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The Effect of Elementary After-School Participation on the Transition to Middle School

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Master of Science

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ABSTRACT

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This case study takes an in-depth look at what type of students transition from elementary to middle school 21st Century Community Learning Center programs. Using binary logistic regressions, I identify key characteristics that predict whether or not a student will continue to attend the program after they transition to a new school and then discuss how to improve the attendance of after-school programs. Moreover, this case study also identifies how different school program environments serve different types of students in two cohorts starting in fifth grade. Middle school context moderates the effects of other variables that are predictive of participation in after-school programs during middle school. Thus, I demonstrate how understanding who makes successful transitions in the after-school program can help improve the sustainability and effectiveness of these programs.

Keywords: after-school programs, school context, after-school participation

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Introduction

Equal access to education and the opportunity to be successful still remains a problem for many students and communities throughout the United States. Disadvantaged and marginalized student populations continue to be in greater risk of learning in these types of schools (Hallinan 2001; Wojtkiewicz & Donato 1995; Coleman 1988). Many federal initiatives have and continue to attempt to reduce these inequalities. The U.S. Department of Education sponsors the 21st Century Community Learning Centers program which creates community learning centers providing academic enrichment opportunities for children, particularly students who attend high-poverty and low performing schools (Jenner & Jenner 2007). This initiative provides grants to schools for the formation of after-school programs for elementary, middle and high school students depending on how the school district and program coordinators allocate and direct the funds. These programs offer a variety of enrichment activities to complement regular school-day instruction, as well as additional after-school academic programs to improve educational achievement for students (Little, Wimer, & Weiss 2007).

A great deal of evaluative and social science research regarding these programs and their effectiveness on student development has been done focusing primarily on academic achievement gains. Research shows that formal after-school programs provide positive experiences and educational improvement, especially for low-income, minority students (Naftzger et al. 2009), and limited English proficiency (LEP) students (Posner & Vandell 1994; Chappell 2006). This environment furnishes opportunities for children to develop needed academic and social skills (Chappell 2006; James-Burdumy et al. 2005; Schinke, Cole, & Poulin 2000; Posner & Vandell 1994). Most research has shifted focus from increasing after-school program participation to student achievement gains (Huang, Leon, La Torre, & Mostafavi 2008;

Lauer et al. 2006; Miller 2003). Yet, conclusions regarding the effectiveness of these programs remain inconsistent (Fashola 1998; Vanderhaar & Muñoz 2006). This is due to large selection biases within small sample sizes, variations in program goals, yearly transitioning of students between schools, as well as questions about how to measure the various levels of student participation and achievement gains (Huang, et. al 2008; Lauer et al. 2003). With more reliable data, researchers who have examined the effectiveness of after-school programs on student achievement gains and participation found that higher student participation increases the benefits of the program (Huang, et al. 2008; Frankel & Daley 2007; Lauer et al. 2003; McComb & Scott-Little 2003).

Few studies address what student characteristics affect participation at different after-school levels. This study examines whether participation in 21st Century after-school programs at the elementary school level predicts after-school participation at the middle school level for a medium-sized western city school district. Specifically, I assess which characteristics are most explanatory of different types of after-school participation. Moreover, I address how the school context of both the elementary program and the middle school may predict participation after students make the transition to middle school programs. Using a small set of schools from one public school district, I assess the effects of elementary school after-school program emphasis—i.e., enrichment or academic—and middle school context on the types of students that attend after-school programs. Assessments of after-school programs have typically shown some benefits to participants, such as improvements in attitudes, behaviors and competencies (Roffman et al. 2001). Thus, this case study provides an in-depth look at who, and potentially, why, students participate in after-school programs and how school context affects their participation.

Review of Literature

With the growing pressure on schools and teachers to increase student achievement to avoid sanctions from district and state boards of education as well as to comply with the federal regulations imposed through the No Child Left Behind Act of 2001 (NCLB), many schools started establishing after-school programs that encourage participation in academic and enrichment activities for students with low test scores (Huang et al. 2008; James-Burdumy, Dynarski & Deke 2007; Jenner & Jenner 2007; James-Burdumy et al. 2005). The 21st Century Community Learning Centers were re-infused with funding following the enactment of NCLB to aid in the educational development of under-achieving students and improve their standardized test scores (Huang et al. 2008). Moreover, these after-school programs provide safe places for students after hours where they can receive supervised academic help and experience other enrichment activities that are quickly diminishing from schools as budgets across the country shrink (Jenner & Jenner 2007). Thus, I address how student and family background, student academic skills, and school context influence student participation during after-school programs.

The 21st Century Community Learning Center after-school programs have been in effect across the country with varying levels of success. Researchers suggest that consistent after-school program attendance helps improve student achievement (Huang et al. 2000; Hamilton & Klein 1998). While those positive findings are encouraging, critics maintain that the gains are not significantly helping raise achievement, and that the student gains will not be maintained if attendance drops (Huang et al. 2008; Jenner & Jenner 2007; Little, Wimer, & Weiss 2007; Birmingham, Pechman, Russell & Mielke 2005; James-Burdumy et al. 2005). Research on the same population as this study also suggests student achievement gains are positively associated with participation in the after-school programs (Ward et al. 2011). Naftzger et al. (2009) present

evidence based on new reporting procedures that almost half of elementary student participants improved math and language arts scores in 2003-04. Some studies show that participants in after-school programs increase grades and standardized test scores (Lauer et al. 2006; Huang et al. 2000; Hamilton & Klein 1998; Schinke, Cole, & Poulin 2000; Tierney et al. 1995). Other studies demonstrate results such as improved attitudes towards schooling, higher school aspirations, better study habits, and increased attendance, especially for lower-income students (Schinke, Cole, & Poulin 2000; Brooks, Mojica, & Land 1995; Tierney et al. 1995; Posner & Vandell 1994). Fashola (1998) concluded through an in-depth meta-analysis that after-school programs seem to have positive impacts on youth, especially for low-income, minority students in under-funded schools. Other researchers agree and suggest evaluations need to take place earlier so that changes to increase the effectiveness of programs can be made, if necessary (DeStafano 1992; Orfield 1990).

Student and Family Background Characteristics

Socioeconomic Status

Education research suggests student and family background characteristics predict numerous educational outcomes ranging from participation to achievement, especially socioeconomic status, race, and gender. Socioeconomic status (SES) and race are both highly correlated with educational attainment and participation. Socioeconomic status strongly influences parental involvement, in part because low-income parents do not have the time, resources, or transportation to be regularly involved with their children's schooling (Littman 2001). Students with low SES are more likely to live in crowded housing, which can make studying difficult and have fewer resources, like reading material, that support school performance. Because lower SES students tend to come from neighborhoods with less financial

and human capital (Aaronson 1997; Connell & Halpern-Felsher 1997; Brooks-Gunn, Duncan, Klebanov, & Sealand 1993), the schools they attend typically have fewer resources and lower academic expectations. Studies show that students in schools with lower expectations tend to experience lower academic outcomes (Hoffer, Greeley, & Coleman 1985).

Race and Ethnicity

Race also correlates highly to student achievement; McNamee and Miller (2004) show that more Hispanic and African American students attend poorly funded, inner-city schools than whites. Schools with predominantly minority students tend to have fewer programs, less technology, and larger class sizes and receive less funding due to the lower property taxes in the area (Brint 1998). More of the students tend to be from low SES backgrounds and expenditures per pupil tend to be lower in schools with large minority enrollments. Minority students in these neighborhoods are less likely to receive equal access to educational opportunities because of the poorer quality of resources (Gottdiener & Hutchinson 2006). The achievement gap that persists between minority and white students has been attributed to inferior schools and fewer economic and social resources that characterize minority communities (Hallinan 2001; Lang 1992). Perception of opportunity is also an important factor influencing educational achievement (Hallinan 2001).

Gender

Gender affects educational participation and attainment, and typically, females are more likely to see more positive effects in increased educational opportunities. However, after-school programs usually yield greater results for male students (Huang et al. 2008; Jenner & Jenner 2007; James-Burdumy et al. 2005). Moreover, males are more likely to participate in after-school programs (Jenner & Jenner 2007; James-Burdumy et al. 2005).

While previous educational research and after-school program research demonstrates how background characteristics affect opportunities and participation, this study seeks to demonstrate how these characteristics predict middle school after-school participation. Few studies acknowledge whether these characteristics interact differently for various types of middle school programs.

Student Academic Skills

Special Education and Limited English Proficiency Students

Because after-school programs target students "at risk" for academic problems in addition to low-income students, two primary characteristics of after-school program participants are limited English proficiency (LEP) and special education status of students. While after-school program studies typically demonstrate that LEP and special education students participate less often than traditional students (Huang et al. 2008), few studies address how LEP and special education status affect student participation following a student's transition from one school to another. However, when LEP students participate regularly, their achievement gains are typically larger than non-LEP students who attend (Nelson et al. 2007; Brown, McComb, & Scott-Little 2003). LEP students, as well as their parents, typically struggle to communicate with their teachers due to the language barrier, which greatly decreases the likelihood of participation even though they are more likely to benefit from after-school participation (Moore et al. 2000). Special education students also face unique challenges that limit their involvement in the school, which can also affect participation in the after-school program. However, when they overcome those challenges and participate regularly, their achievement gains are typically greater than non-special education students (Reisner et al. 2004). LEP and special education students face unique challenges in accessing the resources available at the school and being full participants therein,

which may be increasingly significant when transitioning from one school to another (Riggs & Greenberg 2004).

Achievement and Educational Experiences of Students

When predicting "at-risk" student likelihood of participating in educational opportunities, previous research suggests that after-school habits of "at-risk" students should account for prior experiences with the educational system. Lower achievement sometimes stems from a sense of alienation from the larger school population and may increase absenteeism and other achievement inhibiting and deviant practices (Johnson 2005; Hallfors et al. 2002). This research demonstrates the importance of knowing not only how students are affected academically, but also whether students are continuing to receive help and participate in after-school programs when they lack the connections and support for participation (Lauer et al. 2006; Datnow et al. 2003). Students targeted by the 21st CCLC programs are more likely to drop out of school and have lower levels of academic achievement, and elementary achievement levels are typically significantly predictive of achievement at other school levels and participation in those levels (James-Burdumy et al. 2005; Rivkin, Hanushek, and Kain 2005; Lehr et al. 2004; Orfield et al. 2004). Participation in after-school programs has been linked to reduced negative behaviors, such as alcohol use, drug abuse, and violence, as well as increased positive behaviors, such as better peer-to-peer relationships and improved conflict resolution skills (Beuhring, Blum, & Rinehart 2000; Pierce, Hamm, & Vandell 1999; Rodriguez et al. 1999; Catalano et al. 1998; Roth, Brooks-Gunn, Murray, & Foster 1998; Marshall et al. 1997; Pettit, Laird, Bates, & Dodge 1997; Miller 1995).

Education and Social Reproduction

Many studies point to the tendency of the education system to reproduce inequalities instead of reduce them (McNamee & Miller 2004; Price 2004; Baron, Field, & Schuller 2000). Theories of social reproduction suggest that social institutions and structures reproduce inequality by failing to eliminate barriers to opportunity (Demaine 2003). Due to inequalities in educational opportunity, the federal government has sponsored numerous remedial and other special programs to reduce disparities (Orfield 1990; Mosteller & Moynihan 1972). These programs utilize a variety of approaches. However, research evaluating a number of these programs suggests that they fail to reduce inequality (Orfield 1990). Although advantaged students often are more likely to utilize the programs than disadvantaged students (Vinovskis 1999), many disadvantaged students benefit from these programs. As a result, some researchers are calling for further assessments of federal education programs to determine who is being helped (Vinovskis 1999).

Role of After-school Programs and School Context

Understanding how educational contexts influence student achievement and participation is essential to improving programs designed to help "at-risk" students grow academically (Lauer et al. 2006; Mahoney, Lord, & Carryl 2005; Rivkin, Hanushek, & Kain 2005; Datnow et al. 2003; Lee & Burkman 2003). Most studies of the 21st Century Community Learning Centers show that lower income and minority students, in particular, are more likely to attend schools with lower funding and, thus, may perceive school as less meaningful or valuable for their futures compared to students from higher income and majority group status (Huang et al. 2008; Jenner & Jenner 2007; Little, Wimer, & Weiss 2007; Birmingham, Pechman, Russell & Mielke 2005; James-Burdumy et al. 2005; Brint 1998). Schools differ significantly and after-school programs are

even more varied; however, many studies demonstrate that the transition from one school to another and the ability to adjust to the new school context helps improve student achievement and participation at the new school, especially for "at-risk" populations (Lauer et al. 2006; Mahoney, Lord, & Carryl 2005; Rivkin, Hanushek, & Kain 2005; Datnow et al. 2003; Lee & Burkman 2003).

Purpose Statement

Research focusing solely on achievement gains neglects whether or not these programs are sustainable and whether or not they should be extended throughout the student's entire public education career. Although Mahoney, Lord, and Carryl (2005) demonstrated that increased school participation is more likely in older students because of increased exposure to after-school programs and interaction with the individuals running the program, research demonstrating how participation levels in elementary school predict participation during middle school is still needed. The research presented addresses the relative effects of student and school factors on after-school participation during the transition period from elementary to middle school.

(Insert Figure 1 Here)

Research Questions

After-school programs have been shown to improve student achievement gains for students from various backgrounds, especially for low-income, at-risk, and minority students. The 21st Century Community Learning Center programs increase the time and resources available to these students to help further develop both academically and socially. However, transitioning from elementary to middle school after-school programs still needs to be evaluated and researched to ensure that the program is effectively retaining students. Therefore, in this

study I ask the following questions regarding program participation at the elementary and middle school level and who actually participates:

Question 1: What characteristics, including student background, academic skill, and elementary participation type, affect whether students participate in the 21st Century Community Learning Center after-school programs at the middle school level?

Question 2: How does school context influence whether students make the transition from elementary to middle school after-school program participation?

To answer these questions, this case study includes students who attend two different 21st Century Community Learning Center middle school programs and have made the transition from the elementary programs to the middle school program. I used binary logistic regression to address the effects of school and cohort context in predicting the likelihood of after-school participation during middle school. Additionally, because the two middle schools differ in the characteristics of the students that attend, the proportions of students with characteristics central to this study also differ (e.g., low income, LEP and special education). Therefore, the analysis includes a comparison of the two school populations to assess how school context may affect after-school participation.

This study provides greater understanding regarding the impact of participation at different levels of after-school programs, whether prolonged participation increases the likelihood of continued participation after switching schools, and how participation patterns affect school performance. Most importantly, this case study provides information regarding which students are most likely to make the transition and how different school environments affect students' continued participation in after-school programs once they change schools.

(Insert Figure 2 Here)

Methodology

Data

Data for this study accounts for all students who participated over the past four years, from the 2006 to the 2010 school years. These data are provided by the school district for program reports and for a required independent program assessment. Individual student names are not identified in the data. Student information for four years was combined and used to eliminate duplicates in the sample. Once data were merged and duplicates eliminated, frequencies were run to ensure the validity of the data. Multiple sources provided data on the after-school program and the participation of students. Site coordinators at each after-school program provide information on current program activities, student participation, and any changes made in the programs since the previous year. Annual student standardized testing scores and academic progress data as well as student background characteristics are provided by the school district for reporting and program assessment. Due to the longitudinal nature of the data, the analysis can assess the impact of student participation across several years through the transition from elementary school programs to middle school. Thus, the data allows us to identify key predictors of middle school after-school program participation and how school contexts affect the predictors and participation.

District Characteristics

This case study focuses on after school programs of multiple elementary and middle schools in a medium-sized western city. The schools in which after school programs are located are Title I schools that include substantial proportions of low income and minority students. The area is 88.5 % white, 10.5 % Hispanic, and 1 % other minority groups. In this area, 26.8 % of individuals live below the poverty line and 17% speak a language other than English at home

(US Census 2000). The school district in this study has an enrollment of about 13,000 students in 26 schools; 9 elementary schools and two middle schools are represented in the population for this research.

School and Program Characteristics

By looking at the school and after school program contexts experienced by the students in this study, we can better understand how and why certain students might be more or less likely to participate after making the transition from elementary to middle school. Table 1 through Table 4 report the composition of the two middle schools followed by the two types of elementary school programs. While both middle schools are Title I schools, one is located in a predominantly middle-class neighborhoods and the other is located in a predominantly low-income and minority area. Although the middle-class Title I middle school has fewer low-income students in their student population, the after-school program has more low-income (56 percent) and minority (37.4 percent) student participants compared to 52 percent low-income and 37.0 percent minority students at the low-income Title I middle school. The middle-class Title I middle school receives 68 percent of its students from elementary programs that emphasize enrichment, while the other 32 percent of enrichment elementary program students attend the low-income Title I middle school.

(Insert Table 1 and Table 2 Here)

Elementary after-school programs are the ground floor of recruiting and developing a sustainable after-school program. Recruitment into the after-school program focuses on key predictors of at-risk students. Low-income, LEP, and minority students are typically targeted as participants for the 21st CCLC after-school programs in the attempt to decrease the likelihood of dropping out and to decrease the achievement gap of at-risk students. Elementary school

programs typically require students to participate in some academic activities because they focus on students with lower test scores and achievement, but they also provide opportunities for enrichment activities. Some elementary programs require participation in academic activities every day, while others require participation on a less regular basis. Students typically participate in two half hour activities, eat a snack, and then either leave for the day or continue in the program for another hour and a half. For this data there are four enrichment-focused elementary programs and five academic-focused programs.

When comparing the elementary program types, they seem to have more disparity than the two middle schools. Minority students are more likely to attend academic-focused after-school programs and comprise about 42 percent of the after-school student population in these types of elementary school programs, while enrichment-focused elementary programs only have about 32 percent minority enrollment. Males make up 52 percent of the population of both types of programs , but academic programs have 62 percent low-income participants, and enrichment programs only have 50 percent. Likewise, LEP (26%) and special education (28%) students are more likely to attend academic-focused elementary programs. Special education and LEP students only make up 22 percent each of the enrichment-focused participant populations. Academic-focused elementary programs send 65% percent of their students to the low-income Title I middle school compared to 30% from elementary programs emphasizing enrichment activities. However when considering race, academic elementary programs have many more minority, low-income, special education and LEP students involved in their programs than do enrichment-focused elementary programs. Of all the participants in the enrichment programs, 68 percent are white students, which may explain why fewer students from these programs attend the low-income Title I middle school. As demonstrated above and in the following tables,

academic-focused elementary programs seem to do a much better job at encouraging students from the target populations to participate after-school than enrichment elementary programs.

(Insert Table 3 and Table 4)

Student Characteristics

This research population includes 1,060 students who transitioned from elementary school programs to middle school programs although not all of these students participated in both levels of after-school activities. This population includes 552 male students and 508 female students from at least seven different ethnic groups. However, 62.6 percent are non-Hispanic white students and 30.8 percent are Hispanic students. Other defining characteristics of the population include student participation in the free or reduced price lunch program, English language proficiency, cohort, and special education status. Of the students who participated in the program, 23.0 percent are limited English proficiency (LEP) students and 24.0 percent are considered special education students. Of the total population, 56.0 percent participate in the free lunch program. Academic achievement is measured using the student's previous average standardized test scores for 2006-2007 and 2007-2008 school years by combining Math and Language Arts scores at two elementary school grade levels.

(Insert Table 5 Here)

Measures

This study uses measures similar to several other evaluations of the 21st Century Community Learning Centers across the country and attempts to demonstrate how students transition from elementary to middle school programs. The dependent variable in this study is a dichotomous measure of whether or not a student participated in the middle school after-school program.

Background Characteristic Variables

Gender, limited English proficiency status, special education and low-income status are all dichotomous variables. Low-income status is measured using a student's participation in the free or reduced price lunch program available at their school. Race and ethnicity are represented by seven categories including: African American, Hispanic, Asian, White/Caucasian, Polynesian, Native American, and other. Those racial and ethnic categories are used to create eight dummy variables; one dummy variable for each racial category as well as one including all the racial categories except for white/Caucasian and Hispanic. These data are provided by the district and are based on parents' registration information.

The grade levels attended by students may vary from 4th through 7th or 5th through 8th. However, in order to standardize an analysis of the transition, the number of years of participation, and to decrease the likelihood of attrition effects, I created two cohorts of students that participated from 5th through 7th grades. Cohort 1 includes 5th through 7th grade students that started 5th grade during the 2006-2007 school year, and Cohort 2 includes students during the same grades, but who entered 5th grade during 2007-2008.

(Insert Figure 3 Here)

Student Academic Skill Variables

The variables in this category measure different aspects of student academic background and skill, specifically special education status, limited English proficiency (LEP) status, and average elementary after-school participation. Special education status is a dummy variable measured by whether the district has conducted an evaluation and designated a student as a special education student in their student file. LEP student status represents an assessment of English language proficiency when the student enrolls. Because LEP status and special

education status were highly correlated and most after school programs focus more on LEP students, to avoid inflated standard errors and coefficients, I used only LEP status as the variable in the regression models.

Student Participation Variables

The primary independent variable is a continuous level measure of the student's average elementary after-school program participation for 5th and 6th grade. This measure is the average of a sum of the student's academic and enrichment activity participation for both years. This measure helps capture whether higher levels of participation increase the likelihood of participants continuing in the after-school program after transitioning to middle school. To consider the effects of after-school programs, I created a set of dummy variables that captures the type of activities students primarily participated in as well as the type of elementary program they attended. Participation is either primarily academic, primarily enrichment, or equal participation in both academic and enrichment activities with non-participants during elementary school serving as the references group. Thus, this measure allows for testing how participation in certain types of activities affects the transition to middle school programs.

(Insert Table 6 Here)

School Context Variables

The schools in this case study have unique demographic and structural characteristics. I use two school context variables: one acts as a proxy for the middle school characteristics and the other is a classification of the elementary after-school program focus and related features of program (such as the higher proportion of students needing academic help in academic-focused programs). The middle schools are most clearly distinguished by the proportion of low-income students. The low-income middle school includes greater numbers of minority and low-income

students and clearly meets Title I requirements. However, the other middle school in this study meets the minimum requirements for Title I school status and includes a primarily white, middle-class student population. Family income levels differ between the middle schools, but when comparing the elementary schools, after-school program emphasis differs more significantly. The elementary program emphasis variable was created by comparing not only the average number of academic and enrichment activities available at the schools, but by also comparing the levels of student participation in both types of activities and whether or not the program mandated participation in academic activities. Thus, I categorize elementary schools according to academic or enrichment emphasis, coded zero and one respectively, with four schools focusing on enrichment and five emphasizing academics.

Missing Data

While for most variables there are no missing data across the four years of available information, there are missing data for the test scores in the 2008-2009 school year. However, since most students have made the transition to middle school by that time, elementary test scores from two other years are available. Therefore, I will use the average test scores for students from the 2006-2007 and 2007-2008 school years in this analysis. The missing data in these two years are less than one percent of the total population; thus, I avoid the biased results from including variables with high levels of missing data.

Analysis

This study uses several binary logistic models to address the research questions. The two participating middle schools in the after-school program differ considerably in the characteristics of the students they serve; one school serves primarily middle-class students while the other school serves primarily low-income students. Therefore, I will compare the students who attend

these two schools to identify which student characteristics are most influential at each school and to determine whether participation patterns are related to structural features at the school. Within each of these two different schools, analyses assess the effects of student background, academic skills, and level of participation. The elementary programs emphasize either academics or enrichment activities. Thus, I use this dichotomous category of program focus along with a measure of student participation pattern to address whether programs can steer students to a successful transition.

By using multiple models, I compare how the introduction of new variables affects the predictive power of the model and also identify the most salient variables in predicting student after-school participation at the middle school level. Below are the various models and equations I will use to answer Question 1.

Model 1 Equation: $\text{logit}(Y_{mid\text{-}participation}) = \alpha + \beta_{1s}x_{1s}$ (Background) $+ \varepsilon$

Model 2 Equation: $\text{logit}(Y_{mid\text{-}participation}) = \alpha + \beta_{1s}x_{1s}$ (Background) $+ \beta_{2s}x_{2s}$ (Student Academic Skills) $+ \varepsilon$

Model 3 Equation: $\text{logit}(Y_{mid\text{-}participation}) = \alpha + \beta_{1s}x_{1s}$ (Background) $+ \beta_{2s}x_{2s}$ (Student Academic Skills) $+ \beta_{3s}x_{3s}$ (Elementary Participant) $+ \varepsilon$

Model 4 Equation: $\text{logit}(Y_{mid\text{-}participation}) = \alpha + \beta_{1s}x_{1s}$ (Background) $+ \beta_{2s}x_{2s}$ (Student Academic Skills) $+ \beta_{4s}x_{4s}$ (Program Participation) $+ \varepsilon$

Model 5 Equation: $\text{logit}(Y_{mid\text{-}participation}) = \alpha + \beta_{1s}x_{1s}$ (Background) $+ \beta_{2s}x_{2s}$ (Student Academic Skills) $+ \beta_{4s}x_{4s}$ (Program Participation) $+ \beta_{5s}x_{5s}$ (School Context) $+ \varepsilon$

I use these models and equations for the entire population as well as for an analysis of students who attend a middle-class Title I middle school and those who attend a low-income Title I middle school, as well as those who attended an academic focused elementary after-school program and students who attended an enrichment focused elementary program. Model 5 in the first table includes an analysis of the full population to demonstrate the effect of middle school context. Analyses for question 2 uses all but Model 5 to better understand how middle school context and elementary program focus affect student middle school participation.

This case study focuses on identifying the effects of gender, ethnicity, special education, LEP, and low-income status (measured through free or reduced lunch status) on middle school participation variables to answer the questions asked. Moreover, using the categorical classification measures in my analysis will help explore how the background, academic skill, and school context affect students as they attempt to navigate the education system, especially "at-risk" student populations. I also will consider how average elementary test scores impact those participants. The different school contexts provide interesting comparisons for identifying which characteristics influence participation and how those social circumstances may influence their decisions on whether or not to participate in after-school programs. Using multiple models in the regression analyses shows how student characteristics and school contexts affect participation in after-school programs and the transition from elementary to middle school. The following discussion of the results will further demonstrate how the results can be used by after-school program coordinators and policy-makers to improve the sustainability and successful transition of students into the after-school program at their next school.

Results

The regression analyses results demonstrate how student background characteristics and academic skills predict middle school after-school participation, as well as how type of participation may play a role in understanding these predictors. I report the findings according to how the effects of background, student skills, and school context influence a student's transition to after-school programs in middle school. Of these, the analyses show that participation is most dependent upon school context.

Question One: Predictive Characteristics of Participation in Middle School

The first question revolves around which background characteristics, academic skills, participation types and school context variables predict student participation in after-school programs during middle school. The effects of each group of variables are discussed in the following sections. Table 7 displays the results of the five logistic regression models predicting middle school after-school program participation for the whole study population, while Tables 8 and 9 show the results for the middle-class Title I middle school and the low-income Title I middle school, respectively, and Tables 10 and 11 show the results for the academic and enrichment elementary programs, respectively.

(Insert Table 8 Here)

Background Characteristics

I compared each model to discover the key variables that predict participation in middle school. As demonstrated by each model in Table 7, none of the student background characteristics were statistically significant except in Model 5 when school context variables are introduced into the analysis. Gender is the only background characteristic that is significant, and the odds of females participating after-school during middle school are 23.6 percent less likely than the odds of males. The significance of this variable most likely depends on the middle school a student attends, which will be discussed later.

Student Academic Skills

After introducing the student academic skill variables into the models, both LEP status and average elementary test scores remain significant across all the models. However, LEP status becomes non-significant after middle school attended is added to the analysis. LEP students are 45 percent more likely than non-LEP students to participate during middle school programs.

This suggests that after-school program coordinators are helping language learners understand and enroll in the after-school program, thus reaching one of the target populations and helping those students make a successful transition. Although LEP status is not statistically significant after introducing school context variables, there is still a 35 percent greater likelihood that LEP students participate during middle school compared to non-LEP students. Also, every one unit increase in average elementary test score is associated with a 1.9 percent increase in the odds of participating during middle school. Thus, students with higher average elementary test scores are more likely to continue participating after the move to middle school. This demonstrates mixed results concerning the program because it shows that some lower-achieving students that need the after-school help to improve achievement are not utilizing the program while some higher-achieving students are using the academic activities to support their academic skills.

Student Participation Types

A measure of student participation type is used in three different models. Model 3 uses a dichotomous measure showing whether students participated in the elementary after school programs. Models 4 and 5 includes measures of types of participation (equal participation in academic and enrichment programs, primarily academic participation, or primarily enrichment participation) along with average number of elementary participation days to assess how different types of participation patterns predict middle school participation. Non-participants are the reference category in Models 4 and 5. Figures in Model 3 show that merely participating during elementary school is not a significant predictor of participation during middle school and does not affect the predictive nature of background or academic skill characteristics. The specific participation patterns (i.e., equal, academic or enrichment) yield no significant findings although equal participants in academic and enrichment activities change from being positively

associated with middle school participation to being negatively associated with participation following the introduction of middle school type. This demonstrates that attending a low-income Title I middle school may dissuade students involved equally in academic and enrichment activities from participating after the transition. Although participant types may not yield significant findings, every one unit increase in the average number of days a student attends an elementary after-school program yields a .5 increase in the likelihood of a student participating in middle school. The standard deviation for average number of participation days is 41.795 with a mean of 20.07 indicating that the average student participant is 10 percent more likely to participate. When attendance increases by one standard deviation, a student is about 21 percent more likely than the average participant to attend during middle school. Thus, small increases can yield large differences in the likelihood of participation during middle school.

School Context

In Model 5, Title I middle school type and enrichment focused elementary program are introduced into the model. With the addition of these two variables, I found that the odds of low-income Title I middle school students participating during middle school are 1.5 times higher than the odds of middle-class Title I middle school students participating after controlling for the effects of all other variables in the model. This finding suggests that low-income Title I schools may have programs better suited to meet the needs of students that typically attend after-school programs and features of these schools support continued after-school participation. Student involvement in enrichment elementary program is not statistically significantly related to participating in middle school, even though the odds of enrichment program students participating during middle school are 10 percent less than the odds of academic program students. Females remain less likely than males to participate and average elementary test scores

are still positively associated with participation. Thus, the environment and context of the middle school is essential to consider in preparing students to make the transition to after-school programs at the next level. The elementary program emphasis, although not significantly associated with participation, still provides some meaningful insights into how a program emphasis can affect student participation after they have left the program. This finding regarding the significance of Title I middle school type demonstrates the need for assessing different models for each of the middle schools the students attended.

Question Two: Middle School Context and Elementary Program Emphasis

While the previous question focused on predicting middle school participation, these analyses focus on comparing the types of participants. After identifying the key predictors of middle school participation regarding certain background characteristics, academic skills, and participation types, I look at how different school contexts affect those key predictors. In this section, I discuss how attending the low-income Title I middle school is most predictive of after-school participation during middle school, as well as the different effects of student background, academic skill levels, and participation type in comparisons of the middle-class Title I school population and the low-income Title I school population. I report the findings for these binary logistic regressions according to how background characteristics, academic skills, participant type and school context affect whether students participate in these different educational environments, including the two different focuses of the elementary programs.

Middle-class Title I Middle School

The findings for the middle-class Title I middle school (Table 8) demonstrate that gender is more significant in predicting middle school participation. Similar to the full population model in Table 7, females are significantly less likely than males to participate during middle

school. However, model 4 shows that each additional day of elementary participation is associated with a 2 percent increase in the likelihood of middle school participation. For Model 1, Cohort 2 is 37.6 percent more likely to participate in a middle-class Title I middle school than Cohort 1, but as academic skill and participation type are introduced cohort effects become insignificant. In Model 2 when academic skills are introduced, Hispanic students become 50.4 percent more likely than non-Hispanic students to participate in the middle school after-school program. However, the race effect becomes insignificant when participation types are introduced in Model 4. Average elementary test scores remain significant for this population at the same rate as the full model; there is about a 1.7 percent increase in participation for every point increase in average test score. Most significant in this analysis is that gender is associated with after-school participation among middle-class Title I middle school students, and higher-achieving students are more likely to attend after-school programs in this middle school.

(Insert Table 8 Here)

Low-Income Title I Middle School

The analysis shown in Table 9 for the low-income Title I middle school population identifies background characteristics and participation types as the most predictive factors for middle school after-school participation. Unlike the models for all students in Table 7, gender is not significantly associated with participation during middle school participation. However, race is significant across all the models for this school. Hispanics and other races are both less likely than whites to participate during middle school. Figures in Model 1 show that, compared to non-Hispanics, Hispanic students are about 65.3 percent less likely to participate. Models 2 through 4 show similar results: Model 2 shows that Hispanics are 63.6 percent less likely to participate; they are 62.8 percent less likely in Model 3; and 65.1 percent less likely in Model 4. Students of

other races are about 80 percent less likely than whites and Hispanics across all four models to participate in after-school programs in this middle school. The introduction of academic skills does not significantly change the ability of any variables to predict middle school participation, and only students primarily participating in enrichment activities are significantly less likely than non-enrichment participants to participate in middle school as shown in Model 4. Those enrichment-focused students are 54.3 percent less likely to participate during middle school. Moreover, every one unit increase in the average number of days of elementary participation is associated with a 1.1 percent increase in the likelihood of participating in a middle school program if a student attends a low-income Title I middle school. This analysis demonstrates that the low-income Title I middle school is less likely to have minority after-school participants. Additionally, elementary school enrichment-focused participation negatively affects middle school participation.

(Insert Table 9 Here)

Elementary Program Emphases

When comparing the populations of the two different types of elementary program emphases in Table 10 and 11, it is important to account for how background, academic skill, and participant characteristics vary depending on the elementary program focus. As demonstrated initially by the full population regression analyses in Table 7, middle school context remains the most significant predictor of after-school participation and the most influential moderating variable in the analysis. Figures in Table 10 (model 4) show that academic-focused elementary after-school program participants who attend low-income Title I middle school are 1.478 times more likely to participate during middle school than middle-class Title I middle school students. Table 11 (model 4) shows that students from enrichment programs are 1.661 times more likely to

participate than middle class Title I middle school students. Moreover, students of other races who attended an academic focused elementary program are 55 percent less likely to participate in middle school after-school programs among these students, and there is a 1.1 percent increase in the likelihood of participation during middle school for every one unit increase in the average number of after-school participation during elementary school. In contrast, among enrichment-focused elementary participants, gender, average elementary test scores and enrichment participants are significantly associated with the likelihood of participating after-school after transitioning to middle school. Female enrichment focused elementary program students are 37.4 percent less likely than males to participate during middle school and enrichment participants are 32.3 percent less likely than non-participants to participate after the transition to middle school. Every unit increase in the average elementary test score increases the likelihood of participating in a middle school after-school program about 1.9 percent. Although middle school context is most predictive, the elementary program findings contribute to understanding participation patterns of the middle school students.

Conclusions

These findings contribute to an assessment of after-school programs for this case study population and suggest that the school contexts of after-school programs must be considered. Background characteristics, student academic skill levels, and school context all help predict student middle school after-school participation. Race, gender, low-income status, and cohort are all significant predictors of middle school participation, even though these variables are not significant for all models or in each type of school. Low-income status and gender play the largest roles, which may be a reflection of recruiting to meet the program goals, but cohort also plays a limited role in predicting participation. Average standardized test scores are the most

predictive variable in the academic skill level category for understanding student middle school participation. This demonstrates that although the program is focused on helping students improve achievement, students with higher scores are more likely to participate possibly because they feel that the program could help them make significant gains. Middle schools have different school populations. The effects of student characteristics include that race is more predictive of low-income Title I middle school after-school participation, and gender is more predictive of middle-class Title I middle school after-school participation. Following a discussion of the influence of school context in the next section, I provide a few policy recommendations and suggestions for future research related to after-school program participation.

Influence of School Context on the Transition to Middle School

The analyses presented show that exposure to the after-school elementary school program does not ensure a successful transition from elementary after-school participation to middle school participation. Although this finding may seem counter-intuitive, it demonstrates that simply more participation is not always better, at least in relation to continued middle school participation. Even though elementary after-school program focus is not statistically significant, students who participate in academic-focused after-school programs achieve benefits in terms of academic growth, which is one of the purposes of an after-school program. However, they need to maintain participation after moving to a new school. The type of middle school after-school participants attend is the most predictive factor in whether students will continue to attend the after-school programs offered. Attending a low-income Title I middle school moderates student after-school participation during middle school. By understanding this context better, future researchers, program coordinators, and policy-makers can improve their efforts in developing

after-school programs that help students make successful transitions to programs at different school levels.

Policy Recommendations

The results of the analyses of student characteristics and skills, elementary program focus and school contexts demonstrates that social factors influence student after-school program participation and help predict whether or not students transition to middle school programs. Additionally, this study reveals how after-school program policy may be changed to improve the transition from one after-school level to another. Most students do not make a successful transition to the next school level; however, understanding the population of the middle school destination and the type of elementary program attended helps to improve the success of the transition. Thus, I suggest three primary policy changes that site coordinators and policy-makers focus on when considering after-school program legislation. First, elementary programs should focus on increasing participation and offering academic activities. Students attending primarily for enrichment activities are significantly less likely to make the transition. Moreover, policy-makers may need to review how schools qualify for the Title I funding, and assist schools with the target populations receive the resources needed to sustain the after school programs. Second, program recruitment efforts are working to ensure that many of the target students get the help needed; however, the next wave of recruitment needs to focus on encouraging participation by the lowest performing students. Third, any recruitment effort focused on certain student populations must include recruiting the parents to encourage participation and informing them of the benefits of the after-school program for students from similar circumstances. By focusing on academic activities in elementary school, understanding the middle school population and resources, recruiting more of the lowest performing students who need the after-school help, and

informing the parents more of the benefits of the programs, program administrators and policy-makers as well as site coordinators can help improve school performance and increase the sustainability and viability of the 21st Century Community Learning Centers.

Suggestions for Future Research

Further research should explore whether these same relationships exist between middle and high school programs. For example, at that level are students who primarily participate in enrichment activities less likely to continue participating in the after-school program following the transition to a high school? Moreover, further work should address how cohort influences participation. Data for this program are collected each year, and as a result, another cohort can be added to the models to improve the comparison and better understand how students are participating. Understanding how middle school context and elementary program focus affect predictors of middle school after-school participation may lead to further insights into how students can more successfully transition into different school levels, especially when they are considered "at-risk" students. More studies should be conducted to address how school contexts may dissuade at-risk student participation to help inform educators of the barriers these students face and how structural changes may decrease the effects of these barriers.

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Figure 1: Conceptual Model for Predicting Middle School Participation using Elementary School Participation

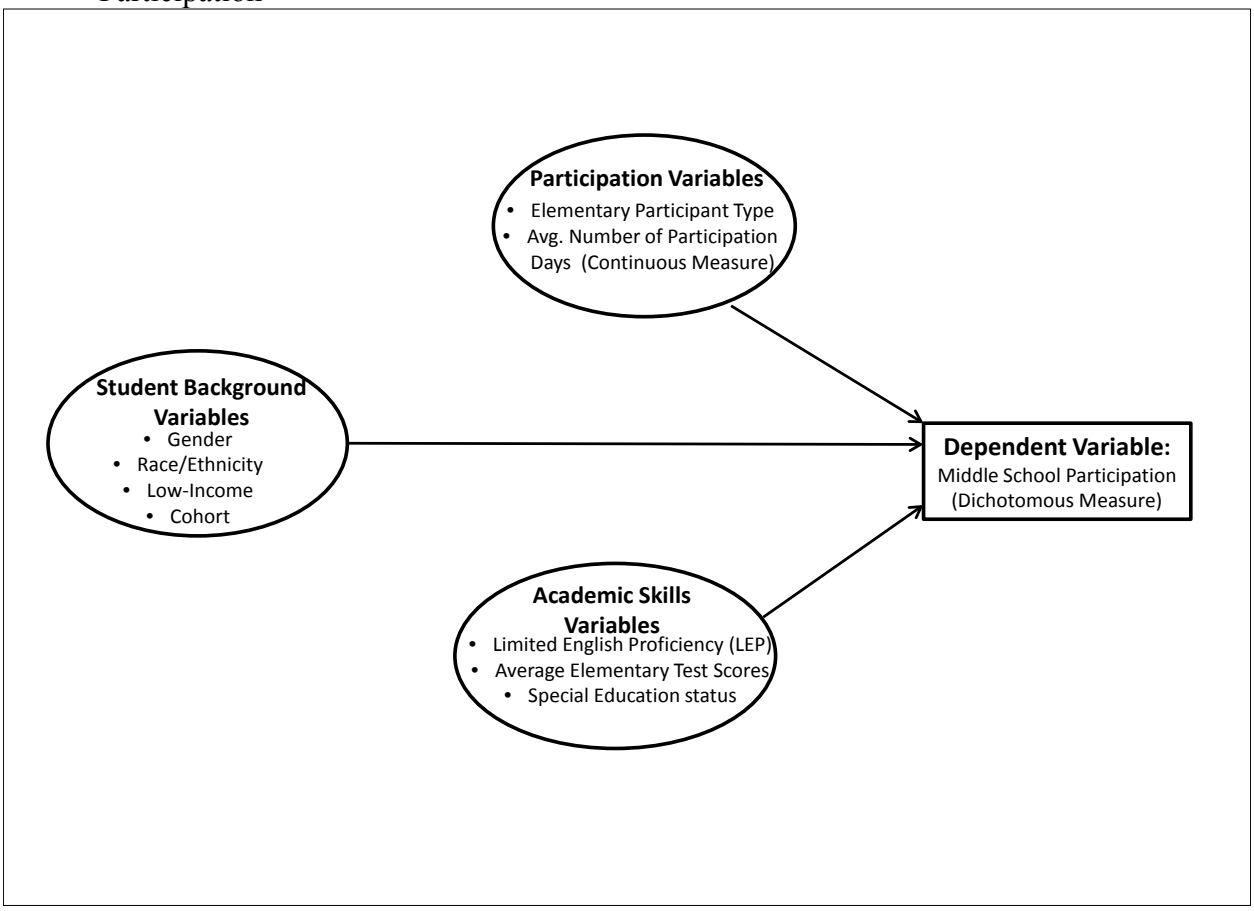

Figure 2: Comparative Model of Middle School Context on Middle School Participation

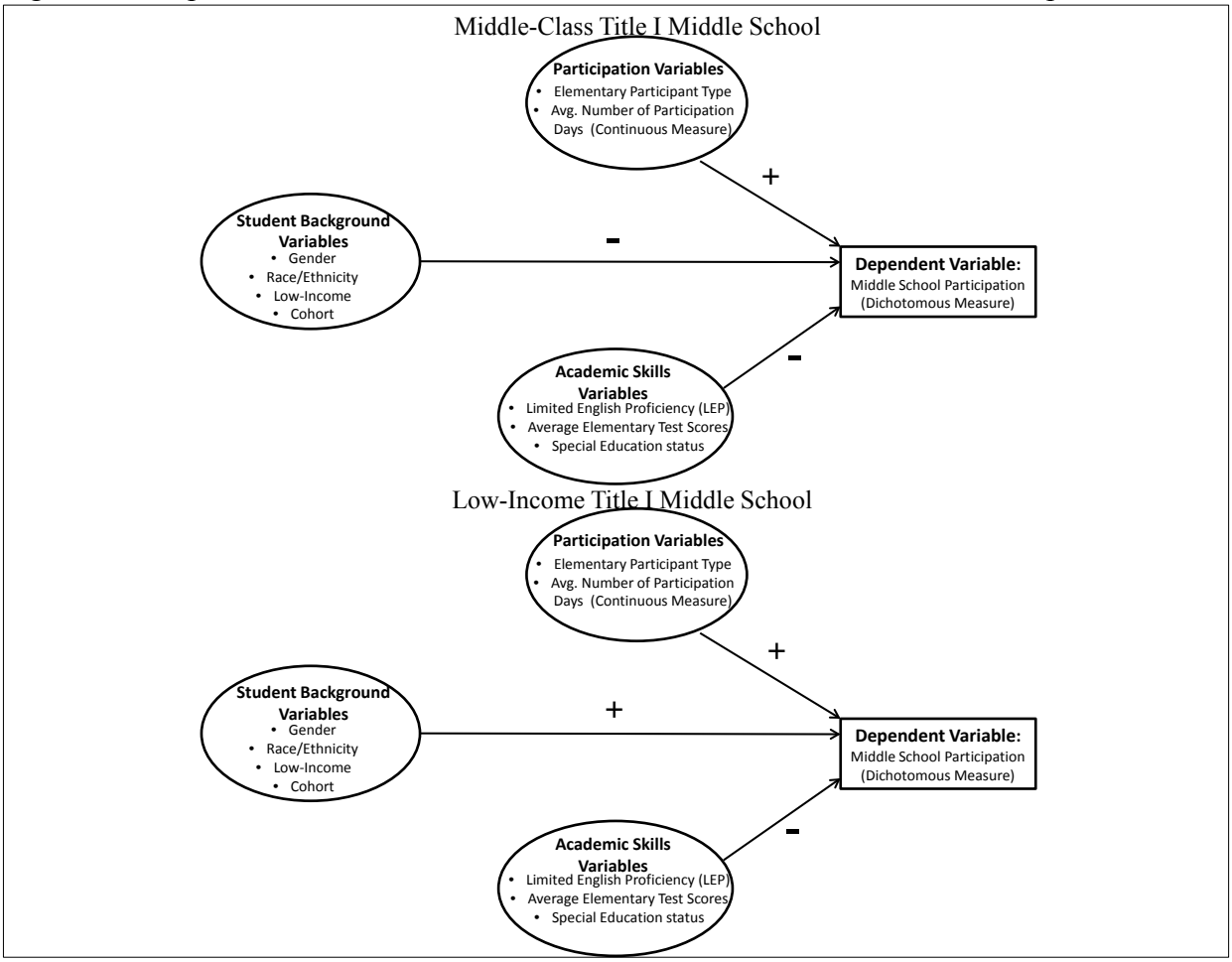

Figure 3: Comparative Model of Elementary Program Focus on Middle School Participation

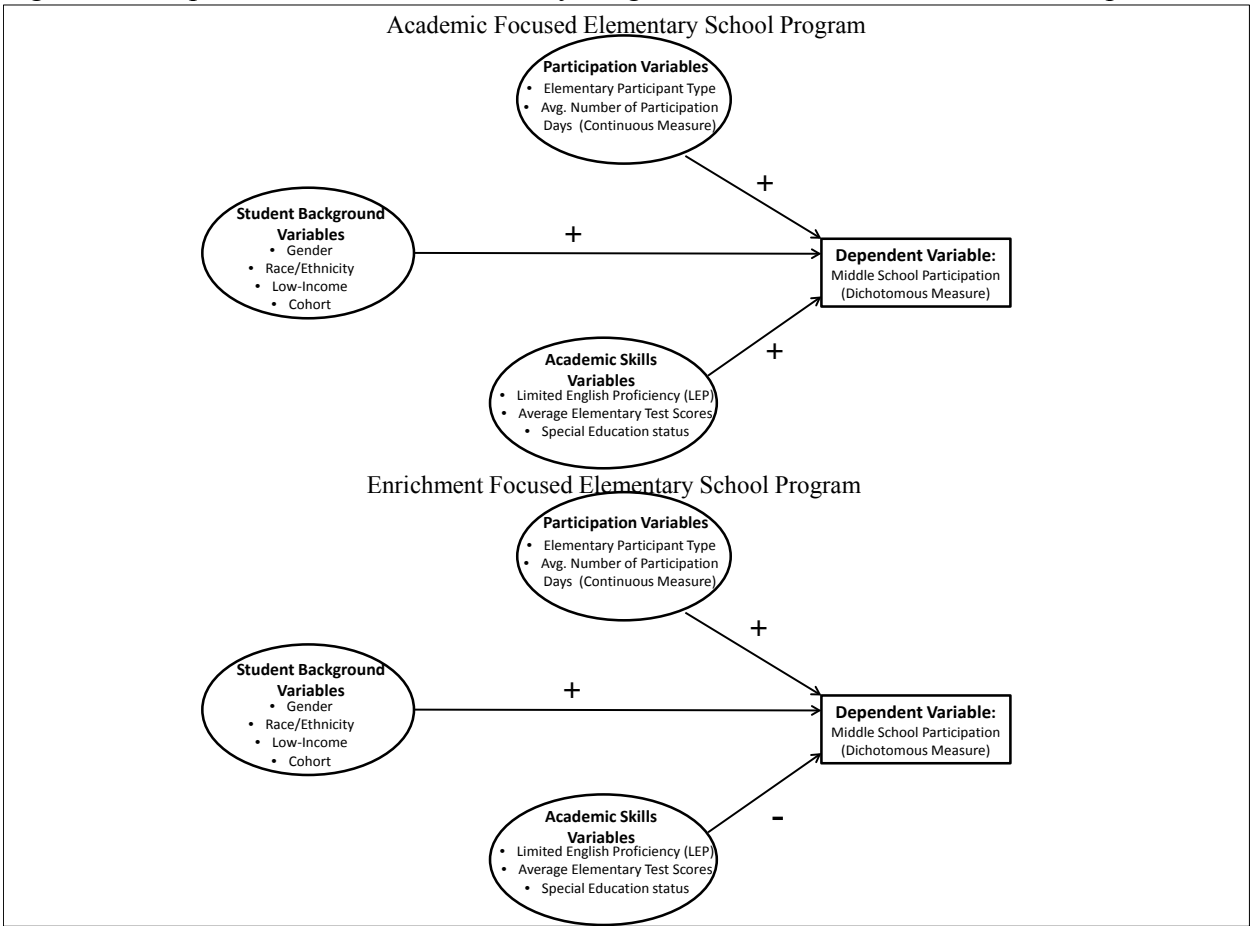

Figure 4: Cohorts for After-school Participants that Transitioned from Elementary to Middle School

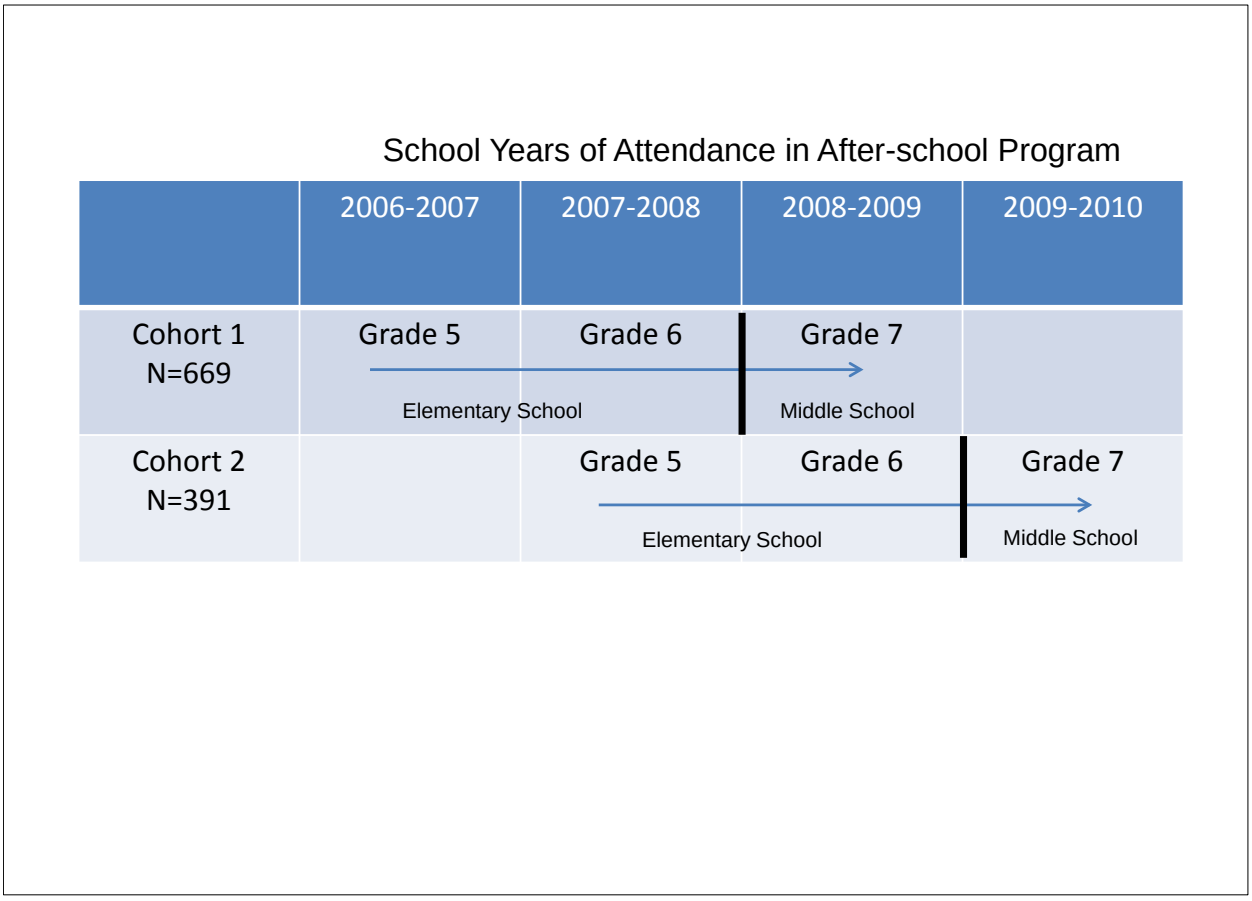

Table 1. Descriptive Statistics for After-School Participants in a Middle-class Title I Middle School

Variables	Description	Coding	Statistics			
			N	Range	Mean	Standard Deviation
Dependent Variable:						
Middle School Participation	Whether or not a student participates in after-school activities in middle school	0=No participation, 1=Participated	563	0-1	70.0%	0.460
Background Control Variables:						
Race *(ref=White)*	Parental reported race of child to school district upon enrollment	Set of dummy variables: White, Hispanic, Other	563			
White		0=Non-White, 1=White	563	0-1	62.6%	0.484
Hispanic		0=Non-Hispanic, 1=Hispanic	563	0-1	30.8%	0.464
Other Race		0=White or Hispanic, 1=Other Race	563	0-1	6.6%	0.235
Female	Parental reported sex of child to school district upon enrollment	0=Male, 1=Female	563	0-1	48.0%	0.498
Cohort 2 (*ref=Cohort 1: Grade 5 entered 06-07)*	Designated value for when the student started the 5th grade	Dummy variable of when student entered	563	0-1	37.0%	0.498
Free/Reduced Price Lunch	Wherther or not a student participates in free/reduced price lunch program at school	0=Not low-income, 1=Low-income	563	0-1	56.0%	0.494
Student Skill Control Variables:						
Special Education	Whether or not school designates student as special needs/special education	0=Not Special Ed., 1=Special Ed.	563	0-1	24.0%	0.441
Limited English Proficiency (LEP)	School designates student as limited English proficiency (LEP) based on home language	0=Not LEP, 1=LEP	563	0-1	23.0%	0.422
Average Elementary Test Scores	Scale of combined math and English test scores for years of elementary school	Continuous variable of average test scores	563	28.25-99.00	75.58	15.259
Elementary Participation Variables:*						
Equal Participant	Student participated evenly in academic and enrichment activities	0=Not Equal Part, 1=Equal Participant	563	0-1	1.0%	0.073
Academic Participant	Student participated primarily in academic activities	0=Not Acad Part, 1=Acad Participant	563	0-1	12.0%	0.326
Enrichment Participant	Student participated primarily in enrichment activities	0=Not Enrich Part, 1=Enrich Participant	563	0-1	29.0%	0.453
Non-Participant*(reference category)*	Did not participate in any activities in elementary school	0=Elem Part, 1= Non-Participant	563	0-1	59.0%	0.493
Avg. Number of Days	Average number of days students participated in the elementary after-school program	Continuous measure of average of elem. after-school days attended	563	0-337	23.46	46.971
School Context Variables:						
Enrichment Elementary Program	Student attended an elementary school with an enrichment focused after-school program	0=Academic, 1=Enrichment	563	0-1	68.0%	0.467

Table 2. Descriptive Statistics for After-School Participants in a Low-Income Title I Middle School

Variables	Description	Coding	Statistics			
			N	Range	Mean	Standard Deviation
Dependent Variable:						
Middle School Participation	Whether or not a student participates in after-school activities in middle school	0=No participation, 1=Participated	497	0-1	91.0%	0.290
Background Control Variables:						
Race *(ref=White)*	Parental reported race of child to school district upon enrollment	Set of dummy variables: White, Hispanic, Other	497			
White		0=Non-White, 1=White	497	0-1	62.0%	0.485
Hispanic		0=Non-Hispanic, 1=Hispanic	497	0-1	30.0%	0.460
Other Race		0=White or Hispanic, 1=Other Race	497	0-1	7.0%	0.263
Female	Parental reported sex of child to school	0=Male, 1=Female	497	0-1	52.0%	0.500
Cohort 2 (*ref=Cohort 1: Grade 5 entered 06-07)*	Designated value for when the student started the 5th grade	Dummy variable of when student entered 5th grade	497	0-1	28.0%	0.449
Free/Reduced Price Lunch	Wherther or not a student participates in free/reduced price lunch program at school	0=Not low-income, 1=Low-income	497	0-1	53.0%	0.500
Student Skill Control Variables:						
Special Education	Whether or not school designates student as special needs/special education	0=Not Special Ed., 1=Special Ed.	497	0-1	22.0%	0.413
Limited English Proficiency (LEP)	School designates student as limited English proficiency (LEP) based on home language	0=Not LEP, 1=LEP	497	0-1	22.0%	0.416
Average Elementary Test Scores	Scale of combined math and English test scores for years of elementary school	Continuous variable of average test scores	497	30.25-99.75	77.488	15.367
Elementary Participation Variables:*						
Equal Participant	Student participated evenly in academic and enrichment activities	0=Not Equal Part, 1=Equal Participant	497	0-1	3.0%	0.177
Academic Participant	Student participated primarily in academic activities	0=Not Acad Part, 1=Acad Participant	497	0-1	7.0%	0.253
Enrichment Participant	Student participated primarily in enrichment activities	0=Not Enrich Part, 1=Enrich Participant	497	0-1	29.0%	0.453
Non-Participant*(reference category)*	Did not participate in any activities in elementary school	0=Elem Part, 1= Non-Participant	497	0-1	61.0%	0.489
Avg. Number of Days	Average number of days students participated in the elementary after-school program	Continuous measure of average of elem. after-school days attended	497	0-297	16.23	34.669
School Context Variables:						
Enrichment Elementary Program	Student attended an elementary school with an enrichment focused after-school program	0=Academic, 1=Enrichment	497	0-1	32.0%	0.468

Table 3. Descriptive Statistics of After-School Participants from an Academic-Focused Elementary Program

Variables	Description	Coding	Statistics			
			N	Range	Mean	Standard Deviation
Dependent Variable:						
Middle School Participation	Whether or not a student participates in after-school activities in middle school	0=No participation, 1=Participated	516	0-1	84.0%	0.371
Background Control Variables:						
Race *(ref=White)*	Parental reported race of child to school district upon enrollment	Set of dummy variables: White, Hispanic, Other	516			
White		0=Non-White, 1=White	516	0-1	57.0%	0.495
Hispanic		0=Non-Hispanic, 1=Hispanic	516	0-1	37.0%	0.483
Other Race		0=White or Hispanic, 1=Other Race	516	0-1	6.0%	0.238
Female	Parental reported sex of child to school district upon enrollment	0=Male, 1=Female	516	0-1	48.0%	0.500
Cohort 2 (*ref=Cohort 1: Grade 5 entered 06-07)*	Designated value for when the student started the 5th grade	Dummy variable of when student entered	516	0-1	39.0%	0.488
Free/Reduced Price Lunch	Wherther or not a student participates in free/reduced price lunch program at school	0=Not low-income, 1=Low-income	516	0-1	62.0%	0.487
Student Skill Control Variables:						
Special Education	Whether or not school designates student as special needs/special education	0=Not Special Ed., 1=Special Ed.	516	0-1	26.0%	0.439
Limited English Proficiency (LEP)	School designates student as limited English proficiency (LEP) based on home language	0=Not LEP, 1=LEP	516	0-1	25.0%	0.433
Average Elementary Test Scores	Scale of combined math and English test scores for years of elementary school	Continuous variable of average test scores	516	28.25-99.75	75.22	16.343
Elementary Participation Variables:*						
Equal Participant	Student participated evenly in academic and enrichment activities	0=Not Equal Part, 1=Equal Participant	516	0-1	3.0%	0.184
Academic Participant	Student participated primarily in academic activities	0=Not Acad Part, 1=Acad Participant	516	0-1	11.0%	0.319
Enrichment Participant	Student participated primarily in enrichment activities	0=Not Enrich Part, 1=Enrich Participant	516	0-1	40.0%	0.490
Non-Participant*(reference category)*	Did not participate in any activities in elementary school	0=Elem Part, 1= Non-Participant	516	0-1	45.0%	0.498
Avg. Number of Days	Average number of days students participated in the elementary after-school program	Continuous measure of average of elem. after-school days attended	516	0-243	21.76	37.031
School Context Variables:						
Low-Income Title I Middle School	Student attends a low-income Title I Middle School	0=Middle-class school, 1=Low-income school	516	0-1	65.0%	0.477

Table 4. Descriptive Statistics of After-School Participants from an Enrichment-Focused Elementary Program

Variables	Description	Coding	Statistics			
			N	Range	Mean	Standard Deviation
Dependent Variable:						
Middle School Participation	Whether or not a student participates in after-school activities in middle school	0=No participation, 1=Participated	544	0-1	76.0%	0.429
Background Control Variables:						
Race *(ref=White)*	Parental reported race of child to school district upon enrollment	Set of dummy variables: White, Hispanic, Other	544			
White		0=Non-White, 1=White	544	0-1	68.0%	0.468
Hispanic		0=Non-Hispanic, 1=Hispanic	544	0-1	25.0%	0.433
Other Race		0=White or Hispanic, 1=Other Race	544	0-1	7.0%	0.258
Female	Parental reported sex of child to school district upon enrollment	0=Male, 1=Female	544	0-1	48.0%	0.500
Cohort 2 (*ref=Cohort 1: Grade 5 entered 06-07)*	Designated value for when the student started the 5th grade	Dummy variable of when student entered	544	0-1	35.0%	0.478
Free/Reduced Price Lunch	Wherther or not a student participates in free/reduced price lunch program at school	0=Not low-income, 1=Low-income	544	0-1	50.0%	0.500
Student Skill Control Variables:						
Special Education	Whether or not school designates student as special needs/special education	0=Not Special Ed., 1=Special Ed.	544	0-1	22.0%	0.417
Limited English Proficiency (LEP)	School designates student as limited English proficiency (LEP) based on home language	0=Not LEP, 1=LEP	544	0-1	20.0%	0.403
Average Elementary Test Scores	Scale of combined math and English test scores for years of elementary school	Continuous variable of average test scores	544	31.00-99.50	77.68	14.218
Elementary Participation Variables:*						
Equal Participant	Student participated evenly in academic and enrichment activities	0=Not Equal Part, 1=Equal Participant	544	0-1	0.0%	0.043
Academic Participant	Student participated primarily in academic activities	0=Not Acad Part, 1=Acad Participant	544	0-1	8.0%	0.270
Enrichment Participant	Student participated primarily in enrichment activities	0=Not Enrich Part, 1=Enrich Participant	544	0-1	18.0%	0.386
Non-Participant*(reference category)*	Did not participate in any activities in elementary school	0=Elem Part, 1= Non-Participant	544	0-1	74.0%	0.441
Avg. Number of Days	Average number of days students participated in the elementary after-school program	Continuous measure of average of elem. after-school days attended	544	0-337	18.46	45.836
School Context Variables:						
Low-Income Title I Middle School	Student attends a low-income Title I Middle School	0=Middle-class school, 1=Low-income school	544	0-1	30.0%	0.457

Table 5. Descriptive Statistics and Variable Definitions for the After-School Student Population

Variables	Description	Coding	Statistics			
			N	Range	Mean	Standard Deviation
Dependent Variable:						
Middle School Participation	Whether or not a student participates in after-school activities in middle school	0=No participation, 1=Participated	1060	0-1	80.0%	0.404
Background Control Variables:						
Race *(ref=White)*	Parental reported race of child to school district upon enrollment	Set of dummy variables: White, Hispanic, Other	1060			
White		0=Non-White, 1=White	1060	0-1	62.6%	0.484
Hispanic		0=Non-Hispanic, 1=Hispanic	1060	0-1	30.8%	0.462
Other Race		0=White or Hispanic, 1=Other Race	1060	0-1	6.6%	0.249
Female	Parental reported sex of child to school district upon enrollment	0=Male, 1=Female	1060	0-1	48.0%	0.500
Cohort 2 (*ref=Cohort 1: Grade 5 entered 06-07)*	Designated value for when the student started the 5th grade	Dummy variable of when student entered	1060	0-1	37.0%	0.483
Free/Reduced Price Lunch	Wherther or not a student participates in free/reduced price lunch program at school	0=Not low-income, 1=Low-income	1060	0-1	56.0%	0.497
Student Skill Control Variables:						
Special Education	Whether or not school designates student as special needs/special education	0=Not Special Ed., 1=Special Ed.	1060	0-1	24.0%	0.428
Limited English Proficiency (LEP)	School designates student as limited English proficiency (LEP) based on home language	0=Not LEP, 1=LEP	1060	0-1	23.0%	0.419
Average Elementary Test Scores	Scale of combined math and English test scores for years of elementary school	Continuous variable of average test scores	1060	28.25-99.75	76.48	15.332
Elementary Participation Variables:*						
Equal Participant	Student participated evenly in academic and enrichment activities	0=Not Equal Part, 1=Equal Participant	1060	0-1	2.0%	0.133
Academic Participant	Student participated primarily in academic activities	0=Not Acad Part, 1=Acad Participant	1060	0-1	10.0%	0.295
Enrichment Participant	Student participated primarily in enrichment activities	0=Not Enrich Part, 1=Enrich Participant	1060	0-1	29.0%	0.453
Non-Participant*(reference category)*	Did not participate in any activities in elementary school	0=Elem Part, 1= Non-Participant	1060	0-1	60.0%	0.491
Avg. Number of Days	Average number of days students participated in the elementary after-school program	Continuous measure of average of elem. after-school days attended	1060	0-337	20.07	41.795
School Context Variables:						
Low-Income Title I Middle School	Student attends a low-income Title I Middle School	0=Middle-class school, 1=Low-income school	1060	0-1	47.0%	0.499
Enrichment Elementary Program	Student attended an elementary school with an enrichment focused after-school program	0=Academic, 1=Enrichment	1060	0-1	51.3%	0.500

*For more descriptive information regarding these variables, see Table 6.

Table 6. Descriptive Statistics for After-School Elementary Student Participation

Variables	Description	Coding	Statistics			
			N	Range	Mean	Standard Deviation
Elementary Participation Variables:						
Equal Participant	Student participated evenly in both types of activities	0=Not Equal Part, 1=Equal Participant	19	0-1	2.0%	0.133
Hispanic			19	0-1	79.0%	0.419
Other			19	0-1	16.0%	0.375
Female			19	0-1	47.0%	0.513
Cohort 2			19	0-1	37.0%	0.496
Free/Reduced Price Lunch			19	0-1	95.0%	0.229
Special Education			19	0-1	53.0%	0.513
LEP			19	0-1	53.0%	0.513
Avg. Test Scores			19	39.25-87.25	61.30	12.868
Academic Participant	Primarily academic participant	0=Not Acad. Part, 1=Acad Participant	102	0-1	10.0%	0.295
Hispanic			102	0-1	57.0%	0.498
Other			102	0-1	5.0%	0.217
Female			102	0-1	38.0%	0.488
Cohort 2			102	0-1	59.0%	0.495
Free/Reduced Price Lunch			102	0-1	75.0%	0.438
Special Education			102	0-1	34.0%	0.477
LEP			102	0-1	31.0%	0.466
Avg. Test Scores			102	37.00-99.25	69.98	16.358
Enrichment Participant	Primarily enrichment participant	0=Not Enrich Part, 1=Enrich Participant	305	0-1	29.0%	0.453
Hispanic			305	0-1	38.0%	0.485
Other			305	0-1	6.0%	0.236
Female			305	0-1	52.0%	0.5
Cohort 2			305	0-1	54.0%	0.499
Free/Reduced Price Lunch			305	0-1	71.0%	0.454
Special Education			305	0-1	27.0%	0.446
LEP			305	0-1	24.0%	0.427
Avg. Test Scores			305	28.25-99.75	75.91	15.481
Non-Participant	Did not participate in any activities in elementary school	0=Participant, 1= Non-Participant	632	0-1	60.0%	0.491
Hispanic			632	0-1	22.0%	0.412
Other			632	0-1	7.0%	0.255
Female			632	0-1	48.0%	0.500
Cohort 2			632	0-1	25.0%	0.433
Free/Reduced Price Lunch			632	0-1	44.0%	0.497
Special Education			632	0-1	20.0%	0.402
LEP			632	0-1	20.0%	0.399
Avg. Test Scores			632	30.25-99.50	78.22	14.625

Table 7. Logistic Regression Models Predicting the Likelihood of Student Participation in Middle School After-School Programs

	Model 1			Model 2			Model 3			Model 4			Model 5		
	Odds Ratio	Log Odds	SE	Odds Ratio	Log Odds	SE	Odds Ratio	Log Odds	SE	Odds Ratio	Log Odds	SE	Odds Ratio	Log Odds	SE
Background Control Variables:															
Hispanic	*0.997*	-0.003	*(.20)*	*1.166*	0.154	*(.21)*	*1.161*	0.149	*(.21)*	*1.130*	0.122	*(.21)*	*1.003*	0.003	*(.21)*
Other	*0.728*	-0.318	*(.29)*	*0.752*	-0.285	*(.30)*	*0.752*	-0.285	*(.30)*	*0.763*	-0.270	*(.30)*	*0.672*	-0.398	*(.31)*
Female	*0.825*	-0.192	*(.15)*	*0.864*	-0.146	*(.16)*	*0.864*	-0.146	*(.16)*	*0.862*	-0.149	*(.16)*	*0.764*	-0.269 †	*(.16)*
Cohort 2 (Grade 5=2007-2008)	*0.864*	-0.146	*(.16)*	*0.829*	-0.187	*(.16)*	*0.818*	-0.201	*(.17)*	*0.795*	-0.230	*(.17)*	*0.992*	-0.008	*(.17)*
Free/Reduced Price Lunch	*0.976*	-0.024	*(.18)*	*1.087*	0.083	*(.19)*	*1.076*	0.073	*(.19)*	*1.073*	0.070	*(.19)*	*1.171*	0.158	*(.20)*
Student Skill Control Variables:															
LEP		——		*1.474*	0.388 *	*(.22)*	*1.474*	0.388 †	*(.22)*	*1.452*	0.373 †	*(.32)*	*1.353*	0.302	*(.23)*
Avg. Elem. Test Scores		——		*1.019*	0.019 **	*(.01)*	*1.019*	0.019 **	*(.01)*	*1.019*	0.019 **	*(.01)*	*1.017*	0.017 *	*(.01)*
Elementary Participation Variables:															
Elementary Participant (Dichotomous)		——			——		*1.054*	0.053	*(.17)*		——			——	
Equal Participant		——			——			——		*1.030*	0.030	*(.59)*	*0.490*	-0.713	*(.62)*
Academic Participant		——			——			——		*0.913*	-0.091	*(.30)*	*0.932*	-0.070	*(.32)*
Enrichment Participant		——			——			——		*0.882*	-0.125	*(.21)*	*0.760*	-0.274	*(.23)*
Avg. Number Participation Days		——			——			——		*1.045*	0.044	*(.00)*	*1.005*	0.005 †	*(.00)*
School Context Variable:															
Low-Income Middle School		——			——			——			——		*4.486*	1.501 ***	*(.20)*
Enrichment Elementary Program		——			——			——			——		*0.905*	-0.100	*(.19)*
Constant		1.545 ***	*(.15)*		-0.090	*(.58)*		-0.100	*(.58)*		-0.122	*(.20)*		-0.394	*(.63)*
N		1060			1060			1060			1060			1060	
Chi-square		3.686			12.022 †			12.120 **			14.175			93.569 ***	
df		5			7			8			11			13	
- 2 Log Likelihood		1070.883			1062.089			1061.991			1059.936			980.543	

***p<.001; **p<.01; *p<.05; †p<.10

[1]All regession analyses were running using special education status instead of LEP, results were not significantly different between these analyses, but LEP was more predictive and more significant.

Table 8. Logistic Regression Models Predicting the Likelihood of Students Participating After-School in a Middle-class Title I Middle School

	Model 1			Model 2			Model 3			Model 4		
	Odds Ratio	**Log Odds**	**SE**	**Odds Ratio**	**Log Odds**	**SE**	**Odds Ratio**	**Log Odds**	**SE**	**Odds Ratio**	**Log Odds**	**SE**
Background Control Variables:												
Hispanic	*1.290*	0.255	*(.23)*	*1.504*	0.408 †	*(.25)*	*1.484*	0.395 †	*(.25)*	*1.452*	0.373	*(.25)*
Other	*1.046*	0.045	*(.40)*	*1.130*	0.122	*(.41)*	*1.168*	0.155	*(.41)*	*1.168*	0.155	*(.41)*
Female	*0.616*	-0.484 **	*(.19)*	*0.641*	-0.444 *	*(.19)*	*0.640*	-0.447 *	*(.19)*	*0.645*	-0.438 *	*(.19)*
Cohort 2 (Grade 5=2007-2008)	*1.376*	0.319 †	*(.19)*	*1.275*	0.243	*(.19)*	*1.224*	0.202	*(.20)*	*1.186*	0.171	*(.20)*
Free/Reduced Price Lunch	*1.146*	0.136	*(.21)*	*1.275*	0.243	*(.22)*	*1.232*	0.209	*(.22)*	*1.235*	0.211	*(.22)*
Student Skill Control Variables:												
LEP		——		*1.442*	0.366	*(.28)*	*1.473*	0.387	*(.28)*	*1.484*	0.395	*(.28)*
Avg. Elem. Test Scores		——		*1.018*	0.018 *	*(.01)*	*1.019*	0.019 *	*(.01)*	*1.020*	0.020 *	*(.01)*
Elementary Participation Variables:												
Elementary Participant (Dichotomous)		——			——		*1.264*	0.234	*(.20)*		——	
Equal Participant		——			——			——		*0.708*	-0.346	*(1.26)*
Academic Participant		——			——			——		*1.320*	0.278	*(.38)*
Enrichment Participant		——			——			——		*1.091*	0.087	*(.28)*
Avg. Number Participation Days		——			——			——		*1.002*	0.002	*(.00)*
School Context Variable:												
Enrichment Elementary Program		——			——			——		*1.041*	0.040	*(.22)*
Constant		0.765 ***	*(.18)*		-0.770	*(.71)*		-0.904	*(.72)*		-1.010	*(.74)*
N		563			563			563			563	
Chi-square		12.824 *			17.714 **			19.081 *			20.410 †	
df		5			7			8			12	
- 2 Log Likelihood		678.530			672.916			671.549			670.220	

***p<.001; **p<.01; *p<.05; †p<.10

Table 9. Logistic Regression Models Predicting the Likelihood of Students Participating After-School in a Low-Income Title I Middle School

	Model 1			Model 2			Model 3			Model 4		
	Odds Ratio	**Log Odds**	**SE**	**Odds Ratio**	**Log Odds**	**SE**	**Odds Ratio**	**Log Odds**	**SE**	**Odds Ratio**	**Log Odds**	**SE**
Background Control Variables:												
Hispanic	*0.337*	-1.088 **	*(.44)*	*0.364*	-1.011 *	*(.46)*	*0.372*	-0.990 *	*(.47)*	*0.349*	-1.052 *	*(.47)*
Other	*0.200*	-1.607 ***	*(.48)*	*0.201*	-1.603 ***	*(.48)*	*0.207*	-1.575 ***	*(.49)*	*0.221*	-1.511 ***	*(.49)*
Female	*1.257*	0.229	*(.32)*	*1.280*	0.247	*(.32)*	*1.283*	0.249	*(.32)*	*1.294*	0.258	*(.32)*
Cohort 2 (Grade 5=2007-2008)	*0.656*	-0.421	*(.34)*	*0.660*	-0.416	*(.34)*	*0.738*	-0.304	*(.36)*	*0.677*	-0.390	*(.37)*
Free/Reduced Price Lunch	*1.063*	0.061	*(.43)*	*1.114*	0.108	*(.44)*	*1.225*	0.203	*(.45)*	*1.215*	0.195	*(.46)*
Student Skill Control Variables:												
LEP		——		*1.083*	0.080	*(.44)*	*1.138*	0.129	*(.44)*	*1.007*	0.007	*(.45)*
Avg. Elem. Test Scores		——		*1.008*	0.008	*(.01)*	*1.003*	0.003	*(.01)*	*1.010*	0.010	*(.01)*
Elementary Participation Variables:												
Elementary Participant (Dichotomous)		——			——		*0.729*	-0.316	*(.37)*		——	
Equal Participant		——			——			——		*0.518*	-0.657	*(.75)*
Academic Participant		——			——			——		*0.447*	-0.806	*(.62)*
Enrichment Participant		——			——			——		*0.457*	-0.783 †	*(.47)*
Avg. Number Participation Days		——			——			——		*1.011*	0.011 †	*(.01)*
School Context Variable:												
Enrichment Elementary Program		——			——			——		*0.728*	-0.317	*(.38)*
Constant		2.877 ***	*(.33)*		2.194 †	*(1.22)*		2.105 †	*(1.23)*		2.279 †	*(1.27)*
N		497			497			497			497	
Chi-square		18.945 **			19.307 **			20.030 †			24.009 *	
df		5			7			8			12	
- 2 Log Likelihood		287.615			287.253			286.529			282.551	

***p<.001; **p<.01; *p<.05; †p<.10

Table 10. Logistic Regression Models Predicting the Likelihood of Academic-Focused Elementary Students Participating After-School in Middle School

	Model 1			Model 2			Model 3			Model 4		
	Odds Ratio	**Log Odds**	**SE**	**Odds Ratio**	**Log Odds**	**SE**	**Odds Ratio**	**Log Odds**	**SE**	**Odds Ratio**	**Log Odds**	**SE**
Background Control Variables:												
Hispanic	*0.846*	-0.167	*(.30)*	*0.960*	-0.041	*(.31)*	*0.956*	-0.045	*(.32)*	*0.812*	-0.208	*(.33)*
Other	*0.596*	-0.518	*(.47)*	*0.611*	-0.493	*(.47)*	*0.606*	-0.501	*(.47)*	*0.450*	-0.799 †	*(.50)*
Female	*1.033*	0.032	*(.24)*	*1.075*	0.072	*(.24)*	*1.074*	0.071	*(.24)*	*0.984*	-0.016	*(.26)*
Cohort 2 (Grade 5=2007-2008)	*0.809*	-0.212	*(.24)*	*0.814*	-0.206	*(.25)*	*0.802*	-0.221	*(.26)*	*0.809*	-0.212	*(.27)*
Free/Reduced Price Lunch	*0.844*	-0.170	*(.30)*	*0.939*	-0.063	*(.31)*	*0.930*	-0.073	*(.32)*	*0.948*	-0.053	*(.32)*
Student Skill Control Variables:												
LEP		——		*1.347*	0.298	*(.34)*	*1.339*	0.292	*(.35)*	*0.966*	-0.035	*(.37)*
Avg. Elem. Test Scores		——		*1.015*	0.015	*(.01)*	*1.015*	0.015	*(.01)*	*1.009*	0.009	*(.01)*
Elementary Participation Variables:												
Elementary Participant (Dichotomous)		——			——		*1.054*	0.053	*(.26)*		——	
Equal Participant		——			——			——		*0.870*	-0.139	*(.71)*
Academic Participant		——			——			——		*0.937*	-0.065	*(.45)*
Enrichment Participant		——			——			——		*0.887*	-0.120	*(.32)*
Avg. Number Participation Days		——			——			——		*1.011*	0.011 *	*(.01)*
School Context Variable:												
Low-Income Middle School		——			——			——		*4.384*	1.478 ***	*(.27)*
Constant		1.902 ***	*(.25)*		0.561	*(.92)*		1.823	*(1.58)*		0.265	*(.97)*
N		516			516			516			516	
Chi-square		3.262			5.508			5.549			45.635 ***	
df		5			7			8			12	
- 2 Log Likelihood		458.484			456.239			456.197			416.111	

***p<.001; **p<.01; *p<.05; †p<.10

Table 11. Logistic Regression Models Predicting the Likelihood of Enrichment-Focused Elementary Students Participating After-School in Middle School

	Model 1			Model 2			Model 3			Model 4		
	Odds Ratio	**Log Odds**	**SE**	**Odds Ratio**	**Log Odds**	**SE**	**Odds Ratio**	**Log Odds**	**SE**	**Odds Ratio**	**Log Odds**	**SE**
Background Control Variables:												
Hispanic	*1.038*	0.037	*(.27)*	*1.251*	0.224 *	*(.28)*	*1.267*	0.237	*(.28)*	*1.165*	0.153	*(.29)*
Other	*0.791*	-0.235	*(.38)*	*0.836*	-0.179 ***	*(.39)*	*0.815*	-0.204	*(.39)*	*0.721*	-0.327	*(.40)*
Female	*0.710*	-0.343 †	*(.20)*	*0.746*	-0.293	*(.20)*	*0.745*	-0.294	*(.20)*	*0.626*	-0.468 *	*(.22)*
Cohort 2 (Grade 5=2007-2008)	*0.897*	-0.109	*(.21)*	*0.810*	-0.211	*(.22)*	*0.856*	-0.156	*(.23)*	*1.130*	0.122	*(.23)*
Free/Reduced Price Lunch	*1.007*	0.007	*(.23)*	*1.113*	0.107	*(.24)*	*1.158*	0.147	*(.24)*	*1.340*	0.293	*(.25)*
Student Skill Control Variables:												
LEP		——		*1.540*	0.432	*(.30)*	*1.508*	0.411	*(.30)*	*1.495*	0.402	*(.31)*
Avg. Elem. Test Scores		——		*1.022*	0.022 **	*(.01)*	*1.021*	0.021 **	*(.01)*	*1.019*	0.019 *	*(.01)*
Elementary Participation Variables:												
Elementary Participant (Dichotomous)		——			——		*0.804*	-0.218	*(.25)*		——	
Equal Participant		——			——			——		*0.000*	-23.731	*(40192.97)*
Academic Participant		——			——			——		*0.834*	-0.181	*(.47)*
Enrichment Participant		——			——			——		*0.677*	-0.390 **	*(.36)*
Avg. Number Participation Days		——			——			——		*1.003*	0.003	*(.01)*
School Context Variable:												
Low-Income Middle School		——			——			——		*5.265*	1.661 ***	*(.32)*
Constant		1.355 ***	*(.19)*		-0.517	*(.77)*		-0.418	*(.78)*		-0.717	*(.82)*
N		544			544			544			544	
Chi-square		3.576			9.731			10.511			50.732 ***	
df		5			7			8			12	
- 2 Log Likelihood		599.298			592.586			591.806			551.585	

***p<.001; **p<.01; *p<.05; †p<.10