039	-1.23	262.92	.218	503.92	6.00
Model 3	$.482_c$	.001	-.072	-1.49	175.56	.136	.93	6.00
Model 4	$.511_d$	.029	-.134	-2.21	147.38	.028	33.03	5.83

a. **Predictors: (Constant), school transitions**
b. **Predictors: (Constant), school transitions, SES/FRL levels**
c. **Predictors: (Constant) school transitions, SES/FRL levels, average class size**
d. **Predictors: (Constant) school transitions, SES/FRL levels, average class size, % masters + 30 cr.**

** β, t values and sig. levels are listed for the school transitions variable in table's four regression models*

The final regression analysis of graduation rates for the white student subgroup cohorts, using variable data from state's 2010-11 BEDS report, also produced results consistent with the 2009 and 2010 graduation years evaluated in the showing significant predictor values for the free and reduced lunch, level of teacher professional training, and the span group variables. The analysis explained a statistically significant amount of the variation in the dependent variable F(572, 571, 570, 569) = 143.36, p < .001, R^2 =.50. Of the individual predictors investigated, FRL/SES levels (β = -.65, t(571) = - 19.13, p < .001) and %Masters+ (β = .15, t(569) = 4.35, p < .001) were both highly statistically significant predictors and school transitions (β = -.10, t(572) = -2.94, p < .005) was moderately statistically significant. The average class size variable was not a significant predictor in this model. (See table 32 and also Appendix C, tables C10a, C10b)

In addition to analyzing district graduation rates for all students, as well as the largest subgroup cohort of white students, data for all other available student subgroup

Table 32. Predictor influence on **white student cohort graduation rates, 2010-11**, by NYS district school-to-school transitions and control variables – regression summary.

	r^2	$r^2\Delta$	β*	*t**	F	Sig.*	FΔ	SE
Model 1	$.015_a$	.015	.124	2.27	5.23	.023	5.23	8.07
Model 2	$.543_b$	.528	-.047	-1.24	198.66	.215	386.08	5.51
Model 3	$.546_c$	.003	-.076	-1.75	.133.43	.080	1.91	5.50
Model 4	$.581_d$	.035	-.100	-2.39	114.86	.018	27.40	5.29

a. **Predictors: (Constant), school transitions**
b. **Predictors: (Constant), school transitions, SES/FRL levels**
c. **Predictors: (Constant) school transitions, SES/FRL levels, average class size**
d. **Predictors: (Constant) school transitions, SES/FRL levels, average class size, % masters + 30 cr.**
β, t values and sig. levels are listed for the school transitions variable in table's four regression models

graduation rates was also collected from the New York State BEDS reports for four years from the 2007-08 through 2010-11 school years. This was done with the intention of studying any underlying patterns related to the number of school-to-school transitions experienced by these populations between kindergarten and the twelfth grades. Unfortunately, because the number of students in these subgroups who graduated in any given year was so small in the majority of the districts included in this study, many were not required to report these rates on databases accessible to the public. Even if they were reported, the number of cases upon which the statistical estimates would be based, which would be five student or less in many cohorts reported, would be so small as to be very unstable. As stated earlier, to assure confidentiality of such scores, the state allows districts to suppress such scores if there are five or fewer students in any given subgroup cohort. An average of only 222 of the 598 districts reported graduation rates for their economically disadvantaged student cohorts, for example. Only 190 districts released graduation rates for their Hispanic student and student with disability cohorts, and an average of only 64 of the 598 districts had enough black students in their graduating classes for the four years in questions to be able to publicly release their graduation rates.

DISABLED STUDENT COHORT GRADUATION RATES ANALYSES

Making it difficult to conduct statistically reliable regression analyses to determine the possible influence of school transitions on most subgroup graduation rates was the fact that many of the districts that were not required to report these subgroup rates were the smaller ones with only a K-12 school or one school-to-school transition point. Over four years of data, only one or two of the 74 one-school districts reported graduation rates for any of the subgroup cohorts with the exception of white student groups. Of the 124

Table 33. Disabled student cohort graduation rates regression coefficient estimates[1] for number of NYS district school-to-school transitions with and without key control variables - 2007-08 through 2010-11

2007-08	β	*T*	*p*-value	95% CI	Std Error
Number of transitions without control variables	.029	.384	.701	-.4.331(6.424)	2.725
Number of transitions with SES added	.128	2.469	.015*	.935(8.381)	1.887
Number of transitions with class size added	.128	2.468	.015*	.934(8.395)	1.890
Number of transitions with %masters + added	.112	2.262	.025*	.521(7.654)	1.807
2008-09	β	*T*	*p*-value	95% CI	Std Error
No control variables	-.056.	-.770	.442	-6.969 (3.055)	2.541
After SES added	.090	1.744	.083	-.416 (6.748)	1.816
After class size added	.091	1.746	.082	-.414 (6.795)	1.827
After % masters + added	.055	1.100	.273	-1.535 (5.403)	1.758
2009-10	β	*T*	*p*-value	95% CI	Std Error
No control variables	-.031	-.427	.670	-5.721 (3.685)	2.384
After SES added	.093	1.798	.074	-.294 (6.316)	1.675
After class size added	.086	1.675	. 096	-.493 (6.037)	1.655
After % masters + added	.047	.990	.323	-1.508 (4.547)	1.534
2010-11	β	*T*	*p*-value	95% CI	Std Error
No control variables	.037	.519	.604	-3.152 (5.406)	2.480
After SES added	.124	2.637	.009*	.947 (6.566)	1.648
After class size added	.122	2.492	.014*	.768 (6.597)	1.670
After % masters + added	.103	2.233	.027*	.363 (5.867)	1.574

* significant **moderately significant ***highly significant

[1] ***All values listed are for the school transitions variable with and without controls for all four years***

two-school districts, an average of only 18 reported economically disadvantaged student cohort graduation rates and in none of the four years of reporting did more than three of these districts publish their graduation rates for all the other subgroup cohorts. An exploratory attempt was made, nevertheless, to conduct regression studies for the two subgroups, economically disadvantaged students and disabled students, which provided the largest available sampling of graduation rates across most of the district transition variable types. This series of analyses was undertaken with the understanding that it could be expected to reveal relevant information mainly for the districts with three and four school-to-school transition points.

In two of the four years of data evaluated, for the 2007-08 and 2010-11 school years, the regression results for the transitions variable and the three controlling variables and their relationship to the percentage of disabled student graduation rates were statistically significant ($p < .025$). (See table 33) Interestingly, while the regression studies for total student cohorts and white student subgroups produced negative R values for the span-group variables, once controls were taken into account, the few statistically significant regression models for the economically disadvantaged and disabled student subgroups both produced positive R values for the school transitions variables. The regression analysis of 2007-08 data, for example, applying the disabled student cohort graduation rates, explained a statistically significant amount of the variation in the dependent variable $F(178, 177, 176, 175) = 59.97$, $p < .001$, $R^2 = .58$. Of the individual predictors investigated, FRL/SES levels ($\beta = -.72$, $t(176) = -12.77$, $p < .001$) and %Masters+ ($\beta = .22$, $t(175) = 4.32$, $p < .001$) were highly statistically significant, while school transitions ($\beta = .11$, $t(178) = 2.26$, $p < .05$) was moderately statistically

Table 34. Predictor influence on **disabled student cohort graduation rates, 2007-08**, by NYS district school-to-school transitions and control variables – regression summary.

	r^2	$r^2\Delta$	β*	t*	F	Sig.*	FΔ	SE
Model 1	$.001_a$	.001	.029	.384	.15	.701	.148	19.07
Model 2	$.532_b$	.016	.128	2.47	100.76	.015	201.20	13.08
Model 3	$.533_c$	.001	.128	2.47	67.02	.015	.324	13.10
Model 4	$.578_d$	.045	.112	2.27	59.97	.025	18.656	12.49

a. **Predictors: (Constant), school transitions**
b. **Predictors: (Constant), school transitions, SES/FRL levels**
c. **Predictors: (Constant) school transitions, SES/FRL levels, average class size**
d. **Predictors: (Constant) school transitions, SES/FRL levels, average class size, % masters + 30 cr.**
**** β, t values and sig. levels are listed for the school transitions variable in table's four regression models***

significant. The average class size variable was not a statistically significant predictor. (See table 34 and also Appendix C, tables C11a, C11b)

The regression analysis of 2010-11 data, for the disabled student cohort graduation rates, explained a statistically significant amount of the variation in the dependent variable $F(194, 193, 192, 191) = 69.45$, $p < .001$, $R^2 = .63$. Of the individual predictors investigated, FRL/SES levels ($\beta = -.73$, $t(193) = -14.71$, $p < .001$) and %Masters+ ($\beta = .24$, $t(191) = 5.08$, $p < .001$) were highly statistically significant, while school transitions ($\beta = .10$, $t(194) = 2.23$, $p < .05$) was moderately statistically significant. The

Table 35. Predictor influence on **disabled student cohort graduation rates, 2010-11**, by NYS district school-to-school transitions and control variables – regression summary.

	r^2	$r^2\Delta$	β*	t*	F	Sig.*	FΔ	SE
Model 1	$.001_a$	.001	-.025	-.328	.11	.744	.11	16.98
Model 2	$.575_b$	.575	.113	2.19	111.14	.030	222.03	11.10
Model 3	$.578_c$	.002	.106	2.02	.82	.046	.82	11.11
Model 4	$.632_d$	.054	.079	1.60	23.80	.112	23.78	10.40

a. **Predictors: (Constant), school transitions**
b. **Predictors: (Constant), school transitions, SES/FRL levels**
c. **Predictors: (Constant) school transitions, SES/FRL levels, average class size**
d. **Predictors: (Constant) school transitions, SES/FRL levels, average class size, % masters + 30 cr.**
**** β, t values and sig. levels are listed for the school transitions variable in table's four regression models***

average class size variable was not a statistically significant predictor. (See table 34 and also Appendix C, tables C14a, C14b)

In the regression analyses of the other two years of graduation rates for disabled students, both the SES/FRL levels and %masters+ variables were highly statistically significant, and the school transitions variable had positive R values, but, as mentioned earlier, not at a statistically significant level. (See Appendix C, tables C12a, C12b, C13a, and C13b).

DISADVANTAGED STUDENT COHORT GRADUATION RATES ANALYSES

In the final series of statistical analyses involving graduation rates, in this case targeted to the graduation rates for economically disadvantaged student cohorts, the regression results, as with those for disabled student cohorts, were statistically significant in only one of the four school years evaluated, 2009-10, as illustrated in table 36. As was the case with the analyses of disabled student cohort graduation data, the influence of other independent control variables is evident in at least one other year for the regression involving economically disadvantaged student cohorts. In the analysis of data for the 2007-08 school year, the school transitions variable was already close to a level of statistical significance ($p = .062$), as the sole variable in an initial regression model, that rose to statistical significance as a predictor ($p = .037$) when the strongest control variable, SES/FRL levels, was added to the model (See table 38). With the further addition of the two other independent variables, however, the influence of the grade-span variable dropped below a level of statistical significance as a predictor ($p = .076$). (See Appendix C, tables C15a and C15b)

The one regression in which school transitions was a significant predictor, using

Table 36. Economically disadvantaged student cohort graduation rates regression coefficient estimates[1] for number of NYS district school-to-school transitions with and without key control variables - 2007-08 through 2010-11

2007-08	β	*T*	*p*-value	95% CI	Std Error
Number of transitions without control variables	.139	1.875	.062	-.178 (6.951)	1.806
Number of transitions with SES added	.146	2.099	.037*	.213(6.913)	1.698
Number of transitions with class size added	.124	1.791	.075	-.309(6.353)	1.688
Number of transitions with %masters + added	.126	1.782	.076	-.329(6.445)	1.716
2008-09	β	*T*	*p*-value	95% CI	Std Error
No control variables	.016	.232	.817	-2.287 (2.898)	1.315
After SES added	.003	.041	.967	-2.483 (2.589)	1.286
After class size added	.002	.026	.979	-2.592 (2.662)	1.333
After % masters + added	-.028	-.390	.697	-3.200 (2.144)	1.355
2009-10	β	*T*	*p*-value	95% CI	Std Error
No control variables	-.088	-1.362	.174	-3.821 (.697)	1.147
After SES added	-.110	-1.795	.074	-4.103 (.191)	1.090
After class size added	-.130	-2.038	. 043*	-4.529 (-.076)	1.130
After % masters + added	-.166	-2.623	.009**	-5.176 (-.736)	1.127
2010-11	β	*T*	*p*-value	95% CI	Std Error
No control variables	.060	.799	.426	-1.735 (4.094)	1.477
After SES added	.069	1.019	.310	-1.275 (3.998)	1.336
After class size added	.056	1.042	.299	-1.312 (4.248)	1.409
After % masters + added	.079	.783	.434	-1.671 (3.871)	1.404

* significant **moderately significant ***highly significant

[1] ***All values listed are for the school transitions variable with and without controls for all four years***

2009-10 NY BEDS school year data, explained a statistically significant amount of the variation in the dependent variable $F(238, 237, 236, 235) = 10.68$, $p < .001$, $R^2 = .15$. Of the individual predictors investigated, SES/FRL levels ($\beta = -.28$, $t(237) = -4.29$, $p < .001$) was highly statistically significant, while %Masters+30 credits ($\beta = .21$, $t(235) = 3.21$, $p < .01$) and school transitions ($\beta = -.16$, $t(238) = -2.62$, $p < .01$) were moderately statistically significant. The average class size variable was not a statistically significant

Table 37. Predictor influence on **economically disadvantaged student cohort graduation rates, 2007-08**, by NYS district school-to-school transitions and control variables – regression summary.

	r^2	$r^2\Delta$	β*	t*	F	Sig.*	FΔ	SE
Model 1	.019[a]	.019	.139	1.87	3.52	.062	3.52	13.69
Model 2	.139[b]	.120	.146	2.10	14.30	.037	24.62	12.86
Model 3	.168[c]	.029	.124	1.80	11.86	.075	6.14	12.68
Model 4	.168[d]	.000	.126	1.79	8.85	.076	.02	12.71

a. **Predictors: (Constant), school transitions**
b. **Predictors: (Constant), school transitions, SES/FRL levels**
c. **Predictors: (Constant) school transitions, SES/FRL levels, average class size**
d. **Predictors: (Constant) school transitions, SES/FRL levels, average class size, % masters + 30 cr.**
β, t values and sig. levels are listed for the school transitions variable in table's four regression models

predictor. (See table 37 and also Appendix C, tables C17a, C17b) In all other three years evaluated for the school transitions variable's possible influence on graduation rates for economically disadvantaged student cohorts, only the SES proxy variable was a statistically significant predictor. (See tables C15a, C15b, C16a, C16b, C18a and C18b)

Table 38. Predictor influence on **economically disadvantaged student cohort graduation rates, 2009-10**, by NYS district school-to-school transitions and control variables – regression summary.

	r^2	$r^2\Delta$	β*	t*	F	Sig.*	FΔ	SE
Model 1	.008[a]	.008	-.088	-.1.36	26.37	.174	1.86	11.24
Model 2	.112[b]	.012	-.110	-1.80	14.91	.074	27.76	10.65
Model 3	.117[c]	.005	-.130	-2.04	10.40	.043	1.32	10.65
Model 4	.154[d]	.037	-.166	-.2.62	10.68	.009	10.31	10.44

a. **Predictors: (Constant), school transitions**
b. **Predictors: (Constant), school transitions, SES/FRL levels**
c. **Predictors: (Constant) school transitions, SES/FRL levels, average class size**
d. **Predictors: (Constant) school transitions, SES/FRL levels, average class size, % masters + 30 cr.**
β, t values and sig. levels are listed for the school transitions variable in table's four regression models

ADVANCED AND REGULAR REGENTS DIPLOMA RATES FOR GENERAL AND SPECIAL EDUCATION STUDENTS ANALYZED

The final series of regression analyses was completed to determine the possible influence of the number of school-to-school transitions that general education and special

education students experience between kindergarten and twelfth grade on the percentage of Regents diplomas granted. The percentage of regular Regents diplomas and Regents diplomas with advanced designation, identified in the accompanying tables as advanced diplomas, granted in 598 New York State public school districts was the primary focus of my pilot study of data from the 2008-2009 school year. Although the regression analyses conducted at that stage in the research did provide some evidence that the school transitions variable was a significantly significant predictor of the percentage of Regents

Table 39. Percentage of Regents diplomas with advanced designation awarded to general education students regression coefficient estimates[1] for number of NYS district school-to-school transitions with and without key control variables - 2007-08 through 2010-11

2007-08	β	*T*	*p*-value	95% CI	Std Error
Number of transitions without control variables	.207	5.132	.000***	2.486 (5.569)	.785
Number of transitions with SES added	.092	2.521	.012*	.393(3.164)	.705
Number of transitions with class size added	.076	1.934	.054	-.023(2.996)	.769
Number of transitions with %masters + added	.099	2.501	.013	.414(3.441)	.771
2008-09	β	*T*	*p*-value	95% CI	Std Error
No control variables	.238	5.935	.000***	3.236 (6.437)	.815
After SES added	.110	3.189	.002**	.859 (3.615)	.701
After class size added	.061	1.623	.105	-.262 (2.749)	.766
After % masters + added	.073	1.939	.053	-.019 (2.997)	.768
2009-10	β	*T*	*p*-value	95% CI	Std Error
No control variables	.226	5.627	.000***	2.946 (6.105	.804
After SES added	.101	3.030	.003**	-.658 (-.525)	.668
After class size added	.086	2.361	. 019*	.290 (3.168)	.733
After % masters + added	.103	2.805	.005**	.617 (3.501)	.734
2010-11	β	*T*	*p*-value	95% CI	Std Error
No control variables	.223	5.546	.000***	2.851 (5.977)	1.174
After SES added	.085	2.595	.010*	.411 (2.966)	.876
After class size added	.094	2.537	.011*	.418 (3.288)	.998
After % masters + added	.100	2.691	.007*	.535 (3.426)	1.007

** significant **moderately significant ***highly significant*

[1] All values listed are for the school transitions variable with and without controls for all four years

diplomas for general and special education students, the regressions did not include all the control variables that have since been determined to have important suppressor effects on the findings.

In the analyses of four years of data of district percentages of general education students receiving advanced Regents diplomas, (see table, 39), the regression results without controls make it appear that the number of school-to-school transitions that students experience has a highly statistically significant influence on the percentage of advanced diplomas awarded. When the other control variable measures of student socioeconomic status, average core class size and the percentage of teachers with advanced educational experience are added to the model, the school transitions variable predictor influence remains statistically significant in three of the four years, and only falls slightly short of a level of statistical significance in the 2008-09 school year. As interesting is the fact that in all four years, β levels are all positive, compared to the negatively significant influence of the number of school-to-school transitions has shown in the regression analyses for total student population graduation rates.

Table 40. Predictor influence on **general education student advanced Regents diploma percentages, 2007-08,** by NYS district school-to-school transitions and control variables – regression summary.

	r^2	$r^2\Delta$	β*	t*	F	Sig.*	FΔ	SE
Model 1	.043$_a$	.043	.207	5.13	26.34	.000	26.34	17.25
Model 2	.271$_b$	.228	.092	2.52	108.77	.012	83.02	15.07
Model 3	.272$_c$	.001	.076	1.93	72.81	.054	.92	15.07
Model 4	.288$_d$	.016	.099	2.50	58.92	.013	12.83	14.92

a. Predictors: (Constant), school transitions
b. Predictors: (Constant), school transitions, SES/FRL levels
c. Predictors: (Constant) school transitions, SES/FRL levels, average class size
d. Predictors: (Constant) school transitions, SES/FRL levels, average class size, % masters + 30 cr.
***** β, t values and sig. levels are listed for the school transitions variable in table's four regression models***

Highlighting further statistical details from the advanced diploma rate regressions, the analysis of 2007-08 NY BEDS data explained a statistically significant amount of the variation in the dependent variable $F(587, 586, 585, 584) = 58.92$, $p < .001$, $R^2 = .29$. Of the individual predictors investigated, FRL/SES levels ($\beta = -.53$, $t(586) = -13.19$, $p < .001$) and %Masters+ ($\beta = -.15$, $t(585) = -3.58$, $p < .001$) were both highly statistically significant predictors and school transitions ($\beta = .10$, $t(587) = 2.50$, $p < .05$ was moderately statistically significant. The average class size variable was not a significant predictor in this model. (See table 40 and also Appendix C, tables C19a, C19b).

While the school transitions variable for data from the 2008-2009 school year, was shown to be a significant predictor of the percentage of general education student earning advanced Regents diplomas in my pilot study, as mentioned earlier, once the additional independent average district class size variable was added to the new regression model, the transitions variable dropped from $p < .001$ in statistical significance to $p = .053$. The regression analysis of 2008-2009 data did, however, still explain a

Table 41. Predictor influence on **general education student advanced Regents diploma percentages, 2008-09,** by NYS district school-to-school transitions and control variables – regression summary.

	r^2	$r^2\Delta$	β*	t*	F	Sig.*	FΔ	SE
Model 1	$.057_a$	.057	.238	5.94	35.22	.000	35.22	17.87
Model 2	$.340_b$	.284	.110	3.19	151.25	.002	252.23	14.96
Model 3	$.351_c$	.011	.061	1.62	105.53	.105	9.63	14.85
Model 4	$.359_d$	.008	.073	1.94	81.82	.053	7.29	14.77

a. Predictors: (Constant), school transitions
b. Predictors: (Constant), school transitions, SES/FRL levels
c. Predictors: (Constant) school transitions, SES/FRL levels, average class size
d. Predictors: (Constant) school transitions, SES/FRL levels, average class size, % masters + 30 cr.
***** ***β, t values and sig. levels are listed for the school transitions variable in table's four regression models***

statistically significant amount of the variation in the dependent variable F(588, 587, 586, 585) = 81.82 , p < .001, R^2 =.36. Of the individual predictors investigated, FRL/SES levels (β = -.55, t(587) = - 14.68, p < .001) and average class size (β = .14, t(565) = 3.61, p < .001) were highly statistically significant, while %Masters+ (β = -.10, t(585) = -2.70, p < .05) was moderately statistically significant. (See table 41 and also Appendix C, tables C20a, C20b)

The analysis of 2009-10 data for regressions involving general education students and the awarding of advanced Regents diplomas also explained a statistically significant amount of the variation in the dependent variable F(588, 587, 586, 585) = 92.66 , p < .001, R^2 =.39 for the full regression model, as well as for the school transitions variable. Of the individual predictors investigated, FRL/SES levels (β = -.61, t(587) = - 16.69, p < .001) was highly statistically significant, while %Masters+ (β = -.12, t(586) =- - 3.19, p <.01 and school transitions (β = .10, t(584) = 2.80, p < .01) were both moderately

Table 42. Predictor influence on **general education student advanced Regents diploma percentages, 2009-10,** by NYS district school-to-school transitions and control variables – regression summary.

	r^2	$r^2\Delta$	β*	*t**	F	Sig.*	FΔ	SE
Model 1	$.051_a$	.051	.226	5.63	31.66	.000	31.66	17.64
Model 2	$.376_b$	.325	.101	3.03	176.96	.003	305.85	14.31
Model 3	$.377_c$	.001	.086	2.36	118.29	.019	.97	14.31
Model 4	$.388_d$	.011	.103	2.81	92.66	.005	10.21	14.20

a. **Predictors: (Constant), school transitions**
b. **Predictors: (Constant), school transitions, SES/FRL levels**
c. **Predictors: (Constant) school transitions, SES/FRL levels, average class size**
d. **Predictors: (Constant) school transitions, SES/FRL levels, average class size, % masters + 30 cr.**

β, t values and sig. levels are listed for the school transitions variable in table's four regression models

statistically significant. The average class size variable was not a statistically significant predictor in this model. (See table 42 and also Appendix C, tables C21a, C22b)

Finally in this group of regressions, the school transitions variable for the 2010-11 school year, was also shown to be a significant predictor of the percentage of general education student earning advanced Regents diplomas in the initial regression study without controls. The regression analysis for the full model explained a statistically significant amount of the variation in the dependent variable $F(588, 587, 586, 585) = 81.82$, $p < .001$, $R^2 = .36$. Of the individual predictors investigated, FRL/SES levels ($\beta = -.63$, $t(587) = -17.53$, $p < .001$), while school transitions ($\beta = .10$, $t(588) = 2.70$, $p < .05$) was moderately statistically significant. (See table 41 and also Appendix C, tables C22a, C20b)

The preliminary regression analysis using data from the 2008-2009 New York State BEDS report for my pilot study also showed the school transitions variable to be a significant predictor of the percentage of general education students earning regular Regents diplomas. Somewhat surprisingly, in the new expanded regression analysis for that year, once the additional independent average class size variable was added, despite being generally the weakest of the four independent variables used in most of the

Table 43. Predictor influence on **general education student regular Regents diploma percentages, 2008-09,** by NYS district school-to-school transitions and control variables – regression summary.

	r^2	$r^2\Delta$	β*	t*	F	Sig.*	FΔ	SE
Model 1	$.005_a$	.004	.072	1.76	3.09	.079	3.09	14.22
Model 2	$.032_b$	.027	.034	.83	16.20	.406	16.20	14.04
Model 3	$.047_c$	.016	-.026	-.58	9.82	.563	9.81	13.94
Model 4	$.094_d$	.046	.001	.03	30.17	.978	30.17	13.61

a. Predictors: (Constant), school transitions

b. Predictors: (Constant), school transitions, SES/FRL levels

c. Predictors: (Constant) school transitions, SES/FRL levels, average class size

d. Predictors: (Constant) school transitions, SES/FRL levels, average class size, % masters + 30 cr.

**** β, t values and sig. levels are listed for the school transitions variable in table's four regression models***

regression analyses conducted for this study, the school transitions variable dropped well below a level of statistical significance ($p = .978$) as a predictor in the model. (See table 43.)

This pattern continue to be exhibited in regression analyses of data for the percentage of Regents diplomas awarded to general education student populations for two of the other three school years evaluated in this study, as illustrated in table 44, (see also Appendix C, tables C23a, C23b, C24a, C24b, C25a and C25b), with no models using the four independent variables rising to a level of statistical significance as predictors of any variance in the dependent measure of student success.

In the evaluation of the fourth year of data for general education students receiving regular Regents diplomas, however, the school transitions variable did sustain a level of statistical significance as a predictor of academic success, even when suppressor variables were added. The regression analysis for the full model for 2010-11 explained a statistically significant amount of the variation in the dependent variable $F(588, 587, 586, 585) = 19.30$, $p < .001$, $R^2 = .11$. Of the individual predictors investigated, FRL/SES levels ($\beta = -.34$, $t(587) = -7.80$, $p < .001$), and %Masters+ ($\beta = -.24$, $t(585) = -5.31$, $p < .01$ were highly statistically significant, while school transitions ($\beta = .93$, $t(588) = 2.07$, $p < .05$) was moderately statistically significant. (See table 41 and also Appendix C, tables C26a, C26b)

It is worth repeating, at this point, the difference in how the New York State school districts report graduation percentages for total student populations, compared to how the Regents diploma rates for the same districts are constructed, which may help explain why this study's school transitions variable was a statistically significant predictor for graduation rates for all four years evaluated, while it lacked any strong level

of significance for Regents diploma rates for the same districts. Graduation rates are created by taking the number of students who receive diplomas in a given year and dividing that by the number of students in the district who were ninth graders four years previously. Regents diploma rates are simply the number of students in a district who fulfill the qualifications for receiving such a diploma compared to the very small number in districts who graduate with a local diploma.

Table 44. Percentage of regular Regents diplomas awarded to general education students regression coefficient estimates[1] for number of NYS district school-to-school transitions with and without key control variables - 2007-08 through 2010-11

2007-08	β	*T*	*p*-value	95% CI	Std Error
No control variables	.043	1.039	.299	-.934 (1.733)	.577
After SES added	-.015	-.376	.707	-1.349 (.916)	.577
After class size added	-.044	-.984	.325	-1.850 (.615)	.627
After % masters + added	-.011	-.244	.807	-1.379 (1.074)	.625
2008-09	β	*T*	*p*-value	95% CI	Std Error
No control variables	.043	1.758	.079	-.133 (2.402)	.645
After SES added	.034	.831	.406	-.741 (1.827)	.654
After class size added	-.026	-.579	.563	-1.825 (.994)	.718
After % masters + added	.001	.027	.978	-1.365 (1.404)	.705
2009-10	β	*T*	*p*-value	95% CI	Std Error
No control variables	.075	1.813	.070	-.067 (1.676)	.444
After SES added	.014	.337	.736	-.710 (1.005)	.437
After class size added	.020	.441	. 660	-.730 (1.152)	.479
After % masters + added	.048	1.084	.279	-.419 (1.451)	.476
2010-11	β	*T*	*p*-value	95% CI	Std Error
No control variables	.102	2.479	.013*	.222 (1.916)	.588
After SES added	.044	1.068	.286	-.385 (1.301)	.583
After class size added	.063	1.376	.169	-.283 (1.609)	.661
After % masters + added	.093	2.066	.039*	.049 (1.913)	.659

* significant **moderately significant ***highly significant

[1] ***All values listed are for the school transitions variable with and without controls for all four years***

Although no regression analysis seeking to determine the relationship between the school transitions variable and the percentage of special education students in New York's

public school districts was included in my pilot study, the expanded statistical analyses completed for the full report did uncover a relatively weak but still statistically significant relationship between the independent and target variables for two of the four years of BEDS data evaluated. In this case again the influence of the increase in school-to-school transitions in the constructed school transitions variable was positive, rather than being negative as it was in the regressions involving graduation rates for total student populations detailed earlier.

Table 45. Percentage of Regents diplomas with advanced designation awarded to special education students regression coefficient estimates[1] for number of NYS district school-to-school transitions with and without key control variables - 2007-08 through 2010-11

2007-08	β	*T*	*p*-value	95% CI	Std Error
No control variables	.117	2.821	.005*	.418 (2.333)	.487
After SES added	.069	1.646	.100	-.155 (1.766)	.489
After class size added	.066	1.460	.145	-.267(1.815)	.530
After % masters + added	.059	1.291	.197	-.362 (1.748)	.537
2008-09	β	*T*	*p*-value	95% CI	Std Error
No control variables	.091	2.206	.028*	.111 (1.910)	.458
After SES added	.024	.575	.565	-.627 (1.147)	.452
After class size added	.037	.825	.410	-.557(1.364)	.489
After % masters + added	.029	.650	.516	-.648 (1.289)	.493
2009-10	β	*T*	*p*-value	95% CI	Std Error
No control variables	.049	.246	.246	- .284 (1.107)	.354
After SES added	.050	1.142	.254	- .298 (1.126)	.362
After class size added	.106	2.243	. 025*	.110 (1.661)	.395
After % masters + added	.113	2.355	.019*	.156 (1.723)	.399
2010-11	β	*T*	*p*-value	95% CI	Std Error
No control variables	.169	4.119	.000***	.903 (2.550)	.419
After SES added	.086	2.153	.032*	.077 (1.679)	.408
After class size added	.104	2.367	.018*	.182 (1.951)	.450
After % masters + added	.086	1.964	.050*	.000 (1.766)	.450

* significant **moderately significant ***highly significant

[1] ***All values listed are for the school transitions variable with and without controls for all four years***

In the analysis of 2009-10 data, targeting the special education student cohort advanced Regents diploma dependent variable, of the individual predictors investigated,

average class size ($\beta = -.14$, $t(550) = -2.69$, $p < .01$) and school transitions ($\beta = .11$, $t(552) = 2.35$, $p \leq .05$) were statistically significant predictors. In one of the very few regression analysis models developed for this study neither the free or reduced lunch variable nor the teacher educational experience variables were statistically significant predictors. Despite this variable weakness, the full regression model, $F(554, 553, 552, 551) = .2.68$, $p < .05$, $R^2 = .02$, was still a statistically significant predictor of

Table 46. Predictor influence on **special education student advanced Regents diploma percentages, 2009-10,** by NYS district school-to-school transitions and control variables – regression summary.

	r^2	$r^2\Delta$	β*	*t**	F	Sig.*	FΔ	SE
Model 1	$.000_a$	.000	.049	1.16	.04	.246	340.02	.04
Model 2	$.002_b$	.002	.050	1.14	.67	.254	9.18	1.31
Model 3	$.018_c$	.015	.106	2.24	3.28	.025	.97	8.47
Model 4	$.019_d$	.002	.113	2.36	2.68	.019	10.21	.87

a. **Predictors: (Constant), school transitions**
b. **Predictors: (Constant), school transitions, SES/FRL levels**
c. **Predictors: (Constant) school transitions, SES/FRL levels, average class size**
d. **Predictors: (Constant) school transitions, SES/FRL levels, average class size, % masters + 30 cr.**
**** β, t values and sig. levels are listed for the school transitions variable in table's four regression models***

Table 47. Predictor influence on **special education student advanced Regents diploma percentages, 2010-11,** by NYS district school-to-school transitions and control variables – regression summary.

	r^2	$r^2\Delta$	β*	*t**	F	Sig.*	FΔ	SE
Model 1	$.130_a$	.130	.169	4.12	86.73	.000	340.02	.04
Model 2	$.137_b$	.007	.086	2.15	45.96	.032	9.18	1.31
Model 3	$.139_c$	.001	.104	2.37	30.96	.018	.97	8.47
Model 4	$.156_d$	.017	.086	1.96	26.52	.050	10.21	.87

a. **Predictors: (Constant), school transitions**
b. **Predictors: (Constant), school transitions, SES/FRL levels**
c. **Predictors: (Constant) school transitions, SES/FRL levels, average class size**
d. **Predictors: (Constant) school transitions, SES/FRL levels, average class size, % masters + 30 cr.**
**** β, t values and sig. levels are listed for the school transitions variable in table's four regression models***

special education student advanced Regents diploma rates. (See table 46 and also Appendix C, tables C29a, C29b)

The analysis of 2010-11 data explained a slightly more robust statistically significant amount of the variation in the special education student cohort advanced Regents diploma dependent variable $F(579, 578, 577, 576) = 26.57$, $p < .001$, $R^2 = .16$ for the full regression model. Of the individual predictors investigated, FRL/SES levels ($\beta = -.31$, $t(578) = -7.17$, $p < .001$) and %Masters+ ($\beta = .15$, $t(576) = 3.39$, $p \leq .001$) were both highly statistically significant, and school transitions ($\beta = .09$, $t(575) = 1.96$, $p \leq .05$) was moderately statistically significant. The average class size

Table 48. Percentage of regular Regents diplomas awarded to special education students regression coefficient estimates[1] for number of NYS district school-to-school transitions with and without key control variables - 2007-08 through 2010-11

2007-08	β	*T*	*p*-value	95% CI	Std Error
No control variables	-.035	-.845	.398	-3.533 (1.407)	1.257
After SES added	-.083	-1.978	.048*	-4.979 (-.018)	1.263
After class size added	-.100	-2.198	.028*	-5.691(-.320)	1.367
After % masters + added	-.096	-2.084	.038*	-5.613 (-.166)	1.387
2008-09	β	*T*	*p*-value	95% CI	Std Error
No control variables	.093	2.244	.025*	.351 (5.282)	1.255
After SES added	.019	.469	.639	-1.835 (2.986)	1.227
After class size added	-.001	-.030	.976	-2.650(2.569)	1.329
After % masters + added	-.001	-.033	.974	-2.678 (2.590)	1.341
2009-10	β	*T*	*p*-value	95% CI	Std Error
No control variables	.025	.599	.550	-1.702 (3.193)	1.246
After SES added	.025	.568	.570	-1.780 (3.228)	1.275
After class size added	.079	1.672	. 095	-.406 (5.051)	1.389
After % masters + added	.085	1.784	.075	-.253 (5.265)	1.405
2010-11	β	*T*	*p*-value	95% CI	Std Error
No control variables	.116	2.818	.005**	1.016 (5.718)	1.197
After SES added	.039	.970	.332	-1.169 (3.449)	1.175
After class size added	.051	1.134	.257	-1.078 (4.025)	1.299
After % masters + added	.047	1.046	.296	-1.202 (3.941)	1.309

* significant **moderately significant ***highly significant

variable was not a statistically significant predictor in this model. (See table 47 and also Appendix 1, tables C30a, C30b)

A final series of regression studies were conducted for this report to determine if there was any statistically significant relationship between the number of school-to-school transitions that special education students make between kindergarten and the twelfth grade and the percentage who are awarded regular Regents diplomas upon graduation. In only one of the four year of BEDS data analyzed, as illustrated in table 48, did the school transitions variable, when combined with the other three control variables rise to a level of statistical significance as a predictor of the percentage of special education students being awarded Regents diplomas..

The analysis of 2007-08 data for regressions involving special education students and the awarding of Regents diplomas explained a statistically significant amount of the variation in the dependent variable $F(571, 570, 569, 568) = 26.46$, $p < .001$, $R^2 = .05$ for the full regression model. Of the individual predictors investigated, only one, FRL/SES levels ($\beta = -.21$, $t(569) = -4.44$, $p < .001$) was highly statistically significant, while

Table 49. Predictor influence on **special education student regular Regents diploma percentages, 2007-08,** by NYS district school-to-school transitions and control variables – regression summary.

	r^2	$r^2\Delta$	β*	*t**	F	Sig.*	FΔ	SE
Model 1	$.001_a$	.001	-.035	-.845	.714	.398	.71	27.08
Model 2	$.045_b$	.043	-.083	-1.98	13.27	.048	25.80	26.44
Model 3	$.046_c$	.002	-.100	-2.20	9.16	.028	.94	26.44
Model 4	$.047_d$	.000	-.096	-2.08	6.93	.038	.27	26.46

a. Predictors: (Constant), school transitions
b. Predictors: (Constant), school transitions, SES/FRL levels
c. Predictors: (Constant) school transitions, SES/FRL levels, average class size
d. Predictors: (Constant) school transitions, SES/FRL levels, average class size, % masters + 30 cr.
***** *β, t values and sig. levels are listed for the school transitions variable in table's four regression models*

school transitions (β = -.10, t(568) = -2.08, $p < .05$) was statistically significant. Neither the average class size variable nor the teacher educational experience variable was statistically significant predictor in this model. (See table 49 and also Appendix 1, tables C31a, C31b)

FINAL REGRESSION ANALYSES INTERPRETATIONS

A growing body of research on the effect of school transitions has suggested that each additional school-to-school transition produces a drop in student achievement levels (Barber and Olsen, 2004; Coladarci and Hancock, 2002; Alspaugh, 1998). Alspaugh and Harting in 1995 also conducted a study that found evidence of a drop in academic achievement after students moved to a new school, but then also discovered that they recovered to levels comparable to other students who didn't transition within a year. Howlings (2002) and Tucker and Andrada (1997) reported transition achievement losses, but provided no information on long-term effects, and, more recently, Weiss and Bearman (2007) reported no significant difference in academic success for students after they transferred to high school in ninth grade, compared to those who remained in their middle schools for another year.

A cursory examination of four years of raw graduation rate data for nearly 600 New York state public school districts, that range from those with only a single K-12 school to those with four or more formal school-to-school transition points, would appear to support the evidence that the number of schools that students attend in New York between kindergarten and high school has very little measureable influence on the percentage of those who graduate in a timely fashion. Mean percentage graduation rates for all district student populations vary by less than two percent by district school-transition groupings for the four years evaluated, for example, averaging 82.67 (one-school districts with no transition points), 82.16 (two school levels with one transition point), 83.72 (three school levels with two transition points), 84.22 (four school levels with three transition points), and 82.09 (five school levels with four transitions points). And although full-student cohort graduation rates examined generally increase across the

span types each of the four years, none of the simple bivariate correlations reach a high level of statistical significance.

When I conducted a series of multiple linear regression analyses looking at the effect of transitions on graduation rates, while controlling for demographic income levels, average class size and teaching staff experience variables, however, a significantly different pattern emerged. In a series of statistical analyses, using data from New York State Basic Educational Data (BEDS) reports for the 2007-08, 2008-09, 2009-10 and 2010-11 school years for 598 urban, suburban and rural districts, the primary finding of this research report was that the number of transitions that students experience in the path to twelfth grade has a highly statistically significant negative relationship with graduation rates for total student populations, as well as for several student population subgroups. In fact, the school transitions variable was the only consistently statistically significant predictor of academic success from among all the independent variables used in the regression, with the exception of free or reduced lunch variable, which was by far the strongest predictor of graduation rates, accounting for between 40 percent to 50 percent of the variation in rates across district types.

The regression studies were conducted following a series of exploratory partial correlation analyses to test for potential multicollinearity problems and possible suppressor effects on the school transitions variable, after it was determined that the key variable was highly statistically correlated to several other independent predictor variables, including, most strongly, the percentage of district students getting free or reduced lunch aid, the average size of core subject classes, and the percentage of teachers with masters degrees plus at least 30 additional professional development course credits or doctorates.

Zero-order correlations between the independent school transitions variable and the target district full student cohort graduation rate variable for all four years, from 2008 through 2011 respectively, were weakly positive without rising to the level of statistical significant ($r = .03$, $p = .447$; $r = .06$, $p = .140$; $r = .05$, $p = .201$; and $r = .08$, $p = .069$). When three key predictor were controlled for in the calculations, a very different set of results were uncovered with all four years of correlations now negative and highly statistically significant ($r = -.21$, $p < .001$; $r = -.16$, $p < .001$; $r = -.15$, $p < .001$; and $r = -.12$, $p < .001$).

While the correlations were statistically significant, it should be pointed out that the inclusion of the school transitions variable in the 2007-08 district data regression analysis accounted for only about a 4 percent increase in the total student cohort graduation rates variance (to $r^2 = .47$) from the initial model that showed a very robust 43 percent explanatory power for the SES effect ($R^2 = .43$). Neither of two other independent variables that were also contained in the multiple regression analysis, however, contributed notably to the variance, even though both have been shown to be highly correlated to student graduation rates in the bivariate analysis in this study.

Standardized beta values can often provide a better insight into the importance of a predictor in multiple regression models, according to Field (2009). In the 2007-08 regression study, the FRL/SES levels variable beta and the school transitions variable beta are -.674 and -.199 respectively, which can be interpreted to mean that for every standard deviation point that the proxy SES variable decreases, graduation rates increase 0.674 standard deviations and for every one standard deviation point that the school transitions variable drops, graduation rates would be predicted to increase by 0.199 standard deviations. While the effect of the transitions variable is less than a third as

strong as the SES influence, it is more than three times as large an effect as that of the average class size variable (β = .057) and seven times as large at the advanced educational teacher experience variable (β = .028) in the regression (See Appendix C: tables C1a, C2a).

This pattern persists across the other three years of the study, although the strength of the predictor effect attributed to the district school transitions variable fluctuates slightly from year to year. In an analysis of the 2008-09 BEDS data, for example, while the four independent variables in the regression model analysis accounted for more than 51 percent (r^2 = .516) of the variance in total district graduation rates, the school transitions variable contributed only about 1.2 percent to the total, with the r^2 value rising from .511 to .515 once it was added to the model. In this case, while the SES proxy variable again accounted for almost all of the variance (r^2 = 511), the two other independent variables, although both were statistically significant in the model, contributed less than 0.4 percent each to the explained variance (See Appendix C, tables C2a, C2b).

Standardized beta values in the 2008-09 data analysis again provide a clearer perspective of the school transitions variable's influence as a significant predictor of graduation rates. In this regression, the FRL/SES levels variable beta and the school transitions variable beta are -.727 and -.123 respectively, indicating that for every standard deviation point that the proxy SES variable decreases, graduation rates increase 0.727 standard deviations, and for every one standard deviation point that the grade school transitions variable drops, graduation rates would be predicted to increase by 0.123 standard deviations. While the effect of the transitions variable is very small again compared to that of the SES variable influence, neither of the other two predictor

variables, average class size (b = -.011) and %Masters+ (b = .038) in the regression contributed notably to an explanation of the variance, despite having been shown to be highly correlated to student graduation rates in the bivariate analysis conducted early in this study (See Appendix C, tables C2a, C2b).

The strength of the transitions variable was also statistically significant for the regression model constructed using results from the state's 2009-10 school year graduation rates for the target districts' total student populations. The four independent variables in the regression model analysis were responsible for a little more than 52 percent (r^2 = .524) of the variance in total district graduation rates, with the SES proxy variable accounting for most of the total (r^2 = .513). The school transitions variable contributed just over 1 percent to the variance, with the r^2 value rising from .513 to .516 once it was added to the model. The only other independent variable contributing a statistically significant amount to the variance was the teacher experience variable, which added less than 0.4 percent to the model. (See Appendix C, tables C3a, C3b).

Further evidence of the school transitions variable's potential influence as a significant predictor of graduation rates is shown in an examination of the standardized beta statistical results. In the 2009-10 analysis, the FRL/SES levels variable beta and the school transitions variable beta are -.716 and -.117 respectively, indicating that for every standard deviation point that the proxy FRL/SES level variable decreases, graduation rates increase 0.716 standard deviations and for every one standard deviation point that the grade school transitions variable drops, graduation rates would be predicted to increase by 0.117 standard deviations. The effect of the school transitions variable is again very small compared to that of the SES variable influence, but it is still stronger

than the two other predictor variables, average class size (b = -.050) and %Masters+ (b = .099) in the regression (See Appendix C, tables C3a, C3b).

The weak but still statistically significant predictor influence of the number of school-to-school transitions on district student cohort graduation rates is also evident in the results of the 2010-11 school year regression study. The four independent variables in the regression model analysis were again responsible for a little over 52 percent (r^2 = .524) of the variance in total district graduation rates, with the FRL/SES level variable accounting for more than 51 percent of the variance (r^2 = .513). The school transitions variable contributed slightly less than 1 percent to the variance, with the r^2 value rising from .517 to .523 when it was included in the model. Neither of the other two independent variables contributed a statistically significant amount to the variance. (See Appendix C: tables C4a, C4b).

In examining the standardized beta results in this regression, the FRL/SES levels variable beta was -.738 while the school transitions variable beta was -.095, which can be interpreted to mean that for every standard deviation point that the FRL/SES variable decreases, graduation rates increase 0.738 standard deviations and for every one standard deviation point that the grade school transitions variable drops, graduation rates would be predicted to increase by 0.095 standard deviations. (See Appendix C, tables C4a, C4b).

SPECIAL FOUR-YEAR COHORTS ADDRESS STUDENT STABILITY ISSUE

The graduation rates data used for the first four regression analyses, as described earlier in this report, is created by dividing the number of graduates in a specific year by the number of students in the district who were in the ninth grade four years previously. One flaw in this rate as a true measure of the district's graduation success is that it

doesn't account for the fact that a percentage of the students may have been in other districts when they were ninth graders. Another variable was included in the 2010 and 2011 BEDS reports that addresses this shortcoming. In these reports data from each district tracks specific cohorts of students who started ninth grade in each of the districts in 2006 and 2007 and then provides the percentage of each of these cohorts who graduated from those districts four years later. Bivariate correlation studies done using the special 2006-2010 and 2007-2011 cohort graduation rates as the target variable revealed no statistically significant correlations with the independent district school transitions variable in my preliminary study, as was the case with the regular graduation rate correlation analyses. Regression analyses controlling for the three key independent suppressor variables, however, using the cohort graduation rates served essentially to confirm the findings of the regular graduation rate regressions, by uncovering the strength of the district transitions variable as a relatively weak, but negatively statistically significant predictor of the percentage of students graduating from each district group.

The multiple regression model, using the 2006-2010 cohort graduation data as the dependent variable was highly statistically significant ($r^2 = .46$, $p < .001$), and showed a 46 percent explanatory power for the four independent variables employed in the calculation. While the inclusion of the district school transitions variable accounted for only about a 1.3 percent increase in the 2006-2010 student cohort graduation rates of the variance (rising from $r^2 = .445$ to $r^2 = .458$ when the span-group variable was added to the model), compared to 44 percent for the more powerful SES proxy variable ($r^2 = .44$), it had three times more predictive impact on the variance than the teacher educational experience variable did. In this case, the average class size variable had no statistically significant impact on the regression equation.

Standardized beta values produced in this regression analysis also helped demonstrate the influence of the two key independent variables on the 2006-2010 cohort graduation rates. In this regression, the FRL/SES levels variable beta and the school transitions variable beta were -.651 and -.133 respectively, which can be interpreted to mean that for every standard deviation point that the proxy SES variable decreases, graduation rates increase 0.651 standard deviations and for every one standard deviation point that the grade school transitions variable drops, graduation rates would be predicted to increase by 0.133 standard deviations. (See Appendix C, tables C5a, C5b).

The multiple regression model, using the 2007-2011 cohort graduation data as the dependent variable was also statistically significant ($r^2 = .50$, $p < .001$), and showed a 50 percent explanatory power for the four independent variables employed in the calculation. The inclusion of the district grade span-group variable was also statistically significant, but accounted for only about a 0.6 percent increase in the four-year cohort graduation rates variance (rising from $r^2 = .491$ to $r^2 = .498$ when the school transitions variable was included in the model), compared to the 49 percent predictive influence for the more powerful SES proxy variable ($r^2 = .49$). In this case, neither of the two other independent variables had any statistically significant impact on the regression equation.

Standardized beta values produced in this regression analysis also helped demonstrate the influence of the two key independent variables on the 2007-2011 cohort graduation rates. In this regression, the FRL/SES levels variable beta was -.713 and the school transitions variable beta was -.090 respectively, which means statistically that for every standard deviation point that the proxy SES variable decreases, graduation rates increase 0.713 standard deviations and for every one standard deviation point that the

grade school transitions variable drops, graduation rates would be predicted to increase by 0.090 standard deviations. (See Appendix C, tables C6a, C6b).

Included in the state's database along with the breakdown of graduation rates for total district student populations were a number of disaggregated subgroup rates, including graduation rates for economically disadvantaged cohorts, students with disabilities, white, black, Hispanic and other ethnic group populations. All would be worthy of subjecting to regression analysis, especially in light of the finding for the full student populations. Unfortunately, because of confidentiality policies implemented by the New York State Education Department, districts are allowed to suppress such student success information from the public database if the subgroups contain five or fewer students. As a result, the number of districts with results to report in all but one of these subgroup categories, especially in the one- and two-school span districts, was too small to provide meaningful statistical results in any of the correlation and regression studies using the number of school-to-school transitions as one of the independent variables.

WHITE STUDENT COHORT RESULTS SIMILAR TO FULL POPULATION

One set of cohort subgroup data that did include a large enough sampling of district graduation rates from each of the school transitions was that of white student populations. Since white students made up the large majority of the total populations in the districts included in this study, it was not surprising that the regression study results using the same set of independent variables provided results similar to the full student population study.

In the regression analysis using 2007-08 BEDS data, the inclusion of the school transitions variable was responsible for only about a 1.3 percent increase in the total white student subgroup cohort graduation rates variance (to $r^2 = .449$ from $r^2 = .441$) once it was added to the model, which obtained most of its explanatory power for the SES effect ($R^2 = .44$). In this analysis, unlike that for the full student population for the same year, the masters teacher plus independent variable was stronger than the school transitions variable as a significant predictor of white student graduation rates, accounting for 1.4 percent of the variance (to $r^2 = .479$ from $r^2 = 449$) once it was added to the multiple regression model. The average class size variable was not a statistically significant predictor in this model. (See Appendix C, tables C7a, C7b).

Standardized beta values for this model also helped explain the strength of influence of the three statistically significant predictor variables. Beta values were -.609, .203 and -.134 respectively for the FRL/SES levels, %Masters+ and school transitions variables, meaning that for every standard deviation point that the FLR/SES levels variable decreases, graduation rates increase 0.609 standard deviations, for every standard deviation point that the teacher experience percentage increased white student graduation rates would be expected to increase 0.203 percent, and for every one standard deviation point that the school transitions variable drops, graduation rates would be predicted to increase by 0.134 standard deviations. (See Appendix C, tables C7a, C7b).

Similar multiple regression results were observed in analyzing white student subgroup cohort graduation data for the 2008-09 school year, with a weaker but still statistically significant ($p < .05$) portion of the variance supplied by the district school-to-school transitions variable. In an analysis of the BEDS data, for example, while the four independent variables in the regression model analysis accounted for nearly 49 percent

(r^2 = .489) of the variance in white student cohort graduation rates for each reporting district, the school transitions variable contributed only 0.4 percent to the total, with the r^2 value pushing the SES variable to .469 from .452, while the teacher experience variable contributed 1.7 percent, with the r^2 value rising from .469 to .489, when each new variable was added to the model. In this case, the SES proxy variable again accounted for almost all of the variance (r^2 = .452) to the regression model. (See Appendix C, tables C8a, C8b).

Standardized beta values for this model again helped illustrate more clearly the strength of influence of the three statistically significant predictor variables. Beta values were -.630, .161 and -.084 respectively for the FRL/SES levels, %Masters+ and school transitions variables, meaning that for every standard deviation point that the proxy SES variable decreases, graduation rates would be predicted to increase 0.630 standard deviations, for every standard deviation point that the teacher experience percentage increases white student graduation rates would be expected to increase 0.161 standard deviations, and for every one standard deviation point that the district school transitions variable drops, graduation rates would be predicted to increase by 0.084 standard deviations. (See Appendix C: tables C8a, C8b).

The strength of the school transitions variable was also statistically significant for the regression model constructed using results from the state's 2009-10 school year graduation rates for the target districts' white student subgroup cohorts. The four independent variables in the regression model were responsible for a little over 51 percent (r^2 = .511) of the variance in white student cohort graduation rates, with the SES proxy variable accounting for most of the total (r^2 = .461). The school transitions variable contributed about 2 percent to the variance, with the r^2 value rising from .461 to .481

once it was added to the model, while the teacher educational experience variable adding another 2.6 percent, with the r^2 value rising from .480 to .506, when it was added to the model. (See Appendix C, tables C9a, C9b).

Further proof of the school transitions variable's influence as a significant predictor of graduation rates is shown in an examination of the standardized beta statistical results. In this analysis, the FRL/SES levels, %Masters+ and school transitions variable beta values are -.627, .197, and -.072 respectively, indicating that for every standard deviation point that the proxy SES variable decreases, graduation rates increase .627 standard deviations, for every increase in the teacher experience variable the white student cohort graduation rate would be expected to increase by .197 standard deviations, and for every one standard deviation point that the school transitions variable drops, graduation rates would be predicted to increase by .072 standard deviations. (See Appendix C, tables C9a, C9b).

In the final regression study focusing on the target dependent white student cohort graduation rates variable for the 2010-11 school year, the predictor influence of the number of school-to-school transitions on white district student cohort graduation rates remains relatively weak but still statistically significant ($p < .01$). The four independent variables in the regression model analysis were again responsible for a little more than 50 percent ($r^2 = .502$) of the variance in cohort graduation rates, with the SES proxy variable accounting for more than 47 percent of the variance ($r^2 = .472$). The school transitions variable contributed slightly more than 1 percent to the variance, with the r^2 value rising from .472 to .485 once it was added to the SES variable in the model. The teacher educational experience variable nearly twice as strong as the district school transitions variable in this model, causing the explanatory *r*-value to rise from .485 to .502, when it

was added to the multiple regression model. The fourth independent variable, average class size, was not a statistically significant predictor in the model. (See Appendix C: tables C10a, C10b).

In examining the standardized beta results in this regression, the FRL/SES levels variable beta was -.652, the %Masters+ beta value was .151, while the school transitions variable beta was -.099, which can be interpreted to mean that for every standard deviation point that the proxy SES variable decreases, graduation rates increase 0.652 standard deviations, for every standard deviation the percentage of masters-plus teachers increase, white student graduation rates would be expected to increase by .151 standard deviations, and for every one standard deviation point that the grade span-group variable drops, graduation rates would be predicted to increase by 0.099 standard deviations. (See Appendix C: tables C10a, C10b).

DISABLED STUDENT COHORT SAMPLES SMALL BUT MEASURABLE

While there were an average of less than two of the one-span districts that reported graduation for disabled student cohorts over the four years included in this study, there were enough districts representing the other four grade-span variable categories to be able to anticipate some level of reliability in the results of regression analyses to determine whether this independent variable is a statistically significant predictor of graduation rates for students with disabilities. This, in fact, proved to be the case in two of the four years evaluated, 2007-08 and 2010-11. In both cases, unlike the relationship between graduation rates and the number of school-to-school transitions that total population and white student cohorts experienced, which were negatively statistically significant,

regression results focusing on the target disabled student populations were positively correlated to the district span-group variable.

The multiple regression model, using the 2007-08 disabled student cohort graduation data as the dependent variable was statistically significant ($r^2 = .58$, $p < .05$), and showed a 58 percent explanatory power for the four independent variables employed in the calculation. The inclusion of the school transitions variable accounted for only about a 0.1 percent variance in the disabled student cohort graduation rates (rising from $r^2 = .531$ to $r^2 = .532$ when the school transitions variable was added to the model), compared to 52 percent for the more powerful SES proxy variable ($r^2 = .52$). The teacher educational experience variable in this model had nearly five times more predictive influence than the school transitions variable, causing the r^2 value to rise from .533 to .578, when it was added to the regression. The average class size variable had no statistically significant impact on the regression equation.

Standardized beta values produced in this regression analysis were illustrative of the variables' influence on disabled student graduation rates. In the regression, the FRL/SES levels variable beta and the school transitions variable beta values were -.718 and .112 respectively, which can be interpreted to mean that for every standard deviation point that the proxy SES variable decreases, graduation rates increase .718 standard deviations and for every standard deviation point that the grade school transitions variable increased, graduation rates also would be predicted to increase by .112 standard deviations. (See Appendix C: tables C11a, C11b).

The multiple regression model, using the 2010-11 disabled student cohort graduation data as the dependent variable was statistically significant ($r^2 = .628$, $p < .001$), and showed a 63 percent explanatory power for the four independent variables employed

in the calculation. The inclusion of the school transitions variable accounted for about a 1.5 percent variance in the disabled student cohort graduation rates (rising from $r^2 = .562$ to $r^2 = .577$ when the school transitions variable was added to the model), compared to 56 percent for the SES proxy variable ($r^2 = .56$), when it was the one variable included in the model. The teacher educational experience variable in this model was again much stronger as a predictor than the district span-group variable, producing an increase in the r^2 value to .628 from .562, when it was added to the regression model. The average class size variable again, as in 2007-08, had no statistically significant impact on the regression equation.

Standardized beta values for the FRL/SES levels variable and the school transitions variable in this regression were -0.725 and 0.103 respectively, which can be interpreted to mean that for every standard deviation point that the proxy SES variable decreases, graduation rates increase 0.725 standard deviations and for every one standard deviation point that the grade school transitions variable increased, graduation rates also would be predicted to increase by 0.103 standard deviations. (See Appendix C: tables C14a, C14b).

Because confidentiality policies that allowed districts to withhold reporting graduation rates for cohorts of economically disadvantaged student cohorts that contained five or fewer students, only approximately a third of all districts provided data on this group, as was the case with disabled student cohort graduation rates. While two of the years of data still revealed statistically significant regression relationships between the number of school-to-school transitions and disabled student graduation rates, in only one year of the study, 2009-10, was the relationship significant for economically disadvantaged students.

The multiple regression model, using the 2009-10 economically disadvantaged student cohort graduation data as the dependent variable was statistically significant (r^2 = .154, p< .001), and showed a 15 percent explanatory power for the four independent variables employed in the calculation. The inclusion of the school transitions variable accounted for about a 1 percent variance in the cohort graduation rates (rising from r^2 = .100 to r^2 =.112 when the school transitions variable was added to the model), compared to 12 percent for the SES proxy variable (r^2 = .112), when it was the one variable included in the model. The teacher educational experience variable in this model was again stronger as a predictor than the district span-group variable, producing an increase in the r^2 value to .154 from .117, when it was added to the regression model. The average class size variable again, as in 2007-08, had no statistically significant impact on the regression equation.

Standardized beta values for the FRL/SES levels variable and the school transitions variable in this regression were -.284 and -.166 respectively, which can be interpreted to mean that for every standard deviation point that the proxy SES variable decreases, graduation rates increase .284 standard deviations and for every one standard deviation point that the grade school transitions variable decreased, graduation rates would be predicted to increase by .166 standard deviations. (See Appendix C: tables C17a, C17b).

REGENTS DIPLOMA RATE EVALUATION EXPANDED IN FULL STUDY

In the full study of the possible influence of the number of school-to-school transitions students normally experience between kindergarten and the twelfth grade on academic success, the primary measure of success that has been the focus of analysis has been graduation rates for total New York State public school district student populations

and a number of subgroup cohorts over a four-year span. This is a shift from the pilot study that targeted the percentage general education students receiving Regents diplomas and Regents diplomas with advanced designation in the 2008-09 school year as the primary measure of student success. Further statistical analyses since then have revealed that there is still some explanatory value in including regression study results with control variables in place to examine the possible effect of the number of school-to-school transitions that students experience on the percentage that are awarded Regents diplomas. Not only did the expanded analyses show that there was consistency over the four years in the correlation and regression results, but that other key target variables, including the level of advanced teacher educational training and the percentage of free and reduced lunch program participants, also continued to show statistically significant suppressor influence on the transitions variable effect for the four years analyzed.

Curiously, when the other three independent suppressor variables were included in the new regressions, a positive relationship, rather than a negative one that was shown in the graduation rates study, was revealed between the number of school-to-school transitions and the percentage of district student cohorts who were awarded advanced Regents diplomas. The relationship rose in measures involving general education student cohorts to the level of statistical significance in three of the four years, 2007-08, 2009-10, and 2010-11, while falling short in 2008-09 ($r^2 = 36$, $p=.053$). Regression studies, using BEDS data for student with disability cohorts, yielded similar positive correlations, but the relationships were statistically significant in only two of the year analyzed, in 2009-10 and 2010-11.

The multiple regression model, using the 2007-08 BEDs data for the percentage of general education students receiving Regents diplomas with advanced designation was a

weaker predictor than all the regressions using graduation rates, but it was still statistically significant (r^2 = .288, p< .001), and showed a 29 percent explanatory power for the four independent variables employed in the calculation. The inclusion of the district school transitions variable accounted for slightly less than 1.0 percent variance in percentage of advanced diplomas granted, rising from r^2 = .263 to r^2 =.271 when the span-group variable was added to the model, compared to 26 percent for the SES proxy variable alone (r^2 = .26). The teacher educational experience variable was also a statistically significant predictor, adding about 1.3 percent to the model variance, while the class average variable was not statistically significant.

Standardized beta values for the FRL/SES levels variable, the %Masters+, and the school transitions variable in this regression were -.530, -.146, and .099 respectively, which can be interpreted to mean that for every standard deviation point that the proxy SES variable and teacher experiences decrease, advanced Regents degree percentages would be expected to increase by .530 and .146 standard deviations respectively, and for every one standard deviation point that the school transitions variable increased, advanced diplomas rates would be predicted to increase by .099 standard deviations. (See Appendix C: tables C19a, C19b).

The multiple regression model, using the 2009-10 BEDs data for the percentage of general education students receiving Regents diplomas with advanced designation was a slightly more robust predictor than revealed in the 2007-08 reports. The model was statistically significant (r^2 = .388, p< .001), and showed a 39 percent explanatory power for the four independent variables employed in the calculation. The inclusion of the district school transitions variable accounted for approximately a 1.0 percent variance in percentage of advanced diplomas granted, rising from r^2 = .366 to r^2 =.376 when the

school transitions variable was added to the model, compared to 38 percent for the SES proxy variable alone (r^2 = .38). The teacher educational experience variable was also a statistically significant predictor, adding about 1 percent to the model variance, while the class average variable was not statistically significant.

Standardized beta values for the FRL/SES levels variable, the %Masters+, and the school transitions variable in this regression were -.610, -.119, and .103 respectively, which can be interpreted to mean that for every standard deviation point that the proxy SES variable and teacher experiences decrease, advanced Regents degree percentages would be expected to increase by .610 and .103 standard deviations respectively, and for every one standard deviation point that the school transitions variable increased, advanced diplomas rates would be predicted to increase by .103 standard deviations. (See Appendix C: tables C21a, C21b).

The multiple regression model, using the 2010-11 BEDs data, was the strongest predictor for the percentage of general education students receiving Regents diplomas with advanced designation in the four years evaluated. The full model was statistically significant (r^2 = .401, p< .001), and showed a 40 percent explanatory power for the four independent variables employed in the calculation. The inclusion of the district school transitions variable accounted for slightly less than 1.0 percent variance in percentage of advanced diplomas granted, rising from r^2 = .392 to r^2 =.396 when the school transitions variable was added to the model, compared to nearly 40 percent for the SES proxy variable alone (r^2 = .40). In this model, neither the teacher educational experience variable nor the class average variable was statistically significant.

Standardized beta values for the FRL/SES levels variable and the school transitions variable in this regression were -.626 and .100 respectively, which can be interpreted to

mean that for every standard deviation point that the proxy SES variable decrease, advanced Regents degree percentages would be expected to increase by .626, and for every one standard deviation point that the school transitions variable increased, advanced diplomas rates would be predicted to increase by .100 standard deviations. (See Appendix C: tables C22a, C22b).

Another series of regression studies conducted for the percentage of special education student cohorts receiving Regents diplomas with advanced designation also showed the school-to-school transitions variable to be a weak but still statistically significant predictor of academic success for this cohort in two of the four years of BEDS data evaluated. The regression model for the 2009-10 school year was statistically significant ($r^2 = .019$, $p < .001$), showing a 2.0 percent explanatory power for the four independent variables employed in the calculation. Unlike almost all of other regressions run, neither the SES proxy variable nor the teacher educational experience variable included rose to the level of statistical significance, with only the school transitions and average class size variables contributing approximately 1.0 percent each to the variance in rates of advanced Regents diplomas granted to special education student populations. The standardized beta value for the average class size variable was -.136 and .113 for the school transitions variable (See Appendix C: tables C29a, C29b).

The multiple regression model, using the 2010-11 BEDs data for the percentage of special education students receiving Regents diplomas with advanced designation was a slightly more robust predictor of the student success, that was statistically significant ($r^2 = .16$, $p < .001$, providing a 16 percent explanatory power for the four independent variables employed in the calculation. The inclusion of the district school transitions variable accounted for less than 1.0 percent variance in percentage of advanced diplomas

granted, rising from r^2 = .130 to r^2 =.137 when the variable was added to the model, compared to a predictor influence of slightly more than 13 percent that can be attributed to the SES proxy variable. The teacher educational experience variable was also a statistically significant predictor, adding almost 2.0 percent to the model variance, while the class average variable was not statistically significant.

Standardized beta values for the FRL/SES variable, the %Masters+, and the school transitions variable in this regression were -.310, .149, and .086 respectively, which can be interpreted to mean that for every standard deviation point that the proxy SES variable decreases, advanced Regents degree percentages would be expected to increase by .310, while for every one standard deviation point that the teacher education variable and grade school transitions variable increased, advanced diplomas rates would be predicted to rise by .149 and .086 standard deviations respectively. (See Appendix C: tables C30a, C30b).

Finally, exploratory regression studies were conducted to determine if the number of school-to-school transitions had any predictive influence on the percentage of graduates in the four years analyzed who were awarded regular Regents diplomas. Only two regression models proved to be statistically significant predictors, for general education students in the 2010-11 school year, and for special education students in the 2007-08 school year. It should be noted again, as pointed out earlier in this study, that while this might seem in contradiction to the much more robust findings regarding graduation rates for total student populations, graduation rates involve the percentage of all students in a district that were in the ninth grade four years earlier, while Regents diploma rates are only a measure of how many students who have actually met the requirements for graduating receive either a regular Regents diploma or a much less common local school diploma.

As it is, the multiple regression model, using the 2010-11 BEDs data, for the percentage of general education students receiving regular Regents diplomas was statistically significant (r^2 = .117, p< .001), and showed slightly less than a 12 percent explanatory power for the four independent variables employed in the calculation. The inclusion of the district school transitions variable accounted for only about 0.2 percent variance in percentage of diplomas granted, rising from r^2 = .071 to r^2 =.073 when the school transitions variable was added to the SES variable in the model. In this model, the teacher educational experience variable was also statistically significant, accounting for a little more than 1.0 percent to the variance. The class average variable was not a statistically significant predictor.

Standardized beta values for the FRL/SES levels variable, the %Masters +, and the school transitions variables in this regression were -.338, -.238 and .093 respectively, which can be interpreted to mean that for every standard deviation point that the proxy SES variable and the teacher experience variable decrease, regular Regents degree percentages would be expected to increase by .338 and .238 respectively, and for every one standard deviation point that the school transitions variable increased, regular Regents diplomas rates would be predicted to increase by .096 standard deviations. (See Appendix C: tables C26a, C26b).

Finally, the multiple regression model, using the 2007-08 BEDs data, for the percentage of special education students receiving regular Regents diplomas was very weak, but still statistically significant (r^2 = .047, p< .001), and showed slightly less than a 5 percent explanatory power for the four independent variables employed in the calculation. The inclusion of the district school transitions variable accounted for only about 0.7 percent variance in percentage of diplomas granted, rising from r^2 = .038 to r^2

=.045 when the school transitions variable was added to the SES variable in the model. In this model, neither the teacher educational experience nor the class average variable was a statistically significant predictor.

Standardized beta values for the FRL/SES levels variable and the school transitions variables in this regression were -.209 and -.096 respectively, which can be interpreted to mean that for every standard deviation point that the proxy SES variable and the school transitions variable decrease, regular Regents degree percentages would be expected to increase by .209 and .096 respectively. (See Appendix C: tables C31a, C31b).

DISCUSSIONS, IMPLICATIONS, AND RECOMMENDATIONS

The findings of an intensive statistical study of data focusing on four years of graduation rates in nearly 600 New York State public school districts were neither initially easily interpreted, nor so clear, once they were, to provide unequivocally strong direction for making future policy decisions about the way in which grades should be configured in schools. The analyses results do, nevertheless, provide considerable food for thought on the subject. The bottom line is that dozens of regression studies conducted over four years of data analyses all combined to provide statistically significant evidence that the number of school-to-school transitions that students makes between kindergarten and the twelfth grade is related to academic success, as measured primarily by the percentage of student populations that graduate from high school in a timely fashion. Those regression results in the examination of data for whole student populations, as well as for a number of subgroup cohorts, confirmed that the study's null hypothesis that the number of school-to-school transitions has no effect on academic success should be rejected.

The fact is that the statistically significant relationship between the number of school-to-school transitions that students normally experience between kindergarten and the twelfth grade and their academic success in school only becomes apparent after other strong independent variables are controlled for. This makes the study findings not only more illuminating, but also open to much wider interpretations than if the regression results upon which they are based were less influenced by unexpected suppressor effects. For example, while preliminary correlation studies done to test the effect showed only modest and not always statistically significant positive relationships between transitions and student success, when the independent variables measuring student SES, average

class size and the level of teacher educational background were included in the multiple regressions, the effect of school-to-school transitions for total district student cohorts was discovered to be negatively statistically significant. This was also the finding for the largest subgroup cohort regression, white student populations, which comprised the large majority of students in the 598 districts being evaluated. Unfortunately, lack of sufficient available graduation data across the four years of the study for the other important subgroup populations, including blacks, Hispanics, and economically disadvantaged cohorts, made it impossible to clearly confirm or refute similarly the academic impact of school transitions with any level of accuracy for these subgroups.

The findings for total student populations and white student cohort regressions are consistent with a body of research that suggests that students lose academic ground each time they transition to a new school level (Rockoff and Lockwood, 2010; Cook, 2005; Brown, 2004; Herszinhorn, 2004; Wren, 2003; Alspaugh, 1998). One of the most intriguing questions left unanswered in light of the study's results, is how much better graduation rates might have been in New York's districts with smaller numbers of school-to-school transitions, if key variables, including student SES status and levels of teaching qualifications, were comparable to the districts with greater numbers of school transition points.

These variable differences were quite large, and while they were already detailed in the demographics section of this report, they bear recapping in light of their apparent strong association with this study's findings. The smaller and generally mostly rural one-school districts, for example, had the lowest percentage (15.9) of teachers with the most advanced levels of professional training, while the five-school span districts at the other end of the scale reported an average of 58.6% of their teachers with Masters degrees plus

30 credits additional professional training or doctorates on their staffs. More significantly, the two district types with the fewest school-to-school transition points, the one- and two- span districts, had only about half the percentage of teachers with the most advanced levels of professional training that the main district types had to which they are being compared in this study, the three- and four-school level districts, with percentages averaged across the four years from 2008 to 2011 of 15.9, 16.7, 27.5 and 30.6, respectively. While there is some research that suggests that the percentage of advanced degrees or additional professional development training that teachers have is generally uncorrelated to student academic success (Harris and Sass, 2007; Goldhaber and Brewer, 1997), in my study of New York's public school data, at least, the correlation between the percentage of teachers with advanced degrees and percentages of district graduation rates was statistically significant across all four years of the analysis.

The variation in SES levels from one district type to the next was even more pronounced. With the exception of the six districts with five school building levels, the districts having the highest percentage of students qualifying for free or reduced lunch program, are the smallest, mostly rural 74 one-school K-12 districts. The one-school districts, which are mainly located in rural western and northern counties in the state, averaged more than 40 percent of students on free or reduced lunch programs. Further complicating the identification of the possible impact of school-to-school transitions on academic achievement in this study's regression models is the fact that the 124 districts with the second fewest number of school-to-school transition points have the next highest percentage of students on free and reduced lunch programs at more than 35 percent, compared to only approximately 27 percent in both the 300 three-span districts and 95 four-span districts. BEDS data for the four years studied also showed that the one- and

two-school span districts both had higher rates of students in the 51-70 percent free and reduced lunch category, at 18 percent and 15 percent respectively, compared to 11 percent for both the three- and four-school span districts. On the other end of the SES spectrum, only 4 percent of the one-school districts and 14 percent of the two-school span districts had less than 20 percent of their students included in free and reduced lunch program, compared to 35 percent and 43 percent of the three- and four-span districts.

While they were not the primary focus of this study, examining the impact that these other control variables, specifically district level SES and the percentage of teachers with advanced certification employed, had on graduation rates, provided new insights into the power that these demographic factors have in influencing academic measures of success, as detailed in the result of correlation and regression analyses over the four years evaluated. What is as intriguing is the discovery that another control variable, the average size of key core subject classes, had almost no statistically significant predictor influence on variances in graduation rates in the dozens of regression studies conducted. Average class size has long been the focus of a variety of studies over the years that have attempted to evaluate the effects of school demographics on student achievement. In most, the consensus has been that smaller class sizes have a beneficial effect on student achievement (Rubenstein et al, 2009; Nye et al, 2000; Finn and Gerber, 2005; Finn and Achilles, 1999). In this study, however, even though the average class size variable was significantly correlated to various measures of academic success over four years of data analyses, and despite the fact that there were statistically significant differences in average class sizes, ranging from only 16 to 17 students per class in the smaller, one- and two-school span districts to more than 20 per class in the larger three-, four-, and five-

school span districts, this independent variable was not a statistically significant predictor in the majority of the multiple regression analysis completed for the study.

In this researcher's shift in focus from an evaluation of the possible influence of school-to-school transitions on the percentages of Regents diplomas awarded in a pilot 2009 study to the more comprehensive regression analyses of the influence of transitions on a variety of student cohort graduation rate measures for the four-year evaluation, a number of interesting and apparently contradictory statistical patterns were uncovered. This study found evidence in two of the four year examined, for example, that both district general education and special education student populations that transitioned through greater numbers of schools between kindergarten and the twelfth grade, experienced statistically significantly higher rates of earning an advanced Regents diploma than their counterparts in one- and two-school districts. These findings are in direct contradiction to those that provided evidence that total student population graduation rates are negatively related to the increase in school-to-school transitions. Left unanswered in this report is a better explanation of why more transition points between kindergarten and twelfth grade would positively influence advanced degree diploma rates, but not graduation rates for all students. In at least one previous study, Friedkin and Necochea (1988) speculated that larger schools with narrow grade spans have more resources, choices of course offerings, and staffing that is trained better to meet a more focused set of academic needs, which may benefit more academically advanced students. In another study of 20,000 ninth graders in 2007, Weiss and Bearman found evidence that some adolescents who were struggling academically in middle school benefitted from a fresh start in a new school compared to others who stayed in the same school in moving from eighth grade to ninth grade.

While means and correlation analyses conducted in this study demonstrates that the larger school districts in New York State have significantly greater percentages of teachers with advanced professional training and lower percentages of instructors who lack appropriate subject area certification, the impact of being in a larger school district, with the additional resources that might be available there, was not fully addressed. The size of districts was positively correlated to a number of measures of academic success, but I determined early in my research that completing regressions that might show school size to be a significant predictor of academic success would provide less useful information about factors influencing student achievement than would an examination of more narrowly focused variable, such as teacher educational background and average core class size.

In any case, both the size of districts and other unaddressed variables that are influenced by the size of districts need to be explored in more depth to determine how much of a factor they play in the achievement levels of districts with different school building grade configurations. There was also no data in the BEDS report that provides information on the level or resources that one district has compared to another, or on the number of courses offered, especially at the high school level.

One limitation of my pilot study was that it only measured dependent variables related to the general education population in New York's public schools in 2009. In the full study of New York State 2007 through 2011, the analyses of a number of student subgroup cohort reports that the districts were required to collect in order to fulfill federal accountability guidelines would have produced potentially important findings. Unfortunately, a comprehensive analysis of the possible influence on these groups of school transitions was not possible because of the fact that the public release of larger

portions of these reports were suppressed because of the small size of the cohorts involved and the threat to individual student confidentiality that might result in publication of the results.

One of the greatest limitations in the analyses of New York State BEDS information that was available on graduation rates is that there was not enough data available to reasonably determine the impact that the number of school-to-school transitions through elementary and high school has on minority students, students with disabilities and economically disadvantaged students. Although limited in its reliability because of the small sample numbers involved, there was some evidence in regressions completed examining special education, economically disadvantaged and black student cohorts that these populations might benefit from experiencing more rather than fewer school-to-school transitions, especially in qualifying for advanced Regents diplomas, but only a more thorough statistical study with access to full cohort results would provide more conclusive results.

One other variable that was not controlled for in this study was prior achievement. I had initially hoped to use the results of the state's eighth grade English language arts and math assessments to see how closely the district scores correlated with the Regents math exams taken in high school, but eighth grade scores from the years in questions were not readily accessible at the time my database was constructed. Major adjustments by the state Education Department in the way in which these eighth grade tests are scored in the years in which comparisons could have been made with 2008, 2009, 2010 and 2011 graduation rates would have also made any correlations statistically unreliable. Some exploratory analyses did show that there was a statistically significant correlation between eighth grade mathematics and English language arts test scores and mathematics

and English Regents scores in the four years from 2007 and 2011, but since the Regents exams are not always taken in a specific grade in high school, it was not possible to determine if the majority of the test takers in 2007 were the same students taking the targeted Regents exams in 2011. Only statistical analyses that track individual students will provide a clear understanding of the relationship between the middle-school level and high school scores, and what effect the number of school transitions these student make has on their academic success.

Yet another shortcoming of the current research, resulting from the exclusion of many of the state's urban school districts, is that I was not able to determine with any reasonable level of accuracy the influence of school transitions on lower SES populations, since the excluded urban districts contain a disproportionately large number of the socioeconomically disadvantaged students. These are the kind of students, some research literature suggests, who might benefit more from being in schools with wider grade spans than other student populations (Byrnes and Ruby, 2007; Offenberg, 2001).

The suppressor effect of SES levels on the influence of school-to-school on graduation rates that was found in my study also seems to support the possible explanation for why students of lower social backgrounds might do better in districts with fewer school-to-school transitions, while those from higher social backgrounds thrive in districts with more schools having narrower grade spans. A possible explanation for the potential academic harm that some students might experience in moving from one school to the next was offered by Becker, following his 1987 study of the effects of varying school organizational structures on academic achievement in districts throughout Pennsylvania. Becker suggested that tracking that takes place in moving from elementary schools to middle schools may result in stereotyping of students and groups according to

presumed abilities and produce negative expectations for students identified as having low abilities, especially those with disadvantaged backgrounds.

The fact that so many of New York City's students are economically and socially disadvantaged may also be why Rockoff and Lockwood (2010) and Schwartz et al. (2009) found that schools with wider grade spans were producing more academically successful students. In one of my own preliminary correlation studies, when the percentage of districts having less than 40 percent of their students on free or reduced cost lunch programs were disaggregated from the analysis, a statistically significant negative correlation was found ($p < 0.05$, $r = -.218$) with lower percentages of students passing the Comprehensive English Regents as the number of school-to-school transitions increased. While not statistically significant, there was also a negative correlation between increased transitions and both percentage of Regents diplomas awarded and percentage of passing MathB Regents exams, which was not the case when the correlation studies included all SES levels. This suggests that there may be an interaction effect between grade spans and district SES, with the effect of grade spans differing based on the SES of the district. Further research in this area might provide critical guidance to district administrators seeking ways to better address the academic needs of this needy population of students.

While it has been more than 25 years since the Becker (1987) study was completed, officials in New York City, Newburgh, Yonkers and other districts that still have a mix of school types, might do well to follow the researcher's suggestion that districts consider sending some students to middle schools based on their academic and social backgrounds, while keeping others in elementary schools for longer periods, as now occurs in the K-8 model. If my own research continues in the same direction that this

study has taken, with statistically significant findings that school types and the number of transitions in a district have an influence on the academic achievement of different types of students in different ways, I hope to be able to offer the same kind of advise to district leaders that was suggested by Becker in 1987.

There are obviously numerous other demographic, curriculum delivery, and school culture factors that impact student education, which might be better illustrated in future qualitative studies of representative samplings of schools in each grade-span model type similar to those created for this study. Another approach for future investigation would be, as briefly described earlier, the organizing of a longitudinal study on the state and national level that tracks individual students and links, not only the number of school transitions they make between kindergarten and graduation, but also their grade averages along the way, and their scores on standardized tests and exit exams. This data could also be linked to demographic information relating to the years of experience and educational qualifications of the teachers the individual students have had, and their levels of qualifications, as well as to information about the size of classes they attended, their own SES ranking and the SES levels of their school peers, their family income, and all other variables that might be considered to influence individual success. With the technology now available to complete such a thorough data gathering task, and the tremendous interest today in more accurately measuring the academic success of our schools, their teachers and administrators, it is very likely that the mechanism for this is already well along in development.

REFERENCES

Abella, R. 2005. "The Effects of Small K-8 Centers Compared to Large 6-8 Schools on Student Performance." *Middle School Journal* 37 n.1, 29-35.

Alspaugh, John W. 1998. "Achievement loss associated with the transition to middle school and high school." *Journal of Educational Research* 92, no. 1, 20-27.

Alspaugh, JohnW. and R.D. Harting. 1995. "Transition Effects of School Grade-Level Organization on Student Achievement." *Journal of Research and Development in Education* 28, n.3, 45-149.

Barber, Brian K. and Olsen, Joseph A. 2004. "Assessing the transition to middle and high school." *Journal of Adolescent Research* 19, no. 1: 3-30.

Becker, Henry, J. 1987. "Addressing the needs of different groups of early adolescents: Effects of varying school and classroom organizational practices on students from different social backgrounds and abilities. Report No. 16. Baltimore, MD. John Hopkins Center for Research on Elementary and Middle Schools. (ERIC Document Reproduction Service No. ED291506.)

Bedard, Kelly and Chau Do. 2005. "Are Middle Schools More Effective? The Impact of School Structure on Student Outcomes." *Journal of Human Resources* 40: 660-682.

Borland, Melvin V. and Roy M. Howsen. 2003. "An Examination of the Effect of Elementary School Size on Student Academic Achievement." *International Review of Education* 49, no. 5: 463-474.

Brown, Eric L. 2004. "The Effect of Number of School-to-School Transitions on District Performance." Dissertation Presented to the Faculty of the College of Education of Ohio University.

Byrnes, Vaughn and Allen Ruby. 2007. "Comparing Achievement between K-8 and Middle Schools: A Large-Scale Empirical Study." *American Journal of Education* 114, no. 1:101-135.

Caldas, Stephen J. and Carl Bankston III. 1997. "Effect of School Population Socioeconomic Status on Individual Student Achievement." *The Journal of Educational Research* 90, no. 5: 269-277.

Chen, Greg and Lynne A. Weikart. 2008. "Student Background, School Climate, School Disorder, and Student Achievement: An Empirical Study of New York City's Middle Schools." *Journal of School Violence* 7, no.4: 3-20.

Coladarci, Theodore and Julie Hancock. 2002. “Grade-span Configuration.” *Journal of Research in Rural Education* 17, no.3:189-192.

Coleman, James S., Campbell, Ernest, Hobson, Carol J., McPartland, James, Mood, Alexander M., Weinfeld, Frederic D., and York, Robert L. 1966. *Equality of educational opportunity.* Washington, DC: United States Government Printing Office.

Conger, Anthony J. 1974. “A Revised Definition for Suppressor Variables: A Guide to Their Identification and Interpretation.” *Educational and Psychological Measurement* 34: 35-46.

Connolly, Faith, Mary E. Yakimowski-Srebnick and Carmen V. Russo. “An Examination of K-5, 6-8 versus K-8 Grade Configurations.” ERS Spectrum 20, no. 2 (March 1, 2002): 28-37.

Cook, H.G. 2005. “What’s Best in the Middle? Student Engagement, Achievement, Attainment, and Growth Differences between K-8 and Middle School Grade Configurations at Milwaukee Public Schools.” Milwaukee, WI: Milwaukee Public Schools, Division of Assessment & Accountability. Report No. 0501.

Ecker, Marc, Michael J. Dietz, and Susan Carlile. 2002. “Middle Schools Still Matter.” *School Administrator* 59, no. 3; 30-31.

Edmonds, R. 1979. “Effective schools for the urban poor.” *Educational Leadership* 37, no. 1: 15-24.

Elovitz, Leonard H. 2007. “Middleschoolsaurus Rex: Is the Middle School Becoming Extinct.” *Principal Leadership* 7, no. 7: 26-30.

Erb, Thomas O. 2006. “Middle School Models are Working in Many Grade Configurations to Boost Student Performance.” *American Secondary Education* 34, no. 3.

Field, Andy. 2009. Discovering Statistics Using SPSS, 3rd Ed., London: Sage Publications.

Finn, Jeremy D., and Susan B. Gerber. 2005. “Small Classes in the Early Grades: Academic Achievement and Graduating From High School.” *Journal of Educational Psychology* 97, no.2:214-223.

Finn, Jeremy D., and Charles M. Achilles. 1999. “Tennessee’s Class Size Study: Findings, Implications, Misconceptions.” *Educational Evaluation and Policy Analysis* 21, no. 2: 97-109.

Fowler, W.J., and H.J. Walberg. 1991. “School Size, Characteristics and Outcomes.” *Educational Evaluation and Policy Analysis* 13, no.2: 189-202.

Franklin, Bobby J. and Catherine H. Glascock. 1996. “The Relationship between Grade Configuration and Student Performance in Rural Schools. (Paper presented at the Annual Conference of the National Rural Education Association, San Antonio, TX, Oct. 15, 1996)

Friedkin, N.E., and J. Necochea. 1998. “School System Size and Performance: A Contingency Perspective.” Educational Evaluation and Policy Analysis 10, no.3: 237-249.

George, Paul S., 2005. “K-8 or Not? Reconfiguring the Middle Grades.” *Middle School Journal* 37, no. 1: 6-13.

Goldhaber, Dan D., and Dominic J. Brewer. 1997. “Why Don’t Schools and Teachers Seem to Matter? Assessing the Impact of Unobservables on Educational Productivity.” *The Journal of Human Resources* 32, no. 3; 505-523.

Gootman, Eliza. 2007, Jan. 3. “Trying to Find Solutions in Chaotic Middle Schools.” *The New York Times.* A-1.

Harris, Douglas N., and Tim R. Sass. 2007. “Teacher Training, Teacher Quality, and Student Achievement.” Working Paper, National Center for Analysis of Longitudinal Data in Education, no. 3: 1-34.

Harwell, Michael and Brandon LeBeau. 2010. “Student Eligibility for a Free Lunch as an SES Measure in Education Research.” *Educational Researcher* 39, no. 2: 126-131.

Herszinhorn, David. 2004, March 4. “City Plans to Eliminate Most Middle Schools.” *The New York Times*.

Maassen, Gerard H. and Arnold B. Bakker. 2001. “Suppressor Variables in Path Models: Definitions and Interpretations.” *Sociological Methods and Research* 30, no. 2:241-269.

Mac Iver, Martha Abele, and Douglas J. Mac Iver. 2006. "Which Bets Paid Off? Early Findings on the Impact of Private Management and K-8 Conversion Reforms on the Achievement of Philadelphia Students." *Review of Policy Research* 23, no. 5: 1077-1093.

Moore, Denis W. 1984. “Impact of School Grade-Organization Patterns on Seventh and Eighth Grade Students in K-8 and Junior High Schools.” Paper presented at the annual meeting of the New England Educational Research Organization, Rockport, ME. (ERIC Document Reproduction Service No. ED245346.

National Center for Education Statistics, 2000. *In the Middle: Characteristics of Public Schools With a Focus on Middle Schools,* U.S. Department of Education, Office of Educational Research and Improvement.

New York State Department of Education, 2009. Basic Educational Data System (BEDS) Report from www.nystart.gov/publicweb/DatabaseDownload.do?year=2009.

Nye, Barbara, Larry V. Hedges, and Spyros Konstantopoulos. 2000. "The Effects of Small Classes on Academic Achievement: The Results of the Tennessee Class Size Experiment." *American Educational Research Journal* 37, no. 1:123-151.

Offenberg, Robert M. 2001. "The Efficacy of Philadelphia's K-to-8 Schools Compared to Middle Grades Schools." *Middle School Journal* 32, no. 4: 23-29.

Pate, P. Elizabeth, Katherine F. Thompson, and Elaine R. Homestead. 2004. "Middle School Organization Through the 1970s, 1980s, and 1990s." *Middle School Journal* 35, no. 3: 56-60.

Poncelet, Paulette, and Meris Associates. 2005. "Restructuring Schools in Cleveland for the Social, Emotional, and Intellectual Development of Early Adolescents." *Journal of Education for Students Placed at Risk* 9, no. 2: 81-96.

Rockoff, Jonah E. and Benjamin B. Lockwood. 2010. "Stuck in the Middle: Impacts of Grade Configuration in Public Schools. Columbia Business School. Working Paper retrieved from google.scholar at www/0.gsb.columbia.edu/faculty/jrockoff/papers/Rockoff Lockwood Feb 2010.pdf on April 18, 2010.

Rosenberg, Morris. 1973. "The Logical Status of Suppressor Variables." Public Opinion Quarterly 37, no. 3:359-372.

Rubenstein, Ross, Amy Ellen Schwartz, Leanna Stiefel, and Jeffrey Zabel. 2009. "Spending, Size, and Grade Span in K-8 Schools." *Education Finance and Policy* 4, no. 1: 60-88.

Schiller, Kathryn S. 1999. "Effects of feeder patterns on students' transition to high school." *Sociology of Education* 72: 216-233.

Schwartz, Amy Ellen, Leanna Stiefel, Ross Rubenstein, and Jeffrey E. Zabel. 2009. "Can Reorganizing K-8 Education Improve Academic Performance? The Impact of Grade Span on Student Achievement." NYU Wagner Research Paper No. 2010-06. Last Retrieved: January 7, 2010.

Stewart, L. 2009. “Achievement Differences between Large and Small Schools in Texas.” *The Rural Educator* 30, no. 2:20-28.

Velicer, Wayne F. 1978. “Suppressor Variables and the Semipartial Correlation Coefficient.” *Educational and Psychological Measurement* 38:953-58.

Watson, Robert J. 2009. “A Comparison Study of Montana’s Intermediate and K-8 Schools with Regard to Student Performance on a Criterion Referenced Test, Incidence of At-Risk Behaviors, and Perceptions of Educators from Both Grade Configurations.” Dissertation presented to the Faculty of the Department of Educational Leadership, The University of Montana: Missoula, MT.

Weiss, Christopher C., and Christine Baker-Smith. 2010. “Eighth-Grade School Form and Resilience in the Transition to High School: A Comparison of Middle Schools and K-8 Schools.” *Journal of Research on Adolescence* 20, no. 4: 825-839.

Weiss, Christopher C., and Peter S. Bearman. 2007. “Fresh Starts: Reinvestigating the Effects of the Transition to High School on Student Outcomes.” *American Journal of Education* 113, no.5: 395-419.

Weiss, Christopher C., and Lindsay Kipnes. 2006. "Re-examining Middle School Effects: A Comparison of Middle Grades Students in Middle Schools and K-8 Schools." *American Journal of Education* 112, no. 2: 239-272.

Wren, Stephanie D. 2003. “The Effect of Grade Span Configuration and School-to-School Transition on Student Achievement.” EDRS report no. ED479332.

Yonkers Public Schools. 2009. "A Model for Success: Prekindergarten Through Grade 8 Schools." Yonkers: Author.

Appendix A – Transition Group/Demographic Bivariate Correlation Tables

Table A1: 2007-08 NY district school transitions/instructional staff demographics correlations

		school transitions	% masters + 30 cr.	% classes no HQ teacher	% no approp. certification
school transitions	Pearson Correlation	1	.297**	-.316**	-.445**
	Sig. (2-tailed)		.000	.000	.000
	Sum of Squares and Cross-products	491.920	3039.618	-478.064	-671.625
	Covariance	.824	5.100	-.802	-1.127
	N	598	597	597	597
% masters + 30 cr.	Pearson Correlation	.297**	1	-.112**	-.196**
	Sig. (2-tailed)	.000		.006	.000
	Sum of Squares and Cross-products	3039.618	212727.286	-3521.452	-6146.281
	Covariance	5.100	356.925	-5.908	-10.313
	N	597	597	597	597
% classes no HQ teacher	Pearson Correlation	-.316**	-.112**	1	.821**
	Sig. (2-tailed)	.000	.006		.000
	Sum of Squares and Cross-products	-478.064	-3521.452	4655.591	3806.620
	Covariance	-.802	-5.908	7.811	6.387
	N	597	597	597	597
% no approp. certification	Pearson Correlation	-.445**	-.196**	.821**	1
	Sig. (2-tailed)	.000	.000	.000	
	Sum of Squares and Cross-products	-671.625	-6146.281	3806.620	4620.978
	Covariance	-1.127	-10.313	6.387	7.753
	N	597	597	597	597

**. Correlation is significant at the 0.01 level (2-tailed).

Table A2: 2007-08 NY district school transitions variable/instructional staff demographics correlations

		school transitions	% less than 3 yrs teaching	% less than 5 yrs teaching	% overall turnover
school transitions	Pearson Correlation	1	-.163**	.079	.086
	Sig. (2-tailed)		.000	.171	.057
	Sum of Squares and Cross-products	491.920	-320.573	167.156	182.834
	Covariance	.824	-.538	.557	.372
	N	598	597	301	493
% less than 3 yrs teaching	Pearson Correlation	-.163**	1	-.014	.287**
	Sig. (2-tailed)	.000		.806	.000
	Sum of Squares and Cross-products	-320.573	7816.894	-135.113	2588.195
	Covariance	-.538	13.116	-.450	5.261
	N	597	597	301	493
% less than 5 yrs teaching	Pearson Correlation	.079	-.014	1	.629**
	Sig. (2-tailed)	.171	.806		.000
	Sum of Squares and Cross-products	167.156	-135.113	28728.206	9187.555
	Covariance	.557	-.450	95.761	30.625
	N	301	301	301	301
% overall turnover	Pearson Correlation	.086	.287**	.629**	1
	Sig. (2-tailed)	.057	.000	.000	
	Sum of Squares and Cross-products	182.834	2588.195	9187.555	14969.485
	Covariance	.372	5.261	30.625	30.426
	N	493	493	301	493

**. Correlation is significant at the 0.01 level (2-tailed).

Table A3: 2007-08 NY district school transitions variable/demographics correlations

		school transitions	SES/FRL levels	average core class size	total district enrollment
school transitions	Pearson Correlation	1	-.230**	.449**	.480**
	Sig. (2-tailed)		.000	.000	.000
	Sum of Squares and Cross-products	491.920	-2196.408	690.008	193888.756
	Covariance	.824	-3.679	1.160	326.412
	N	598	598	596	595
SES/FRL levels	Pearson Correlation	-.230**	1	-.368**	-.328**
	Sig. (2-tailed)	.000		.000	.000
	Sum of Squares and Cross-products	-2196.408	185025.259	-10692.910	-2563599.748
	Covariance	-3.679	309.925	-17.971	-4315.824
	N	598	598	596	595
average class size	Pearson Correlation	.449**	-.368**	1	.589**
	Sig. (2-tailed)	.000	.000		.000
	Sum of Squares and Cross-products	690.008	-10692.910	4825.995	743753.858
	Covariance	1.160	-17.971	8.111	1256.341
	N	596	596	596	593
TOTAL_ENROLLMENT_BASE	Pearson Correlation	.480**	-.328**	.589**	1
	Sig. (2-tailed)	.000	.000	.000	
	Sum of Squares and Cross-products	193888.756	-2563599.748	743753.858	3.326E8
	Covariance	326.412	-4315.824	1256.341	559939.321
	N	595	595	593	595

**. Correlation is significant at the 0.01 level (2-tailed).

Table A4: 2008-09 NY district school transitions variable/instructional staff demographics correlations

		school transitions	% masters + 30cr.	% classes no HQ teacher	% no approp. certification
school transitions	Pearson Correlation	1	.276**	-.242**	-.390**
	Sig. (2-tailed)		.000	.000	.000
	Sum of Squares and Cross-products	488.948	2969.049	-286.047	-511.430
	Covariance	.820	4.982	-.480	-.858
	N	597	597	597	597
% masters + 30cr.	Pearson Correlation	.276**	1	-.117**	-.166**
	Sig. (2-tailed)	.000		.004	.000
	Sum of Squares and Cross-products	2969.049	236095.471	-3032.730	-4787.275
	Covariance	4.982	396.133	-5.088	-8.032
	N	597	597	597	597
% classes no HQ teacher	Pearson Correlation	-.242**	-.117**	1	.816**
	Sig. (2-tailed)	.000	.004		.000
	Sum of Squares and Cross-products	-286.047	-3032.730	2847.119	2583.127
	Covariance	-.480	-5.088	4.777	4.334
	N	597	597	597	597
% no approp. certification	Pearson Correlation	-.390**	-.166**	.816**	1
	Sig. (2-tailed)	.000	.000	.000	
	Sum of Squares and Cross-products	-511.430	-4787.275	2583.127	3523.883
	Covariance	-.858	-8.032	4.334	5.913
	N	597	597	597	597

**. Correlation is significant at the 0.01 level (2-tailed).

Table A5: 2008-09 NY district school transitions variable/instructional staff demographics correlations

		school transitions	% less than 3 yrs teaching	% less than 5 yrs teaching	% overall turnover
school transitions	Pearson Correlation	1	-.177**	.086*	.160**
	Sig. (2-tailed)		.000	.037	.000
	Sum of Squares and Cross-products	488.948	-351.276	500.539	409.134
	Covariance	.820	-.589	.844	.688
	N	597	597	594	596
% less than 3 yrs teaching	Pearson Correlation	-.177**	1	-.017	.239**
	Sig. (2-tailed)	.000		.673	.000
	Sum of Squares and Cross-products	-351.276	8072.432	-412.806	2486.695
	Covariance	-.589	13.544	-.696	4.179
	N	597	597	594	596
% less than 5 yrs teaching	Pearson Correlation	.086*	-.017	1	.552**
	Sig. (2-tailed)	.037	.673		.000
	Sum of Squares and Cross-products	500.539	-412.806	70654.493	16928.774
	Covariance	.844	-.696	119.148	28.548
	N	594	594	594	594
% overall turnover	Pearson Correlation	.160**	.239**	.552**	1
	Sig. (2-tailed)	.000	.000	.000	
	Sum of Squares and Cross-products	409.134	2486.695	16928.774	13367.924
	Covariance	.688	4.179	28.548	22.467
	N	596	596	594	596

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table A6: 2008-09 NY district school transitions variable/demographics correlations

		school transitions	SES/FRL levels	average core class size	Total district enrollment
school transitions	Pearson Correlation	1	-.234**	.467**	.147**
	Sig. (2-tailed)		.000	.000	.000
	Sum of Squares and Cross-products	488.948	-2242.134	741.858	251911.871
	Covariance	.820	-3.762	1.249	422.671
	N	597	597	595	597
SES level	Pearson Correlation	-.234**	1	-.340**	-.091*
	Sig. (2-tailed)	.000		.000	.026
	Sum of Squares and Cross-products	-2242.134	188003.461	-10485.369	-3049145.494
	Covariance	-3.762	315.442	-17.652	-5116.016
	N	597	597	595	597
average core class size	Pearson Correlation	.467**	-.340**	1	.122**
	Sig. (2-tailed)	.000	.000		.003
	Sum of Squares and Cross-products	741.858	-10485.369	5186.611	679941.415
	Covariance	1.249	-17.652	8.732	1144.683
	N	595	595	595	595
district enrollment	Pearson Correlation	.147**	-.091*	.122**	1
	Sig. (2-tailed)	.000	.026	.003	
	Sum of Squares and Cross-products	251911.871	-3049145.494	679941.415	5.990E9
	Covariance	422.671	-5116.016	1144.683	10051015.033
	N	597	597	595	597

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table A7: 2009-10 NY district school transitions variable /instructional staff demographics correlations

		school transitions	% masters + 30cr.	% classes no HQ teacher	% no approp. certification
school transitions	Pearson Correlation	1	.284**	-.316**	-.435**
	Sig. (2-tailed)		.000	.000	.000
	Sum of Squares and Cross-products	488.948	3260.089	-292.417	-417.295
	Covariance	.820	5.470	-.491	-.700
	N	597	597	597	597
% masters + 30cr.	Pearson Correlation	.284**	1	-.140**	-.178**
	Sig. (2-tailed)	.000		.001	.000
	Sum of Squares and Cross-products	3260.089	269271.300	-3045.126	-4009.109
	Covariance	5.470	451.797	-5.109	-6.727
	N	597	597	597	597
% classes no HQ teacher	Pearson Correlation	-.316**	-.140**	1	.757**
	Sig. (2-tailed)	.000	.001		.000
	Sum of Squares and Cross-products	-292.417	-3045.126	1751.779	1375.342
	Covariance	-.491	-5.109	2.939	2.308
	N	597	597	597	597
% no approp. certification	Pearson Correlation	-.435**	-.178**	.757**	1
	Sig. (2-tailed)	.000	.000	.000	
	Sum of Squares and Cross-products	-417.295	-4009.109	1375.342	1883.229
	Covariance	-.700	-6.727	2.308	3.160
	N	597	597	597	597

**. Correlation is significant at the 0.01 level (2-tailed).

Table A8: 2009-10 NY district school transitions variable /instructional staff demographics correlations

		school transitions	% less than 3 yrs teaching	% less than 5 yrs teaching	% overall turnover
school transitions	Pearson Correlation	1	-.293**	.227**	.199**
	Sig. (2-tailed)		.000	.000	.000
	Sum of Squares and Cross-products	488.948	-537.521	1563.859	597.255
	Covariance	.820	-.902	2.628	1.004
	N	597	597	596	596
% less than 3 yrs teaching	Pearson Correlation	-.293**	1	-.095*	.156**
	Sig. (2-tailed)	.000		.020	.000
	Sum of Squares and Cross-products	-537.521	6871.903	-2441.430	1755.671
	Covariance	-.902	11.530	-4.103	2.951
	N	597	597	596	596
% less than 5 yrs teaching	Pearson Correlation	.227**	-.095*	1	.496**
	Sig. (2-tailed)	.000	.020		.000
	Sum of Squares and Cross-products	1563.859	-2441.430	98041.208	21113.842
	Covariance	2.628	-4.103	164.775	35.545
	N	596	596	596	595
% overall turnover	Pearson Correlation	.199**	.156**	.496**	1
	Sig. (2-tailed)	.000	.000	.000	
	Sum of Squares and Cross-products	597.255	1755.671	21113.842	18475.490
	Covariance	1.004	2.951	35.545	31.051
	N	596	596	595	596

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table A9: 2009-10 NY district school transitions variable /demographics correlations

		school transitions	SES/FRL levels	average core class size	total district enrollment
school transitions	Pearson Correlation	1	-.215**	.456**	.485**
	Sig. (2-tailed)		.000	.000	.000
	Sum of Squares and Cross-products	488.948	-2113.715	722.299	560848.013
	Covariance	.820	-3.547	1.216	941.020
	N	597	597	595	597
SES/FRL levels	Pearson Correlation	-.215**	1	-.357**	-.263**
	Sig. (2-tailed)	.000		.000	.000
	Sum of Squares and Cross-products	-2113.715	198469.471	-11302.399	-6137523.590
	Covariance	-3.547	333.002	-19.028	-10297.858
	N	597	597	595	597
average core class size	Pearson Correlation	.456**	-.357**	1	.572**
	Sig. (2-tailed)	.000	.000		.000
	Sum of Squares and Cross-products	722.299	-11302.399	5170.426	2147227.408
	Covariance	1.216	-19.028	8.704	3614.861
	N	595	595	595	595
total district enrollment	Pearson Correlation	.485**	-.263**	.572**	1
	Sig. (2-tailed)	.000	.000	.000	
	Sum of Squares and Cross-products	560848.013	-6137523.590	2147227.408	2.734E9
	Covariance	941.020	-10297.858	3614.861	4587545.645
	N	597	597	595	597

**. Correlation is significant at the 0.01 level (2-tailed).

Table A10: 2010-11 NY district school transitions variable /instructional staff demographics correlations

		school transitions	% masters + 30 cr.	% classes no HQ teacher	% no approp. certification
school transitions	Pearson Correlation	1	.296**	-.325**	-.315**
	Sig. (2-tailed)		.000	.000	.000
	Sum of Squares and Cross-products	491.920	3487.563	-281.494	-225.504
	Covariance	.824	5.852	-.472	-.378
	N	598	597	597	597
% masters + 30 cr.	Pearson Correlation	.296**	1	-.106**	-.088*
	Sig. (2-tailed)	.000		.010	.031
	Sum of Squares and Cross-products	3487.563	282870.201	-2197.915	-1518.347
	Covariance	5.852	474.614	-3.688	-2.548
	N	597	597	597	597
% classes no HQ teacher	Pearson Correlation	-.325**	-.106**	1	.848**
	Sig. (2-tailed)	.000	.010		.000
	Sum of Squares and Cross-products	-281.494	-2197.915	1520.928	1067.194
	Covariance	-.472	-3.688	2.552	1.791
	N	597	597	597	597
% no approp. certification	Pearson Correlation	-.315**	-.088*	.848**	1
	Sig. (2-tailed)	.000	.031	.000	
	Sum of Squares and Cross-products	-225.504	-1518.347	1067.194	1041.290
	Covariance	-.378	-2.548	1.791	1.747
	N	597	597	597	597

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Table A11 - 2010-11 NY district school transitions variable /instructional staff demographics correlations

		school transitions	% less than 3 yrs teaching	% less than 5 yrs teaching	% overall turnover
school transitions	Pearson Correlation	1	-.354**	.236**	.189**
	Sig. (2-tailed)		.000	.000	.000
	Sum of Squares and Cross-products	491.920	-607.149	1761.645	538.055
	Covariance	.824	-1.019	2.966	.904
	N	598	597	595	596
% less than 3 yrs teaching	Pearson Correlation	-.354**	1	-.145**	.154**
	Sig. (2-tailed)	.000		.000	.000
	Sum of Squares and Cross-products	-607.149	5993.018	-3785.497	1529.112
	Covariance	-1.019	10.055	-6.373	2.570
	N	597	597	595	596
% less than 5 yrs teaching	Pearson Correlation	.236**	-.145**	1	.520**
	Sig. (2-tailed)	.000	.000		.000
	Sum of Squares and Cross-products	1761.645	-3785.497	113623.455	22464.121
	Covariance	2.966	-6.373	191.285	37.882
	N	595	595	595	594
% overall turnover	Pearson Correlation	.189**	.154**	.520**	1
	Sig. (2-tailed)	.000	.000	.000	
	Sum of Squares and Cross-products	538.055	1529.112	22464.121	16433.240
	Covariance	.904	2.570	37.882	27.619
	N	596	596	594	596

**. Correlation is significant at the 0.01 level (2-tailed).

Table A12: 2010-11 NY district school transitions variable/demographics correlations

		school transitions	SES/FRL level	average core class size	total district enrollment
school transitions	Pearson Correlation	1	-.211**	.510**	.486**
	Sig. (2-tailed)		.000	.000	.000
	Sum of Squares and Cross-products	491.920	-2118.448	400.137	563545.799
	Covariance	.824	-3.548	1.170	943.963
	N	598	598	343	598
SES/FRL level	Pearson Correlation	-.211**	1	-.381**	-.266**
	Sig. (2-tailed)	.000		.000	.000
	Sum of Squares and Cross-products	-2118.448	204233.331	-6539.762	-6276996.120
	Covariance	-3.548	342.099	-19.122	-10514.231
	N	598	598	343	598
average core class size	Pearson Correlation	.510**	-.381**	1	.585**
	Sig. (2-tailed)	.000	.000		.000
	Sum of Squares and Cross-products	400.137	-6539.762	2616.732	1303846.296
	Covariance	1.170	-19.122	7.651	3812.416
	N	343	343	343	343
total district enrollment	Pearson Correlation	.486**	-.266**	.585**	1
	Sig. (2-tailed)	.000	.000	.000	
	Sum of Squares and Cross-products	563545.799	-6276996.120	1303846.296	2.735E9
	Covariance	943.963	-10514.231	3812.416	4581311.814
	N	598	598	343	598

**. Correlation is significant at the 0.01 level (2-tailed).

Appendix B – Partial Correlation Analyses Tables

Table B1a: 2007-08 All Student NY district graduation rates/ school transitions variable - partial correlations w/controls

Control Variables			grad rates-all students	grade-span grouping	SES/ FRL level	average core class size	% masters +30 cr.
-none-[a]	grad rates-all students	Correlation	1.000	.011	-.658	.265	.290
		Significance (2-tailed)	.	.799	.000	.000	.000
		Df	0	582	582	582	582
	school transitions	Correlation	.011	1.000	-.262	.425	.303
		Significance (2-tailed)	.799	.	.000	.000	.000
		Df	582	0	582	582	582
	SES/FRL level	Correlation	-.658	-.262	1.000	-.419	-.446
		Significance (2-tailed)	.000	.000	.	.000	.000
		Df	582	582	0	582	582
	average core class size	Correlation	.265	.425	-.419	1.000	.373
		Significance (2-tailed)	.000	.000	.000	.	.000
		Df	582	582	582	0	582
	% masters +30 cr.	Correlation	.290	.303	-.446	.373	1.000
		Significance (2-tailed)	.000	.000	.000	.000	.
		Df	582	582	582	582	0
SES level & average class size & % masters +30 cr.	grad rates-all students	Correlation	1.000	-.235			
		Significance (2-tailed)	.	.000			
		Df	0	579			
	school transitions	Correlation	-.235	1.000			
		Significance (2-tailed)	.000	.			
		Df	579	0			

a. Cells contain zero-order (Pearson) correlations.

Table B1b: 2007-08 NY district white student cohort graduation rates/ school transitions variable - partial correlations with controls

Control Variables			grad rates-whites	school transitions	SES/ FRL levels	average core class size	% masters + 30 cr.
-none-[a]	grad rates-whites	Correlation	1.000	.084	-.663	.271	.449
		Significance (2-tailed)	.	.044	.000	.000	.000
		Df	0	571	571	571	571
	school transitions	Correlation	.084	1.000	-.271	.430	.293
		Significance (2-tailed)	.044	.	.000	.000	.000
		Df	571	0	571	571	571
	SES/FRL levels	Correlation	-.663	-.271	1.000	-.434	-.478
		Significance (2-tailed)	.000	.000	.	.000	.000
		Df	571	571	0	571	571
	average core class size	Correlation	.271	.430	-.434	1.000	.395
		Significance (2-tailed)	.000	.000	.000	.	.000
		Df	571	571	571	0	571
	% masters + 30 cr.	Correlation	.449	.293	-.478	.395	1.000
		Significance (2-tailed)	.000	.000	.000	.000	.
		Df	571	571	571	571	0
SES/FRL levels & average core class size & % masters + 30 cr.	grad rates-whites	Correlation	1.000	-.163			
		Significance (2-tailed)	.	.000			
		Df	0	568			
	school transitions	Correlation	-.163	1.000			
		Significance (2-tailed)	.000	.			
		Df	568	0			

a. Cells contain zero-order (Pearson) correlations.

Table B2a: 2008-09 all student graduation rates/ school transitions variable - partial correlations with controls

Control Variables			Grad rates-all students	school transition	SES /FRL level	ave. core class size	% masters + 30cr.
-none-[a]	Grad rates-all students	Correlation	1.000	.061	-.708	.248	.305
		Significance (2-tailed)	.	.140	.000	.000	.000
		Df	0	583	583	583	583
	school transitions	Correlation	.061	1.000	-.245	.440	.290
		Significance (2-tailed)	.140	.	.000	.000	.000
		Df	583	0	583	583	583
	SES/FRL level	Correlation	-.708	-.245	1.000	-.410	-.423
		Significance (2-tailed)	.000	.000	.	.000	.000
		Df	583	583	0	583	583
	average core class size	Correlation	.248	.440	-.410	1.000	.403
		Significance (2-tailed)	.000	.000	.000	.	.000
		Df	583	583	583	0	583
	% masters + 30cr.	Correlation	.305	.290	-.423	.403	1.000
		Significance (2-tailed)	.000	.000	.000	.000	.
		Df	583	583	583	583	0
SES/FRL level & average core class size & % masters + 30cr.	Grad rates-all students	Correlation	1.000	-.155			
		Significance (2-tailed)	.	.000			
		Df	0	580			
	school transitions	Correlation	-.155	1.000			
		Significance (2-tailed)	.000	.			
		Df	580	0			

a. Cells contain zero-order (Pearson) correlations.

Table B2b:- 2008-09 NY district white student cohort graduation rates/ school transitions variable - partial correlations with controls

Control Variables			Grad rates-whites	school transitions	SES /FRL level	average core class size	% masters + 30cr.
-none-[a]	Grad rates-whites	Correlation	1.000	.132	-.683	.295	.426
		Significance (2-tailed)	.	.002	.000	.000	.000
		Df	0	574	574	574	574
	school transitions	Correlation	.132	1.000	-.268	.440	.279
		Significance (2-tailed)	.002	.	.000	.000	.000
		Df	574	0	574	574	574
	SES/FRL level	Correlation	-.683	-.268	1.000	-.416	-.455
		Significance (2-tailed)	.000	.000	.	.000	.000
		Df	574	574	0	574	574
	average core class size	Correlation	.295	.440	-.416	1.000	.408
		Significance (2-tailed)	.000	.000	.000	.	.000
		Df	574	574	574	0	574
	% masters + 30cr.	Correlation	.426	.279	-.455	.408	1.000
		Significance (2-tailed)	.000	.000	.000	.000	.
		Df	574	574	574	574	0
SES/FRL level & average core class size & % masters + 30cr.	Grad rates-whites	Correlation	1.000	-.103			
		Significance (2-tailed)	.	.013			
		Df	0	571			
	school transitions	Correlation	-.103	1.000			
		Significance (2-tailed)	.013	.			
		Df	571	0			

a. Cells contain zero-order (Pearson) correlations.

Table B3a: 2009-10 NY district full student cohort graduation rates/ school transitions variable - partial correlations with controls

Control Variables			Grad rates-all students	school transitions	SES/ FRL levels	average core class size	% masters + 30cr.
-none-[a]	Grad rates-all students	Correlation	1.000	.053	-.710	.230	.339
		Significance (2-tailed)	.	.201	.000	.000	.000
		Df	0	581	581	581	581
	school transitions	Correlation	.053	1.000	-.227	.421	.296
		Significance (2-tailed)	.201	.	.000	.000	.000
		Df	581	0	581	581	581
	SES/FRL levels	Correlation	-.710	-.227	1.000	-.404	-.412
		Significance (2-tailed)	.000	.000	.	.000	.000
		Df	581	581	0	581	581
	average core class size	Correlation	.230	.421	-.404	1.000	.407
		Significance (2-tailed)	.000	.000	.000	.	.000
		Df	581	581	581	0	581
	% masters + 30cr.	Correlation	.339	.296	-.412	.407	1.000
		Significance (2-tailed)	.000	.000	.000	.000	.
		Df	581	581	581	581	0
SES/FRL levels & average core class size & % masters + 30cr.	Grad rates-all students	Correlation	1.000	-.151			
		Significance (2-tailed)	.	.000			
		Df	0	578			
	school transitions	Correlation	-.151	1.000			
		Significance (2-tailed)	.000	.			
		Df	578	0			

a. Cells contain zero-order (Pearson) correlations.

Table B3b: 2009-10 NY district white student cohort graduation rates/ school transitions variable - partial correlations with controls

Control Variables			Grad rates-whites	school transitions	SES/ FRL levels	average core class size	% masters + 30 cr.
-none-[a]	Grad rates-whites	Correlation	1.000	.142	-.693	.310	.452
		Significance (2-tailed)	.	.001	.000	.000	.000
		Df	0	568	568	568	568
	school transitions	Correlation	.142	1.000	-.256	.417	.285
		Significance (2-tailed)	.001	.	.000	.000	.000
		Df	568	0	568	568	568
	SES/FRL levels	Correlation	-.693	-.256	1.000	-.429	-.444
		Significance (2-tailed)	.000	.000	.	.000	.000
		Df	568	568	0	568	568
	average core class size	Correlation	.310	.417	-.429	1.000	.398
		Significance (2-tailed)	.000	.000	.000	.	.000
		Df	568	568	568	0	568
	% masters + 30cr.	Correlation	.452	.285	-.444	.398	1.000
		Significance (2-tailed)	.000	.000	.000	.000	.
		Df	568	568	568	568	0
SES/FRL levels & average core class size & % masters + 30cr.	Grad rates-whites	Correlation	1.000	-.092			
		Significance (2-tailed)	.	.028			
		Df	0	565			
	school transitions	Correlation	-.092	1.000			
		Significance (2-tailed)	.028	.			
		Df	565	0			

a. Cells contain zero-order (Pearson) correlations.

Table B4a: 2010-11 NY district total student graduation rates/ school transitions variable - partial correlations with controls

Control Variables			Grad rates-all students	school transitions	SES/ FRL level	average core class size	% masters + 30 cr.
-none-[a]	Grad rates-all students	Correlation	1.000	.048	-.785	.227	.329
		Significance (2-tailed)	.	.376	.000	.000	.000
		Df	0	340	340	340	340
	school transitions	Correlation	.048	1.000	-.208	.511	.325
		Significance (2-tailed)	.376	.	.000	.000	.000
		Df	340	0	340	340	340
	SES/FRL level	Correlation	-.785	-.208	1.000	-.384	-.361
		Significance (2-tailed)	.000	.000	.	.000	.000
		Df	340	340	0	340	340
	average core class size	Correlation	.227	.511	-.384	1.000	.451
		Significance (2-tailed)	.000	.000	.000	.	.000
		Df	340	340	340	0	340
	% masters + 30 cr.	Correlation	.329	.325	-.361	.451	1.000
		Significance (2-tailed)	.000	.000	.000	.000	.
		Df	340	340	340	340	0
SES/FRL level & average core class size & % masters + 30 cr.	Grad rates-all students	Correlation	1.000	-.167			
		Significance (2-tailed)	.	.002			
		Df	0	337			
	school transitions	Correlation	-.167	1.000			
		Significance (2-tailed)	.002	.			
		Df	337	0			

a. Cells contain zero-order (Pearson) correlations.

Table B4b: 2010-11 NY district white student graduation rates/ school transitions variable - partial correlations with controls

Control Variables			Grad rates-whites	school transitions	SES/FRL level	average core class size	% masters + 30 cr.
-none-[a]	Grad rates-whites	Correlation	1.000	.124	-.736	.325	.449
		Significance (2-tailed)	.	.023	.000	.000	.000
		Df	0	335	335	335	335
	school transitions	Correlation	.124	1.000	-.229	.519	.319
		Significance (2-tailed)	.023	.	.000	.000	.000
		Df	335	0	335	335	335
	SES/FRL level	Correlation	-.736	-.229	1.000	-.413	-.391
		Significance (2-tailed)	.000	.000	.	.000	.000
		Df	335	335	0	335	335
	average core class size	Correlation	.325	.519	-.413	1.000	.451
		Significance (2-tailed)	.000	.000	.000	.	.000
		Df	335	335	335	0	335
	% masters + 30 cr.	Correlation	.449	.319	-.391	.451	1.000
		Significance (2-tailed)	.000	.000	.000	.000	.
		Df	335	335	335	335	0
SES/FRL level & average core class size & % masters + 30 cr.	Grad rates-whites	Correlation	1.000	-.130			
		Significance (2-tailed)	.	.018			
		Df	0	332			
	school transitions	Correlation	-.130	1.000			
		Significance (2-tailed)	.018	.			
		Df	332	0			

a. Cells contain zero-order (Pearson) correlations.

Appendix C – Final Regression Analysis Tables

Table C1a: Total student cohort graduation rates regression ANOVA and model summary - 2007-08

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.011[a]	.000	.065	10.250	.000	.065	1	582	.799[a]
2	.679[b]	.461	248.78	7.530	.461	497.433	1	581	.000[b]
3	.681[c]	.464	167.42	7.517	.003	2.989	1	580	.000[c]
4	.682[d]	.465	125.64	7.519	.001	.625	1	579	000[d]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL levels
c. Predictors: (Constant), transition types, SES/FRL levels, average class size
d. Predictors: (Constant), transition types, SES/FRL levels, average class size, %Masters+30cr.

Table C1a$_2$: Total student graduation rates regression ANOVA and model summary - 2007-08

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.658[a]	.433	444.79	7.717	.433	444.792	1	582	.000
2	.679[b]	.461	248.78	7.530	.028	30.339	1	581	.000
3	.681[c]	.464	167.42	7.517	.003	2.989	1	580	.084
4	.682[d]	.465	125.64	7.519	.001	.625	1	579	.430

a. Predictors: (Constant), SES/FRL levels
b. Predictors: (Constant), SES/FRL levels, transition types
c. Predictors: (Constant), SES/FRL levels, transition types, average class size
d. Predictors: (Constant), SES/FRL levels, transition types, average class size, %Masters+30cr.

Table C1b: Total student cohort graduation rates regression coefficients[a] – 2007-08

Model		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta			Lower Bound	Upper Bound
1	(Constant)		59.777	.000	79.306	84.695
	transition types	.011	.254	.799	-.814	1.056
2	(Constant)		77.378	.000	97.545	102.626
	transition types	-.174	-5.508	.000	-2.707	-1.284
	SES/FRL levels	-.704	-22.303	.000	-.460	-.386
3	(Constant)		33.804	.000	90.166	101.290
	transition types	-.195	-5.770	.000	-2.997	-1.475
	SES/FRL levels	-.683	-20.303	.000	-.451	-.371
	average class size	.062	1.729	.084	-.033	.515
4	(Constant)		33.784	.000	90.142	101.270
	transition types	-.199	-5.822	.000	-3.051	-1.512
	SES/FRL levels	-.674	-18.873	.000	-.447	-.363
	average class size	.057	1.573	.116	-.055	.501
	%Masters+30cr.	.028	.790	.430	-.023	.053

a. Dependent Variable: grad rates-all students

Table C2a: Total student cohort graduation rates regression ANOVA and model summary - 2008-09

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.061[a]	.014	2.18	9.815	.004	2.180	1	583	.140[a]
2	.717[b]	.515	308.59	6.856	.511	612.711	1	582	.000[b]
3	.717[c]	.515	205.38	6.862	.000	.006	1	581	.000[c]
4	.718[d]	.516	154.42	6.861	.001	1.270	1	580	.000[d]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL level
c. Predictors: (Constant), transition types, SES/FRL level, average class size
d. Predictors: (Constant), transition types, SES/FRL level, average class size, %Masters+30cr.

Table C2a$_2$: Total student cohort graduation rates regression ANOVA and model summary - 2008-09

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.708[a]	.501	585.994	6.944	.501	585.994	1	583	.000[a]
2	.717[b]	.515	308.59	6.856	.013	16.054	1	582	.000[b]
3	.717[c]	.515	205.38	6.862	.000	.006	1	581	.000[c]
4	.718[d]	.516	154.42	6.861	.001	1.270	1	580	.000[d]

a. Predictors: (Constant), SES/FRL level
b. Predictors: (Constant), SES/FRL level, transition types
c. Predictors: (Constant), SES/FRL level, transition types, average class size
d. Predictors: (Constant), SES/FRL level, transition types, average class size, %Masters+30cr.

Table C2b: Total student cohort graduation rates regression coefficients[a] – 2008-09

Model		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta			Lower Bound	Upper Bound
1	(Constant)		61.624	.000	78.390	83.551
	transition types	.061	1.477	.140	-.222	1.564
2	(Constant)		84.531	.000	96.657	101.255
	transition types	-.119	-4.007	.000	-1.956	-.669
	SES/FRL level	-.737	-24.753	.000	-.446	-.381
3	(Constant)		40.010	.000	94.255	103.986
	transition types	-.118	-3.668	.000	-1.999	-.605
	SES/FRL level	-.738	-23.220	.000	-.449	-.379
	average class size	-.003	-.075	.940	-.253	.235
4	(Constant)		40.034	.000	94.352	104.087
	transition types	-.123	-3.776	.000	-2.052	-.648
	SES/FRL level	-.727	-21.807	.000	-.444	-.371
	average class size	-.011	-.319	.750	-.291	.209
	%Masters+30cr.	.038	1.127	.260	-.014	.051

a. Dependent Variable: Grad rates-all students

Table C3a: Total student cohort graduation rates regression ANOVA and model summary - 2009-10

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.053[a]	.003	1.64	8.734	.003	1.640	1	581	.000[a]
2	.718[b]	.516	309.15	6.090	.513	614.930	1	580	.000[b]
3	.719[c]	.517	206.18	6.092	.001	.630	1	579	.000[c]
4	.724[d]	.524	159.00	6.051	.007	8.959	1	578	.000[d]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL levels
c. Predictors: (Constant), transition types, SES/FRL levels, average class size
d. Predictors: (Constant), transition types, SES/FRL levels, average class size, %Masters+30cr.

Table C3a$_2$: Total student cohort graduation rates regression ANOVA and model summary - 2009-10

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.710[a]	.504	589.70	6.161	.504	589.701	1	581	.000[a]
2	.718[b]	.516	309.15	6.090	.012	14.699	1	580	.000[b]
3	.719[c]	.517	206.18	6.092	.001	.630	1	579	.000[c]
4	.724[d]	.524	159.00	6.051	.007	8.959	1	578	.000[d]

a. Predictors: (Constant), SES/FRL levels
b. Predictors: (Constant), SES/FRL levels, transition types
c. Predictors: (Constant), SES/FRL levels, transition types, average class size
d. Predictors: (Constant), SES/FRL levels, transition types, average class size, %Masters+30cr.

Table C3b: Total student cohort graduation rates regression coefficients[a] – 2009-10

Model		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta			Lower Bound	Upper Bound
1	(Constant)		70.234	.000	80.229	84.845
	transition types	.053	1.281	.201	-.277	1.318
2	(Constant)		94.421	.000	96.530	100.631
	transition types	-.114	-3.834	.000	-1.686	-.544
	SES/FRL levels	-.736	-24.798	.000	-.389	-.332
3	(Constant)		44.652	.000	95.750	104.561
	transition types	-.104	-3.267	.001	-1.638	-.408
	SES/FRL levels	-.744	-23.505	.000	-.395	-.334
	average class size	-.027	-.794	.428	-.304	.129
4	(Constant)		45.054	.000	96.137	104.901
	transition types	-.117	-3.668	.000	-1.768	-.535
	SES/FRL levels	-.716	-21.781	.000	-.382	-.319
	average class size	-.050	-1.455	.146	-.385	.057
	%Masters+30cr.	.099	2.993	.003	.014	.068

a. Dependent Variable: Grad rates-all students

Table C4a: Total student cohort graduation rates regression ANOVA and model summary - 2010-11

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.075[a]	.009	3.32	8.867	.009	3.317	1	582	.069[a]
2	.723[b]	.523	318.08	6.149	.517	629.252	1	581	.000[b]
3	.723[c]	.523	211.98	6.152	.000	.421	1	580	.000[c]
4	.724[d]	.524	159.09	6.154	.001	.726	1	579	.000[b]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL level
c. Predictors: (Constant), transition types, SES/FRL level, average core class size
d. Predictors: (Constant), transition types, SES/FRL level, average core class size, %Masters+30cr.

Table C4a$_2$: Total student cohort graduation rates regression ANOVA and model summary - 2010-11

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.716[a]	.513	613.57	6.204	.513	613.571	1	582	.000[a]
2	.723[b]	.523	318.08	6.149	.009	11.505	1	581	.000[b]
3	.723[c]	.523	211.98	6.152	.000	.421	1	580	.000[c]
4	.724[d]	.524	159.09	6.154	.001	.726	1	579	.000[b]

a. Predictors: (Constant), SES/FRL level
b. Predictors: (Constant), SES/FRL level, transition types
c. Predictors: (Constant), SES/FRL level, transition types, average core class size
d. Predictors: (Constant), SES/FRL level, transition types, average core class size, %Masters+30cr.

Table C4b: Total student cohort graduation regression coefficients – 2010-11

Model		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta			Lower Bound	Upper Bound
1	(Constant)		69.805	.000	80.292	84.941
	transition types	.075	1.821	.069	-.058	1.551
2	(Constant)		93.827	.000	97.353	101.516
	transition types	-.100	-3.392	.001	-1.566	-.418
	SES/FRL level	-.740	-25.085	.000	-.395	-.338
3	(Constant)		47.243	.000	96.449	104.817
	transition types	-.091	-2.809	.005	-1.537	-.272
	SES/FRL level	-.746	-24.196	.000	-.399	-.339
	average core class size	-.022	-.649	.517	-.278	.140
4	(Constant)		47.227	.000	96.520	104.896
	transition types	-.095	-2.895	.004	-1.578	-.302
	SES/FRL level	-.738	-22.859	.000	-.397	-.334
	average core class size	-.028	-.820	.412	-.303	.125
	%Masters+30cr.	.028	.852	.394	-.015	.038

a. Dependent Variable: Grad rates-all students

Table C5a: Special 2006/2010 student cohort graduation rates regression ANOVA and model summary - 2009-10

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df 1	df2	Sig.
1	.039[a]	.002	.908	8.667	.011	.908	1	588	.341[a]
2	.672[b]	.452	241.98	6.427	.450	482.304	1	587	.000[b]
3	.673[c]	.453	161.62	6.427	.001	.949	1	586	.000[c]
4	.677[d]	.458	123.77	6.400	.006	6.039	1	585	.000[d]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL levels
c. Predictors: (Constant), transition types, SES/FRL levels, average class size
d. Predictors: (Constant), transition types, SES/FRL levels, average class size, %Masters+30cr.

Table C5a$_2$: Special 2006/2010 student cohort graduation rates regression ANOVA and model summary - 2009-10

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df 1	df2	Sig.
1	.664[a]	.441	463.52	6.486	.441	463.515	1	588	.000[a]
2	.672[b]	.452	241.98	6.427	.011	11.871	1	587	.000[b]
3	.673[c]	.453	161.62	6.427	.001	.949	1	586	.000[c]
4	.677[d]	.458	123.77	6.400	.006	6.039	1	585	.000[b]

a. Predictors: (Constant), SES/FRL levels
b. Predictors: (Constant), SES/FRL levels, transition types
c. Predictors: (Constant), SES/FRL levels, transition types, average class size
d. Predictors: (Constant), SES/FRL levels, transition types, average class size, %Masters+30cr.

Table C5b: Special 2006/2010 student cohort graduation rates regression coefficients – 2009-10

Model		Standardized Coefficients			95.0% Confidence Interval for B	
		Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)		74.834	.000	82.977	87.450
	transition types	.039	.953	.341	-.400	1.153
2	(Constant)		92.955	.000	97.653	101.869
	transition types	-.108	-3.445	.001	-1.623	-.445
	SES/FRL levels	-.687	-21.961	.000	-.364	-.304
3	(Constant)		46.382	.000	93.839	102.138
	transition types	-.121	-3.542	.000	-1.811	-.519
	SES/FRL levels	-.677	-20.653	.000	-.360	-.298
	average class size	.035	.974	.330	-.105	.312
4	(Constant)		46.605	.000	93.913	102.177
	transition types	-.133	-3.868	.000	-1.930	-.630
	SES/FRL levels	-.651	-18.954	.000	-.349	-.284
	average class size	.017	.465	.642	-.162	.262
	%Masters+30cr.	.086	2.457	.014	.007	.063

a. Dependent Variable: Grad rates-special 2006-10 cohort

Table C6a: Special 2007/2011 student cohort graduation rates regression ANOVA and model summary - 2010-11

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.081[a]	.007	3.910	8.292	.007	3.910	1	587	.048[a]
2	.705[b]	.498	290.17	5.902	.491	572.615	1	586	.000[b]
3	.705[c]	.498	193.12	5.907	.000	.005	1	585	.000[c]
4	.706[d]	.498	144.94	5.909	.001	.696	1	584	.000[d]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL level
c. Predictors: (Constant), transition types, SES/FRL level, average class size
d. Predictors: (Constant), transition types, SES/FRL level, average class size, %Masters+30cr.

Table C6a$_2$: Special 2007/2011 student cohort graduation rates regression ANOVA and model summary - 2010-11

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.700[a]	.490	564.74	5.939	.490	564.735	1	587	.000[a]
2	.705[b]	.498	290.16	5.902	.007	8.440	1	586	.000[b]
3	.705[c]	.498	193.11	5.907	.000	.005	1	585	.000[c]
4	.706[d]	.498	144.93	5.909	.001	.696	1	584	.000[b]

a. Predictors: (Constant), SES/FRL level
b. Predictors: (Constant), SES/FRL level, transition types
c. Predictors: (Constant), SES/FRL level, transition types, average core class size
d. Predictors: (Constant), SES/FRL level, transition types, average class size, %Masters+30cr.

Table C6b: Special 2007/2011 student cohort graduation rates regression coefficients[a] – 2010-11

Model		Standardized Coefficients			95.0% Confidence Interval for B	
		Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)		77.999	.000	82.513	86.775
	transition types	.081	1.977	.048	.005	1.486
2	(Constant)		99.765	.000	97.922	101.855
	transition types	-.088	-2.905	.004	-1.344	-.260
	SES/FRL level	-.721	-23.929	.000	-.363	-.308
3	(Constant)		52.713	.000	96.277	103.729
	transition types	-.086	-2.566	.011	-1.398	-.186
	SES/FRL level	-.721	-23.098	.000	-.364	-.307
	average core class size	-.002	-.071	.943	-.195	.182
4	(Constant)		52.704	.000	96.313	103.770
	transition types	-.090	-2.652	.008	-1.437	-.214
	SES/FRL level	-.713	-21.753	.000	-.362	-.302
	average core class size	-.009	-.250	.803	-.218	.168
	%Masters+30cr.	.028	.834	.405	-.015	.036

a. Dependent Variable: Grad rates-special 2007-11 cohort

Table C7a: White student cohort graduation rates regression ANOVA and model summary - 2007-08

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.084[a]	.007	4.09	8.949	.007	4.087	1	571	.044[a]
2	.670[b]	.449	232.31	6.672	.442	457.274	1	570	.000[b]
3	.670[c]	.449	154.82	6.676	.000	.357	1	569	.000[c]
4	.692[d]	.479	130.63	6.499	.030	32.413	1	568	.000[d]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL levels
c. Predictors: (Constant), transition types, SES/FRL levels, average class size
d. Predictors: (Constant), transition types, SES/FRL levels, class size, %Masters+30cr.

Table C7a$_2$: White student cohort graduation rates regression ANOVA and model summary - 2007-08

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.663[a]	.439	447.28	6.725	.439	447.280	1	571	.000[a]
2	.670[b]	.449	232.31	6.672	.010	10.166	1	570	.000[b]
3	.670[c]	.449	154.82	6.676	.000	.357	1	569	.000[c]
4	.692[d]	.479	130.63	6.499	.030	32.413	1	568	.000[d]

a. Predictors: (Constant), SES/FRL levels
b. Predictors: (Constant), SES/FRL levels, transition types
c. Predictors: (Constant), SES/FRL levels, transition types, average class size
d. Predictors: (Constant), SES/FRL levels, transition types, class size, %Masters+30cr.

Table C7b: White student cohort graduation rates regression coefficients – 2007-08

Model		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta			Lower Bound	Upper Bound
1	(Constant)		66.709	.000	79.037	83.832
	transition types	.084	2.022	.044	.024	1.689
2	(Constant)		82.821	.000	95.026	99.643
	transition types	-.103	-3.188	.002	-1.692	-.402
	SES/FRL levels	-.691	-21.384	.000	-.408	-.339
3	(Constant)		36.656	.000	90.796	101.077
	transition types	-.110	-3.188	.002	-1.814	-.431
	SES/FRL levels	-.683	-19.679	.000	-.406	-.332
	average class size	.022	.598	.550	-.176	.330
4	(Constant)		37.612	.000	90.827	100.836
	transition types	-.134	-3.930	.000	-2.035	-.679
	SES/FRL levels	-.609	-16.803	.000	-.368	-.291
	average class size	-.016	-.436	.663	-.306	.195
	%Masters+30cr.	.203	5.693	.000	.064	.131

a. Dependent Variable: grad rates-whites

Table C8a: White student cohort graduation rates regression ANOVA and model summary - 2008-09

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.132[a]	.017	10.17	8.893	.017	10.167	1	574	.002[a]
2	.685[b]	.469	252.91	6.544	.451	487.044	1	573	.000[b]
3	.686[c]	.470	169.15	6.542	.001	1.328	1	572	.000[c]
4	.699[d]	.489	136.58	6.430	.019	21.066	1	571	.000[d]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL level
c. Predictors: (Constant), transition types, SES/FRL level, average class size
d. Predictors: (Constant), transition types, SES/FRL level, average class size, %Masters+30cr.

Table C8a$_2$: White student cohort graduation rates regression ANOVA and model summary - 2008-09

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.683[a]	.466	506.10	6.555	.466	501.096	1	574	.000[a]
2	.685[b]	.469	252.91	6.544	.003	2.988	1	573	.000[b]
3	.686[c]	.470	169.15	6.542	.001	1.328	1	572	.000[c]
4	.699[d]	.489	136.58	6.430	.019	21.066	1	571	.000[d]

a. Predictors: (Constant), SES/FRL level
b. Predictors: (Constant), SES/FRL level, transition types
c. Predictors: (Constant), SES/FRL level, transition types, average class size
d. Predictors: (Constant), SES/FRL level, transition types, average class size, %Masters+30cr.

Table C8b: White student cohort graduation rates regression coefficients – 2008-09

Model		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta			Lower Bound	Upper Bound
1	(Constant)		66.741	.000	78.181	82.922
	transition types	.132	3.189	.002	.513	2.159
2	(Constant)		84.139	.000	94.359	98.870
	transition types	-.055	-1.729	.084	-1.182	.075
	SES/FRL level	-.697	-22.069	.000	-.396	-.332
3	(Constant)		39.066	.000	89.437	98.906
	transition types	-.069	-2.035	.042	-1.380	-.025
	SES/FRL level	-.684	-20.330	.000	-.392	-.323
	average class size	.042	1.152	.250	-.098	.375
4	(Constant)		39.827	.000	89.728	99.037
	transition types	-.084	-2.484	.013	-1.515	-.177
	SES/FRL level	-.630	-17.942	.000	-.365	-.293
	average class size	.005	.130	.897	-.222	.254
	%Masters+30cr.	.161	4.590	.000	.042	.104

a. Dependent Variable: Grad rates-whites

Table C9a: White student cohort graduation rates regression ANOVA and model summary - 2009-10

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.142[a]	.020	11.62	8.229	.020	11.619	1	568	.001[a]
2	.694[b]	.481	262.91	5.993	.461	503.918	1	567	.000[b]
3	.694[c]	.482	175.56	5.993	.001	.924	1	566	.000[c]
4	.715[d]	.511	147.38	5.830	.029	33.034	1	565	.000[d]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL levels
c. Predictors: (Constant), transition types, SES/FRL levels, average class size
d. Predictors: (Constant), transition types, SES/FRL levels, average class size, %Masters+30cr.

Table C9a$_2$: White student cohort graduation rates regression ANOVA and model summary - 2009-10

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.693[a]	.480	523.82	5.996	.480	523.820	1	568	.000[a]
2	.694[b]	.481	262.91	5.993	.001	1.522	1	567	.000[b]
3	.694[c]	.482	175.56	5.993	.001	.924	1	566	.000[c]
4	.715[d]	.511	147.38	5.830	.029	33.034	1	565	.000[d]

a. Predictors: (Constant), SES/FRL levels
b. Predictors: (Constant), SES/FRL levels, transition types
c. Predictors: (Constant), SES/FRL levels, transition types, average class size
d. Predictors: (Constant), SES/FRL levels, transition types, average class size, %Masters+30cr.

Table C9b: White student cohort graduation rates regression coefficients– 2009-10

Model		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta			Lower Bound	Upper Bound
1	(Constant)		71.381	.000	79.176	83.657
	transition types	.142	3.409	.001	.570	2.120
2	(Constant)		90.171	.000	94.501	98.709
	transition types	-.039	-1.234	.218	-.951	.217
	SES/FRL levels	-.703	-22.448	.000	-.360	-.302
3	(Constant)		41.580	.000	90.202	99.146
	transition types	-.050	-1.493	.136	-1.098	.150
	SES/FRL levels	-.691	-20.532	.000	-.356	-.294
	average class size	.034	.961	.337	-.111	.323
4	(Constant)		42.836	.000	90.548	99.251
	transition types	-.072	-2.206	.028	-1.298	-.075
	SES/FRL levels	-.627	-18.141	.000	-.327	-.263
	average class size	-.007	-.202	.840	-.238	.194
	%Masters+30cr.	.197	5.748	.000	.051	.103

a. Dependent Variable: Grad rates-whites

Table C10a: White student cohort graduation rates regression ANOVA and model summary - 2010-11

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.114[a]	.013	7.58	8.020	.013	7.582	1	572	.006[a]
2	.696[b]	.485	268.41	5.801	.471	522.330	1	571	.000[b]
3	.697[c]	.485	179.18	5.802	.001	.849	1	570	.000[c]
4	.708[d]	.502	143.63	5.713	.017	18.960	1	569	.000[d]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL level
c. Predictors: (Constant), transition types, SES/FRL level, average core class size
d. Predictors: (Constant), transition types, SES/FRL level, average core class size, %Masters+30cr.

Table C10a$_2$: White student cohort graduation rates regression ANOVA and model summary - 2010-11

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.693[a]	.480	527.82	5.822	.480	527.824	1	572	.000[a]
2	.696[b]	.485	268.41	5.801	.005	5.160	1	571	.000[b]
3	.697[c]	.485	179.18	5.802	.001	.849	1	570	.000[c]
4	.708[d]	.502	143.63	5.713	.017	18.960	1	569	.000[d]

a. Predictors: (Constant), SES/FRL level
b. Predictors: (Constant), SES/FRL level, transition types
c. Predictors: (Constant), SES/FRL level, transition types, average core class size
d. Predictors: (Constant), SES/FRL level, transition types, average core class size, %Masters+30cr.

Table C10b: White student cohort graduation rates regression coefficients– 2010-11

Model		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta			Lower Bound	Upper Bound
1	(Constant)		76.024	.000	80.948	85.242
	transition types	.114	2.754	.006	.299	1.789
2	(Constant)		95.061	.000	96.313	100.377
	transition types	-.071	-2.272	.023	-1.203	-.087
	SES/FRL level	-.711	-22.855	.000	-.356	-.299
3	(Constant)		47.159	.000	92.685	100.741
	transition types	-.083	-2.450	.015	-1.373	-.151
	SES/FRL level	-.702	-21.590	.000	-.353	-.294
	average core class size	.033	.922	.357	-.106	.292
4	(Constant)		47.973	.000	92.922	100.856
	transition types	-.099	-2.940	.003	-1.510	-.300
	SES/FRL level	-.652	-19.134	.000	-.331	-.269
	average core class size	-.002	-.055	.956	-.207	.195
	%Masters+30cr.	.151	4.354	.000	.031	.081

a. Dependent Variable: Grad rates-whites

Table C11a: Disabled student cohort graduation rates regression ANOVA and model summary - 2007-08

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.029[a]	.001	.148	19.065	.001	.148	1	178	.701[a]
2	.730[b]	.532	100.76	13.079	.532	201.202	1	177	.000[b]
3	.730[c]	.533	67.02	13.104	.001	.324	1	176	.000[c]
4	.760[d]	.578	59.97	12.493	.045	18.656	1	175	.000[d]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL levels
c. Predictors: (Constant), transition types, SES/FRL levels, average class size
d. Predictors: (Constant), transition types, SES/FRL levels, average class size, %Masters+30cr.

Table C11b: Disabled student cohort graduation rates regression coefficients[a] – 2007-08

Model		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta			Lower Bound	Upper Bound
1	(Constant)		5.689	.000	33.997	70.105
	transition types	.029	.384	.701	-4.331	6.424
2	(Constant)		9.351	.000	46.442	71.286
	transition types	.128	2.469	.015	.935	8.381
	SES/FRL levels	-.736	-14.185	.000	-.866	-.655
3	(Constant)		4.401	.000	36.797	96.637
	transition types	.128	2.468	.015	.934	8.395
	SES/FRL levels	-.751	-12.846	.000	-.895	-.657
	average class size	-.033	-.570	.570	-1.573	.868
4	(Constant)		4.923	.000	42.750	99.956
	transition types	.112	2.262	.025	.521	7.654
	SES/FRL levels	-.718	-12.767	.000	-.857	-.627
	average class size	-.077	-1.369	.173	-2.004	.362
	%Masters+30cr.	.222	4.319	.000	.111	.296

a. Dependent Variable: grad rates-disabled

Table C12a: Disabled student cohort graduation rates regression ANOVA and model summary - 2008-09

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.056[a]	.003	.593	**18.623**	**.003**	.593	1	191	.442[a]
2	.717[b]	.514	100.36	13.041	.511	199.511	1	190	.000[b]
3	.717[c]	.514	66.57	13.075	.000	.024	1	189	.000[c]
4	.750[d]	.563	60.55	12.428	.049	21.169	1	188	.000[d]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL level
c. Predictors: (Constant), transition types, SES/FRL level, average class size
d. Predictors: (Constant), transition types, SES/FRL level, average class size, %Masters+30cr.

Table C12b: Disabled student cohort graduation rates regression coefficients[a] –2008-09

Model		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta			Lower Bound	Upper Bound
1	(Constant)		7.718	.000	49.023	82.681
	transition types	-.056	-.770	.442	-6.969	3.055
2	(Constant)		11.192	.000	55.084	78.655
	transition types	.090	1.744	.083	-.416	6.748
	SES/FRL level	-.729	-14.125	.000	-.824	-.622
3	(Constant)		5.446	.000	43.745	93.434
	transition types	.091	1.746	.082	-.414	6.795
	SES/FRL level	-.732	-13.338	.000	-.833	-.618
	average class size	-.008	-.155	.877	-1.130	.965
4	(Constant)		6.065	.000	49.138	96.512
	transition types	.055	1.100	.273	-1.535	5.403
	SES/FRL level	-.672	-12.488	.000	-.771	-.561
	average class size	-.048	-.925	.356	-1.483	.537
	%Masters+30cr.	.238	4.601	.000	.114	.286

a. Dependent Variable: Grad rates-disabled

Table C13a: Disabled student cohort graduation rates regression ANOVA and model summary - 2009-10

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.031[a]	.001	.182	17.461	.001	.182	1	184	.670[a]
2	.724[b]	.524	100.55	12.091	.523	200.713	1	183	.000[b]
3	.734[c]	.539	70.96	11.925	.016	6.142	1	182	.000[c]
4	.783[d]	.613	71.82	10.951	.074	34.823	1	181	.000[d]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL levels
c. Predictors: (Constant), transition types, SES/FRL levels, average class size
d. Predictors: (Constant), transition types, SES/FRL levels, average class size, %Masters+30cr.

Table C13b: Disabled student cohort graduation rates regression coefficients –2009-10

Model		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta			Lower Bound	Upper Bound
1	(Constant)		7.778	.000	46.792	78.598
	transition types	-.031	-.427	.670	-5.721	3.685
2	(Constant)		11.972	.000	55.892	77.949
	transition types	.093	1.798	.074	-.294	6.316
	SES/FRL levels	-.734	-14.167	.000	-.721	-.545
3	(Constant)		3.039	.003	13.527	63.627
	transition types	.086	1.675	.096	-.493	6.037
	SES/FRL levels	-.675	-12.003	.000	-.678	-.487
	average class size	.137	2.478	.014	.266	2.348
4	(Constant)		4.200	.000	26.296	72.891
	transition types	.047	.990	.323	-1.508	4.547
	SES/FRL levels	-.632	-12.110	.000	-.634	-.456
	average class size	.061	1.159	.248	-.407	1.566
	%Masters+30cr.	.293	5.901	.000	.145	.292

a. Dependent Variable: Grad rates-disabled

Table C14a: Disabled student cohort graduation rates regression ANOVA and model summary - 2010-11

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.037[a]	.001	.107	17.253	.001	.270	1	194	.744[a]
2	.760[b]	.577	111.14	11.255	.576	262.853	1	193	.000[b]
3	.760[c]	.577	87.40	11.284	.000	.038	1	192	.000[c]
4	.792[d]	.628	69.45	10.619	.050	25.765	1	191	.000[d]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL level
c. Predictors: (Constant), transition types, SES/FRL level, average core class size
d. Predictors: (Constant), transition types, SES/FRL level, average core class size, %Masters+30cr.

Table C14a$_2$: Disabled student cohort graduation rates regression ANOVA and model summary - 2010-11

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.750[a]	.562	248.90	11.427	.562	248.897	1	194	.000[a]
2	.760[b]	.577	111.14	11.255	.015	6.953	1	193	.000[b]
3	.760[c]	.577	87.40	11.284	.000	.038	1	192	.000[c]
4	.792[d]	.628	69.45	10.619	.050	25.765	1	191	.000[d]

a. Predictors: (Constant), SES/FRL level
b. Predictors: (Constant), SES/FRL level, transition types
c. Predictors: (Constant), SES/FRL level, transition types, average class size
d. Predictors: (Constant), SES/FRL level, transition types, class size, %Masters+30cr.

Table C14b: Disabled student cohort graduation rates regression coefficients[a] – 2010-11

Model		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta			Lower Bound	Upper Bound
1	(Constant)		8.047	.000	44.147	72.812
	transition types	.037	.519	.604	-3.152	5.406
2	(Constant)		14.234	.000	58.572	77.416
	transition types	.124	2.637	.009	.947	6.566
	SES/FRL level	-.764	-16.213	.000	-.698	-.547
3	(Constant)		6.396	.000	45.788	86.621
	transition types	.122	2.492	.014	.768	6.597
	SES/FRL level	-.760	-14.649	.000	-.703	-.536
	average core class size	.010	.195	.846	-.822	1.002
4	(Constant)		7.339	.000	52.631	91.324
	transition types	.103	2.233	.027	.363	5.867
	SES/FRL level	-.725	-14.713	.000	-.670	-.512
	average core class size	-.048	-.941	.348	-1.301	.461
	%Masters+30cr.	.239	5.076	.000	.105	.239

Table C14a$_2$: Disabled student cohort graduation rates regression ANOVA and model summary - 2010-11

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.750[a]	.562	248.90	11.427	.562	248.897	1	194	.000[a]
2	.760[b]	.577	111.14	11.255	.015	6.953	1	193	.000[b]
3	.760[c]	.577	87.40	11.284	.000	.038	1	192	.000[c]
4	.792[d]	.628	69.45	10.619	.050	25.765	1	191	.000[d]

a. Dependent Variable: Grad rates-disabled

Table C15a: Economically disadvantaged student cohort graduation rates regression ANOVA and model summary - 2007-08

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.139[a]	.019	3.52	13.685	.019	3.515	1	178	.062[a]
2	.373[b]	.139	14.30	12.858	.120	24.619	1	177	.000[b]
3	.410[c]	.168	11.86	12.675	.029	6.138	1	176	.000[c]
4	.410[d]	.168	8.85	12.711	.000	.016	1	175	.000[d]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL levels
c. Predictors: (Constant), transition types, SES/FRL levels, average class size
d. Predictors: (Constant), transition types, SES/FRL levels, class size, %Masters+30cr.

Table C15b: Economically disadvantaged student cohort graduation rates regression coefficients[a] – 2007-08

Model		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta			Lower Bound	Upper Bound
1	(Constant)		9.488	.000	44.181	67.386
	transition types	.139	1.875	.062	-.178	6.951
2	(Constant)		11.178	.000	53.984	77.133
	transition types	.146	2.099	.037	.213	6.913
	SES/FRL levels	-.346	-4.962	.000	-.405	-.175
3	(Constant)		3.790	.000	20.168	63.987
	transition types	.124	1.791	.075	-.309	6.353
	SES/FRL levels	-.269	-3.568	.000	-.350	-.101
	average class size	.188	2.478	.014	.231	2.041
4	(Constant)		3.742	.000	19.813	64.027
	transition types	.126	1.782	.076	-.329	6.445
	SES/FRL levels	-.270	-3.557	.000	-.352	-.101
	average class size	.190	2.450	.015	.223	2.072
	%Masters+30cr.	-.009	-.128	.899	-.111	.098

a. Dependent Variable: grad rates-disadvantaged

Table C16a: Economically disadvantaged student cohort graduation rates regression ANOVA and model summary - 2008-09

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.016[a]	.000	.054	11.899	.000	.054	1	211	.817[a]
2	.226[b]	.051	5.67	11.620	.051	11.274	1	210	.004[b]
3	.226[c]	.051	3.76	11.647	.000	.003	1	209	.012[c]
4	.261[d]	.068	3.80	11.571	.017	3.778	1	208	.005[d]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL level
c. Predictors: (Constant), transition types, SES/FRL level, average class size
d. Predictors: (Constant), transition types, SES/FRL level, average class size, %Masters+30cr.

Table C16b: Economically disadvantaged student cohort graduation rates regression coefficients[a] – 2008-09

Model		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta			Lower Bound	Upper Bound
1	(Constant)		16.041	.000	60.006	76.821
	transition types	.016	.232	.817	-2.287	2.898
2	(Constant)		16.127	.000	66.420	84.920
	transition types	.003	.041	.967	-2.483	2.589
	SES/FRL level	-.226	-3.358	.001	-.271	-.070
3	(Constant)		8.542	.000	57.908	92.654
	transition types	.002	.026	.979	-2.592	2.662
	SES/FRL level	-.225	-3.083	.002	-.278	-.061
	average class size	.004	.052	.958	-.753	.794
4	(Constant)		8.816	.000	61.560	97.024
	transition types	-.028	-.390	.697	-3.200	2.144
	SES/FRL level	-.224	-3.100	.002	-.277	-.062
	average class size	-.037	-.479	.632	-.992	.604
	%Masters+30cr.	.142	1.944	.053	-.001	.176

a. Dependent Variable: Grad rates-disadvantaged

Table C17a: Economically disadvantaged student cohort graduation rates regression ANOVA and model summary – 2009-10

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.088[a]	.008	1.86	11.235	.008	1.856	1	238	.174[a]
2	.334[b]	.112	14.91	10.652	.104	27.760	1	237	.000[b]
3	.342[c]	.117	10.40	10.645	.005	1.321	1	236	.000[c]
4	.392[d]	.154	10.68	10.441	.037	10.311	1	235	.000[d]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL levels
c. Predictors: (Constant), transition types, SES/FRL levels, average class size
d. Predictors: (Constant), transition types, SES/FRL levels, average class size, %Masters+30cr.

Table C17a$_2$: Economically disadvantaged student cohort graduation rates regression ANOVA and model summary – 2009-10

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.316[a]	.100	26.36	10.702	.100	26.356	1	238	.000[a]
2	.334[b]	.112	14.91	10.652	.012	3.222	1	237	.000[b]
3	.342[c]	.117	10.40	10.645	.005	1.321	1	236	.000[c]
4	.392[d]	.154	10.68	10.441	.037	10.311	1	235	.000[d]

a. Predictors: (Constant), SES/FRL levels
b. Predictors: (Constant), SES/FRL levels, transition types
c. Predictors: (Constant), SES/FRL levels, transition types, average class size
d. Predictors: (Constant), SES/FRL levels, transition types, average class size, %Masters+30cr.

Table C17a: Economically disadvantaged student cohort graduation rates regression coefficients[a] – 2009-10

Model		Standardized Coefficients			95.0% Confidence Interval for B	
		Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)		21.105	.000	70.682	85.236
	transition types	-.088	-1.362	.174	-3.821	.697
2	(Constant)		22.195	.000	79.727	95.259
	transition types	-.110	-1.795	.074	-4.103	.191
	SES/FRL levels	-.323	-5.269	.000	-.295	-.135
3	(Constant)		10.705	.000	65.418	94.928
	transition types	-.130	-2.038	.043	-4.529	-.076
	SES/FRL levels	-.291	-4.317	.000	-.282	-.105
	average class size	.080	1.149	.252	-.273	1.037
4	(Constant)		11.358	.000	70.823	100.548
	transition types	-.166	-2.623	.009	-5.176	-.736
	SES/FRL levels	-.284	-4.292	.000	-.276	-.102
	average class size	.012	.161	.872	-.618	.728
	%Masters+30cr.	.212	3.211	.002	.045	.187

a. Dependent Variable: Grad rates-disadvantaged

Table C18a: Economically disadvantaged student cohort graduation rates regression ANOVA and model summary - 2010-11

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.050[a]	.003	.625	10.831	.003	.625	1	248	.430[a]
2	.345[b]	.119	16.72	10.198	.117	32.744	1	247	.000[b]
3	.350[c]	.122	11.42	10.202	.003	.831	1	246	.000[c]
4	.364[d]	.132	9.33	10.164	.010	2.800	1	245	.000[d]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL level
c. Predictors: (Constant), transition types, SES/FRL level, average core class size
d. Predictors: (Constant), transition types, SES/FRL level, average core class size, %Masters+30cr.

Table C18b: Economically disadvantaged student cohort graduation rates regression coefficients[a] - 2010-11

Model		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta			Lower Bound	Upper Bound
1	(Constant)		19.347	.000	64.909	79.623
	transition types	.050	.790	.430	-1.348	3.155
2	(Constant)		21.102	.000	73.625	88.784
	transition types	.043	.724	.470	-1.341	2.900
	SES/FRL level	-.342	-5.722	.000	-.297	-.145
3	(Constant)		12.047	.000	72.569	100.937
	transition types	.059	.948	.344	-1.145	3.269
	SES/FRL level	-.366	-5.599	.000	-.320	-.154
	average core class size	-.062	-.912	.363	-.907	.333
4	(Constant)		12.071	.000	75.556	105.021
	transition types	.042	.675	.500	-1.463	2.991
	SES/FRL level	-.364	-5.591	.000	-.319	-.153
	average core class size	-.104	-1.447	.149	-1.145	.175
	%Masters+30cr.	.112	1.673	.096	-.010	.121

a. Dependent Variable: Grad rates-disadvantaged

Table C19a: Advanced diploma rates for general education student cohorts regression ANOVA and model summary - 2007-08

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.207[a]	.043	26.34	17.249	.043	26.342	1	587	.000[a]
2	.520[b]	.271	108.77	15.070	.228	183.020	1	586	.000[b]
3	.521[c]	.272	72.81	15.071	.001	.920	1	585	.000[c]
4	.536[d]	.288	58.92	14.921	.016	12.825	1	584	.000[d]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL levels
c. Predictors: (Constant), transition types, SES/FRL levels, average class size
d. Predictors: (Constant), transition types, SES/FRL levels, average class size, %Masters+30cr.

Table C19a$_2$: Advanced diploma rates for general education student cohorts regression ANOVA and model summary - 2007-08

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.513[a]	.263	209.26	15.138	.263	209.263	1	587	.000[a]
2	.520[b]	.271	108.77	15.070	.008	6.357	1	586	.000[b]
3	.521[c]	.272	72.81	15.071	.001	.920	1	585	.000[c]
4	.536[d]	.288	58.92	14.921	.016	12.825	1	584	.000[d]

a. Predictors: (Constant), SES/FRL levels
b. Predictors: (Constant), SES/FRL levels, transition types
c. Predictors: (Constant), SES/FRL levels, transition types, average class size
d. Predictors: (Constant), SES/FRL levels, transition types, average class size, %Masters+30cr.

Table C19b: Advanced diploma rates for general education student cohorts regression coefficients[a] - 2007-08

Model		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta			Lower Bound	Upper Bound
1	(Constant)		16.060	.000	31.852	40.728
	transition types	.207	5.132	.000	2.486	5.569
2	(Constant)		22.812	.000	52.342	62.204
	transition types	.092	2.521	.012	.393	3.164
	SES/FRL levels	-.491	-13.528	.000	-.586	-.438
3	(Constant)		10.349	.000	42.936	63.049
	transition types	.076	1.934	.054	-.023	2.996
	SES/FRL levels	-.480	-12.615	.000	-.578	-.422
	average class size	.040	.959	.338	-.259	.753
4	(Constant)		10.548	.000	43.534	63.454
	transition types	.099	2.501	.013	.414	3.441
	SES/FRL levels	-.530	-13.190	.000	-.635	-.470
	average class size	.064	1.535	.125	-.111	.904
	%Masters+30cr.	-.146	-3.581	.000	-.211	-.061

a. Dependent Variable: %advanced diplomas

Table C20a: Advanced diploma rates for general education student cohorts regression ANOVA and model summary - 2008-09

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.238[a]	.057	35.22	17.868	.057	35.223	1	588	.000[a]
2	.583[b]	.340	151.25	14.956	.284	252.234	1	587	.000[b]
3	.592[c]	.351	105.53	14.848	.011	9.630	1	586	.000[c]
4	.599[d]	.359	81.82	14.769	.008	7.286	1	585	.000[d]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL level
c. Predictors: (Constant), transition types, SES/FRL level, average class size
d. Predictors: (Constant), transition types, SES/FRL level, average class size, %Masters+30

Table C20b: Advanced diploma rates for general education student cohorts regression coefficients[a] - 2008-09

Model		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta			Lower Bound	Upper Bound
1	(Constant)		13.954	.000	28.147	37.368
	transition types	.238	5.935	.000	3.236	6.437
2	(Constant)		22.924	.000	52.435	62.262
	transition types	.110	3.189	.002	.859	3.615
	SES/FRL level	-.548	-15.882	.000	-.653	-.509
3	(Constant)		9.399	.000	35.395	54.095
	transition types	.061	1.623	.105	-.262	2.749
	SES/FRL level	-.518	-14.549	.000	-.623	-.475
	average class size	.121	3.103	.002	.278	1.237
4	(Constant)		9.458	.000	35.484	54.085
	transition types	.073	1.939	.053	-.019	2.997
	SES/FRL level	-.552	-14.676	.000	-.664	-.507
	average class size	.143	3.612	.000	.409	1.383
	%Masters+30cr.	-.104	-2.699	.007	-.166	-.026

a. Dependent Variable: %advanced diplomas

Table C21a: Advanced diploma rates for general education student cohorts regression ANOVA and model summary – 2009-10

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.226[a]	.051	31.66	17.635	.051	31.664	1	588	.000[a]
2	.613[b]	.376	176.96	14.311	.325	305.849	1	587	.000[b]
3	.614[c]	.377	118.29	14.312	.001	.968	1	586	.000[c]
4	.623[d]	.388	92.66	14.201	.011	10.205	1	585	.000[d]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL levels
c. Predictors: (Constant), transition types, SES/FRL levels, average class size
d. Predictors: (Constant), transition types, SES/FRL levels, average class size, %Masters+30cr.

Table C21a$_2$: Advanced diploma rates for general education student cohorts regression ANOVA and model summary – 2009-10

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.605[a]	.366	340.02	14.411	.366	340.017	1	588	.000[a]
2	.613[b]	.376	176.96	14.311	.010	9.181	1	587	.000[b]
3	.614[c]	.377	118.29	14.312	.001	.968	1	586	.000[c]
4	.623[d]	.388	92.66	14.201	.011	10.205	1	585	.000[d]

a. Predictors: (Constant), SES/FRL levels
b. Predictors: (Constant), SES/FRL levels, transition types
c. Predictors: (Constant), SES/FRL levels, transition types, average class size
d. Predictors: (Constant), SES/FRL levels, transition types, average class size, %Masters+30cr.

Table C21b: Advanced diploma rates for general education student cohorts regression coefficients[a] – 2009-10

Model		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta			Lower Bound	Upper Bound
1	(Constant)		15.046	.000	30.311	39.412
	transition types	.226	5.627	.000	2.946	6.105
2	(Constant)		25.382	.000	55.964	65.351
	transition types	.101	3.030	.003	.712	3.337
	SES/FRL levels	-.584	-17.489	.000	-.658	-.525
3	(Constant)		12.047	.000	47.432	65.910
	transition types	.086	2.361	.019	.290	3.168
	SES/FRL levels	-.573	-16.384	.000	-.651	-.512
	average class size	.038	.984	.326	-.232	.697
4	(Constant)		12.105	.000	47.339	65.675
	transition types	.103	2.805	.005	.617	3.501
	SES/FRL levels	-.610	-16.688	.000	-.691	-.545
	average class size	.063	1.613	.107	-.084	.856
	%Masters+30cr.	-.119	-3.194	.001	-.164	-.039

a. Dependent Variable: %advanced diplomas

Table C22a: Advanced diploma rates for general education student cohorts regression ANOVA and model summary – 2010-11

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.223[a]	.050	30.76	17.557	.050	30.759	1	588	.000[a]
2	.631[b]	.399	194.68	13.977	.349	340.825	1	587	.000[b]
3	.632[c]	.399	129.70	13.986	.000	.247	1	586	.000[c]
4	.633[d]	.401	97.89	13.975	.002	1.875	1	585	.000[d]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL level
c. Predictors: (Constant), transition types, SES/FRL level, average core class size
d. Predictors: (Constant), transition types, SES/FRL level, average core class size, %Masters+30cr.

Table C22a$_2$: Advanced diploma rates for general education student cohorts regression ANOVA and model summary – 2010-11

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.626[a]	.392	378.93	14.045	.392	378.931	1	588	.000[a]
2	.631[b]	.399	194.68	13.977	.007	6.735	1	587	.000[b]
3	.632[c]	.399	129.70	13.986	.000	.247	1	586	.000[c]
4	.633[d]	.401	97.89	13.975	.002	1.875	1	585	.000[d]

a. Predictors: (Constant), SES/FRL level
b. Predictors: (Constant), SES/FRL level, transition types
c. Predictors: (Constant), SES/FRL level, transition types, average class size
d. Predictors: (Constant), SES/FRL level, transition types, average class size, %Masters+30cr.

Table C22b: Advanced diploma rates for general education student cohort regression coefficients[a] – 2010-11

Model		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta			Lower Bound	Upper Bound
1	(Constant)		14.990	.000	29.815	38.806
	transition types	.223	5.546	.000	2.851	5.977
2	(Constant)		26.260	.000	57.130	66.367
	transition types	.085	2.595	.010	.411	2.966
	SES/FRL level	-.607	-18.461	.000	-.674	-.545
3	(Constant)		14.397	.000	54.930	72.284
	transition types	.094	2.537	.011	.418	3.288
	SES/FRL level	-.611	-17.995	.000	-.681	-.547
	average core class size	-.019	-.497	.619	-.554	.330
4	(Constant)		14.395	.000	54.883	72.225
	transition types	.100	2.691	.007	.535	3.426
	SES/FRL level	-.626	-17.528	.000	-.700	-.559
	average core class size	-.008	-.204	.839	-.498	.405
	%Masters+30cr.	-.050	-1.369	.171	-.101	.018

a. Dependent Variable: %advanced diplomas

Table C23a: Regular Regents diploma rates for general education student cohort regression ANOVA and model summary – 2007-08

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.043[a]	.002	1.08	12.681	.002	1.080	1	587	.299[a]
2	.244[b]	.060	18.61	12.318	.058	36.082	1	586	.000[b]
3	.253[c]	.064	13.31	12.301	.004	2.594	1	585	.000[c]
4	.312[d]	.097	15.76	12.089	.034	21.700	1	584	.000[d]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL levels
c. Predictors: (Constant), transition types, SES/FRL levels, average class size
d. Predictors: (Constant), transition types, SES/FRL levels, average class size, %Masters+30cr.

Table C23b: Regular Regents diploma rates for general education student cohort regression coefficients[a] – 2007-08

Model		Standardized Coefficients			95.0% Confidence Interval for B	
		Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)		53.184	.000	85.090	91.615
	transition types	.043	1.039	.299	-.534	1.733
2	(Constant)		46.764	.000	91.938	99.999
	transition types	-.015	-.376	.707	-1.349	.916
	SES/FRL levels	-.248	-6.007	.000	-.246	-.125
3	(Constant)		21.558	.000	81.893	98.310
	transition types	-.044	-.984	.325	-1.850	.615
	SES/FRL levels	-.227	-5.253	.000	-.234	-.107
	average class size	.075	1.611	.108	-.074	.751
4	(Constant)		22.057	.000	82.559	98.700
	transition types	-.011	-.244	.807	-1.379	1.074
	SES/FRL levels	-.300	-6.635	.000	-.292	-.159
	average class size	.111	2.371	.018	.085	.907
	%Masters+30cr.	-.213	-4.658	.000	-.204	-.083

a. Dependent Variable: %Regents diploma

Table C24a: Regular Regents diploma rates for general education student cohorts regression ANOVA and model summary – 2008-09

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.072[a]	.005	3.09	14.221	.005	3.092	1	593	.079[a]
2	.178[b]	.032	9.69	14.043	.027	16.202	1	592	.000[b]
3	.218[c]	.047	9.82	13.939	.016	9.808	1	591	.000[c]
4	.306[d]	.094	15.27	13.608	.046	30.170	1	590	.000[d]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL level
c. Predictors: (Constant), transition types, SES/FRL level, average class size
d. Predictors: (Constant), transition types, SES/FRL level, average class size, %Masters+30cr.

Table C24b: Regular Regents diploma rates for general education student cohorts regression coefficients[a] – 2008-09

Model		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta			Lower Bound	Upper Bound
1	(Constant)		47.131	.000	83.735	91.017
	transition types	.072	1.758	.079	-.133	2.402
2	(Constant)		40.233	.000	88.525	97.612
	transition types	.034	.831	.406	-.741	1.827
	SES/FRL level	-.167	-4.025	.000	-.202	-.069
3	(Constant)		18.454	.000	72.643	89.947
	transition types	-.026	-.579	.563	-1.825	.994
	SES/FRL level	-.130	-3.046	.002	-.174	-.038
	average class size	.148	3.132	.002	.266	1.160
4	(Constant)		18.995	.000	73.251	90.146
	transition types	.001	.027	.978	-1.365	1.404
	SES/FRL level	-.213	-4.788	.000	-.243	-.102
	average class size	.198	4.217	.000	.510	1.400
	%Masters+30cr.	-.248	-5.493	.000	-.241	-.114

a. Dependent Variable: %Regents diplomas

Table C25a: Regular Regents diploma rates for general education student cohort regression ANOVA and model summary – 2009-10

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.075[a]	.006	3.29	9.729	.006	3.287	1	588	.070[a]
2	.288[b]	.083	26.51	9.351	.077	49.455	1	587	.000[b]
3	.288[c]	.083	17.68	9.359	.000	.106	1	586	.000[c]
4	.338[d]	.114	18.88	9.205	.031	20.704	1	585	.000[d]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL levels
c. Predictors: (Constant), transition types, SES/FRL levels, average class size
d. Predictors: (Constant), transition types, SES/FRL levels, average class size, %Masters+30cr.

Table C25b: Regular Regents diploma rates for general education student cohort regression coefficients[a] – 2009-10

Model		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta			Lower Bound	Upper Bound
1	(Constant)		70.668	.000	87.819	92.840
	transition types	.075	1.813	.070	-.067	1.676
2	(Constant)		62.187	.000	94.041	100.175
	transition types	.014	.337	.736	-.710	1.005
	SES/FRL levels	-.285	-7.032	.000	-.199	-.112
3	(Constant)		31.848	.000	91.927	104.010
	transition types	.020	.441	.660	-.730	1.152
	SES/FRL levels	-.289	-6.800	.000	-.203	-.112
	average class size	-.015	-.325	.745	-.354	.253
4	(Constant)		32.327	.000	91.875	103.761
	transition types	.048	1.084	.279	-.419	1.451
	SES/FRL levels	-.351	-7.984	.000	-.239	-.145
	average class size	.028	.590	.555	-.213	.396
	%Masters+30cr.	-.204	-4.550	.000	-.134	-.053

a. Dependent Variable: %Regents diplomas

Table C26a: Regular Regents diploma rates for general education student cohort regression ANOVA and model summary – 2010-11

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.102[a]	.010	6.14	9.515	.010	6.144	1	588	.013[a]
2	.269[b]	.073	22.95	9.219	.062	39.355	1	587	.000[b]
3	.272[c]	.074	15.59	9.220	.001	.874	1	586	.000[c]
4	.341[d]	.117	19.30	9.013	.043	28.241	1	585	.000[d]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL level
c. Predictors: (Constant), transition types, SES/FRL level, average core class size
d. Predictors: (Constant), transition types, SES/FRL level, average core class size, %Masters+30cr.

Table C26a$_2$: Regular Regents diploma rates for general education student cohort regression ANOVA and model summary – 2010-11

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.266[a]	.071	44.75	9.220	.071	44.750	1	588	.000[a]
2	.269[b]	.073	22.95	9.219	.002	1.140	1	587	.000[b]
3	.272[c]	.074	15.59	9.220	.001	.874	1	586	.000[c]
4	.341[d]	.117	19.30	9.013	.043	28.241	1	585	.000[d]

a. Predictors: (Constant), SES/FRL level
b. Predictors: (Constant), SES/FRL level, transition types
c. Predictors: (Constant), SES/FRL level, transition types, average class size
d. Predictors: (Constant), SES/FRL level, transition types, average class size, %Masters+30cr.

Table C26b: Regular Regents diploma rates for general education student cohort regression coefficients[a] – 2010-11

Model		Standardized Coefficients			95.0% Confidence Interval for B	
		Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)		73.409	.000	88.629	93.502
	transition types	.102	2.479	.013	.222	1.916
2	**(Constant)**		62.678	.000	94.169	100.262
	transition types	.044	1.068	.286	-.385	1.301
	SES/FRL level	-.256	-6.273	.000	-.179	-.094
3	(Constant)		34.168	.000	93.800	105.241
	transition types	.063	1.376	.169	-.283	1.609
	SES/FRL level	-.266	-6.308	.000	-.186	-.098
	average core class size	-.044	-.935	.350	-.430	.153
4	(Constant)		34.905	.000	93.795	104.980
	transition types	.093	2.066	.039	.049	1.913
	SES/FRL level	-.338	-7.795	.000	-.226	-.135
	average core class size	.008	.162	.871	-.267	.315
	%Masters+30cr.	-.238	-5.314	.000	-.143	-.066

a. Dependent Variable: %Regents diplomas

Table C27a: Advanced diploma rates for special education student cohort regression ANOVA and model summary - 2007-08

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.117[a]	.014	7.96	10.470	.014	7.959	1	571	.005
2	.242[b]	.059	17.72	10.239	.045	27.121	1	570	.000
3	.242[c]	.059	11.80	10.248	.000	.024	1	569	.000
4	.245[d]	.060	9.06	10.249	.001	.850	1	568	.000

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL level
c. Predictors: (Constant), transition types, SES/FRL level, average core class size
d. Predictors: (Constant), transition types, SES/FRL level, average core class size, %Masters+30cr.

Table C27b: Advanced diploma rates for special education student cohorts regression coefficients[a] – 2007-08

Model		Standardized Coefficients			95.0% Confidence Interval for B	
		Beta	T	Sig.	Lower Bound	Upper Bound
1	(Constant)		1.718	.086	-.347	5.193
	transition types	.117	2.821	.005	.418	2.333
2	(Constant)		4.550	.000	4.479	11.284
	transition types	.069	1.646	.100	-.155	1.766
	SES/FRL level	-.217	-5.208	.000	-.187	-.085
3	(Constant)		2.010	.045	.168	14.591
	transition types	.066	1.460	.145	-.267	1.815
	SES/FRL level	-.215	-4.908	.000	-.189	-.081
	average class size	.007	.155	.877	-.333	.390
4	(Constant)		1.989	.047	.092	14.520
	transition types	.059	1.291	.197	-.362	1.748
	SES/FRL level	-.200	-4.281	.000	-.183	-.068
	average class size	.000	.007	.994	-.365	.367
	%Masters+30cr.	.043	.922	.357	-.027	.076

a. Dependent Variable: %advanced diplomas

Table C28a: Advanced diploma rates for special education student cohort regression ANOVA and model summary – 2008-09

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.091[a]	.008	4.87	9.682	.008	4.867	1	577	.028[a]
2	.299[b]	.089	28.29	9.286	.081	51.292	1	576	.000[b]
3	.301[c]	.090	19.04	9.289	.001	.585	1	575	.000[c]
4	.305[d]	.093	14.71	9.284	.003	1.650	1	574	.000[d]

a. Predictors: (Constant), grade-span grouping
b. Predictors: (Constant), grade-span grouping, SES/FRL level
c. Predictors: (Constant), grade-span grouping, SES/FRL level, average core class size
d. Predictors: (Constant), grade-span grouping, SES/FRL level, average core class size, % masters + 30 cr.

Table C28a: Advanced diploma rates for special education student cohort regression coefficients[a] – 2008-09

Model		Standardized Coefficients			95.0% Confidence Interval for B	
		Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)		2.473	.014	.677	5.902
	grade-span grouping	.091	2.206	.028	.111	1.910
2	(Constant)		6.387	.000	7.089	13.384
	grade-span grouping	.024	.575	.565	-.627	1.147
	SES/FRL level	-.293	-7.162	.000	-.206	-.118
3	(Constant)		3.769	.000	5.959	18.928
	grade-span grouping	.037	.825	.410	-.557	1.364
	SES/FRL level	-.304	-7.003	.000	-.215	-.121
	average core class size	-.036	-.765	.445	-.453	.199
4	(Constant)		3.813	.000	6.104	19.073
	grade-span grouping	.029	.650	.516	-.648	1.289
	SES/FRL level	-.285	-6.252	.000	-.208	-.108
	average core class size	-.049	-1.025	.306	-.508	.160
	% masters + 30 cr.	.059	1.285	.199	-.015	.073

a. Dependent Variable: %advanced diplomas

Table C29a: Advanced diploma rates for special education student cohort regression ANOVA and model summary – 2009-10

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.049[a]	.002	1.35	7.633	.002	1.349	1	554	.246[a]
2	.049[b]	.002	.67	7.639	.000	.001	1	553	.510[b]
3	.132[c]	.018	3.28	7.588	.015	8.469	1	552	.021[c]
4	.138[d]	.019	2.68	7.589	.002	.867	1	551	.031[d]

a. Predictors: (Constant), transitions type
b. Predictors: (Constant), transitions type, SES/FRL level
c. Predictors: (Constant), transitions type, SES/FRL level, average class size
d. Predictors: (Constant), transitions type, SES/FRL level, average class size, Masters+30

Table C29a$_2$: Advanced diploma rates for special education student cohort regression ANOVA and model summary – 2009-10

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.009[a]	.000	.04	7.642	.000	.043	1	554	..836[a]
2	.049[b]	.002	.67	7.639	.002	1.305	1	553	.510[b]
3	.132[c]	.018	3.28	7.588	.015	8.469	1	552	.021[c]
4	.138[d]	.019	2.68	7.589	.002	.867	1	551	.031[d]

a. Predictors: (Constant), SES/FRL level
b. Predictors: (Constant), SES/FRL level, transitions type
c. Predictors: (Constant), SES/FRL level, transitions type, average class size
d. Predictors: (Constant), SES/FRL level, transitions type, average class size, Masters+30

Table C29a: Advanced diploma rates for special education student cohort regression ANOVA and model summary – 2009-10

Model		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta			Lower Bound	Upper Bound
1	(Constant)		3.718	.000	1.786	5.787
	transitions type	.049	1.162	.246	-.284	1.107
2	(Constant)		2.909	.004	1.221	6.297
	transitions type	.050	1.142	.254	-.298	1.126
	SES/FRL level	.002	.035	.972	-.036	.037
3	(Constant)		3.992	.000	5.143	15.105
	transitions type	.106	2.243	.025	.110	1.661
	SES/FRL level	-.040	-.876	.382	-.055	.021
	average class size	-.145	-2.910	.004	-.620	-.120
4	(Constant)		3.997	.000	5.155	15.119
	transitions type	.113	2.355	.019	.156	1.723
	SES/FRL level	-.053	-1.118	.264	-.062	.017
	average class size	-.136	-2.690	.007	-.603	-.094
	%Masters+30cr.	-.045	-.931	.352	-.050	.018

a. Dependent Variable: %advanced diplomas

Table C30a: Advanced diploma rates for special education student cohort regression ANOVA and model summary – 2010-11

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.169[a]	.028	16.96	9.015	.028	16.963	1	579	.000[a]
2	.370[b]	.137	45.96	8.503	.109	72.841	1	578	.000[b]
3	.372[c]	.139	30.96	8.503	.001	.969	1	577	.000[c]
4	.394[d]	.156	26.52	8.427	.017	11.505	1	576	.000[d]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL level
c. Predictors: (Constant), transition types, SES/FRL level, average core class size
d. Predictors: (Constant), transition types, SES/FRL level, average core class size, %Masters+30cr.

Table C30a$_2$: Advanced diploma rates for special education student cohort regression ANOVA and model summary – 2010-11

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.361[a]	.130	86.73	8.530	.130	86.730	1	579	.000[a]
2	.370[b]	.137	45.96	8.503	.007	4.635	1	578	.000[b]
3	.372[c]	.139	30.96	8.503	.001	.969	1	577	.000[c]
4	.394[d]	.156	26.52	8.427	.017	11.505	1	576	.000[d]

a. Predictors: (Constant), SES/FRL level
b. Predictors: (Constant), SES/FRL level, transition types
c. Predictors: (Constant), SES/FRL level, transition types, average class size
d. Predictors: (Constant), SES/FRL level, transition types, average class size, %Masters+30cr.

Table C30a: Advanced diploma rates for special education student cohort regression ANOVA and model summary – 2010-11

Model		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta			Lower Bound	Upper Bound
1	(Constant)		.475	.635	-1.806	2.959
	transition types	.169	4.119	.000	.903	2.550
2	(Constant)		5.787	.000	5.646	11.448
	transition types	.086	2.153	.032	.077	1.679
	SES/FRL level	-.340	-8.535	.000	-.210	-.131
3	(Constant)		3.747	.000	5.265	16.864
	transition types	.104	2.367	.018	.182	1.951
	SES/FRL level	-.352	-8.442	.000	-.218	-.136
	average core class size	-.045	-.985	.325	-.435	.145
4	(Constant)		3.898	.000	5.663	17.165
	transition types	.086	1.964	.050	.000	1.766
	SES/FRL level	-.310	-7.165	.000	-.198	-.113
	average core class size	-.079	-1.702	.089	-.550	.039
	%Masters+30cr.	.149	3.392	.001	.026	.099

a. Dependent Variable: %advanced diplomas

Table C31a: Regular Regents diploma rates for special education student cohort regression ANOVA and model summary – 2007-08

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.035[a]	.001	.714	27.008	.001	.714	1	571	.398[a]
2	.211[b]	.045	13.27	26.440	.043	25.803	1	570	.000[b]
3	.215[c]	.046	9.16	26.441	.002	.938	1	569	.000[c]
4	.216[d]	.047	6.93	26.459	.000	.266	1	568	.000[d]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL level
c. Predictors: (Constant), transition types, SES/FRL level, average core class size
d. Predictors: (Constant), transition types, SES/FRL level, average core class size, %Masters+30cr.

Table C31a$_2$: Regular Regents diploma rates for special education student cohort regression ANOVA and model summary – 2007-08

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.195[a]	.038	22.52	26.507	.038	22.520	1	571	.000[a]
2	.211[b]	.045	13.27	26.440	.007	3.914	1	570	.000[b]
3	.215[c]	.046	9.16	26.441	.002	.938	1	569	.000[c]
4	.216[d]	.047	6.93	26.459	.000	.266	1	568	.000[d]

a. Predictors: (Constant), SES/FRL level
b. Predictors: (Constant), SES/FRL level, transition types
c. Predictors: (Constant), SES/FRL level, transition types, average class size
d. Predictors: (Constant), SES/FRL level, transition types, average class size, %Masters+30cr.

Table C31b: Regular Regents diploma rates for special education student cohort regression coefficients[a] – 2007-08

Model		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta			Lower Bound	Upper Bound
1	(Constant)		15.177	.000	48.069	62.360
	transition types	-.035	-.845	.398	-3.533	1.407
2	(Constant)		15.417	.000	60.177	77.749
	transition types	-.083	-1.978	.048	-4.979	-.018
	SES/FRL level	-.213	-5.080	.000	-.475	-.210
3	(Constant)		6.426	.000	42.268	79.481
	transition types	-.100	-2.198	.028	-5.691	-.320
	SES/FRL level	-.200	-4.542	.000	-.461	-.183
	average core class size	.046	.969	.333	-.473	1.392
4	(Constant)		6.431	.000	42.357	79.604
	transition types	-.096	-2.084	.038	-5.613	-.166
	SES/FRL level	-.209	-4.435	.000	-.484	-.187
	average core class size	.050	1.037	.300	-.446	1.444
	%Masters+30cr.	-.025	-.516	.606	-.168	.098

a. Dependent Variable: %Regents diplomas

Table C32a: Regular Regents diploma rates for special education student cohort regression ANOVA and model summary – 2008-09

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.093[a]	.009	5.03	26.538	.009	5.033	1	577	.025[a]
2	.324[b]	.105	33.71	25.240	.096	61.864	1	576	.000[b]
3	.327[c]	.107	22.98	25.230	.002	1.462	1	575	.000[c]
4	.327[d]	.107	17.21	25.252	.000	.000	1	574	.000[d]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL level
c. Predictors: (Constant), transition types, SES/FRL level, average core class size
d. Predictors: (Constant), transition types, SES/FRL level, average core class size, %Masters+30cr.

Table C32b: Regular Regents diploma rates for special education student cohort regression coefficients[a] - 2008-09

Model		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta			Lower Bound	Upper Bound
1	(Constant)		11.638	.000	35.272	49.594
	transition types	.093	2.244	.025	.351	5.282
2	(Constant)		14.501	.000	54.615	71.727
	transition types	.019	.469	.639	-1.835	2.986
	SES/FRL level	-.319	-7.865	.000	-.604	-.363
3	(Constant)		5.988	.000	36.081	71.307
	transition types	-.001	-.030	.976	-2.650	2.569
	SES/FRL level	-.301	-7.012	.000	-.585	-.329
	average core class size	.056	1.209	.227	-.340	1.430
4	(Constant)		5.980	.000	36.061	71.339
	transition types	-.001	-.033	.974	-2.678	2.590
	SES/FRL level	-.301	-6.647	.000	-.592	-.322
	average core class size	.056	1.175	.241	-.365	1.450
	%Masters+30cr.	.001	.021	.984	-.119	.122

a. Dependent Variable: %Regents diplomas

Table C33a: Regular Regents diploma rates for special education student cohort regression ANOVA and model summary – 2009-10

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.025[a]	.001	.36	26.852	.001	.358	1	554	.550[a]
2	.026[b]	.001	.18	26.876	.000	.007	1	553	.833[b]
3	.121[c]	.015	2.75	26.711	.014	7.865	1	552	.042[c]
4	.127[d]	.016	2.26	26.715	.001	.800	1	551	.062[d]

a. Predictors: (Constant), transitions type
b. Predictors: (Constant), transitions type, SES/FRL level
c. Predictors: (Constant), transitions type, SES/FRL level, average class size
d. Predictors: (Constant), transitions type, SES/FRL level, average class size, %Masters+30cr.

Table C33b: Regular Regents diploma rates for special education student cohort regression coefficients[a] – 2009-10

Model		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta			Lower Bound	Upper Bound
1	(Constant)		12.563	.000	37.977	52.053
	transitions type	.025	.599	.550	-1.702	3.193
2	(Constant)		9.952	.000	36.314	54.174
	transitions type	.025	.568	.570	-1.780	3.228
	SES/FRL level	-.004	-.082	.935	-.133	.122
3	(Constant)		7.487	.000	49.300	84.368
	transitions type	.079	1.672	.095	-.406	5.051
	SES/FRL level	-.043	-.954	.340	-.198	.068
	average class size	-.140	-2.804	.005	-2.137	-.376
4	(Constant)		7.491	.000	49.342	84.416
	transitions type	.085	1.784	.075	-.253	5.265
	SES/FRL level	-.056	-1.182	.238	-.224	.056
	average class size	-.131	-2.592	.010	-2.077	-.286
	%Masters+30cr.	-.043	-.894	.372	-.173	.065

a. Dependent Variable: %Regents diplomas

Table C34a: Regular Regents diploma rates for special education student cohort regression ANOVA and model summary – 2010-11

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.116[a]	.013	7.91	25.734	.013	7.914	1	579	.005[a]
2	.327[b]	.107	34.53	24.509	.093	60.330	1	578	.000[b]
3	.328[c]	.107	23.12	24.522	.001	.366	1	577	.000[c]
4	.329[d]	.108	17.43	24.534	.001	.442	1	576	.000[d]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, SES/FRL level
c. Predictors: (Constant), transition types, SES/FRL level, average core class size
d. Predictors: (Constant), transition types, SES/FRL level, average core class size, %Masters+30cr.

Table C34b: Regular Regents diploma rates for special education student cohort regression coefficients[a] – 2010-11

Model		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta			Lower Bound	Upper Bound
1	(Constant)		12.098	.000	35.090	48.691
	transition types	.116	2.813	.005	1.016	5.718
2	(Constant)		14.752	.000	54.439	71.161
	transition types	.039	.970	.332	-1.169	3.449
	SES/FRL level	-.315	-7.767	.000	-.561	-.335
3	(Constant)		7.898	.000	50.533	83.983
	transition types	.051	1.134	.257	-1.078	4.025
	SES/FRL level	-.322	-7.593	.000	-.578	-.340
	average core class size	-.028	-.605	.546	-1.094	.579
4	(Constant)		7.913	.000	50.714	84.201
	transition types	.047	1.046	.296	-1.202	3.941
	SES/FRL level	-.314	-7.068	.000	-.571	-.323
	average core class size	-.035	-.734	.463	-1.177	.537
	%Masters+30cr.	.030	.665	.507	-.070	.141

a. Dependent Variable: %Regents diplomas

Appendix D – Pilot Study Correlation, Regression Tables

Table D1: School transitions variable and district staffing and demographics bivariate correlations – 2008-09

		transition types	% Masters+ 30cr.	% classes no HQ teacher	% overall turnover	SES/FRL level	district enrollment
transition types	Pearson Correlation	1	.276**	-.242**	.160**	-.234**	.147**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	597	597	597	596	597	597
%Masters+ 30cr.	Pearson Correlation	.276**	1	-.117**	.074	-.413**	-.023
	Sig. (2-tailed)	.000		.004	.071	.000	.567
	N	597	597	597	596	597	597
% classes no HQ teacher	Pearson Correlation	-.242**	-.117**	1	.102*	.227**	-.032
	Sig. (2-tailed)	.000	.004		.013	.000	.437
	N	597	597	597	596	597	597
% overall turnover	Pearson Correlation	.160**	.074	.102*	1	-.004	.034
	Sig. (2-tailed)	.000	.071	.013		.919	.408
	N	596	596	596	596	596	596
SES/FRL level	Pearson Correlation	-.234**	-.413**	.227**	-.004	1	-.091*
	Sig. (2-tailed)	.000	.000	.000	.919		.026
	N	597	597	597	596	597	597
total district enrollment	Pearson Correlation	.147**	-.023	-.032	.034	-.091*	1
	Sig. (2-tailed)	.000	.567	.437	.408	.026	
	N	597	597	597	596	597	597

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table D2: School transitions variable and district student academic success measures correlations - 2008-09

		transition types	% Regents diplomas	% advanced diplomas	% pass English	%pass MathB	% planning 4yr_college	% planning 2yr_college
transition types	Pearson Correlation	1	.083*	.238**	.004	.149**	.254**	-.209**
	Sig. (2-tailed)		.042	.000	.924	.007	.000	.000
	N	597	597	590	504	332	590	590
%Regents diplomas	Pearson Correlation	.083*	1	.543**	.394**	.287**	.228**	-.176**
	Sig. (2-tailed)	.042		.000	.000	.000	.000	.000
	N	597	597	590	504	332	590	590
%advance diplomas	Pearson Correlation	.238**	.543**	1	.429**	.537**	.545**	-.451**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000
	N	590	590	590	503	332	590	590
%pass English	Pearson Correlation	.004	.394**	.429**	1	.332**	.392**	-.368**
	Sig. (2-tailed)	.924	.000	.000		.000	.000	.000
	N	504	504	503	504	271	503	503
%pass MathB	Pearson Correlation	.149**	.287**	.537**	.332**	1	.363**	-.331**
	Sig. (2-tailed)	.007	.000	.000	.000		.000	.000
	N	332	332	332	271	332	332	332
% planning 4yr_college	Pearson Correlation	.254**	.228**	.545**	.392**	.363**	1	-.911**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000
	N	590	590	590	503	332	590	590
% planning 2yr_college	Pearson Correlation	-.209**	-.176**	-.451**	-.368**	-.331**	-.911**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	590	590	590	503	332	590	590

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Table D3: Regular Regents diploma rates regression 1 ANOVA and model summary - 2008-09 pilot study

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig
1	.244[a]	.060	37.14	12.309	.060	37.140	1	587	000[a]
2	.244[b]	.060	18.61	12.318	.000	.141	1	586	.000[b]
3	.298[c]	.089	18.99	12.137	.029	18.618	1	585	.000[c]

a. Predictors: (Constant), SES/FRL levels
b. Predictors: (Constant), SES/FRL levels, transition types
c. Predictors: (Constant), SES/FRL levels, transition types, %Masters+30cr.

Table D4: Regular Regents diploma rates regression 1 coefficients -2008-09 pilot study[a]

Model		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta			Lower Bound	Upper Bound
1	(Constant)		94.585	.000	93.318	97.276
	SES/FRL levels	-.244	-6.094	.000	-.242	-.124
2	(Constant)		46.764	.000	91.938	99.999
	SES/FRL levels	-.248	-6.007	.000	-.246	-.125
	transition types	-.015	-.376	.707	-1.349	.916
3	(Constant)		46.293	.000	94.763	103.160
	SES/FRL levels	-.324	-7.313	.000	-.308	-.178
	transition types	.027	.652	.514	-.767	1.530
	%Masters+30cr.	-.195	-4.315	.000	-.191	-.072

a. Dependent Variable: %Regents diploma

Table D5 Advanced Regents diploma rates regression 2 ANOVA and model summary - 2008-09 pilot study

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig.
1	.573[a]	.329	287.85	15.072	.329	287.848	1	588	.000[a]
2	.583[b]	.340	151.25	14.956	.011	10.170	1	587	.000[b]
3	.587[c]	.344	102.63	14.920	.004	3.895	1	586	.000[c]

a. Predictors: (Constant), SES/FRL level
b. Predictors: (Constant), SES/FRL level, transition types
c. Predictors: (Constant), SES/FRL level, transition types, %Masters+30cr.

Table D6: Advanced Regents diploma rates regression 2 coefficients – 2008-09 pilot study[a]

Model		Standardized Coefficients			95.0% Confidence Interval for B	
		Beta	T	Sig.	Lower Bound	Upper Bound
1	(Constant)		51.665	.000	61.843	66.731
	SES/FRL level	-.573	-16.966	.000	-.678	-.538
2	(Constant)		22.924	.000	52.435	62.262
	SES/FRL level	-.548	-15.882	.000	-.653	-.509
	transition types	.110	3.189	.002	.859	3.615
3	(Constant)		22.368	.000	53.862	64.231
	SES/FRL level	-.576	-15.426	.000	-.689	-.534
	transition types	.125	3.550	.000	1.138	3.954
	%Masters+30cr.	-.075	-1.973	.049	-.139	.000

a. Dependent Variable: %advanced diplomas

Table D7: Regular Regents diploma rates regression 3 ANOVA and model summary - 2009-09 pilot study

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df 1	df2	Sig
1	.043[a]	.002	1.10	12.677	.002	1.101	1	588	.295[a]
2	.141[b]	.020	5.99	12.572	.018	10.862	1	587	.003[b]
3	.142[c]	.020	4.01	12.582	.000	.055	1	586	.008[c]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, average class size
c. Predictors: (Constant), transition types, average class size, district enrollment

Table D8: Regular Regents diploma rates regression coefficients - 2008-09 pilot study[a]

Model		Standardized Coefficients			95.0% Confidence Interval for B	
		Beta	t	Sig.	Lower Bound	Upper Bound
1	(Constant)		53.204	.000	85.093	91.616
	transition types	.043	1.049	.295	-.528	1.738
2	(Constant)		21.871	.000	70.940	84.938
	transition types	-.024	-.520	.603	-1.586	.922
	average class size	.150	3.296	.001	.273	1.077
3	(Constant)		19.073	.000	69.504	85.461
	transition types	-.020	-.426	.670	-1.600	1.030
	average class size	.156	3.007	.003	.243	1.159
	district enrollment	-.012	-.235	.814	-.002	.002

a. Dependent Variable: %Regents diploma

Table D9: Regents diploma with advanced designation rates regression 4 ANOVA and model summary - 2008-09 pilot study

Model	R	R Square	F	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig
1	.208[a]	.043	26.47	17.274	.043	26.474	1	588	.000[a]
2	.273[b]	.075	23.64	17.003	.031	19.953	1	587	.000[b]
3	.279[c]	.078	16.44	16.989	.003	1.950	1	586	.000[c]

a. Predictors: (Constant), transition types
b. Predictors: (Constant), transition types, average class size
c. Predictors: (Constant), transition types, average class size, district enrollment

Table D10: Regents diploma with advanced designation regression 4 coefficients - 2008-09 pilot study[a]

Model		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		Beta			Lower Bound	Upper Bound
1	(Constant)		16.038	.000	31.851	40.740
	transition types	.208	5.145	.000	2.500	5.587
2	(Constant)		3.569	.000	7.738	26.669
	transition types	.119	2.692	.007	.629	4.022
	average class size	.198	4.467	.000	.693	1.781
3	(Constant)		3.805	.000	10.098	31.644
	transition types	.100	2.158	.031	.175	3.726
	average class size	.165	3.265	.001	.409	1.645
	district enrollment	.072	1.396	.163	-.001	.004

a. Dependent Variable: %advanced diplomas

Appendix E – Means Analyses Tables

Table E1: Means compared between district school-to-school transition types, total student cohort graduation rates and key control variables - 2007-08

transition types		grad rates-all students	SES/FRL levels	average class size	%Masters+30cr.
1.00	Mean	81.94	39.53	16.5688	13.66
	N	68	74	73	74
	Std. Deviation	12.762	14.203	4.04884	10.041
	Minimum	4	0	5.33	0
	Maximum	98	100	27.44	46
2.00	Mean	81.18	33.39	17.8291	15.78
	N	121	124	124	124
	Std. Deviation	10.535	15.548	2.07193	13.943
	Minimum	13	0	12.00	2
	Maximum	98	100	23.57	63
3.00	Mean	82.34	25.67	19.9729	25.64
	N	298	300	299	299
	Std. Deviation	10.909	17.249	2.32745	20.122
	Minimum	19	0	10.00	2
	Maximum	100	98	25.44	90
4.00	Mean	82.88	25.59	20.6397	27.61
	N	94	94	94	94
	Std. Deviation	10.094	18.568	1.99132	20.113
	Minimum	50	0	14.44	4
	Maximum	98	69	25.56	67
5.00	Mean	79.20	45.50	19.1505	54.50
	N	5	6	6	6
	Std. Deviation	10.305	24.156	2.13178	7.503
	Minimum	72	5	16.13	46
	Maximum	97	77	21.67	66
Total	Mean	82.11	29.17	19.2068	22.71
	N	586	598	596	597
	Std. Deviation	10.915	17.605	2.84797	18.892
	Minimum	4	0	5.33	0
	Maximum	100	100	27.44	90

Table E2: Means compared between district school-to-school transition types, total student cohort graduation rates and key control variables – 2008-09

transition types		Grad rates-all students	SES/FRL level	average class size	%Masters+30cr.
1.00	Mean	81.67	40.23	16.2327	15.49
	N	67	73	72	73
	Std. Deviation	12.305	14.552	4.22014	14.141
	Minimum	7	0	4.40	2
	Maximum	98	100	29.22	92
2.00	Mean	80.99	35.06	17.4045	16.12
	N	121	124	124	124
	Std. Deviation	10.640	15.889	2.17338	14.683
	Minimum	6	0	11.89	0
	Maximum	99	97	22.50	66
3.00	Mean	83.09	26.57	19.6954	26.39
	N	299	300	299	300
	Std. Deviation	10.169	17.203	2.40602	20.855
	Minimum	36	0	11.00	2
	Maximum	100	76	25.56	93
4.00	Mean	83.84	26.72	20.5148	28.67
	N	94	94	94	94
	Std. Deviation	9.733	19.056	1.99389	21.304
	Minimum	54	0	16.00	4
	Maximum	97	80	26.20	66
5.00	Mean	82.33	43.00	20.1640	55.67
	N	6	6	6	6
	Std. Deviation	9.953	24.876	1.64350	7.312
	Minimum	69	6	18.43	46
	Maximum	96	79	22.44	67
Total	Mean	82.61	30.19	18.9331	23.58
	N	587	597	595	597
	Std. Deviation	10.474	17.761	2.95494	19.903
	Minimum	6	0	4.40	0
	Maximum	100	100	29.22	93

Table E3: Means compared between district school-to-school transition types, total student cohort graduation rates and key control variables – 2009-10

transition types		Grad rates-all students	SES/FRL levels	average class size	%Masters+30cr.
1.00	Mean	83.60	41.30	16.3030	16.01
	N	65	73	72	73
	Std. Deviation	8.344	14.443	4.02646	14.057
	Minimum	59	0	4.57	2
	Maximum	100	96	27.00	86
2.00	Mean	82.85	36.81	17.8820	17.02
	N	120	124	124	124
	Std. Deviation	7.427	16.571	2.31217	15.473
	Minimum	63	0	11.38	0
	Maximum	100	100	26.57	70
3.00	Mean	84.30	28.73	19.8573	27.78
	N	298	300	299	300
	Std. Deviation	9.010	18.025	2.46158	22.268
	Minimum	55	0	11.00	2
	Maximum	100	80	26.22	94
4.00	Mean	84.61	28.68	20.6045	30.94
	N	94	94	94	94
	Std. Deviation	9.652	19.583	2.08400	23.323
	Minimum	59	0	14.33	3
	Maximum	99	79	25.33	72
5.00	Mean	83.83	43.50	20.7778	59.50
	N	6	6	6	6
	Std. Deviation	9.152	23.054	.99132	6.348
	Minimum	69	6	19.56	52
	Maximum	94	77	22.22	68
Total	Mean	83.97	32.09	19.1428	24.92
	N	583	597	595	597
	Std. Deviation	8.739	18.248	2.95033	21.256
	Minimum	55	0	4.57	0
	Maximum	100	100	27.00	94

Table E4: Means compared between district school-to-school transition types, total student cohort graduation rates and key control variables – 2010-11

transition types		Grad rates-all students	SES/FRL level	average core class size	%Masters+30cr.
1.00	Mean	83.46	42.43	16.5482	16.23
	N	67	74	73	74
	Std. Deviation	10.996	14.302	4.19011	14.117
	Minimum	15	0	4.67	2
	Maximum	97	97	24.29	84
2.00	Mean	83.61	37.54	17.7075	16.85
	N	120	124	124	124
	Std. Deviation	7.931	15.232	2.35886	14.664
	Minimum	63	0	12.00	0
	Maximum	99	100	26.50	68
3.00	Mean	85.15	29.70	20.1346	28.28
	N	298	300	298	299
	Std. Deviation	8.593	18.802	2.37867	22.901
	Minimum	57	0	13.78	1
	Maximum	100	100	25.75	92
4.00	Mean	85.53	29.44	21.1773	32.33
	N	94	94	94	94
	Std. Deviation	9.201	19.893	2.18387	24.476
	Minimum	59	0	15.38	3
	Maximum	99	84	26.22	78
5.00	Mean	83.00	47.17	21.1597	60.67
	N	6	6	6	6
	Std. Deviation	9.187	26.256	1.38510	5.046
	Minimum	68	7	19.22	53
	Maximum	95	83	22.67	66
Total	Mean	84.68	33.03	19.3639	25.38
	N	585	598	595	597
	Std. Deviation	8.883	18.496	3.04471	21.786
	Minimum	15	0	4.67	0
	Maximum	100	100	26.50	92