

EFFECTS OF AFTER-SCHOOL PROGRAM ATTENDANCE DOSAGE ON ACADEMIC
OUTCOMES AND TEACHER RATINGS FOR ELEMENTARY SCHOOL CHILDREN

by

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(Under the Direction of Stacey Neuharth-Pritchett)

ABSTRACT

After school programs have long been studied to evaluate their effects. It is generally agreed upon that high quality programs benefit academic, behavior, and socio-emotional outcomes. However, research has been less clear on the interaction between levels of attendance in the program and such outcomes. The current study used data from southeastern after school programs to evaluate the effects of attendance on academic outcomes and teacher ratings on fourth grade students. The study found the high attendance group only differed from the low attendance group on teacher ratings of improvement in academic performance and improvement in getting along well with others. The results are compared to prior literature and implications for practice and future directions are discussed.

INDEX WORDS: After School Program, Attendance, Dosage, Outcomes

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CHAPTER 1

INTRODUCTION

In March of 2017, the White House Budget director stated during a press conference that “there is no demonstrable evidence they (after school programs that feed kids) are helping kids do better at school.” He stated this in defense of potentially eliminating the 21st Century Community Learning Center’s 1.2-billion-dollar budget in 2018. In 2017-2018, the program served 1.68 million youth (Boehm, 2018). According to the program report, 1 in 2 students improved their math and Language Arts grades, 2 in 3 improved homework completion and class participation, and 3 in 5 improved their behavior in class. The 21st Century program emphasizes service to students from minority and low-income homes with 67% participating in a free- or reduced-price lunch program, 13% with limited English proficiency, 36% who are Hispanic/Latino, 28% who are White, 21% who are African American, and 15% who identify as other race/ethnicities. Data released by the federal 21st Century program suggests program is working, contrary to the budget director’s statement.

Ongoing debate remains about after school programs and their effects. While a statement that after school programs are ineffective could simply be a tactic to draw support, some prior evidence could support the budget director’s statement. Despite an ever-increasing number of students enrolling in some sort of after school program, research is lacking and plagued with inconsistent results regarding program effects on academic, behavior, and socio-emotional outcomes. Early research in the 21st Century Program found a lack of results in many of these areas. However, recent research seems to suggest that high quality programs do have effects on

attending students (Holstead & King, 2011; Institutes for Research, 2015; Shernoff, 2010).

Despite studies demonstrating this, the government has placed the program in a state of jeopardy with regard to continued funding.

One area proposed for further examination could be the number of days student's attend the program. Effects have been demonstrated between program attendees and non-program students, but there are few studies evaluating the differences between frequent and non-frequent attendees. The few that have mentioned attendance have come to differing conclusions, some mentioning no effect, while others found small benefits. Other studies mention effects anecdotally with no data to back up their claims. If the government is looking to downsize the program to save on costs, finding an optimal interaction of attendance and academic and behavioral effects could find fewer are needed to achieve desired results. On the other hand, if frequent attendance is found to be optimal, it would only highlight the importance of keeping the program funded. The current study proposes to add information to this continuing debate.

CHAPTER 2

LITERATURE REVIEW

History of After school Programs and Effects

The roots of after school programs can be traced to the end of the nineteenth century where clubs for young males were formed in churches (Halpern, 2002). As child labor decreased and compulsory education became more universal, after school programs emerged as centers to keep children safe between the end of school and when parents would arrive home from their work. After school programs continued to develop over the years, with clubs serving as places for children to stay safe, play, and learn skills. By the 1940s, over half a million children were a part of after school clubs. After World War II, programs began to focus on helping children living in poverty, although, at the time, these programs struggled for governmental funding. During this time, inconsistency could be found in the quality of programs with regard to discipline and enrichment. By the 1980s, increased employment of mothers prompted increased demand for after school programs and an exclusive source of funding for after schools was established in 1994 by Congress.

Since the 1990s, the number of after school programs has expanded. In 2004, roughly 6.5 million children were enrolled in after school programs. In 2009, that number was 8.4 million and in 2014, 10.2 million (After school Alliance, 2014) with estimates of roughly 1 in 4 children participating in after school programs. However, the same report estimated 19.4 million students would enroll in an after school program if available, suggesting an increasing need for programs.

Programs can offer a safe and enriched environment as an alternative for children who may have to be home alone after school.

Research on the effectiveness of after school programs is mixed. Some studies indicate after school programs positively impact achievement in grade point average and state standardized tests (Lauer, Wilkerson, Apthorp, & Snow, 2006; Mahoney, Lord, & Carryl, 2005; Mandrell, 2017; Niehaus, Rudasill, & Adelson, 2012; Patricia et al. 2006). Studies suggest behaviors related to academics also improved with a recent government study having found improved homework completion and improvements in mathematics and language arts grades (U.S. Department of Education, 2014). Studies revealed positive effects in low socioeconomic, at-risk, and minority populations. Some programs were found to shrink the achievement gap in areas such as mathematics (Huang et al., 2013). Mixed results were found in one study with a lack of impact in grades or state achievement tests (Mahoney et al., 2007; Pruitt, 2013). Evidence suggests structured lesson plans and homework time during the programs is linked to better academic outcomes. Overall intensity of participation the program and the number of programs in which a child participates might also be beneficial for elementary students, as seen when assessing grade point average among students in the Boys and Girls Club programs (Springer & Diffily, 2012).

Behaviorally, students who attended after school programs exhibited more positive behavior when compared to students who did not attend such programs. In addition to grades, engagement, motivation, self-control, positive social behaviors, less externalizing behaviors, and less school dropout/criminal arrests were also found (Dodd & Bowen, 2011; Grolnick et al., 2007; Mahoney, 2000; Wade, 2015). After school programs can also increase physical activity among children which can help combat obesity (Gesell et al., 2013). In addition to increasing

physical health, students reported better life skills and mental state, such as less stress, learning to make goals, making good choices, avoiding risky behaviors, feeling accepted and positive, and acquiring skills (Cross, 2012). However, a meta-analysis found little evidence after school programs impact externalizing behaviors and school attendance (Kremer et al., 2014) and suggested there were biases and methodological errors with many studies.

Research does suggest the quality of a program influences its effects. In addition, researchers suggested some studies were poorly designed in methodology and overinterpretation of data for unjustified conclusions (Harvard Family Research Project, 2002; Maynard et al., 2015). The authors of these studies stated that previous studies had methodological concerns and might not have had rigorous enough design. Factors measured might not, in fact, be the goals of individual programs based on the freedom some centers are allowed. The conclusion was that programs should attempt to clearly outline program goals, implement evidence-based methods, and then study effectiveness rather than simply gather a variety of widely different programs with different goals and attempt to draw conclusions. Research indicates when assessing centers collectively, studies typically include centers with poorly enforced attendance and inadequate services. Factors such as sustained funding, strong interpersonal relationships, and positive perceptions, all of which are linked to positive student outcomes, should be considered when evaluating a program (Wright, 2012). Other factors that affect quality include the number of students in the program, attendance policies, space and resources, classroom groupings, schedule, staff planning, number of capable staff, and behavior management capabilities (Baldwin, Stromwall, & Wilder, 2015).

With high quality programs, results become clearer. Academically, participation in high quality after school programs led to increases in state standardized test scores measuring

mathematics (Leos-Urbel, 2015). In addition, teacher's rated students as having better work habits and higher task persistence. However, it should be noted that positive test scores are related to a greater focus on program supportiveness rather than a focus on student engagement. In fact, they found a focus on purposeful engagement was related to a drop-in test scores. The reason for this was unclear. Because the quality of the program itself is crucial to the effectiveness, it is important that evaluations take these factors into account to improve programs below standards. Well-structured programs, in general, with behavioral management and meaningful academic and enrichment opportunities tend to have the greatest overall positive effects on students (Holstead & King, 2011; Institutes for Research, 2015; Shernoff, 2010). Negative experiences in programs could even increase the likelihood of internalizing and externalizing behaviors (Pierce, Hamm, & Vandell, 1999).

Almost all after school programs offer a better affective context and lessen risky situations in which youth might find themselves (Kahne et al., 2001). In 2014, 11.3 million children went without supervision between 3:00 and 6:00 p.m. (After school Alliance, 2014). Lack of supervision after school is associated with a greater risk of delinquency, higher aggression, externalizing and internalizing problems, and underachievement (Na et al., 2014). However, programs might have an insignificant effect on delinquency as previously thought (Taheri & Welsh, 2016). This limited effect might be the result of those engaging in delinquency not attending or being expelled from such programs. Unstructured programs were found to increase anti-social behavior while structured programs decrease these behaviors (Rorie et al., 2011). In addition, structured after school programs targeting specific behaviors can have an impact on behaviors such as drug use (Tebes et al., 2007).

21st Century Community Learning Centers

In 1965, Congress passed the Elementary and Secondary Education Act (ESEA), one of the most significant federal pieces of legislation for education in the United States. In 1994, the Act was reauthorized as the Improving America's Schools Act (IASA). The act authorized 20 million dollars to be given as grants to schools to create the 21st Century Community Learning Centers (CCLC). The purpose of the centers was to foster places "that benefit the education, health, social-service, cultural, and recreational needs of a rural or inner-city community" (Improving America's Schools Act of 1994). Initially, the program was open to all community members so anyone could attend CCLC classes after school. Funding was given to the schools directly and the grants would last for three years.

The first grants were given to 1998. Budgets for the program increased to 200 million dollars then to 450 million dollars within the following year (James-Burdumy et al., 2005). In 2001, the No Child Left Behind Act was passed and as a part of the legislation, the budget for the 21st Century programs was increased to 1 billion dollars. The act also switched from direct grants to state distribution based on the proportion of Title 1 funds in that state. States then allocated money to the local schools, usually based on the percentage of children under the poverty line who attended the schools. Within that legislation, mandates for evaluation were included and emphasis shifted to improving child outcomes through academic and enrichment activities. Focus was heavily placed on children at risk and living in poverty. While centers for the entire community existed, focus began to shift to student-only after school programs. Today, the program receives approximately 1.1 billion dollars in funding and over 1,600,000 children were served by the program (U.S. Department of Education, 2015).

Current Status

21st Century Learning Centers remain as the sole after school program for which there is a portion of the nation's budget allocated. Today, once the schools receive the three to five-year grants, they may use the money to fund a variety of services and programs. Since 1997, only schools that propose academic enrichment courses in addition to recreational or enrichment activities would receive funding for their programs (James-Burdumy et al. 2005). Academic enrichment for meeting achievement standards is presented in the form of classes and services which include drug and violence prevention, arts, character building, and recreation. Classes are headed by teachers, volunteers, or community contractors.

As of 2017, 1,682,469 youth were served by the CCLC in 9,556 school and community based centers (After school Alliance, 2017). The programs operate on average for 13.8 hours over five days a week and typically operate for 32 weeks a year. True to their mission to serve children in need, 73% of participating students qualify for free or reduced lunch. Funding has not increased significantly since NCLB although demand for the program has increased by 20%. It is estimated the cost per student is \$1,543 a year while the cost per center is \$122,000.

Academic Effects

Preliminary research on the 21st CCLC program suggested the program had little effect on academics. In 2003, the US Department of Education contracted an external foundation to analyze the effects of the 21st CCLC program. Data revealed within most grades in elementary and middle school outcome for 21st CCLC participants did not differ significantly from non-program students (Dynarski et al., 2003). For elementary school students, the program had no impact on grades, homework completion, and whether the students could complete work to the teacher's satisfaction. However, in middle school, students performed slightly better in

mathematics and for Black and Hispanic students, differences in classroom grades were noted in the form of larger grade improvements. Homework completion was not affected in middle school programs. The same study also found that frequency of attendance did not make a significant difference at either level.

Dynarski and colleagues continued their analyses in a second year of data collection with similar results. Academic achievement was once again minimally impacted and instead of math, social studies grades were slightly higher for middle schoolers (Dynarski et al. 2004). Homework completion was unaffected and elementary school students continued to show no academic differences. Another government study reaffirmed the fact that elementary school students who attended the program did not receive significantly higher or lower grades from non-program students (James-Burdumy et al., 2005). Both studies noted, however, attendance was inconsistent and low for middle school students and that there was a high turnover rate for general staff such as teachers in the first few years of the program's inception. A study by the same researchers in 2007 found similar results (James-Burdumy, Dynarski, & Deke, 2007). Another analysis in California programs did not find a significant academic effect (Huang et al. 2011).

The 2016-2017 review indicated that students are improving their grades and state assessment scores (U.S. Department of Education, 2017). Data were collected from teachers' ratings and student scores and grades. Data revealed 47.2% reported an improvement in mathematics grades, 46.3% reported an increase in English grades, 25.5% reported an improvement in elementary reading state assessment scores, 19.1% reported an improvement in middle/high school math assessments, and 67.7% reported an improvement in homework completion and class participation. However, significance when compared to other populations is unknown. Another review determined participation in the program was associated with a small

effect in state reading and math assessments, gains in grade point average and credits gained toward graduation, lower disciplinary referrals, and improvement in homework completion and quality (American Institutes for Research, 2015). Academic achievement might be higher in high-school programs as opportunities to make up course credits are given during the programs. It was noted that program quality varies wildly from state to state due to funding, demographics, and staff number and staff quality.

Behavioral and Socioemotional Outcomes

Behavioral and socioemotional outcomes for children in quality 21st CCLC programs have been positive in recent studies. In 2007, a longitudinal study found promising results, not only for academic performance but also for behavioral outcomes. Social skills and work habits trended in the positive direction while misconduct, drug use, and absences were all lowered (Vandell, Reisner, & Pierce, 2007). The most recent government evaluation found teachers perceived improvements in turning in homework on time, attentiveness, motivation, good behavior, and class participation for 21st CCLC students (White, 2015). Independent evaluations of California programs also found slight behavioral improvements (Haung et al., 2011). In addition, school attendance (have fewer than 10 unexcused absences or out of school suspensions) was increased among all school levels in a study that examined eleven Philadelphia programs (Gao, Hallar, & Hartmann, 2014).

After school programs for high schools demonstrated improvements in attendance, academic work, discipline, and social behaviors (Dodd & Bowen, 2011). The quality of programming was assured using interventions and consultations designed to improve and enrich courses offered by the programs. This corroborates with evidence that organized participation generally increases academic performance, social adjustment, and behavior (Fredricks &

Simpkins, 2012). A two-year meta-analysis found similar results with improvements in feelings and attitudes, behavioral adjustment, and school performance among participants in high quality after school programs (Durlak, Weissberg, & Pachan, 2010). Youth development (building strong relationships in youths, developing positive behaviors, and teaching life skills) was most positively correlated with youth outcomes, once again demonstrating appropriate program focus can lead to beneficial outcomes (Paluta et al., 2016).

Data from the 2015-2016 review indicated that 54.6% of teachers indicated an improvement in overall behavior among participants (U.S. Department of Education, 2017). However, it is unclear what criteria teachers used to judge improvements and how significant this number is.

Dosage Effects

Extensive research on 21st CCLCs and other after school programs continue to link positive outcomes with participation in high quality after school programs. However, attendance and whether there is a sufficient dosage has not been studied as extensively. Early government reports suggested there was no effect between regular attendees and infrequent attendees for positive outcomes (Dynarski et al., 2003). One comparative analysis found frequent participants tended to receive better grades but did not implement any statistical analysis to assess this relationship (Gao, Hallar, & Hartmann, 2014). Huang and other researchers found a small effect for regular attendees (Huang et al. 2011). Program directors reported increased student attendance would lead to better outcomes but no further investigation was conducted (White, 2015). Another study suggested frequent participation in high quality programs was associated with better outcomes and that inconsistent participation in unorganized programs would result in

negative developmental outcomes (Vandell, Reisner, & Pierce, 2007). In particular, a lack of supervision was cited to have major negative outcomes.

While dosage effects have not been thoroughly studied specifically in the context of the 21st Century Community Learning Centers, research does exist in other contexts. Studies targeting younger children suggest that dosage effects are present in a variety of educational topics from reading interventions (Bailet et al., 2009) to parent participation in Head-Start programs (Maher et al., 2011). In one study, extended participation in the Hope Center for Kids predicted increased achievement and attendance even with minimal participation (Yokley-Busby, 2013). On the other hand, a review of the literature suggested that greater participation was not related to any academic, behavioral, or socio-emotional outcomes, only relating to higher school attendance (Roth, Malone, & Brooks-Gunn 2010). High dosage levels in interventions typically improve results, but are also closely tied to fidelity and quality (Hirsch, Mekinda, & Stawicki 2010; Wasik et al., 2013). In after school programs though, fidelity and quality are harder to define. In addition, student engagement and quality of engagement might effect the nature of frequent versus sparse attendance. What exactly makes for an effective program has been studied and debated, but research suggests studies to address these issues have not been conducted. In addition, it may be that long-term exposure to programs predicts higher test scores and school attendance (Watts, Witt, & King, 2008). The effect on the amount of participation in after school programs such as the 21st CCLCs is unclear and varied.

Summary of After school Programs and Study Focus

After school program research seems to be varied yet developing. Earlier and government sponsored studies appear to find a lack of evidence towards the efficacy of the 21st Century Learning Programs. Yet, independent studies highlighted methodological issues and found

academic and socio-emotional benefits. In addition, some studies included services such as tutoring and summer school, which not every program offers. However, recent meta-analyses have begun to highlight further issues and are discrepant from the positive assertions. Therefore, it is not perfectly clear as to the effects of after school programs. Theoretically, the programs should be fulfilling the goals outlined by law, such as academic, socioemotional, behavioral, and physical outcomes. Research does suggest program quality plays a large role in the effectiveness of the programs. Inconsistent research might be a combination of studying programs of varying quality, as well as methodological concerns.

While a vast amount of research has been done regarding after school programs, there is not as much regarding the selection of populations of the after school programs. It has been suggested that children who are at risk for poor developmental outcomes may benefit the most from participation after-school programs (Riggs & Greenberg, 2004). In addition, even when controlling for factors such as income and single-parent households, African-American children are twice as likely to enter after school programs when compared to white children (Hynes & Sanders, 2011). The demographics of participants are well known; those of lower income are more likely to be the program as well as those of African-American or Hispanic background (After school Alliance, 2017).

After school programs are higher in demand but availability is limited. It is estimated that twice as many children would be enrolled in after school programs if allowed (After school Alliance, 2017). With limited spaces, it is prudent to examine what children are entering and if those most in need are enrolling. The purpose of this study is to examine one aspect of participants by analyzing dosage effects on teacher ratings of students and students' academic achievement.

CHAPTER 3

METHOD

Context

Data were collected from two after school programs located in a southeastern state. Participants were members of the 21st Century Community Learning Centers program. Data were collected from students in 2011-2012. In the first program, children attended the program with one hour of service in the morning and from 3:10 pm - 5:20 pm from Monday through Friday. In the second community, services were provided by a community partner, the Boys and Girls Club, with services provided from 3:00-6:00 p.m. Monday through Friday. Consistent with 21st Century program requirements, both programs offered a combination of academic and enrichment opportunities such as drumming, string orchestra, arts and crafts, Zumba, kickball, volleyball, or other physical activities. Academic and enrichment lesson plans were implemented by trained educators in both locations.

Participants

Across both programs, data from 127 fourth grade students were included in analyses. Of these 127 students, 19 were excluded because of incomplete information in one more measures. Of the remaining 108 children, the 30 children with the highest total attendance and the 30 children with the lowest total attendance were selected for the summary analyses resulting in a total of 60 children. The formation of these two groups based on attendance allows for an examination of both high and low dosage of the after school intervention. The 21st Century

program identifies students who have participated for at least 30 days within a program year as students who are regularly participating.

The high dosage attendance group consisted of 17 males and 13 females. Their ethnic makeup was 26 African Americans, 1 Hispanic, and 3 other which included multiracial or American Indian/Pacific Islander. When the data were collected, 27 children were receiving free or reduced-price lunch services and 6 children were receiving special education services. One child was receiving services for limited English proficiency. The total number of days attended ranged from 123 to 150 with a mean of 132.53 days and a standard deviation of 7.05.

The low dosage attendance group consisted of 17 males and 13 females. Ethnic makeup is 24 African American, 3 white, 1 Hispanic, and 2 identified as other. At the time of data collection, 27 children received a free or reduced-price lunch and 3 received special education services. The total number of days attended ranged from 30 to 87 with a mean of 59.10 and a standard deviation of 16.40. Chi-square analyses were conducted to assess whether or not there were differences between the two attendance groups. No statistically significant differences were found on gender ($\chi^2(1) = .000$, $p = 1.00$), ethnicity ($\chi^2(3) = 3.28$, $p = .35$), special education status ($\chi^2(1) = 1.18$, $p = .24$), free- or reduced-price lunch status ($\chi^2(1) = .18$, $p = .52$), or English proficiency ($\chi^2(1) = 1.02$, $p = .50$).

Across the two groups, the difference in attendance was statistically significant ($F(1, 58) = 507.94$, $p < .001$). Thus, the two groups clearly represent dosage differences of students who are considered regularly participating by the 21st Century Community Learning Centers program.

Research Questions

The research questions that guided this study were: (1) Is there a significant difference in teacher ratings of study/behavioral skills and academic performance students who are regularly

participating but have low levels of attendance in an after school program when compared to regularly participating students with high levels of attendance? and (2) Is there a significant difference in state standardized assessment scores in reading, mathematics, and English Language Arts between students who have regularly participating but low levels of attendance in an after school program when compared to regularly participating student with high levels of attendance?

Measures

Two measures were used to assess the research questions for this study. The first is a mandatory teacher rating that assesses study/behavioral skills and academic performance of the students in the program. This tool is mandated by the US Department of Education to be completed for each regularly-participating student in the 21st Century program. Because the teacher rating is a federally-mandated assessment and because the tool does not have any published psychometric properties, a factor analysis was conducted to examine the scale's attributes. All ten items were loaded into the analysis. One factor emerged from the analysis with an eigenvalue of 7.711 which explained 77.11 percent of the variance among the 10 items. Factor loadings ranged from .781 to .921. Using these 10 items as a single factor, the Cronbach alpha value was .963. Other data regarding the measure were not found. At the end of the academic year, the general education teachers of the students were given a paper questionnaire regarding the behaviors of the students. Teachers completed a total of 10 questions on a scale with the following possible ratings: No Need to Improve, Significant Improvement, Moderate Improvement, Slight Improvement, No Change, Slight Decline, Moderate Decline, and Significant Decline. No Need to Improve was scored as a 1, and the number would increase until 8, representing Significant Decline. Teachers were asked to evaluate the behaviors of students

from the beginning of the school year in the following areas: turning in homework on time, completing homework to their satisfaction, participating in class, volunteering (e.g., extra credit or more opportunities), regular class attendance, attentiveness in class, behaving well in class, academic performance, coming to school motivated to learn, and getting along well with other students.

The second assessment included in this study was the Georgia Criterion-Referenced Competency Test (CRCT). The CRCT is a state standardized assessment system documenting student progress against the Common Core Georgia Performance Standards in the areas of reading, English/language arts, mathematics, science, and social studies. The CRCT assessment provides a scaled score with three levels of performance. Scores below 800 on any subtest indicate that the student does not meet the standard for that specific domain. Scores from 800 to 849 indicate that the student meets the standards set for the domain. Scores from 850 or above indicate that the student has exceeded the standard for the given domain. Students in the fourth grade received scores for Math, Reading, and English/language arts. According to the Georgia Department of Education, the Cronbach's Alpha was a .89 for Reading, a .91 for English Language Arts, and a .92 for mathematics. While validity data was not provided, an outline of the test making process was given to demonstrate the rigor and adherence to government standards.

Data Analysis

Analyses for the research questions included independent samples t-tests. A correction for unequal variance was employed when necessary. State standardized test scores were also assessed with t-tests. Demographic information was analyzed via Chi-square.

CHAPTER 4

RESULTS

Comparison between Groups

The current study compared the mean teacher ratings between the attendance dosage groups through independent samples t-test. Each item was examined to test the assumption that there were equal variances between the two groups. Welch's t-test for these analyses were used when unequal variances occurred. On the teacher rating form, scores coded as *no need to improve* were excluded from the analyses. The reason was that No need to Improve was scored as a 1, which would lower the mean when in fact no improvement was deemed necessary. A test was run categorizing the scores into three groups, improvement, no improvement, or decline, but doing so did not yield significant results. For the current analysis, group statistics revealed that the high dosage group had lower means for all questions than the means of the low dosage group. This means that the high dosage group were rated as having greater improvement. However, significant differences were detected in 2 of 10 questions. Analyses indicated improvement was significantly higher in the high dosage group for those six classroom behaviors than the low dosage group. Data are displayed in Table 1 below.

Table 1

Differences between attendance groups on teacher ratings.

Item	Low attendance			High attendance			T	df	Sig. (2-tailed)
	n	M	Sd	n	M	Sd			
Turning in his/her homework on time	27	5.33	1.98	22	4.45	2.06	1.52	47	.14
Completing homework to your satisfaction	27	5.19	1.86	25	4.24	1.92	1.80	50	.08
Participate in class	27	5.19	1.71	27	4.30	1.98	1.78	52	.08
Volunteering (e.g., extra credit/more responsibilities)	28	5.04	1.48	27	4.59	1.48	1.08	53	.29
Attend class regularly	24	6.00	2.04	17	5.47	2.40	.760	39	.45
Is attentive in class	28	5.04	1.77	24	4.30	1.76	1.52	.50	.14
Behaving well in class	28	5.18	2.00	23	4.52	1.95	1.18	49	.24
Academic performance	30	4.90	1.54	28	3.96	1.48	2.36	56	.02
Come to school motivated to learn	27	5.11	1.89	25	4.24	1.56	1.81	50	.08
Get along well with other students	27	5.37	1.86	22	4.27	1.98	1.99	47	.05

Data were reviewed on standardized tests all students take at the end of the fourth grade year. No significant differences were found on the reading subtest ($t(58) = -.310, p = .76$), English Language Arts ($t(58) = -.258, p = .80$), or mathematics ($t(58) = -.312, p = .76$).

CHAPTER 5

DISCUSSION

Results revealed there were only two statistically significant differences between the ratings of the two groups on teachers' ratings of academic performance and getting along well with other students. Furthermore, analysis of standardized test scores found no significant difference between the two groups. Data from teachers' ratings reflected improvement in student behaviors and dispositions when comparing the student outcomes across the program year. The second analysis only measured standardized test scores at the end of the year, yet was reflective of mastery of the standards within the fourth grade. The results from this study are centered on students who were enrolled in the after school program and do not reflect the efficacy of measuring a group of students who participated in an after school program versus those who did not participate as many other researchers have done. This study focused on the effects of dosage on the improvement of students already within a program.

The results of the study are consistent with some results from previous studies and contradict findings from other studies, sometimes within the same study. For example, research has suggested greater attendance was not linked to greater academic, behavioral, or socio-emotional outcomes (Roth, Malone, & Brooks-Gunn 2010). However, the current analysis did find differences in academic improvement and getting along well with others. Government reports from the early 2000s also did not reveal differences in effects for regular attendees and infrequent attendees (Dynarski et al., 2003). Other studies suggested greater positive academic effects for frequent attendees but the data were based on reports of percentages or qualitative

comments rather than thorough statistical analyses measuring improvement over the program year (Gao, Hallar, & Hartmann, 2014; White, 2015).

Regarding the second analysis, the current study revealed both high attendance and low attendance groups performed similarly on state standardized tests. This finding would seem to contradict results from the teacher survey which indicated the groups differed in academic performance. There are two possible explanations for this result. The first is that there were initial differences in academic achievement at the beginning and the high attendance group had a lower level of achievement than the low attendance group. As a result, the students in the high attendance group did improve their achievement more than the low attendance group, but ended up with similar scores. This is purely conjecture, but if true, would also suggest that students who need more improvement tend to have higher attendance in the program. Another more likely explanation is that the teachers primarily used grades to determine improvement or perhaps did not use any objective measures in completing their rankings. While the second analysis uses state standardized test scores, it is possible teachers used different criteria.

Unfortunately, other factors were not studied or operationalized in the research questions examined. Many of the questions could have been interpreted differently among the teachers. It is difficult to standardize “behaving well in class” or “participating in class.” Other questions, such as the ones regarding turning in homework or attending class are clearly measurable, but effects were not found for those particular questions. Despite coinciding with previous findings, it is unclear why there is no difference between high attendance and low attendance groups for the majority of behaviors. One specific surprise is the lack of difference in homework-related behaviors considering many programs offer specific time to do homework.

One explanation is that many after school programs do not focus on improving these behaviors by primarily focusing on academics and enrichment. Indeed, the two areas in which high attendees were superior over low attendees were social behaviors (getting along well with other students) and academic performance. After school programs do offer academic assistance in the form of classes and enrichment activities and require students to frequently interact with one another usually in smaller settings. Because this study did not have an objective measure of quality, it is possible the program might be beneficial in some ways but ineffective in others. Quality could be dependent on the structure, behavior management, and focus of the individual programs.

Another explanation for the results can be drawn from a study on delinquency. The study found delinquency programs might have little effect on improving delinquency based on the fact that those who are likely to engage in such behaviors do not participate in such programs or are expelled (Taheri & Welsh, 2016). It might be that students who could improve the most from such programs are not attending, and students who do attend, regardless of attendance, are already performing or behaving at an acceptable level. Another possible explanation is that these students might have been participating in after school programs for quite some time and have improved significantly from their pre-after school state. Future studies could account for or expand on this variable and statistically account for its influence in subsequent statistical analyses.

Limitations

One limitation of the current study was in relation to the 10-item questionnaire given to the teachers. Although the measure is widely used by the federal 21st Century Community Learning Center program, there are no available psychometric data regarding the questionnaire

and the questionnaire is only administered at the end of the year. Teacher criteria may differ for each question or teachers may inaccurately recall improvement or decline. Using validated rating scales examining different behavioral and socio-emotional properties might yield more accurate results. In addition although attendance is measured, student engagement in the program is unknown. Students might have come to the program frequently, left early, or did not engage as well as other students. Conversely, students who did not attend as often might have been intensely engaged in the program while in attendance.

Another limitation centers on lack of other measures of academic performance that were not recorded. The only measures used in this study were teacher ratings and state standardized test scores. Objective levels of homework completion/turn-in and classroom grades would have provided additional insight into student behavior and performance. Finally, there was no control group of students outside the program on which to compare the two attendance groups. Despite the structure and activities offered by the programs, if the control group performed or improved at a similar rate to the students in the after school program other factors such as the curriculum and activities provided during the general school day might be the critical factors rather than the programs.

Future Directions

Effects regarding levels of participation in after school programs are poorly understood. One contributor to this lack of understanding is factors that are studied. Studies of quality after school programs using validated measures to examine differences between attendance groups are needed. Measuring variables at the beginning and end of the program year also would yield more accurate results. Different populations or different types of after school programs might be evaluated as well. Also, as mentioned before, it might be that students attending after school

programs are those who are already in little need or no need of improvement in certain areas.

Future research could examine the effects of an after school program on students before and after they enter. It might also be necessary to examine long-term effects of after school programs such as multiple years of after school program enrollment.

Syntheses across studies are also important. That is, factors or variables are operationalized differently between studies in the literature. The current study revealed results that contradicted findings from previous studies, but the results might be due to different criteria used to measure variables such as academic performance. Quality of programs is also a variable that needs strong consideration. The current literature on after school programs, attendance, and outcome variables is shallow and any number of well-designed studies could shed light on the interaction between the three variables.

Conclusion

While the outcomes of an after school program experience on participants and nonparticipants are well studied, there is a lack of research on the effects of the dosage of attendance within those programs. Despite the variability within the literature, the current study found limited effects between low attendance and high attendance groups. However, academic performance and social behaviors as rated by teachers as improved. However, academics as measured by state standardized test scores revealed no difference in performance between the two groups.

There are many variables and limitations which could have influenced the findings for the current study and it is clear more research is necessary to parse out these effects. After school programs appear to be a viable offering for supporting students yet there are many other factors and research designs which could be used to expand the knowledge base in this area.

Considering the resources spent on such programs and controversy surrounding the program's efficacy, it is necessary to analyze variables such as attendance dosage. If an optimal level of attendance can be found, program benefits could be maximized.

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