AFTER-SCHOOL PROGRAMS: IMPACT ON THE ACADEMIC OUTCOMES OF

ELEMENTARY STUDENTS IN A RURAL SCHOOL

by

Jeremy Hogan

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

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ABSTRACT

The purpose of this quantitative, causal-comparative study was to determine if there is a difference in academic achievement between first-, second-, and third-grade students who attended a 21st Century Community Learning Center after-school program and first-, second-, and third-grade students who did not attend a 21st Century Community Learning Center after-school program. There is limited research investigating the effect of after-school programs on the academic achievement of students from rural school settings. Offering quality after-school programs in rural communities is important to meet the needs of students and families and promote positive academic and social outcomes. The sample (*N*=1062) included first-, second-, and third-grade students who attended a 21st Century Community Learning Center funded after-school program and first-, second-, and third-grade students who did not attend an after-school program. Multivariate analysis of covariance was used to compare student performance on STAR reading and STAR math benchmark assessments. There was no significant difference in STAR reading scores and STAR math scores between first-, second-, or third-graders who participated in a 21st Century Community Learning Center after-school program and those who did not. Recommendations for future research include using a random sample from a larger population, a longitudinal study comparing participants and non-participants over multiple years, and a mixed methods study analyzing participation, academic achievement, and staff training and experience.

Keywords: after-school program, 21st Century Community Learning Center, STAR reading assessment, STAR math assessment, student outcomes, rural school

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Dedication

While there are many to whom this work may be dedicated, the below list highlights some of those most responsible for me continuing to work through this project. My wife, Melissa Hogan endured this journey with me and was very supportive throughout this process. She took up the slack for both parents when I needed to dedicate more time to writing. My children Hestan and Brynlee were understanding of the many late nights at the office which allowed me to concentrate on writing this document. My colleagues covered school activities and were understanding of the time requirements of this work. My Lord and Savior; the patience, endurance, and strength to complete the document is a testament to your will. "I can do all things through him that strengthens me" (*Philippians 4:13*, Holman Christian Standard Bible).

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Many people provided advice and support to aid in my learning process. Without them, this work would never have come to completion. Dr. Pam Deering, Dr, Judi Barber, Dr. Jeff Hale, and Dr. Kyle Stafford—your support and encouragement helped me to overcome the many pitfalls and obstacles along the way. Dr. Jason James—your advice was paramount in helping me achieve completion and will always be much appreciated. My dissertation chair, Dr. David Gorman—your support and encouragement helped me reach the finish line.

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List of Abbreviations

After-school program (ASP)

Beginning of year (BOY)

21st Century Community Learning Center (21st CCLC)

Computer-adaptive tests (CATs).

Scaled score (SS)

Social cognitive theory (SCT)

Standardized Test for the Assessment of Reading (STAR)

CHAPTER ONE: INTRODUCTION

Overview

The purpose of this quantitative, causal-comparative study was to determine if there is a difference in academic achievement between first-, second-, and third-grade students who attended a 21st CCLC after-school program (ASP) and first-, second-, and third-grade students who did not attend a 21st CCLC ASP. Chapter One provides the background of ASPs held inside and outside of public-school settings. The background section includes an overview of the theoretical framework followed by the problem statement and an overview of existing literature relevant to the study. The purpose statement and the significance of the study sections follow. The research questions and definitions of key terms conclude the chapter.

Background

The number of school-based ASPs has increased considerably over the past 15 years. Wade (2015) pointed out that school-based ASPs started to increase in 2004. Traditionally, after-school care encompasses a patchwork of parental care, relative care, and self-care (Park & Zhan, 2017). ASPs that have experienced success in improving student outcomes have appropriate funding, staffing, space, transportation, and resources, which are crucial areas addressed in this study.

The most common community-based ASPs are YMCA/YWCA, 4-H, Boys and Girls Club, libraries, sports organizations, and ethnic cultural organizations (Park & Zhan, 2017). Community-based ASPs are popular among youth as evidenced by increasing attendance rates (Jenson et al., 2018). Community-based ASPs are also popular as they implement culturally appropriate activities (Affrunti, Mehta, Rusch, & Frazier, 2018). Other after-school options include faith-based organizations, state or community childcare services, Boy Scouts, Girl

Scouts, and sports or activity camps. These are all viable options for after-school or out-of-school care as parental demands for safe, supervised environments are not entirely met by school-based or community-based ASPs (Horgan, O'Riordan, Martin, & O'Sullivan, 2018).

Participation in school-based ASPs has increased dramatically over the last 15 years (Wade, 2015), yet funding is the major obstacle for schools looking to implement programs. Federal monies through Title I or child care development block grants are the most common forms of funding (Barnes & Nolan, 2019). Recently, the most common school-based ASP is funded through a 21st CCLC federal grant aimed at improving academic performance (Leos-Urbel, 2015; Murchison, Brohawn, Fanscali, Beesley, & Stafford, 2019). Twenty-first CCLC programs target low-performing schools with a high percentage of economically disadvantaged students (Leos-Urbel, 2015; Murchison et al., 2019).

The attainment of educational as well as career and life goals is of significant interest for communities and society in general (Murchison et al., 2019). The desire to participate in ASPs among low-income families is high, which supports the growing need for programs in rural communities dealing with high-level of poverty (Barnes & Nolan, 2019). However, "youth vote with their feet" (Leos-Urbel, 2015, p. 688); research indicates that programs with high participation are well-designed, structured, and involve stakeholders in programming and planning (Jenson et al., 2018). School-aged youth have competing interests and responsibilities after school, so as they get older, their interests in ASPs decline (Pelcher & Rajan, 2016). Thus, it is important to have quality programming that meets the educational and behavioral needs of all students (Park & Zhan, 2017).

Program leaders need to communicate with families on a weekly basis to develop trust and promote involvement in ASPs (Barnes & Nolan, 2019). Frequent communication forms

strong partnerships between ASPs and community partners which helps increase program resources and the attendance (Culp, 2015). The 21st CCLC school-based program requires ASPs to secure community partnerships and provides training for program staff on best practices to implement and maintain a high-quality ASP. All federally funded 21st CCLC programs are provided with training on creating and maintaining a safe and welcoming environment, which helps promote the development of emotional, social, and academic skills (Jenson et al., 2018; Lee, Park, et al., 2017). Twenty-first CCLC programs also provide prevention programs on delinquency, substance abuse, and other behavioral health problems (Jenson et al., 2018).

Theories

Bloom's taxonomy is a guide for ASP staff members as they strive to establish student-centered programs (Ramirez, 2017). The relationship between Bloom's theory and ASP is highlighted by the need for student and staff involvement in planning. Students should never remain passive listeners but be actively involved in program development allowing for increased depth of knowledge (Paleeri, 2015). Program staff with knowledge on how Bloom's learning theory relates to quality instruction can improve participant engagement in lessons and activities. This enhances confidence and motivation and positively impacts student achievement (Park & Zhan, 2017).

Social cognitive theory (SCT) is a theoretical model that provides insight into how learning occurs (Bandura, 1987). SCT highlights the importance of self-efficacy as participants need to have confidence in their capability to execute the required course of action and govern behavioral choices and aspirations (Baker, Kamata, Wright, & Farmer, 2019; Phan & Ngu, 2014). Personal, behavioral, and environmental factors are central to learning and cognition

(Dooley & Schreckhise, 2016) and support psychological and psychosocial development (Powell & Davis, 2019; Wade, 2015).

ASPs are in high demand in rural communities (Barnes & Nolan, 2019; Montgomery, 2017). To implement a quality ASP, 21st CCLC programs must provide high-quality training for staff (Murchison et al., 2019). The training should highlight best practices shown to have a positive impact on students, school, and community (Farrell, Collier-Meek, & Furman, 2019; Murchison et al., 2019). By developing an ASP through a collaborative process involving stakeholders and reflective of the community, students can experience the support necessary to be successful academically, socially, and emotionally (Ivy, Richards, Lawson, Alameda-Lawson, 2018; Paluta, Lower, Anderson-Butcher, Gibson, & Iachina 2016). The success and longevity of the program will be contingent on ASP staff understanding the principles of Bloom's taxonomy in order to contribute to the development of an effective and student-centered program based on SCT and student learning (Baker et al., 2019; Powell & Davis, 2019).

Problem Statement

The problem is the literature has not fully addressed academic achievement across multiple grades for students attending ASPs in rural school settings. At-risk youth desire quality ASPs that prepare them for 21st century success (Affrunti et al., 2018). Rural communities need more education on the importance of offering quality ASPs as they seek to meet the needs of local families and promote positive academic and social outcomes of youth (Paluta et al., 2016). With increasing demand for ASPs but fewer community programs than urban areas, quality ASPs are a top priority for rural school leaders (Klein, 2017). Historically, public schools in rural areas experience a high level of community involvement and have established partnerships with businesses, faith-based organizations, civic organizations, and other city and county

resources (Park & Zhan, 2017). However, for most rural families, after-school care is a patchwork of children being with parents, left under the supervision of relatives and older siblings, by themselves, or a combination of care (Park & Zhan, 2017).

The ASP community has developed best practices, and federal policies have focused on guidelines for quality and improvement in after-school care (Farrell et al., 2019; Smith, Akiva, McGovern, & Peck, 2014). Considering the need for ASPs and the guidelines and support available for implementation, it is important to study the impact ASPs have on the academic achievement of school-age children (Clair & Stone, 2016; Culp, 2015). Baker et al. (2019) examined the effects of an ASP on reading outcomes and noted that future research should include more grade levels in the sample size. This study will contribute to the body of knowledge on the effectiveness of ASPs.

Purpose Statement

The purpose of this quantitative, causal-comparative study was to determine if there is a difference in academic achievement between first-, second-, and third-grade students who attended a 21st CCLC ASP and first-, second-, and third-grade students who did not attend a 21st CCLC ASP. The independent variables were participation and non-participation in the ASP, and the dependent variables were STAR reading and STAR math scores.

Significance of the Study

While the location for this study was a rural school district in south-central United States, the findings were beneficial for rural school districts across the country. This study may have societal implications for local communities as Proverbs 22:6 says, "teach a youth about the way he should go: even when he is old, he will not depart from it" (Holman Christian Standard Bible). For student outcomes to be positively impacted, students need to feel connected to the ASP, have

quality relationships with peers, faculty, and staff, and engage in activities (Ramirez, 2017).
Other researchers have addressed the impact ASPs on student outcomes (Bell, Taylor,
McCallum, Coles, & Hayes, 2015; Proudfoot, Green, Otter, & Cook, 2018; Zakharov, Tsheko, &
Carnoy, 2016); however, those studies were centered around urban communities. This study was
designed to investigate the relationship between a school-based APS and student achievement in
a rural community.

ASPs such as the Boys and Girls Club of America have been used by families in rural
communities since 1860 (Baker at al., 2019). School-based ASPs are relatively new and those
funded by 21st CCLC grants have increased significantly across the United States in the last 15
years because of additional federal funding, and family and societal demands (Wade, 2015).
With increasing demand in rural settings and a lack of availability of community programs
compared to urban areas, funding and partnership opportunities has become a top priority for
rural school leaders. Historically, public schools in rural areas have community involvement and
built-in partnerships with businesses, faith-based organizations, civic organizations, and other
city and county resources that can help implement and maintain ASPS. Without an ASP,
childcare for most families in rural communities is a patchwork of relative care, parental care,
self-care, or a combination of care (Park & Zhan, 2017).

With the after-school field developing best practices and federal policies addressing
guidelines for quality and improvement, rural schools have a solid framework implementing and
maintaining high-quality ASPs (Ivy et al., 2018). Implementation and maintenance are equally
important. Both involve staffing, funding, resources, transportation, and space (Pelcher & Rajan,
2016). Nothing happens without implementation and according to Leos-Urbel (2015), quality
maintenance influences attendance and student outcomes. Both can be addressed through

community partnerships and stakeholder collaboration (Simpkins, Riggs, Ngo, Ettekal, &

Okamoto, 2017).

Research Question(s)

RQ1: Is there a difference in STAR reading scores and STAR math scores between first-

grade students who participate in a 21st Century Community Learning Center after-school

program and those who do not when controlling for their pretest scores?

RQ2: Is there a difference in STAR Reading scores and STAR math scores between

second-grade students who participate in a 21st Century Community Learning Center after-

school program and those who do not when controlling for their pretest scores?

RQ3: Is there a difference in STAR reading scores and STAR math scores between

third-grade students who participate in a 21st Century Community Learning Center after-school

program and those who do not when controlling for their pretest scores?

Definitions

The following definitions are listed to clarify key terms pertinent to this study:

1. *21st Century Community Learning Center (21st CCLC)* – Twenty-first CCLC programs

   target low performing schools with a high percentage of students from economically

   disadvantaged backgrounds (Leos-Urbel, 2015). Twenty-first CCLC grants support

   ASPs and encourages collaboration with parents and communities to increase their

   involvement in children's education (Barnes & Nolan, 2019).

2. *Academic achievement* – Academic achievement is defined as, and measured by, STAR

   reading and STAR math assessments. STAR reading and STAR math tests are standards-

   based assessments that measure student progress in key reading skills and evaluate

   mathematical abilities (Renaissance Learning Inc., 2013).

3. *Classroom ecology* – The physical environment of a classroom including the human element of a caring relationships, high-quality and differentiated instruction, and equitable access to curriculum, learning opportunities, and resources (Bennett, 2016).

4. *Rural school district* – A rural school district is a census-defined territory more than 25 miles from an urban area and more than 10 miles from an urban cluster (National Center, 2019).

CHAPTER TWO: LITERATURE REVIEW

Overview

This chapter provides an overview of literature pertaining to the study. The first section includes the theories selected as a framework and explanation of how they relate to the implementation of ASPs. The second section includes a synthesis of recent literature pertaining to ASP activities and the impact they have on student outcomes. Finally, suggestions for further research are discussed.

Theoretical Framework

Bloom's taxonomy (Anderson, Krathwohl, & Bloom, 2002) and Bandura's (1987) social cognitive theory and framed this study. This literature review examines how the theories relate to the implementation of ASPs for improving student outcomes. Bloom's taxonomy and SCT were used as lenses to investigate implementing ASPs. Both frameworks provide guidance for implementing ASPs that positively impact student outcomes.

Bloom's Taxonomy

Bloom's taxonomy can serve as a tool for ASP staff to develop effective, student-centered instructional design (Ramirez, 2017). Following this framework, staff will have a sequence of objectives to develop lesson plans, conduct needs assessments, and measure learning outcomes (Ramirez, 2017). ASP staff must fully understand Bloom's taxonomy to establish a student-centered learning environment where participants are more than passive listeners of lectures or talk on moral issues (Paleeri, 2015). Using the model, staff can design lessons that allow deeper understanding of objectives by applying, analyzing, evaluating, and creating (Anderson et al., 2002). Bloom's taxonomy (Anderson et al., 2002) encourages ASP staff to be facilitators and organize activities according to the learning atmosphere and content (Paleeri, 2015).

Ultimately, ASP staff must understand the elements of Bloom's learning theory to improve and ensure the quality of instruction (Park & Zhan, 2017). If ASP staff understand the model and how to incorporate it, students will receive quality instruction, have a better grasp of the material, and approach problems with confidence and motivation (Park & Zhan, 2017). High-quality ASPs incorporate structured lessons, instructional resources, and regular feedback from instructors and staff which allow participants to achieve deeper levels of understanding within Bloom's taxonomy (Park & Zhan, 2017). According to Paleeri (2015), ASP staff must use Bloom's taxonomy for students to effectively learn, organize, and apply values in real-life situations.

Bandura's Social Cognitive Theory

SCT provides insight into how learning occurs (Dooley & Schreckhise, 2016). Bandura sought to explain how individual and group perceptions are shaped and how the perceptions, in turn, shape individual and group behavior (Bandura, 1987). According to SCT, self-efficacy, is defined as "the belief in one's capability to execute the required course of actions and govern one's choice of behaviors and aspirations" (Phan & Ngu, 2014, p. 697) and is significant. Human behavior is an interaction between environmental, cognitive, and personal factors, which reinforces the idea that youth are partly a product of their environment (Dooley & Schreckhise, 2016). The interplay between environmental, cognitive, and personal factors is central to learning and cognition (Dooley & Schreckhise, 2016).

Park and Zhan (2017) used SCT to predict how a school academic emphasis affects academic achievement. If programmers incorporate SCT, children can be better equipped to develop positive peer relationships and do better in school (Dooley & Schreckhise, 2016). Implementing SCT in after-school programming can help staff see that human behavior is a

product of environmental, cognitive, and personal, factors (Dooley & Schreckhise, 2016;)

Rubenstein, Ridgley, Callan, Karami, & Ehlinger, 2018). According to SCT, ASPs can bolster

psychological and psychosocial development if positive relationships exist between the children

and staff (Rubenstein et al., 2018; Wade, 2015). Federal and state guidelines have compelled

ASPs to focus on improving academic, social, and emotional outcomes (Baker et al., 2019).

Related Literature

Options for After-School Care

Communities have various afterschool care options including parental-care, relative care,

self-care, ASPs, and a combination thereof (Park & Zhan, 2017). ASPs have been studied for

quality of instructors/staff, program options, and the ability to partner with schools, communities,

and families (Park & Zhan, 2017). As research revealed the positive impact of ASPs, the

Afterschool Alliance empowered community stakeholders to make them available to

disadvantaged youth by assisting in implementation and providing continuous support

(Richardson, Vafa, & Litton, 2017). These partnerships successfully created high-quality

programs to improve child development (Park & Zhan, 2017).

School-Based Programs

A school-based ASP is one that utilizes school facilities and staff, and partners with the

school for curriculum and resources (Horgan et al., 2018). One of the most common ASPs is the

21st CCLC, which is federally funded and aimed at improving academic performance (Leos-

Urbel, 2015; Smith, Ramaswamy et al., 2017). Prior to the mid-1990s, the federal government

had little involvement in ASPs, but in 1994, the 21st CCLC Act allotted $25,000,000 (Baker et

al., 2019). About 90% of 21st CCLCs are based in low performing schools with a high

percentage of economically disadvantaged students (Barnes & Nolan, 2019; Leos-Urbel, 2015).

Twenty-first CCLCs encourage collaboration with community stakeholders and parental involvement with children's education (Baker et al., 2019).

Schools and school districts are the most common managers of full and partial-year ASPs (Sliwa, Calvert, Williams, & Turner, 2019). School-based programs are often resource rich and typically have adequate space and access to transportation, supplies, and highly trained staff (Ivy et al., 2018). School-based ASPs can also take advantage of child nutrition programs and provide snacks or after-school meals to help increase participation (Baldwin, Stromwell, & Wilder, 2015; Sliwa et al., 2019). The largest differences between school-based and community-based ASPs is that school-based ASPs are highly prescribed programs with structured curriculum that tend to have more resources (Baldwin et al., 2015; Jenson et al., 2018).

Schools can also use Title I funding to implement ASPs. Title I programs emphasize family engagement and require schools to partner with parents and guardians to ensure regular communication with staff (Barnes & Nolan, 2019). Some school-based ASPs are funded through Child Care Development Block Grants, which follow the same federal regulations as 21st CCLCs and Title I (Barnes & Nolan, 2019). It is important for programmers to find funding mechanisms. Quality programming is critical for youth whose families are limited by income (Greenberg, 2014; Klein, 2017). The monies make instructional and tutoring resources available, as well as extracurricular activities that can increase school connectedness (Lee, Dang et al., 2017).

Most school-based ASPs, particularly those that are federally funded, require incorporating research-based practices (Bennett, 2016). Stakeholders recognize that 21st CCLCs incorporate research-based practices and see value in promoting them (Paluta et al., 2016). Many schools with ASPs dedicate resources to establish and sustain relationships with families

and community-based organizations (Finn-Stevenson, 2014; Mampane, 2017). Twenty-first

CCLC implementation teams provide grant recipients with practical strategies for involving

families and communities to establish strong relationships (Finn-Stevenson, 2014; Mampane,

2017).

Community-Based Programs

There are several types of community-based ASPs. Community-based approaches that

focus on improving outcomes for students often look different (Baker et al., 2019). The

community-based approach dates to the middle 20th century when educating children was

informal, linking families, schools, and communities (Finn-Stevenson, 2014; Mampane, 2017).

Community-based programs have become increasingly important for youth development as they

provide them with the opportunity to get away from toxic social or family conditions in their

homes, communities, peer groups, and schools (Smith & Bradshaw, 2017). School districts are

typically accommodating of community-based programs and willing to share facilities if the

program providers sign a formal agreement (Kanters, Bocarro, Moore, Floyd, & Carlton, 2014;

Meade & O'Brien, 2018). Community-based programs typically encourage physical activity and

provide healthy foods and beverages (Sliwa et al., 2019). The Boys and Girls Club of America

and the YMCA adopted the Healthy Eating and Physical Activity Standards for all their ASPs

(Beets et al., 2018).

Programs focused on academic achievement are likely to be part of community-based

initiatives linked by common objectives rather than operating as isolated programs (Baker et al.,

2019). Jenson et al. (2018) found that students involved in community-based ASPs had greater

participation, more consistent attendance, and superior reading outcomes compared to peers who

did not participate in a community-based ASP. Community-based programs with high

participation provide increased opportunities to build skills, competencies, and self-worth (Park & Zhan, 2017). Community-based programs offer more choices and have greater variety and control of resources than other programs (Baldwin et al., 2015; Murchison et al., 2019). Bennett (2016) found that few community-based ASPs implement evidence-based practices to improve student outcomes and recommended that ASPs partner with an institution of higher education or hire certified teachers from local schools to help implement best practices.

Community-based programs are recognized for systems-level linkage across multiple sectors such as businesses, industries, faith-based and other non-profits, which can lead to stronger and more sustainable outcomes (Baker et al., 2019). The success of these programs is related to how staff reflect their neighborhood which positions them for opportunities to collaborate (Affrunti et al., 2018). Most ASPs encourage community participation; therefore, they should provide program volunteers with professional development to support and strengthen their role in the program (Richardson et al., 2017). Community-based ASPs provide opportunities for social interaction between parents and staff, and as strong ties develop, staff can disburse parenting strategies, community resources, and procedures for applying for assistance (Barnes & Nolan, 2019).

Programs in historically disenfranchised communities are often underfunded. Staff is transient, underpaid, and undertrained, and youth exhibit significant mental health problems which staff are variably equipped to address (Frazier et al., 2019). Staff members must understand the community and develop strategic partnerships to support program funding and operation (Affrunti et al., 2018). Mental health service is a priority (Frazier et al., 2019). Community-based ASPs can promote social competence by infusing evidenced-based practices and are well positioned to support mental health (Helseth & Frazier, 2018). Community-based

ASPs are encouraged to develop relationships with underutilized health departments and other social service organizations to provide needed services (Helseth & Frazier, 2018). This is particularly true in low-income communities where marginal access and low utilization of mental health services result in unmet needs within ASPs (Helseth & Frazier, 2018).

Other After-School Options

In addition to school-based and community-based programs, there are other after-school options such as faith-based organizations, state and community childcare services, out-of-school clubs or programs, and park-based programs. While school-based and community-based ASPs serve many children, there is more parental demand for safe, supervised environments during out-of-school time than can be met (Horgan et al., 2018). Afterschool clubs, activity camps, and homework clubs are free in some areas by state or community childcare services (Horgan et al., 2018). Research indicates that high-quality youth development programs such as Boy Scouts and Girl Scouts of America provide meaningful opportunities and experiences for ethnically, racially, and economically disadvantaged youth (Park & Zhan, 2017).

A common option for afterschool care is provided by churches or faith-based organizations. Faith-based ASPs provide a safe place for youth to learn about themselves, reflect on how to make ethical choices in school and neighborhood settings, and develop spiritually (Lee, Park et al., 2017). In recent years, Jewish communities have witnessed a growth in the development of Jewish ASPs that provide childcare as well as educational programming (Novak-Winer, 2017). Faith-based programs are preferred by some families for their vision and implementation of religion in the curriculum (Novak-Winer, 2017). Many of the programs reach across denominations and bring together churches from different parts of communities (Novak-Winer, 2017). For faith-based programs to achieve success, program leaders must be committed

to fiscal support, sharing facilities and resources, and collaborating on long-term goals (Lee, Park et al., 2017).

Park-based programs provide youth development that enables young people to acquire skills needed to become responsible citizens and leaders (Park & Zhan, 2017). Additionally, park-based programs help keep youth physically active. These programs offer effective and accessible treatment options for reducing cardiovascular disease among youth with severe obesity including a physical activity and health promotion program called Fit2Play (D'Agostino et al., 2018). The curriculum includes multiple sports and recreation activities that are evidenced-based and focus on developing motor skills, movement knowledge, and social and personal skills (Messiah et al., 2017). While park-based programs generally do not address academic achievement, they are associated with significant improvement in the cardiovascular disease risk profile for youth who participated for at least two years (D'Agostino et al., 2018).

Sports-based programs are uncommon but they facilitate and encourage adolescents to live healthy and active lifestyles and provide structured opportunities to develop sports skills (Lee, Park et al., 2017). Sports-based programs are also mechanisms for developing social and coping skills (Lee, Park et al., 2017) and provide youth with clear boundaries and a flexible structure for a sense of autonomy (Bopp & Roetert, 2019). They are an appropriate venue for developing life skills (Bopp & Roetert, 2019; Lee, Park et al., 2017).

University-assisted programs are rare and unique. Participants describe university-assisted ASPs much differently than the regular school environment, thanks to the diversity of staff, unique and creative lessons, and program offerings for family members (Luter, Lester, Lochmiller, & Kronick, 2017). Their purpose is to provide a pathway for youth development and literacy programs for at-risk children who might not otherwise receive it (Delacruz &

Guerra, 2019). The programs include activities such as circus arts, foreign language instruction,

music, tutoring by university students and faculty, family dinners, mental health groups, adult

GED classes, and literacy instruction (Delacruz & Guerra, 2019; Luter et al., 2017). The

university-assisted program is an example of community stakeholders being an integral part of

the school community by fostering self-awareness, social awareness, self-management,

relationship skills, and responsible decision-making for at-risk youth (Luter et al., 2017).

Other after-school services are offered by various providers as stand-alone options. With

schools having limited budgets and looking to cut programs, private entities sometimes offer

afterschool educational services (Meade & O'Brien, 2018). While the priority for private

programs is to provide educational opportunities for needy youth, there are questions about

equitable accessibility (Meade & O'Brien, 2018). To be successful, they must partner with

parents, educators, organizations, colleges, and public sectors (Park, Lin, Liu, & Tabb, 2015;

Park & Zhan, 2017).

Implementing an After-School Program

Implementing an ASP is not easy. The need for afterschool care has grown over the last

two decades, and grants are highly competitive. ASPs continue to be a priority of educators and

policymakers (Greenberg, 2014; Smith, Osgood et al., 2018). Children spend more time out of

school than in school and need enriching experiences in safe and structured environments that

support development (Baker et al., 2019; Greenberg, 2014). ASPs provide what schools

cannot— engaging extracurricular activities that support education (Chung, Jusu, Christensen,

Venescar, & Tran, 2018; Finn-Stevenson, 2014). ASPs have flexibility to promote family

involvement more successfully. Many offer transportation services, family dinners, access to

school facilities, opportunities to learn languages, and cultural programs and events (Finn-Stevenson, 2014; Pelcher & Rajan, 2016).

When implementing ASPs, providers should seek to improve academic performance, promote social and emotional development, prevent delinquency, substance abuse, and other behavioral health problems (Jenson et al., 2018). ASP providers implement developmentally appropriate programming to help participants develop emotional, social, and academic skills (Culp, 2015; Powell & Davis, 2019). Afterschool experts have developed best practices that adhere to federal guidelines, focus on program design, and encourages continuous improvement that can help ASP providers (Smith et al., 2014; Smith, Osgood., 2018). Best practices and guidelines are in place so that ASPs can focus on student development and academic success (Smith et al., 2014; Smith, Roy et al., 2018). ASP providers must be holistic, consider a program's capacity and strength, the range of students, and be motivated to achieve success and sustainability (Affrunti et al., 2018; Leos-Urbel, 2015).

Nurturing Environment

To achieve an environment conducive to the type of instruction desired by parents, ASPs must be welcoming and prioritize safety (Murchison et al., 2019). Developing frameworks for establishing nurturing environments can explicate challenges and opportunities associated with afterschool programming (Smith & Bradshaw, 2017). The afterschool field is recognized for supporting the social and emotional growth and academic achievement of school-age youth (Murchison et al., 2019). Youth need safe environments where they are respected and valued and can develop supportive, trusting relationships with staff (Barnes & Nolan, 2019). Negative relationships with after-school caregivers put children at risk for behavior problems; hence, after-school care providers must develop positive relationships (Barnes & Nolan, 2019; Wade, 2015).

Supportive relationships with staff distinguish high-functioning ASPs, as positive peer interactions are related to positive youth development (Barnes & Nolan, 2019; Oh, Osgood, & Smith, 2015). Childhood experiences impact social skill development. Children who have positive experiences with after-school caregivers improve social abilities (Cappella, Hwang, Kieffer, & Yates, 2018; Wade, 2015). Nurturing environments are also conducive to academic attainment, particularly for those with higher levels of social-behavioral risks (Cappella et al., 2018).

A nurturing environment includes parents (Barnes & Nolan, 2019). Childcare staff reported inadequate communication with parents with limited education and low-income backgrounds who live in distressed neighborhoods (Barnes & Nolan, 2019). ASPs are widely used by low-income families highlighting the importance of establishing supportive relationships with parents, so they do not feel excluded (Barnes & Nolan, 2019). Caregivers view the educational success of their children and accomplishment of their dreams vicariously which shows the need to uplift and dignify the family standing in society (Mampane, 2017). Ultimately, the relationship between ASP staff and parents or guardians is critical to providing students with high-quality after-school care (Barnes & Nolan, 2019; Wade, 2015).

Nurturing includes nutrition by establishing and following nutritional guidelines and policies (Beets et al., 2018). Weight issues impact children more than adults, which highlights the need for ASPs to develop wellness policies that include nutrition, physical activity, and addresses food insecurities (Cavanagh & Meinen, 2015; Sliwa et al., 2019). ASPs that address childhood obesity and food insecurities have been shown to advance social skills, academic achievement, and overall health (Sliwa et al., 2019). ASP providers should evaluate the types of food and beverages they serve and determine whether they promote healthy eating (Beets et al.,

2018). Many programs have implemented healthy eating standards that align with federal, state, and local policies which include offering fruit and vegetables daily (Messiah et al., 2017; Wiecha, Williams, Giombi, Richer, & Hall, 2018). ASP providers should also require physical activity for participants (Cavanagh & Meinen, 2015). Physically active children are less likely to develop chronic diseases and more likely to have better physical fitness, body composition, psychological health, and academic achievement (Kim & Lochbaum, 2017). ASP providers can also address at-risk behaviors such as violence, smoking, drinking, and substance abuse (Lee, Park et al., 2017).

Collaboration among staff and participants contributes to developing and maintaining a caring environment (Chung et al., 2018). To help establish nurturing environments, ASP staff should encourage students to develop self and other awareness of roles as interaction between students with different roles is inevitable (Jiang, Shen, & Smith, 2019). Understanding roles allows interdisciplinary learning and encourages supportive environments (Jiang et al., 2019). Supportive relationships such one-on-one work with students, facilitating, or overseeing project-based learning activity is reflective of ASPs with positive cultures (Clair & Stone, 2016). Controlling learning environments must offer more autonomy wherein students are held accountable for their actions and are supportive of the well-being of others (McBride & Xiang, 2016). According to Lee, Park et al. (2017), adolescents who participated in ASPs with collaborative environments improved life skills. In collaborative environments, ASPs limit unproductive time and provide opportunities for skill building and enriching experiences (Lee, Park et al., 2017). Collaborative and nurturing programs allow youth to engage in interesting and challenging activities with the support of ASP staff (Barnes & Nolan, 2019; Fredricks, Bonhert, & Burdette, 2014). Student-centered ASPs recognize and support various settings in

which youth learn (Montgomery, 2017). Ultimately, children in quality programs are thriving,

engaged, agentic, and connected to others; characteristics that are associated with other important

youth outcomes with implications for future life chances (Smith, Ramaswamy et al., 2017).

Quality Staff

High-quality ASPs are synonymous with quality after-school program staff and their

interaction with students. After-school time is increasingly recognized as a factor in the

development of economically disadvantaged children, so it is important to understand how to

support staff to maximize the benefits (Affrunti et al., 2018). Staff are central to facilitating

structured, safe, and supervised settings tailored to the learning and development of children

(Barnes & Nolan, 2019; Park et al., 2015). Policies regarding staff selection and effectual

professional development can help improve the efficacy of instructors serving at-risk populations

(Clair & Stone, 2016). Staff with appropriate training, experience, and expectations can better

meet the needs of students and their families by modeling how to assist and support learning

(Barnes & Nolan, 2019; Park et al., 2015). However, most programs struggle to meet these

objectives because they lack structure and offer limited training and support for staff (Farrell et

al., 2019).

Quality staff training allows for greater buy-in and is conducive to supportive and

successful programs (Beets et al., 2018). High-quality ASPs base professional development on

research, the needs of children and the community, and collaboration with partners (Cavanagh &

Meinen, 2015; Smith, Roy et al., 2018). ASP staff desire to use evidence-based methods to

achieve goals, so program leaders need to understanding how professional development can be

applied (Bennett, 2016). According to Farrell et al. (2019), extensive professional development

and follow-up support is necessary for change and promoting staff investment.   Training and

coaching programs with afterschool staff are useful in helping them lead and deliver a high-quality, structured programs (Smith, Osgood et al., 2018).

Positive interaction can be modeled and facilitated through training and coaching commonly used for staff development and supporting youth, particularly those with challenges associated with poverty (DuBois & Keller, 2017). Research underscores the importance of staff establishing relationships with participants and communities, or "walking the walk" to find inspiration, commitment, and new ideas (Bennett, 2016). ASPs need to work harder to incorporate explicit coursework on quality and nurturing into training (Smith & Bradshaw, 2017). Mentoring programs have promoted success across multiple domains for at-risk youth (DuBois & Keller, 2017). They increase positive relationships through role modeling and social supports, which have a positive impact on the self-esteem of disadvantaged youth (Ayton & Joss, 2016). Beyond supporting participants, parent-staff relationships are critical for disadvantaged families (Barnes & Nolan, 2019). Providing social support to families as children transition through school and adolescence creates strong ties between parents and staff which allows staff to be seen as service providers and a key source for social support (Barnes & Nolan, 2019).

Staff recruitment, training, and retention is challenging (Price-Shingles & Place, 2016). ASP staff often leave for higher-wages and full-time employment. More than 50% are identified as part-time and average 3 years or less (Price-Shingles & Place, 2016). ASPs are increasingly asked to respond to culturally and linguistic diverse youth which can be challenging for staff whose demographic backgrounds differ from the participants (Affrunti et al., 2018; Simpkins & Riggs, 2014). Workforce limitations interfere with incorporating empirically supported strategies, and ultimately program success (Frazier, et al., 2019). Key elements to address these

challenges include strong leadership, coordination among multiple youth serving organizations, the effective use of data, and a comprehensive approach to quality (Smith, Roy et al., 2018).

Programming

ASP designs vary considerably, but each must operate under defined quality standards (Chittum, Jones, Akalin, & Schram, 2017; Clair & Stone, 2016). Quality ASPs are intentional in design and provide a safe environment (Helseth & Frazier, 2018). Quality programs are led by positive and caring adults who include challenging, fun, and culturally appropriate activities, seek family input, and value stakeholders. (Culp, 2015; Helseth & Frazier, 2018). Clarifying a program's design promotes rigorous quality control and helps stakeholders understand challenges and the support mechanisms required for a successful program (Baldwin et al., 2015; Ivy et al., 2018).

Quality programs reflect their community. Programming should be intentional across all factors of quality, especially in engaging families and communities (Paluta et al., 2016). Recurrent activities that reflect the local community should be incorporated (Greenberg, 2014; Simpkins et al., 2017). Multicultural education is imperative to meet the needs of English language learners and minority students and the overall success of the program (Park, 2016). Culturally appropriate activities will help keep the voices of adolescents, families, and the community at the center of programming (Simpkins et al., 2017). Multicultural education includes multimodal texts that offer alternatives to forms of knowledge typical learned at school (Park, 2016). Improving educational outcomes is of top priority for ASPs; however, after-school programmers should consider the importance of being attuned to participants' perceptions of program tasks and activities (Ivy et al., 2018; O'Hare, 2014). Such programming includes academic instruction, recreation, mentoring, health promotion, and social and emotional skill

training (Jenson et al., 2018). Out-of-school settings are rich contexts for learning because they provide opportunities for participation in personally meaningful and engaging learning activities (Davis & Singh, 2015; Jiang et al., 2019). ASPs should serve as a social context for promoting academic and socioemotional development of youth, especially those from low-income backgrounds (Mampane, 2017; Simpkins & Riggs, 2014). Programming should include service learning that gives students real-life, hands-on opportunities to examine and solve problems in their own communities (Finn-Stevenson, 2014; Klein, 2017).

Most ASPs incorporate academic instruction, but findings are mixed whether it positively affects academic achievement (Bayless et al., 2018). For instance, research indicates that interventions in ASPs improved reading outcomes for at-risk students with reading difficulties at the end of second grade (Baker et al., 2019). ASP participants demonstrated significantly better reading proficiency over time compared to peers who did not participate, providing evidence that it is possible to impact reading proficiency for high-risk students in early elementary school (Bayless et al., 2018). However, in another ASP, students who received intensive afterschool reading intervention did not outperform their peers (Roberts et al., 2018). Practitioners understand the challenges of providing systematic after-school reading interventions to low-performing students (Bayless et al., 2018) and the importance of collaborating with schools when designing them (Roberts et al., 2018).

ASPs implement science, technology, engineering, and math programming to increase participation and meet the demands of the 21st century workforce (Chittum et al., 2017). Students might be able to build greenhouses or solar panels from scratch, and older students may have a service-learning component to work on neighborhood beautification (Klein, 2017). Arts-based programming has also been beneficial to some youth as they feel valued and are

encouraged to be themselves (Chung et al., 2018). Creative youth development is an area of community arts education that bridges youth development with arts education and immerses participants in rigorous artistic endeavors (Montgomery, 2017).

ASPs can increase rigor through project-based learning, providing hands-on learning opportunities (Raffaelli, Simpkins, Tran, & Larson, 2018). Project-based programing provide opportunities to develop responsibility and increases the likelihood youth transfer the skills into school and life (Raffaelli et al., 2018). As the achievement gap between economically disadvantaged students and more economically advantaged peers widens, the need for high-quality ASPs that facilitate learning and improve academic skill is critical (Clair & Stone, 2016). It is essential that after-school activities compliment rather than just extend the learning day. An ASP is an ideal environment to make learning pathways visible, help learners gain recognition for skills and achievements, and provide educational and job-related experiences (Davis & Singh, 2015; Fredricks et al., 2014; Jiang et al., 2019).

In addition to academics, ASPs must address health and safety. The prevalence of overweight and obese children is a national public health crisis. Nearly one in three children in the United States is overweight or obese, and the number is higher among minorities (Baugh, Opalinski, Dyess, & Gropper, 2017). ASPs play a critical role in public health efforts to reduce chronic disease, and contribute to the health and well-being of millions of children who participate by helping them set and achieve physical activity goals (Kim & Lochbaum, 2017; Wiecha et al., 2018). Research indicates the importance of ASPs incorporating 30 minutes of moderate-to-vigorous physical activity daily (Beets et al., 2018). There are increasingly fewer opportunities for play and physical activity during school hours. Children engage in moderate-to-vigorous physical activity for an average of 41.6 minutes a day and only13-15 minutes is during

school hours, which emphasizes the importance of incorporating more activity in ASPs (Kim & Lochbaum, 2017; Riiser, Haugen, & Londal, 2019). SPs can interweave physical activity breaks between sedentary periods (Beets et al., 2018; Cavanagh & Meinen, 2015) and provide access to outdoor play areas (Riiser et al., 2019). Physical activity and recreation programming is important as it plays a crucial role in preventing mental illness, promotes a sense of acceptance, and reinforces confidence (Culp, 2015). According to Helseth and Frazier (2018), ASPs that implemented evidence-based practices into recreation reported reductions in problem behavior and improvement in social skills over time relative to ASPs that did not.

ASPs should strongly consider including programming that supports mental health. Appropriate structure for participants is paramount to engaging diverse school-aged children in academics and positive youth development at a critical and impressionable time in their life (Smith, Osgood et al., 2018; Smith, Witherspoon, & Osgood, 2017) Children with mental health challenges or disruptive behavior can miss learning concepts foundational to educational success; hence, ASPs need strong partnerships with mental health service providers (Plath, Croce, Crofts, & Stuart, 2016). Many ASPs partner with schools to include violence prevention programming that addresses bullying and teaches conflict resolution (Cappella et al., 2018; Staecker et al., 2015). A trauma-informed approach addresses the risks of adverse outcomes for children living in poverty (Powell & Davis, 2019). ASPs can serve as primary prevention programs by making trauma-informed interventions available (Powell & Davis, 2019). Social-emotional programming and other preventative efforts promotes the ability for staff and participants to cope better with changes in circumstances and think about problems and tasks in novel, creative ways (Smith & Bradshaw, 2017). While the U.S. Department of Education lacks

data on the effects of social-emotional programming on attendance, research suggests that programs that provide social-skill development fair better than those who do not (Ujifusa, 2017).

Programming should address alcohol and drug abuse. At-risk youth tend to live in environments rife with tobacco, alcohol, and drug use and develop a perspective that it is the norm (Draper et al., 2015; Ivy et al., 2018). Programming that develops a young person's ability to identify alcohol-related advertisements, advertisement techniques, and teaches media deconstruction skills, can significantly counteract the positive picture of cigarette and alcohol use presented in advertising (Draper et al., 2015; Ivy et al., 2018). Participants in such programming significantly increased their negative opinions about drinking and smoking and significantly decreased their opinion of cigarette and alcohol-related content in advertising (Draper et al., 2015; Ivy et al., 2018).

ASPs should also address nutrition. The United States Department of Agriculture can help meet the needs by providing funding to high-poverty areas for after-school snacks (Cho & Guthrie, 2016). Most participants fail to meet recommended intakes of dairy, fruits, and vegetables (Baugh et al., 2017). Including healthy fruits and snacks on the menu is recommended (Baugh et al., 2017). Nutritional snacks between school lunch and dinner at home promote healthy eating habits (Beets et al., 2015, 2017). Another option is the Weekend Backpack Food Assistance Program, where backpacks are loaded with essential food items to help relieve weekend hunger (Shanks & Harden, 2016). In some ASPs, healthy eating was hindered by structural barriers related to procurement and storage of perishable foods forcing providers to offer packaged less healthy alternatives (Beets et al., 2017). ASPs can partner with community organizations to offer summer meal programs. Community organizations can provide

a welcoming, stigma-free environment and are positioned to link participants to other community organizations (Bruce, De La Cruz, Moreno, & Chamberlain, 2017).

Barriers to After-School Programming

Many barriers encumber implementing and maintaining effective ASPs including funding, staffing, space, and transportation issues (Pelcher & Rajan, 2016). Other barriers are demographic differences of staff and participants, and a lack of staff professionalism and motivation (Barnes & Nolan, 2019). Furthermore, some ASPs lack the structure needed for children to enjoy the programming which impacts attendance (Jenson et al., 2018; O'Hare, 2014). ASPs do not always provide effective professional development (Ivy et al., 2018) and may experience high rates of behavior problems among participants (Park & Zhan, 2017).

Funding

Funding has increased over the years but does not meet growing needs (Pelcher & Rajan, 2016). Parents and families contribute up to half the cost while state governments, cities, businesses, charities, and donors contribute the rest (Pelcher & Rajan, 2016). Consequently, many in low-income neighborhoods cannot afford it (Pelcher & Rajan, 2016). Sustainable programs require securing grants and funding from private and public sources (Price-Shingles & Place, 2016). Strong and sustained partnerships across sectors reflect a societal commitment that all kids should have access to ASPs (Klein, 2017).

Grant applications are readily available but painstaking and require ASPs to follow stringent guidelines and engage in rigorous yearly evaluation (Klein, 2017). These include the 21st CCLC grant, funded through a federal initiative at the state level (Ujifusa, 2017). Twenty-first CCLCs have helped provide afterschool and summer learning programs since the 1990s (Farrell et al., 2019; Ujifusa, 2017). The program was danger of being eliminated by the Trump

administration, but advocates and educators worked to keep the 9,600 centers in operation, serving 1.6 million children (Klein, 2017; Ujifusa, 2017). Title I funding can also be used for ASPs but is primarily used during school, at school sites for staffing, remediation, and resources (Klein, 2017). In addition, the Child Care Development Fund, a provision of the Child Care and Block Grant, provides parent vouchers for after-school care (Barnes & Nolan, 2019).

The largest barriers to ASP sustainability are year-to-year funding, transportation costs, and the lack of community partnerships and diversified funding. To overcome the challenges, ASPs should establish mutually supportive partnerships (Joyce, Wade-Mdivanian, Anderson-Butcher, & Gibson, 2014; Price-Shingles & Place, 2016). It is important to gather baseline data of effectiveness and efficiency, development, and most importantly, funding before starting an ASP (Kostina-Ritchey, Velez-Gomez, & Dodd, 2017). In some programs, parents pay weekly or monthly fees on a sliding scale according to income (Messiah et al., 2017). Without federal, state, or local funding, some programs have found success partnering with colleges, community-based organizations, government organizations, and churches (Pelcher & Rajan, 2016; Richardson et al., 2017). Local culinary clubs, community garden clubs, buying partnerships with local grocery stores, and philanthropic groups can also help ASPs offset expense and maximize funding (Baugh et al., 2017). Partnerships with local agencies with recreation centers, community centers, libraries, and hospitals/health clinics creates additional access to resources and activities (Price-Shingles & Place, 2016). Staff with specific licenses or access to sports fields, meeting space, or technology and equipment can help offset budget constraints (Price-Shingles & Place, 2016).

Staffing

Recruiting and retaining high-quality staff is challenging and a critical component of quality ASPs (Price-Shingles & Place, 2016). Mandatory training makes recruiting staff difficult, but helps to reduce uncertainties, improves effectiveness, and increase confidence to guide participants (Cavanagh & Meinen, 2015; Richardson et al., 2017). Limited funding of most ASPs is reflected in low wages and high turnover rates and creates an over reliance on volunteers which is not conducive for staff investment in the long-term success of the program (Pelcher & Rajan, 2016). Inadequate professional development and attendee conduct such as delinquency and violent behavior impacts the quality and quantity of staff (Ivy et al., 2018; Park & Zhan, 2017). Affrunti et al (2018) reported staff in disadvantaged neighborhoods often feel overburdened which creates higher levels of stress. It is vital to bridge staff and participant differences because staff affect participants' development (Simpkins & Riggs, 2014; Smith & Bradshaw, 2017).

Staffing issues can be addressed by partnering with colleges, community-based organizations, government organizations (Pelcher & Rajan, 2016), and churches (Richardson et al., 2017). School social workers have extensive knowledge and training working with children and families and can play a key role by identifying community resources, forming collaborative partnerships, and providing professional development (Greenberg, 2014; Smith, Osgood et al., 2018). Teachers can be excellent staff for ASPs because of their training and prior investment in students (Pelcher & Rajan, 2016). They usually require higher wages but are highly capable (Baldwin et al., 2015; Barnes & Nolan, 2019). Assessments and subsequent improvement plans should involve all ASP staff to allow for buy-in and sustainability (Price-Shingles & Place, 2016). Identifying strengths and resources will help circumvent unreasonable demands on staff.

Frazier et al., (2019) recommended incremental adjustments to current practices, as opposed to big and disruptive interventions. These practices help prevent staff burnout and allow staff to stay engaged and committed to the program and the children they serve (Powell & Davis, 2019).

Space and Transportation

Space and transportation are obstacles to implementing quality ASPs, especially for non-school based programs (Pelcher & Rajan, 2016). Staff and facility costs often constitute the largest share of expenditures (Joyce et al., 2014; Powell & Davis, 2019). Public transportation is available in some areas but rarely offered in rural communities. Consequently, some ASPs are hosted at churches or other community-wide use facilities (Richardson et al., 2017). The notion that schools are unwilling to share facilities prevents some ASPs from seeking partnerships, but findings suggest most schools are willing (Kanters, et al., 2014; Pelcher & Rajan, 2016). However, some ASPs reported shared-use partnerships to be problematic and misaligned with their goals or interests (Horgan et al., 2018).

ASPs can address space and transportation issues by partnering with colleges, community-based and government organizations (Pelcher & Rajan, 2016). Also, school social workers can connect ASPs to community resources (Greenberg, 2014; Smith, Osgood et al., 2018). ASP activities at parks, swimming pools, sports fields, libraries, and cultural centers help broaden the activities offered (Price-Shingles & Place, 2016). These partnerships are indispensable as stakeholder perceptions of program quality revolves around facility and space (Paluta et al., 2016). Furthermore, ASPs that facilitate transportation and access to quality facilities through community partnerships have considerably better attendance (Affrunti et al., 2018; Finn-Stevenson, 2014).

Interest and Communication

Low-income families regularly use ASPs with quality programming, well-trained staff, accessible locations, and effective communication with stakeholders (Barnes & Nolan, 2019). While the need for ASPs is increasing, youth desire creative and engaging learning opportunities, which is a byproduct of quality and reflects the idea that youth vote with their feet (Baugh et al., 2017; Leos-Urbel, 2015). Researchers found a direct link between program activities and attendance (Chung et al., 2018; O'Hare, 2014), and a growing body of evidence suggests that well-designed, structured ASPs positively affect attendance (Jenson et al., 2018). Many factors can inhibit a youth's interest including high attendance, complicated enrollment, strict attendance policies, facility space and room resources, activities or classroom grouping, scheduling, staff activity planning and implementation, and behavior management (Ivy et al., 2018). A lack of program variety and inappropriate activities might cause parents to hesitate to enroll their children (Park & Zhan, 2017).

There are other factors that impact youth interest. The types of food and beverages can impact attendance as programs funded with federal grants (e.g., 21st CCLC) are required to comply with healthy eating standards (Beets et al., 2017). In addition, classroom ecology is a strong indicator of attendance (Bennett, 2016). General activities such as homework help, remediation, literacy, and snacks, in addition to lesson topics, and physical activities impact program participation (Cavanagh & Meinen, 2015; Chittum et al., 2017). Older youth often have competing interests and responsibilities, so their interest in ASPs continues to decline (Pelcher & Rajan, 2016). Engagement also plays an integral role in recruiting and retaining participants (Chung et al., 2018). Participants feel engaged when the program leader and peers are supportive, flexible, and work together to achieve common goals (Chung et al., 2018). Children

participate more in programs that have a positive impact on their social and emotional development (Helseth & Frazier, 2018; Kanefuji, 2015). Social-emotional development of youth starts with cross-cultural relations that fosters cultural competency (Park & Zhan, 2017). Thus, it is important to improve ASP quality to meet the educational and behavioral needs of all children in the local community (Park & Zhan, 2017).

Parents identify trust and communication as key factors for determining their satisfaction, but communication with families regarding availability, activities, and involvement opportunities is lacking in most ASPs (Barnes & Nolan, 2019). To strengthen parental trust, publicizing available resources through various communication mediums is important (Culp, 2015; Simpkins et al., 2017). Including youth in the development of marketing materials will enhance the process (Bennett, 2016). According to Price-Shingles and Place (2016), promoting programs throughout the year helps ensure students and parents are aware of them. Promotion strategies include involving school boards, PTOs/PTAs, booster clubs, and others (Price-Shingles & Place, 2016). Partnerships with colleges, community and government-based organizations (Pelcher & Rajan, 2016), and utilizing school social workers will help facilitate communication between stakeholders (Greenberg, 2014; Smith, Osgood et al., 2018). Engaging parents through common interests and involving students in community service enable often-elusive relationships between families, ASPs, and communities (Finn-Stevenson, 2014; Smith & Bradshaw, 2017). The ability to communicate with youth by understanding diverse values and lifestyles can bridge cultural and ethnic divides (Barnes & Nolan, 2019; Simpkins & Riggs, 2014).

Summary

The literature review explored various types of ASPs, key components for implementing them, and research on the impact they have on student achievement. Theoretical frameworks

provide guidance. Bloom's taxonomy is a tool for developing student-centered instructional

design in lesson plans, needs assessments, and measuring student outcomes (Ramirez, 2017).

SCT provides insight into how learning occurs as personal, behavioral, and environmental

factors are central to learning and cognition (Dooley & Schreckhise, 2016).

Rural communities have several options for after-school care. School-based ASPs utilize

school facilities, staff, curriculum, and other resources and are funded through federal grants

(Horgan et al., 2018; Sliwa et al., 2019). Community-based ASPs look different across different

rural communities, but the common thread among YMCA/YWCA, 4-H, Boys and Girls Club of

America, libraries, sports organizations, and ethnic/cultural programs is the focus on improving

outcomes (Baker et al., 2019; Park & Zhan, 2017). Other ASP options include faith-based

organizations, state or community childcare services, and clubs and programs that provide safe,

supervised environments during out of school time (Horgan, et al., 2018; Lee, Park et al., 2017).

High-quality ASPs provide participants with a nurturing environment, quality staff, and

meet student needs by incorporating appropriate programming (Affrunti et al., 2018; Murchison

et al., 2019; Raffaelli et al., 2018). High-quality ASPs are distinguishable, but there are

challenges to implementing and maintaining them. The biggest challenge is funding (Pelcher &

Rajan, 2016). Other challenges include recruiting and retaining quality staff, adequate space,

transportation, cultivating student interest, and communicating with families (Barnes & Nolan,

2019; Ivy et al., 2018; Richardson et al., 2017).

There is limited research on the impact rural ASPs have on academic achievement. This

study helps fill the gap in literature by providing school leaders and stakeholders empirical data

and may be valuable for successfully planning and implementing ASPs in rural school settings.

CHAPTER THREE: METHODS

Overview

The purpose of this quantitative, causal-comparative study was to determine if there is a difference in academic achievement between first-, second-, and third-grade students who attended a 21st CCLC after-school program and first-, second-, and third-grade students who did not attend a 21st CCLC after-school program. Chapter Three provides a review of the design, sample, instruments, procedures, and data analysis. Further, this chapter identifies the research questions, data collection procedures, and the procedures used to analyze the data. End of year (EOY) benchmark assessment data for first-, second-, and third-grade students who regularly attended 21st CCLC ASPs are compared with EOY benchmark assessment data for first-, second-, and third-grade students who did not attend 21st CCLC ASPs. SPSS software was used to analyze the data.

Design

A quantitative causal-comparative research method was used as it allows comparison of ex post facto data. This design is appropriate because categorical data (participation and non-participation in a 21st CCLC ASP) were used as independent variables and participants were compared within their preexisting groups (first, second, and third grades) on each of the dependent variables (EOY benchmark assessments in reading and math).

A causal-comparative design was appropriate for this study as it allowed for categorical groups (first-, second-, and third-grade students) formed from pre-existing characteristics of group members (participation or no participation in a 21st CCLC ASP) (Warner, 2013). The causal-comparative design also allowed the use of any type of instrument (i.e., STAR reading and STAR math EOY benchmark assessments) to compare results (Gall, Gall, & Borg, 2007).

This study was not an ex post facto design, but identification of trends and relationships was anticipated. There was no manipulation of the independent variables. Identification and study of participation in a 21st CCLC ASP and the comparison of academic achievement between participants and non-participants was the purpose of this study. The study design aligns with prior causal-comparative studies that analyzed STAR math and STAR reading scores on the dependent variable (Bell et al., 2015; Proudfoot et al., 2018; Zakharov et al., 2016).

Research Question(s)

RQ1: Is there a difference in STAR reading scores and STAR math scores between first-grade students who participate in a 21st Century Community Learning Center after-school program and those who do not when controlling for their pretest scores?

RQ2: Is there a difference in STAR reading scores and STAR math scores between second-grade students who participate in a 21st Century Community Learning Center after-school program and those who do not when controlling for their pretest scores?

RQ3: Is there a difference in STAR reading scores and STAR math scores between third-grade students who participate in a 21st Century Community Learning Center after-school program and those who do not when controlling for their pretest scores?

Hypotheses

$H_0 1$: There is no significant difference in STAR reading scores and STAR math scores between first-grade students who participate in a 21st Century Community Learning Center after-school program and those who do not when controlling for their pretest scores.

$H_0 2$: There is no significant difference in STAR reading scores and STAR math scores between second-grade students who participate in a 21st Century Community Learning Center after-school program and those who do not when controlling for their pretest scores.

$H_0 3$: There is no significant difference in STAR reading scores and STAR math scores between third-grade students who participate in a 21st Century Community Learning Center after-school program and those who do not when controlling for their pretest scores.

Participants and Setting

Sampling in a quantitative study involves the collection, analysis, and interpretation of data gathered from the population being studied (Rovai, Baker, & Ponton, 2014). Gall et al. (2007) underscored the importance of selecting a reasonably homogenous sample. With this in mind, I included first-, second-, and third-grade students who attended schools that qualified for 21st CCLC grants. These schools were funded because at least 75% of the student body received free and reduced lunch. A convenience sample was used because the participants were easily accessible to the researcher (Rovai et al., 2014). The participants were first-, second-, and third-grade students attending a school district located in the south-central region of the United States.

The school district was in a low-income rural community. The convenience sample consisted of students who attended any of three elementary schools that qualified for 21st CCLC grants. One school had an ASP while the other two did not. The population was divided into two groups: participants with at least 60% percent attendance, as this meets full-time requirements at the elementary school with a 21st CCLC ASP, and participants who attended the two other elementary schools that qualified for 21st CCLC funding but did not have an ASP during the 2018-2019 school year.

A sample of 1063 participants was included, which exceeded the required minimum for a medium effect size. According to Warner (2013), 80 students is the required minimum per grade to analyze the six groups and to assume a medium effect size with a statistical power of .7 at the .05 alpha level. To ensure an adequate sample size, 47 first graders, 46 second graders, and 50

third graders were included from the school with a 21st CCLC ASP and 324 first graders, 314

second graders, and 281 third graders included from the elementary schools that did not have a

21st CCLC ASP (Table 2). The sample included 72 males and 70 females from the elementary

school with a CCLC ASP and 463 males and 457 females from the elementary schools without a

21st CCLC ASP. The ethnicity data of the sample at the school with a 21st CCLC ASP included

38 White, 9 Black, 34 Native American, 41 Pacific Islander, and 21 Hispanic students while the

schools without a 21st CCLC program included 475 White, 22 Black, 352 Native Americans, 9

Pacific Islander, 14 Asian, and 47 Hispanic students (Table 1).

Table 1

Participant – Demographic Information

Variable	n	%
Gender		
Female	527	49.62
Male	535	50.38
Race		
Hispanic	68	6.40
Black	31	2.92
Native American	386	36.35
Pacific Islander	50	4.71
White	513	48.31
Asian	14	1.32

Table 2

Sample Characteristics

Variable	n	%
Group		
ASP	143	13.47
Non-ASP	919	86.53
Grade		
1	371	34.93
2	360	33.90
3	331	31.17

Instrumentation

Gall et al. (2007) pointed out that virtually any type of instrument can be used in causal-comparative research. I used data from the Peoria School District's benchmark assessments for first-, second-, and third-grade students. The benchmark assessments, STAR reading and STAR math tests, are computer-adaptive tests (CATs) which are standards-based assessments measuring student performance in those core subjects (Renaissance Learning Inc., 2013). First-, second-, and third-grade students in the Peoria School District are administered the benchmark assessments (i.e., STAR reading and STAR math) at the beginning of the school year and at the end of each quarter. STAR reading and STAR math assessments have also been used as an instrument in other studies (Luo, Lee, & Molina, 2017; Shapiro Dennis, & Fu, 2015).

CATs adjust the difficulty of each benchmark assessment by selecting each test item based on the student's previous response (Renaissance Learning Inc., 2013). CATs shorten testing time as well as spare students the frustration of items that are too difficult and the

boredom of items that are too easy (Renaissance Learning Inc., 2013). A well-designed CAT is often two or more times as efficient as conventional tests and studies show they are reliable and valid (Mardberg & Carlstedt, 1998; Moreno & Segall, 1997; Weiss, 2004). Furthermore, recent research suggests that CATs are a sound choice for monitoring student performance (Larrain, Navarro, Buraschi, Torres, & Munoz, 2018; Van Norman, Nelson, & Parker, 2017). STAR assessments are designed to help teachers assess students quickly, accurately, and efficiently (Renaissance Learning Inc., 2013). STAR assessments instantly provide teachers with reliable and valid data so that they can target instruction, monitor progress, provide the most appropriate instructional materials, and intervene with at-risk students (Renaissance Learning Inc., 2013). Administrators use real-time data from STAR to make decisions about curriculum, assessment, and instruction at the classroom, school, and district levels (Renaissance Learning Inc., 2013).

STAR Reading Assessment

The STAR reading assessment was developed over 30 years ago to develop reading skills and guide instruction (Renaissance Learning Inc., 2013). It is a challenging, interactive, and brief (about 15 minutes) assessment that consists of 34 questions (Renaissance Learning Inc., 2013). The assessment evaluates a breadth of reading skills at grade-appropriate levels with an item bank size of more than 5,000 (Renaissance Learning Inc., 2013). STAR reading assessments serve three main purposes for schools: (a) give quick and accurate estimates of reading levels, (b) assess reading achievement relative to national norms, and (c) provide a means to monitor growth for all students (Renaissance Learning Inc., 2013). Renaissance Learning, which produces the STAR reading assessments, has conducted extensive research and consulted extensively with reading and assessment experts to arrive at the skills most appropriate for assessing reading development (Renaissance Learning Inc., 2013). The instrument was used

in numerous studies (e.g., Holmes, Brown, & Algozzine, 2006; Nunnery & Ross, 2007; Samuels & Wu, 2003; Shannon, Styers, Wilkerson, & Peery, 2015; Topping & Sanders, 2000)

The reliability of the STAR reading assessment was estimated using internal consistency, and test-retest correlation coefficients for a nationally representative sample of more than 1.2 million STAR reading assessments administered between September 2012 and June 2013 (Renaissance Learning Inc., 2013). Retest correlation coefficients were based on samples of 5,000 students per grade for the same dataset (Renaissance Learning Inc., 2013). The internal consistency reliability estimates were very high, equaling or exceeding those of most major published assessments (Renaissance Learning Inc., 2013). Across grade levels, the reliability was 0.97; it ranged from 0.93 to 0.95 within grades (Renaissance Learning Inc., 2013). Retest reliability estimates were 0.90 for all grades combined (Renaissance Learning Inc., 2013). Gall et al. (2007) pointed out that tests that yield scores with a reliability of .80 or higher are sufficiently reliable for most research purposes.

To address validity, Renaissance Learning collected a wide range of correlations between scores on STAR Reading and other recognized, established measures of different aspects of reading achievement (e.g., survey achievement tests, diagnostic reading measures, and state accountability tests, among others) (Renaissance Learning Inc., 2013). STAR reading assessments typically take forty-five minutes to one hour to complete and STAR math assessments typically take thirty to forty-five minutes to complete (Renaissance Learning Inc., 2013). There are more than 400 concurrent and predictive validity studies conducted for STAR Reading, involving a total of more than 1 million students (Renaissance Learning Inc., 2013). The average correlations observed in these studies ($\alpha = .87$) indicates a strong correlation (Renaissance Learning Inc., 2013).

The STAR reading assessment generates numerous scores, but for this study the scaled score was used. The scaled score is useful for comparing student performance over time and the same range is used for all students to compare performance across grade levels (Renaissance Learning Inc., 2013). Any scaled score increase indicates that a student has experienced growth (Renaissance Learning Inc., 2013). Scaled scores range from 0-1400 on the STAR reading and STAR math assessments (Renaissance Learning Inc., 2013).

STAR Math Assessment

The STAR Math assessment was developed over 30 years ago to provide a skill-based assessment of math achievement (Renaissance Learning Inc., 2013). The STAR Math assessment is a challenging, interactive, and brief (about 20 minutes) assessment consisting of 34 items. The assessment evaluates students 'mathematical abilities at grade-appropriate levels with an item bank of more than 5,000 (Renaissance Learning Inc., 2013). STAR math assessments provide a reliable and valid method for measuring student progress toward achievable goals and can be used for a variety of purposes, including screening, formative assessment, progress monitoring, calculating growth, and outcomes assessment (Renaissance Learning Inc., 2013). By using the assessment quarterly or monthly, teachers can monitor progress and make appropriate adjustments to instruction (Renaissance Learning Inc., 2013). Other researchers have used the STAR math assessment in their studies (Holmes et al., 2006; Lambert, Algozzine, & McGee, 2014; Spicuzza et al., 2001; Van Norman et al., 2017; Ysseldyke, Betts, Thill, & Hannigan, 2004; Ysseldyke & Bolt, 2007).

The reliability of the STAR math assessment was estimated using internal consistency and test-retest correlation coefficients, in a national sample of more than 9 million STAR math assessments administered between September 2012 and June 2013 (Renaissance Learning Inc.,

2013). Retest correlation coefficients were based on samples of 5,000 students per grade, for the same dataset (Renaissance Learning Inc., 2013). The internal consistency reliability estimates were very high, equaling or exceeding most major published assessments, across combined grades the reliability was 0.97, and it ranged from 0.90 to 0.95 within grades (Renaissance Learning Inc., 2013). Retest reliability estimates were 0.93 for all grades combined and ranged from 0.76 to 0.84 within grades (Renaissance Learning Inc., 2013). Gall et al. (2007) concluded that tests yielding scores with a reliability of .80 or higher were reliable for most research purposes.

To address the validity of the STAR Math Enterprise, Renaissance Learning Inc. (2013) collected a wide range of correlations between scores on STAR math and scores on other established measures of different aspects of mathematic achievement, such as survey achievement tests, diagnostic measures, and state accountability tests. There were more than 400 concurrent and predictive studies that included more than 400,000 students in these studies (Renaissance Learning Inc., 2013). The average correlation ($\alpha = .80$) indicates a strong correlation (Renaissance Learning Inc., 2013).

The STAR math assessment generates numerous scores, but for this study the scaled score was used. The scaled score is useful for comparing student performance over time and the same range is used for all students, to compare performance across grade levels (Renaissance Learning Inc., 2013). Any scaled score increase indicates that a student has experienced growth (Renaissance Learning Inc., 2013). Scaled scores range from 0-1400 on both the STAR reading and STAR math assessments (Renaissance Learning Inc., 2013).

Procedures

Permission was requested from and granted by the Peoria Board of Education to conduct the study. Approval to conduct the study was granted by the Liberty University Institutional Review Board (IRB). After receiving IRB approval, study details were explained to the principals of the three elementary schools to gain approval. Upon approval, I requested the necessary data including beginning and end of year STAR reading and STAR math benchmark assessments for first-, second-, and third-grade students and after-school attendance data for the 2018-2019 school year, from the district's director of student information. The principal at each school was asked to eliminate personally identifiable information in the data to protect the identities of students and teachers. Each student was assigned a unique identifying number, which is only available to site administrators and me. Collected data are stored and locked in the vault at the Peoria School District's central office. The Peoria School District's central office record clerk and I kept a record of data that were checked out, signed for, and returned, with a signed receipt.

Students were placed into groups based on the elementary school they attended, grade level, and whether they attended the ASP 60% of the time according to attendance records. For students to be counted as present, they had to be in attendance for at least 75% of the program's operational hours. Students were placed in groups based on participation status and grade level. Participant gender and ethnicity data were collected for descriptive statistics only. STAR reading and STAR math benchmark assessments are given to subjects five times a year. Students are assessed in key reading and math skills to determine their preparedness for state exams and to provide teachers with key data to determine if students are on track according to the standards for each grade level. For this study, data were compared from the beginning of the

year STAR math and STAR reading assessment and the fifth and final STAR reading and STAR math assessment for the 2018-2019 school year. The STAR math assessment generates numerous scores, but the scaled score was used for this study. The scaled score is useful for comparing student performance over time and the same range is used for all students to compare performance across grade levels (Renaissance Learning Inc., 2013).

Data Analysis

Data were analyzed through multiple MANCOVA tests, $p<.05$. Rovai et al. (2014) pointed out that MANCOVAs are used to determine if multiple dependent variables (DVs) are influenced by the categorical groups of the independent variables (IVs) (participation or no participation is an ASP). Therefore, for this study, a MANCOVA was used to determine if there was a difference in STAR reading and STAR math scores between the groups (participants and non-participants) for each grade level (Table 1). Each participant had a score on the dependent variables and by using a MANCOVA it was possible to determine if there was a statistically significant difference between the groups (Gall et al., 2007). Beginning-of-year (BOY) scores served as the covariate.

The information was processed through SPSS using one MANCOVA per research question. The independent variable was participation in a 21st CCLC ASP. The dependent variables were student outcomes on STAR Reading and STAR Math assessments (as measured by score on EOY exams and by grade level). BOY assessments served as the covariates. As per Green and Salkind (2013), reporting included the following tests.

Data Screening and Assumption Tests

The data set was visually screened for missing and inaccurate entries. I created and examined box-and-whisker plots of the dependent variables for each group of independent

variables looking for extreme outliers. Next, Kolmogorov-Smirnov tests were run to determine if the assumption of normality was tenable for each dependent variable. The assumption of multivariate normal distribution was evaluated by plotting each pair of dependent variables and looking for a linear relationship between each pair. If variables are not linearly related, the power of the test is reduced. The assumption was evaluated by a visual inspection of a scatterplot matrix for each group of the independent variables. The assumption of linearity was assessed by examination of a series of scatter plots between the pre-test variable (covariate) and post-test variable for each group for each dependent variable. The assumption of homogeneity of slopes was examined using these same scatterplots to check for interactions. If there are no interactions, then the assumption is tenable since the slopes are the same. Finally, the assumption of homogeneity of variance-covariance matrices were evaluated using Box's M test of equality of covariance. Levene's test of homogeneity of variance was used to determine if results were tenable (Box's M $p < .05$).

Since 3 MANCOVAs were applied, the alpha level was not set at the usual $p < .05$. A Bonferroni correction was used to guard against type I error and lower the alpha level. The corrected alpha level was determined by dividing the usual alpha level (.05) by the number of statistical analyses run (Warner, 2103). Therefore, .05 / 3 = .017. The alpha level was set at $p < .017$ and the effect size was reported using partial eta squared η^2.

CHAPTER FOUR: FINDINGS

Overview

The purpose of this quantitative, causal-comparative study was to determine if there is a

difference in academic achievement between first-, second-, and third-grade students who

attended a 21st CCLC after-school program and first-, second-, and third-grade students who did

not attend a 21st CCLC after-school program. Chapter Four comprises the results of the analyses

addressing the research questions. First, the research questions and hypotheses are restated, then,

descriptive statistics of the sample are presented and lastly, the results pertaining to each

hypothesis are presented.

Research Question(s)

RQ1: Is there a difference in STAR reading scores and STAR math scores between first-

grade students who participate in a 21st Century Community Learning Center after-school

program and those who do not when controlling for their pretest scores?

RQ2: Is there a difference in STAR reading scores and STAR math scores between

second-grade students who participate in a 21st Century Community Learning Center after-

school program and those who do not when controlling for their pretest scores?

RQ3: Is there a difference in STAR reading scores and STAR math scores between third-

grade students who participate in a 21st Century Community Learning Center after-school

program and those who do not when controlling for their pretest scores?

Null Hypotheses

$H_0 1$: There is no significant difference in STAR reading scores and STAR math scores

between first-grade students who participate in a 21st Century Community Learning Center

after-school program and those who do not when controlling for their pretest scores.

H_02: There is no significant difference in STAR reading scores and STAR math scores between second-grade students who participate in a 21st Century Community Learning Center after-school program and those who do not when controlling for their pretest scores.

H_03: There is no significant difference in STAR reading scores and STAR math scores between third-grade students who participate in a 21st Century Community Learning Center after-school program and those who do not when controlling for their pretest scores.

Descriptive Statistics

Means and standard deviations for the reading and math scores by grade and ASP participation are presented in Table 3. Generally, scores increased from BOY to the EOY for all grade levels and groups.

Table 3

Means and Standard Deviations for Reading and Math Scores by Grade and After-School Program Participation

Grade	Group	BOY Reading		EOY Reading		BOY Math		EOY Math	
		M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
1	ASP	90.17	60.07	216.60	121.61	302.85	86.37	405.53	80.89
	Non-ASP	83.30	50.86	185.87	111.88	269.17	89.29	393.40	84.06
2	ASP	202.91	150.12	310.35	136.29	367.78	95.41	474.20	80.64
	Non-ASP	194.41	112.78	327.44	131.30	384.76	87.60	491.45	92.42
3	ASP	317.48	125.07	458.94	133.52	500.00	66.86	593.12	81.67
	Non-ASP	325.32	130.74	437.10	138.06	479.69	93.61	570.85	81.26

Results

Hypothesis 1

To address Hypothesis 1, a MANCOVA was conducted on the first-grade data. In this analysis, the dependent variables were the end-of-year (EOY) reading and EOY math scores. The independent variable was ASP participation (ASP vs. non-ASP). The covariates included in the analysis were the BOY reading and BOY math scores. The results were evaluated for statistical significance using a Bonferroni-corrected alpha level of .017.

The data were screened and the assumptions of MANCOVA were tested prior to analysis. There were no missing values, and data entry errors were identified and corrected. Minimum and maximum values were applied. A total of nine entries fell outside of the minimum and maximum values. Scores outside the values were reviewed. Seven errors were identified as key stroke errors (and corrected). I was unable to resolve two of the data errors, and they were deleted. Box plots were examined (see Appendix A) and no extreme outliers were discovered. Univariate normality was assessed using Kolmogorov-Smirnov tests. The tests were significant for EOY reading scores in the ASP ($p = .010$) and Non-ASP groups ($p < .001$), and EOY math scores in the Non-ASP group ($p < .001$), indicating that the variables were not normally distributed. Multivariate normality was assessed by examination of a Q-Q plot of Mahalanobis distances (see Appendix B), which showed deviation from the normal (diagonal) line. Linearity was assessed by examination of scatterplots (see Appendix C). The scatterplots showed that the relationships between the variables were approximately linear. Homogeneity of regression slopes was assessed by testing the MANCOVA with the inclusion of interaction effects between each independent variable and covariate. The inclusion of the interactions did not explain significantly more variance than the no-interaction model, $F(4, 730) = 1.08$, $p = .363$,

indicating that the assumption of homogeneity of regression slopes was met. Homogeneity of variance was assessed using Box's M test; the test was not significant at the .001 level ($p = .124$), indicating that the assumption of homogeneity of variance was met.

The results of the MANCOVA are presented in Table 4. The multivariate effect of ASP participation was not significant at an alpha level of .017, $F(2, 366) = 1.40$, $p = .247$, indicating that there were no differences between ASP and non-ASP students in their EOY reading and EOY math scores after controlling for BOY reading and BOY math scores. Because the assumption of normality was violated, non-parametric tests were conducted to corroborate the results. Specifically, Mann-Whitney U tests were conducted to compare the ASP and non-ASP students on the change scores for reading (i.e., EOY reading score minus BOY reading score) and math (i.e., EOY math score minus BOY math score). The results were not significant at an alpha level of .017 for reading, $z = -2.13$, $p = .033$, or for math, $z = -2.11$, $p = .034$, indicating that changes in reading and math scores did not significantly differ based on ASP participation. The null hypothesis was not rejected.

Table 4

MANCOVA Results for First Grade

Effect	Pillai	F	df	Error df	p	η_p^2
After-School Participation	0.01	1.40	2	366	.247	0.01
BOY Reading	0.26	63.78	2	366	< .001	0.26
BOY Math	0.40	124.37	2	366	< .001	0.40

Hypothesis 2

To address Hypothesis 2, a MANCOVA was conducted on the second-grade data. In this analysis, the dependent variables were the EOY reading and EOY math scores. The independent

variable was ASP participation (ASP vs. non-ASP). The covariates included in the analysis were the BOY reading and BOY math scores. The results were evaluated for statistical significance using a Bonferroni-corrected alpha level of .017.

The data were screened and the assumptions of MANCOVA were tested prior to the analysis. There were no missing values, and data entry errors were identified and corrected. Box plots were examined (see Appendix A) and no extreme outliers were discovered. Univariate normality was assessed using Kolmogorov-Smirnov tests. The test was significant for EOY math scores in the non-ASP group ($p = .001$), indicating that this variable was not normally distributed. Multivariate normality was assessed by examination of a Q-Q plot of Mahalanobis distances (see Appendix B), which showed little deviation from the normal (diagonal) line. Linearity was assessed by examination of scatterplots (see Appendix C). The scatterplots showed that the relationships between the variables were approximately linear. Homogeneity of regression slopes was assessed by testing the MANCOVA with the inclusion of interaction effects between each independent variable and covariate. The inclusion of the interaction explained significantly more variance than the no-interaction model, $F(4, 708) = 2.64$, $p = .033$, indicating that the assumption of homogeneity of regression slopes was not met. Because this assumption was not met, the model including the interaction terms was interpreted. Homogeneity of variance was assessed using Box's M test. The test was not significant at the .001 level ($p = .174$), indicating that the assumption of homogeneity of variance was met.

The results of the MANCOVA are presented in Table 5. The multivariate effect of ASP participation was not significant at an alpha level of .017, $F(2, 353) = 2.75$, $p = .065$, indicating that there were no differences between ASP and non-ASP students in their EOY reading and EOY math scores after controlling for BOY reading and BOY math scores. Because the

assumption of normality was violated, Mann-Whitney U tests were conducted to corroborate the results by comparing the ASP and non-ASP students on the change scores for reading and math. The results were not significant at an alpha level of .017 for reading, $z = -1.81$, $p = .070$, or for math, $z = -0.18$, $p = .855$, indicating that changes in reading and math scores did not significantly differ based on ASP participation. The null hypothesis was not rejected.

Table 5

MANCOVA Results for Second Grade

Effect	Pillai	F	df	Error df	p	η_p^2
After-School Participation	0.02	2.753	2	353	.065	0.02
BOY Reading	0.35	93.343	2	353	< .001	0.35
BOY Math	0.24	56.582	2	353	< .001	0.24
ASP x BOY Reading	0.02	2.790	2	353	.063	0.02
ASP x BOY Math	0.02	4.103	2	353	.017	0.02

Hypothesis 3

To address Hypothesis 3, a MANCOVA was conducted on the third-grade data. In this analysis, the dependent variables were the EOY reading and EOY math scores. The independent variable was after-school program participation (ASP vs. non-ASP). The covariates included in the analysis were the BOY reading and BOY math scores. The results were evaluated for statistical significance using a Bonferroni-corrected alpha level of .017.

The data were screened and the assumptions of MANCOVA were tested prior to the analysis. There were no missing values, and data entry errors were identified and corrected. Box plots were examined (see Appendix A) and no extreme outliers were discovered. Univariate normality was assessed using Kolmogorov-Smirnov tests. The test was significant for EOY

math scores in the non-ASP group ($p = .040$), indicating that this variable was not normally

distributed. Multivariate normality was assessed by examination of a Q-Q plot of Mahalanobis

distances (see Appendix B), which showed deviation from the normal (diagonal) line. Linearity

was assessed by examination of scatterplots (see Appendix C). The scatterplots showed that the

relationships between the variables were approximately linear. Homogeneity of regression

slopes was assessed by testing the MANCOVA with the inclusion of interaction effects between

each independent variable and covariate. The inclusion of the interactions did not explain

significantly more variance than the no-interaction model, $F(4, 650) = 0.61$, $p = .654$, indicating

that the assumption of homogeneity of regression slopes was met. Homogeneity of variance was

assessed using Box's M test; the test was not significant at the .001 level ($p = .737$), indicating

that the assumption of homogeneity of variance was met.

The results of the MANCOVA are presented in Table 6. The multivariate effect of ASP

participation was not significant at an alpha level of .017, $F(2, 326) = 1.85$, $p = .159$, indicating

that there were no differences between ASP and non-ASP students in EOY reading and EOY

math scores after controlling for BOY reading and BOY math scores. Because the assumption of

normality was violated, Mann-Whitney U tests were conducted to corroborate the results by

comparing the ASP and non-ASP students on the change scores for reading and math. The

results were not significant at an alpha level of .017 for reading, $z = -2.30$, $p = .021$, or for math,

$z = -0.23$, $p = .820$, indicating that changes in reading and math scores did not significantly differ

based on ASP participation. The null hypothesis was not rejected.

Table 6

MANCOVA Results for Third Grade

Effect	Pillai	*F*	*df*	Error *df*	*p*	η_p^2
After-School Participation	0.01	1.85	2	326	.159	0.01
BOY Reading	0.51	171.49	2	326	< .001	0.51
BOY Math	0.44	127.63	2	326	< .001	0.44

CHAPTER FIVE: CONCLUSIONS

Overview

The purpose of this quantitative, causal-comparative study was to determine if there is a difference in academic achievement between first-, second-, and third-grade students who attended a 21st CCLC after-school program and first-, second-, and third-grade students who did not attend a 21st CCLC after-school program. The problem was that research had not fully addressed academic achievement across multiple grades for students attending ASPs in rural school settings (Baker et al., 2019). Differences in academic achievement between the two groups as well as the current body of knowledge of the impact ASPs have on student achievement were examined. In the following chapter the findings, implications, and limitations of the study are detailed. The chapter concludes with recommendations for future research.

Discussion

Twenty-first CCLC programs target low performing school with a high percentage of students from economically disadvantaged backgrounds (Leos-Urbel, 2015) and is grant funded to support and encourage ASPs to collaborate with parents, the community, and increase their involvement in children's education (Barnes & Nolan, 2019). Academic achievement was defined as, and measured by, STAR reading and STAR math assessments. STAR reading and STAR math assessments are standards-based and measure student progress in key reading and mathematical abilities (Renaissance Learning Inc., 2013). A rural school district is a census defined territory more than 25 miles from an urban area and more than 10 miles from an urban cluster (National Center, 2019).

Academic achievement was measured using BOY and EOY benchmark assessment data, including the scaled scores of STAR reading and STAR math assessments. Students taking

STAR reading and STAR math assessments were analyzed in three sets (first-, second-, and third-grade students) against those who regularly attended a 21st CCLC ASP and those who did not attend a 21st CCLC ASP. A total of 1062 students (371 first grade, 360 second grade, and 331 third grade) were in the sample, with 143 of those students participating in the ASP. Analysis of the data and the results for each research question follows.

Research Question One

Is there a significant difference in STAR reading scores and STAR math scores between first-grade students who participate in a 21st Century Community Learning Center after-school program and those who do not when controlling for their pretest scores?

Null Hypothesis One

There was no significant difference in STAR reading scores and STAR math scores between first-grade students who participate in a 21st Century Community Learning Center after-school program and those who do not when controlling for their pretest scores.

Research Question Two

Is there a difference in STAR reading scores and STAR math scores between second-grade students who participate in a 21st Century Community Learning Center after-school program and those who do not when controlling for their pretest scores?

Null Hypothesis Two

There was no significant difference in STAR reading scores and STAR math scores between second-grade students who participate in a 21st Century Community Learning Center after-school program and those who do not when controlling for their pretest scores.

Research Question Three

Is there a difference in STAR reading scores and STAR math scores between third-grade students who participate in a 21st Century Community Learning Center after-school program and those who do not when controlling for their pretest scores?

Null Hypothesis Three

There was no significant difference in STAR reading scores and STAR math scores between third-grade students who participate in a 21st Century Community Learning Center after-school program and those who do not when controlling for their pretest scores.

Comparison of Findings

No significant difference in the academic achievement of third-graders between participants and non-participants in the ASP across the grade levels analyzed were found. Previous research differed on the impact participation in an ASP has on academic achievement. Bayless et al. (2018) and Clair and Stone (2016) identified significant differences in the academic achievement of students who participated in an ASP when compared to their non-participating peers, while Baker et al. (2019) and Roberts et al. (2018) found no statistical difference in the academic achievement of ASP participants compared to non-participants.

This study differed from previous studies as it investigated STAR reading and STAR math scores of ASP participants and non-participants in first-, second-, and third-grades. Bayless et al. (2018) and Clair and Stone (2016) similarly analyzed the academic achievement of kindergarteners to third-graders in reading. Baker et al. (2019) investigated the reading achievement of third-graders, and Roberts et al. (2018) analyzed the reading achievement of third to fifth graders.

This was the only study that analyzed participants in a rural school setting. Previously,

Baker et al. (2019), Bayless et al. (2018), Clair and Stone, (2016), and Roberts et al. (2018)

analyzed the academic achievement of participants attending ASPs in an urban area or urban

cluster. Further research is needed to better identify the impact regular participation in a rural

ASP has on academic achievement.

Implications

Although no statistical difference between the groups was identified, there are

implications for building on the existing body of knowledge. Federal and state guidelines have

compelled ASPs, such as 21st CCLCs to focus on improving academic skills, and social-

emotional outcomes (Baker et al., 2019). Although this study did not find a significant

difference in the academic achievement between ASP participants and non-participants, the

quality of the ASP staff plays a significant role in attendance and academic growth. Bloom's

framework can serve as a tool to help ASP staff develop an effective and student-centered

instructional program designed to improve academic achievement of participants (Ramirez,

2017). By following this framework, ASP staff have a sequence of educational objectives to

help develop lesson plans, conduct needs assessments, and measure learning outcomes. If ASP

staff have a clear understanding of how Bloom's taxonomy works and facilitates its use,

participants will experience improved instruction and a better grasp of instructional units.

Addressing academic skills includes addressing social-emotional needs. Disregarding

social-emotional skills can negatively impact participation and academic outcomes. Park and

Zhan (2017) used Bandura's SCT to predict how a school's level of academic emphasis would

affect academic achievement. SCT provided insight into how social-cognitive factors shape

individual and group perceptions and behavior. If ASP staff embrace and understand SCT,

participants are more likely to experience academic growth (Dooley & Schreckhise, 2016).

The quality of staff is a key component for facilitating structured, safe, and supervised settings tailored to the learning and development of participants (Barnes & Nolan, 2019; Park et al., 2015). However, most programs struggle to meet these aims because of the lack of program structure and limited training and support for staff. Farrell et al. (2019) found that extensive professional development and follow-up support is necessary for change and promotes investment among staff. For ASPs to deliver high-quality and structured programs, staff training and coaching is essential (Smith, Osgood et al., 2018).

Limitations

This study is subject to several limitations. First, a casual-comparative design is not truly experimental due to the researcher's inability to gather a true random sample. Second, a convenience sample was used due to the ease of access to the target population. The use of a convenience sample did not allow generalizing the findings to the broader population. Third, ex post facto data were used. Fourth, the researcher had no control over the variables and thus could not manipulate them.

Recommendations for Future Research

Based on the findings, further research is recommended regarding participation and non-participation in ASPs and academic achievement, including:

1. A quantitative study using a random sample from a larger population of participants in multiple school-based ASPs.

2. A longitudinal study comparing ASP participants and non-participants over multiple years.

3. A causal-comparative study utilizing a testing instrument other than the STAR reading and STAR math assessments. A different instrument would provide additional data from which researchers could draw conclusions.

4. A true experimental design to observe the effects of full participation, partial participation, and no participation in an ASP has on academic achievement.

5. A mixed methods study analyzing ASP participation, academic achievement, and staff training and experience, providing additional information for researchers.

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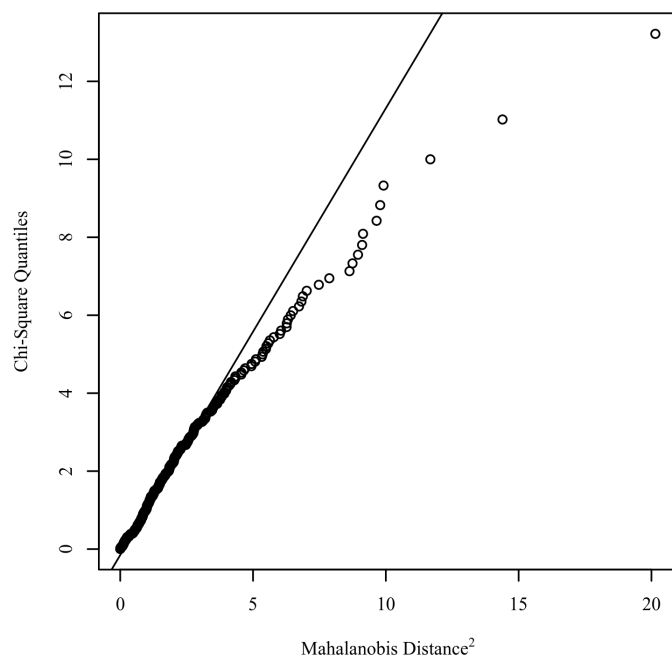# APPENDICES

Appendix A

Boxplots

Grade: 3

Grade: 1
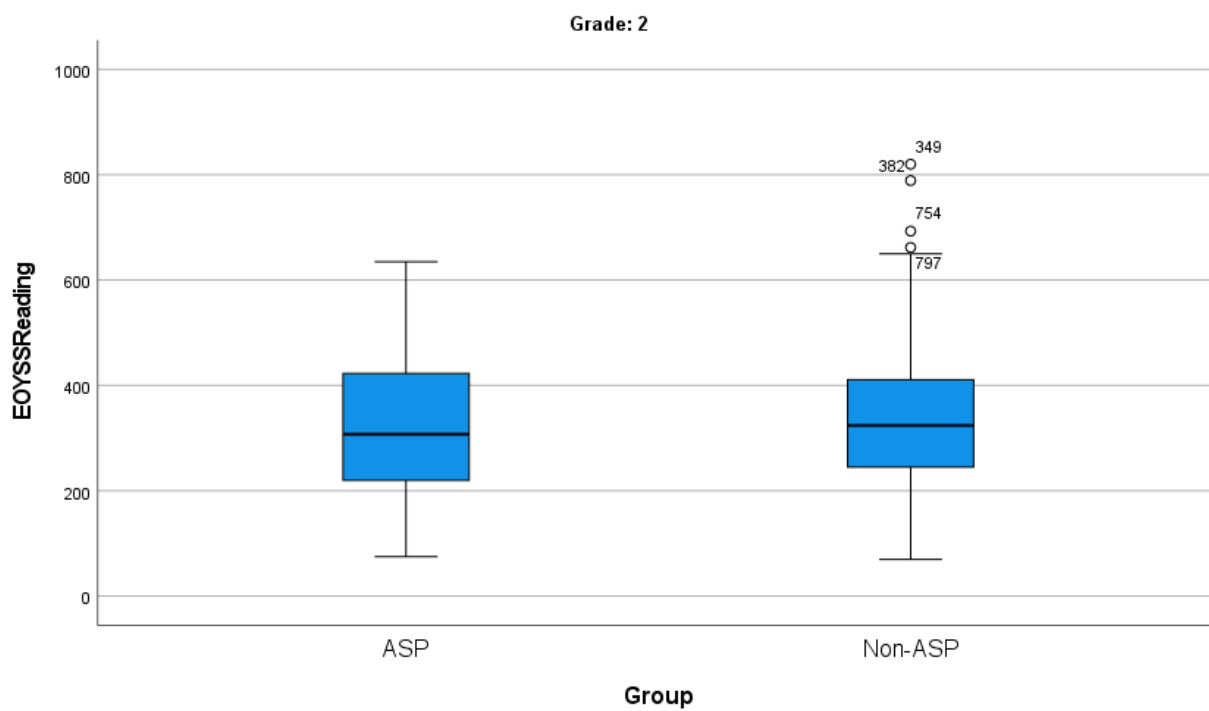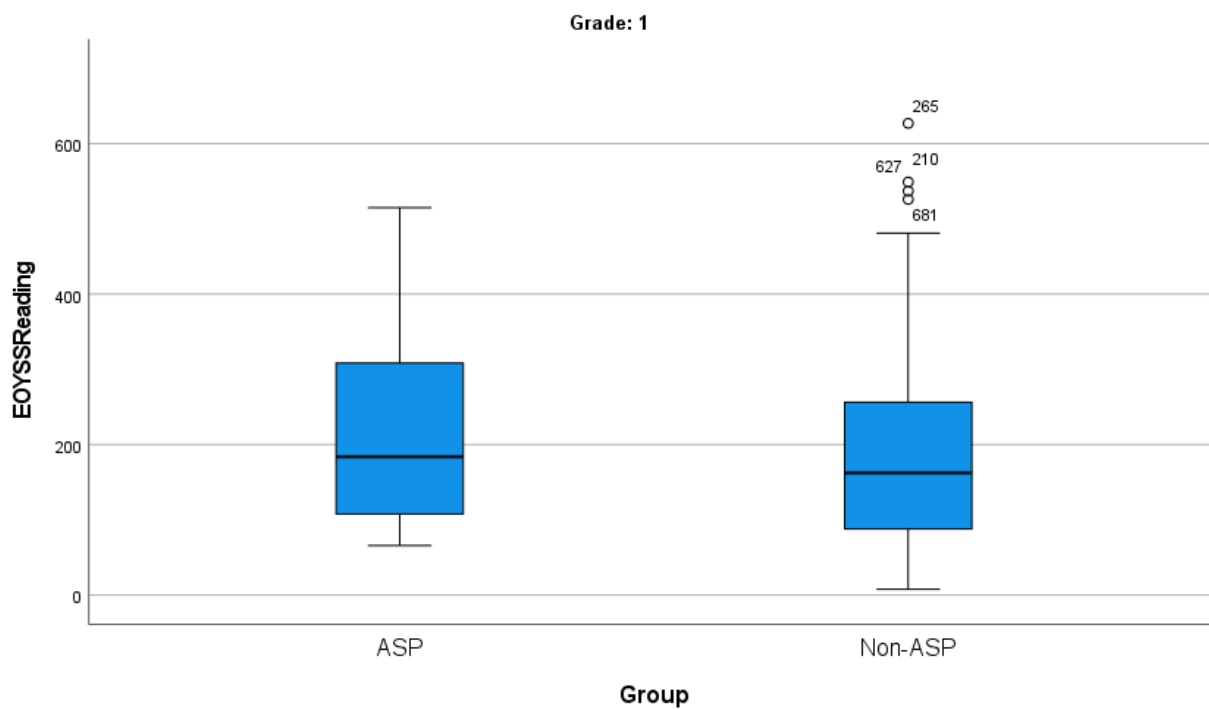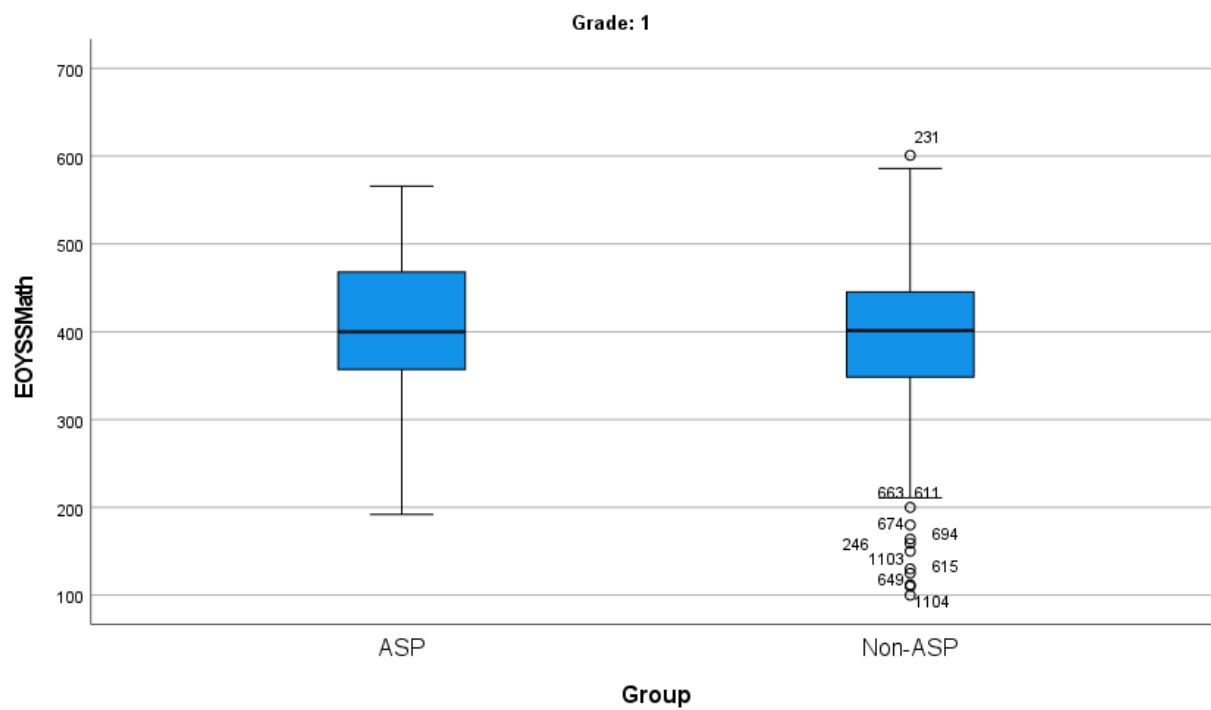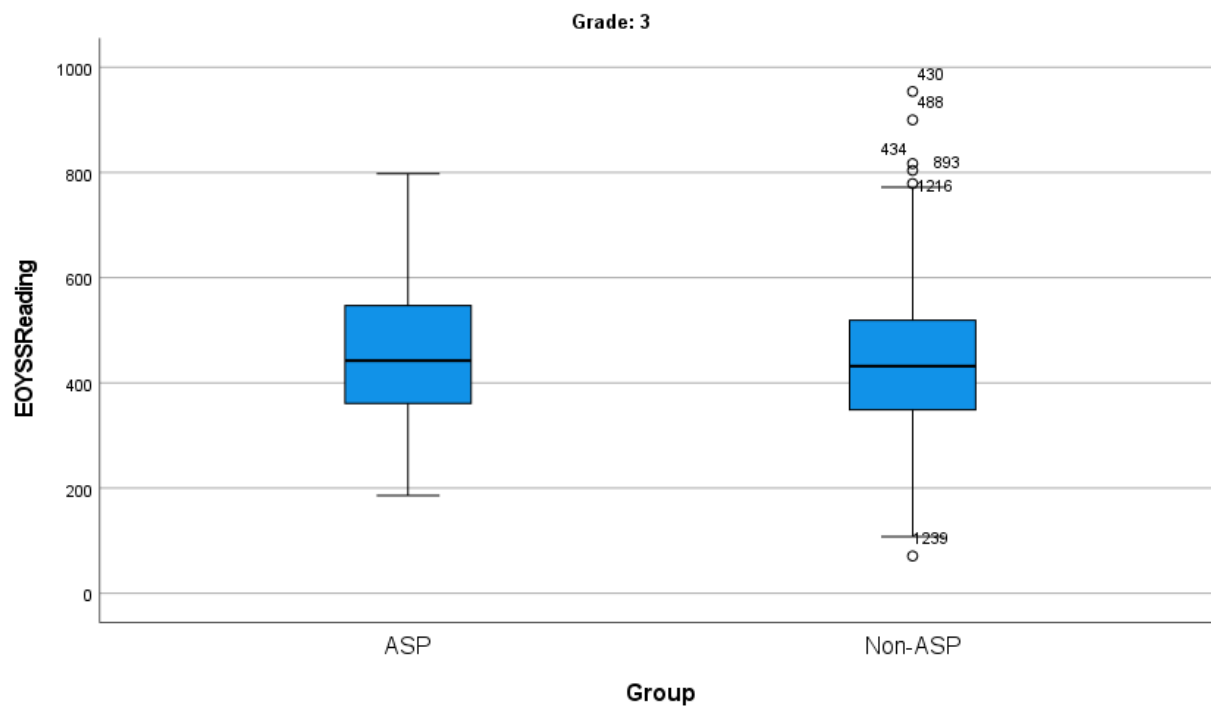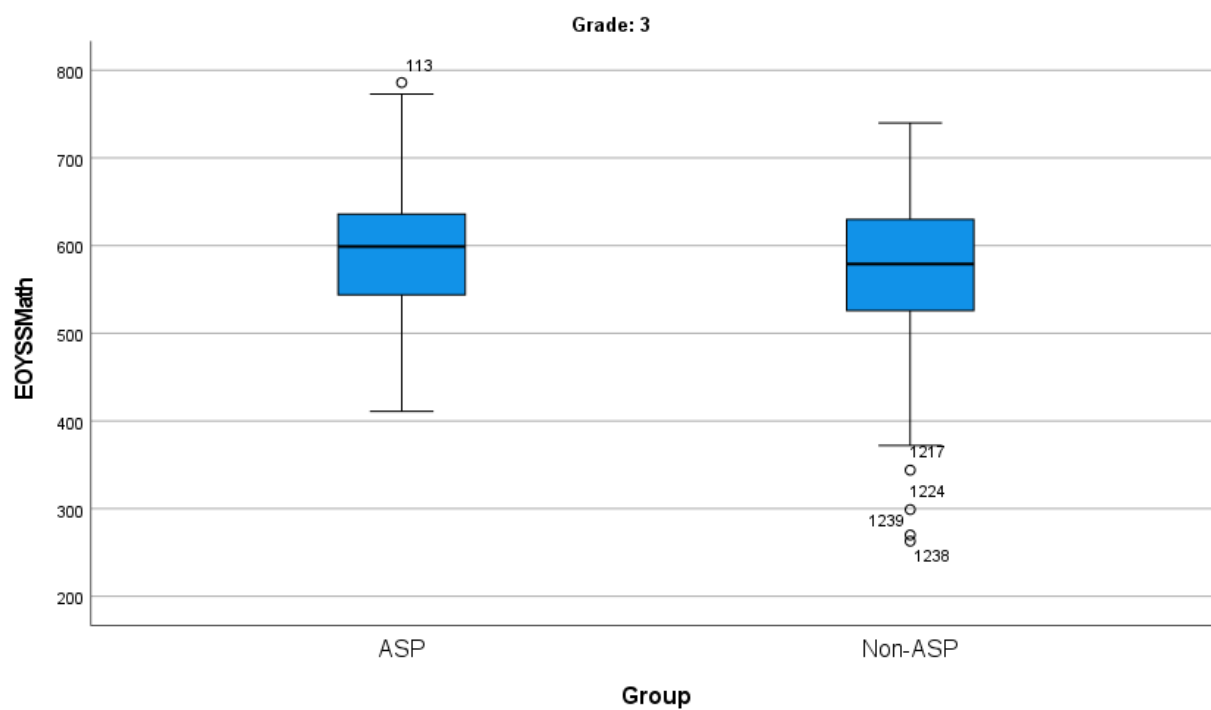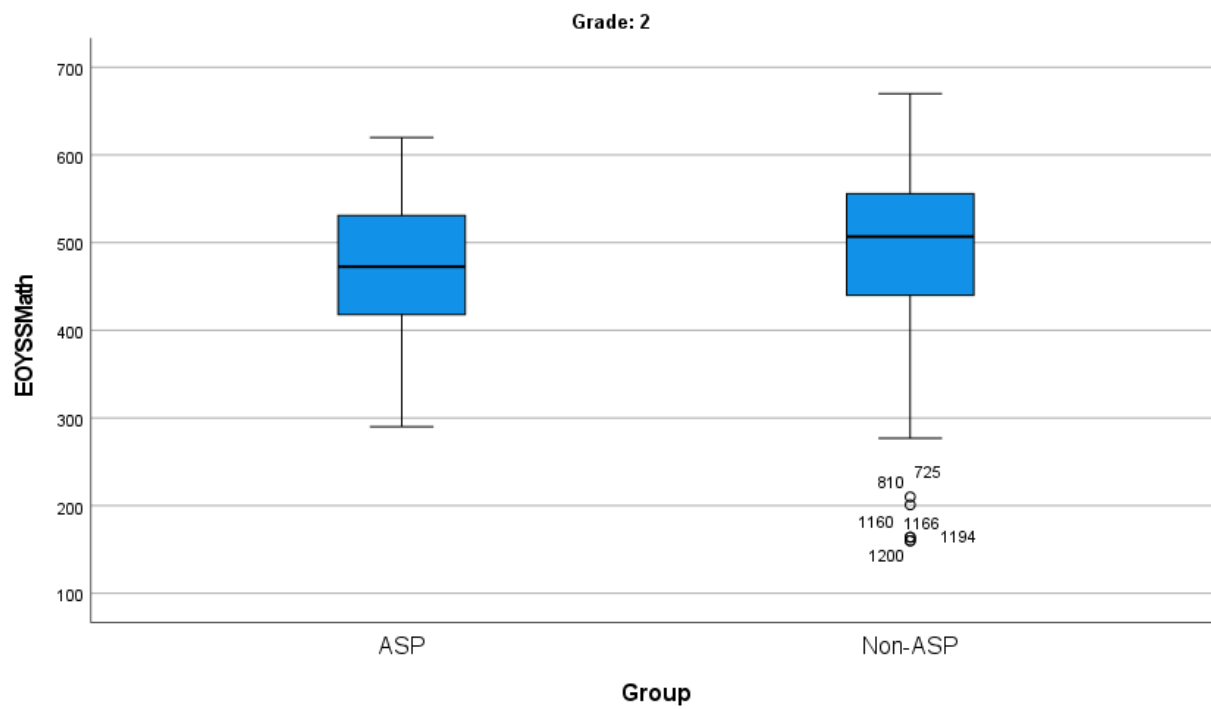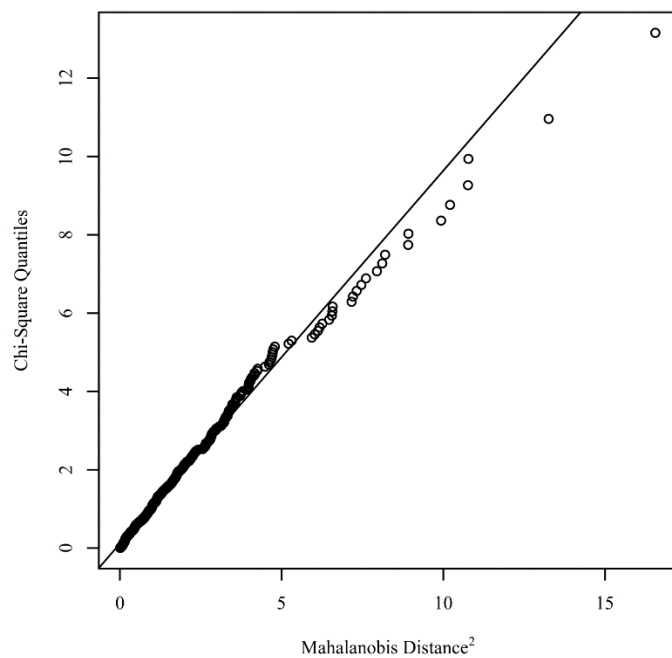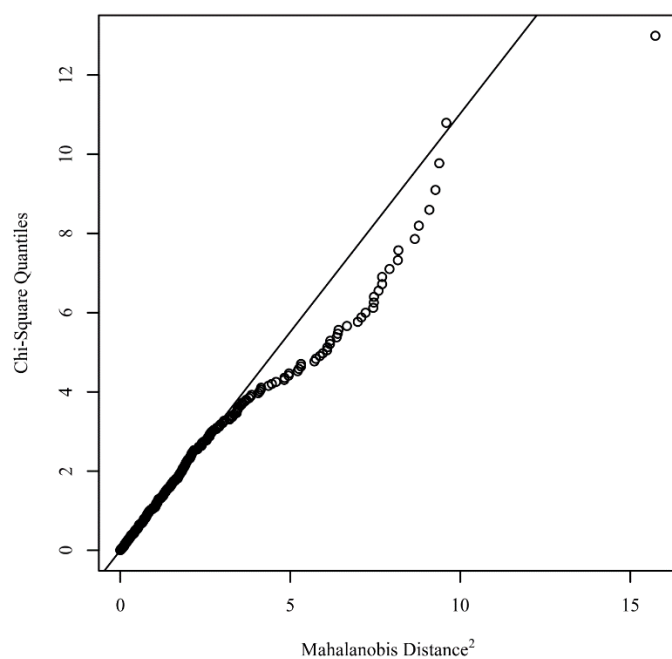
Grade: 2

Grade: 3

Appendix B

Q-Q Plots for Multivariate Normality

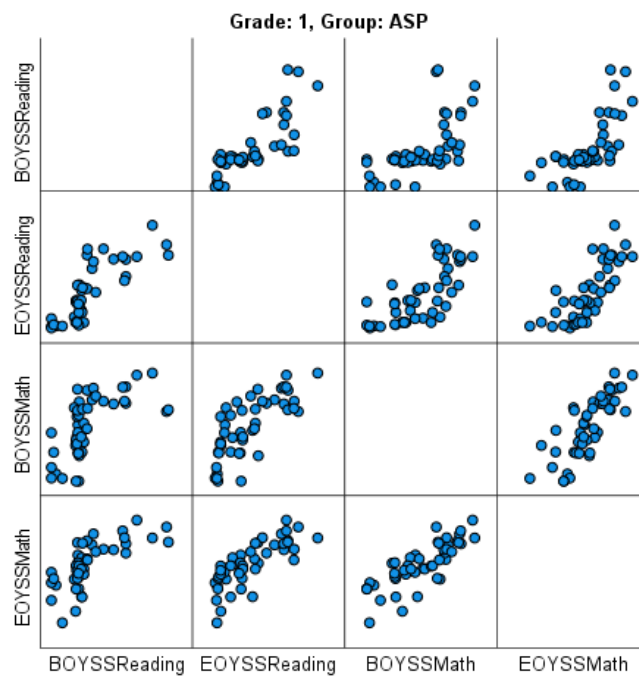Q-Q plot for first grade

Q-Q plot for second grade

Q-Q plot for third grade

Appendix C
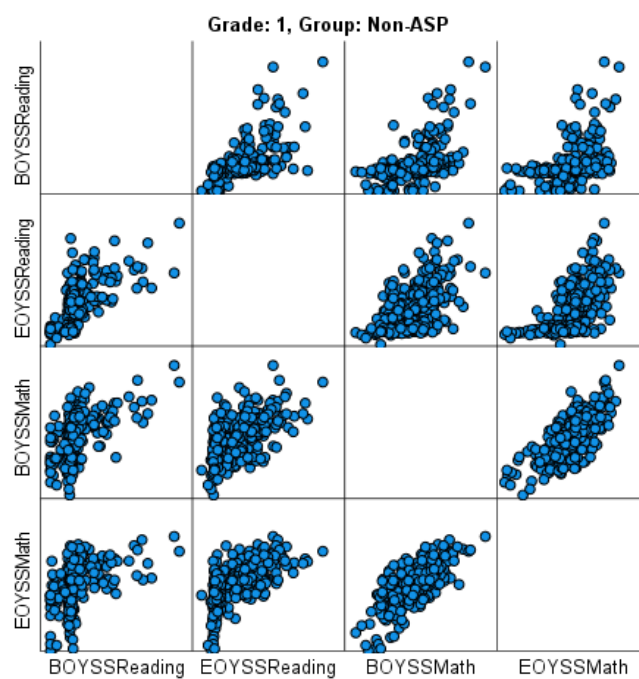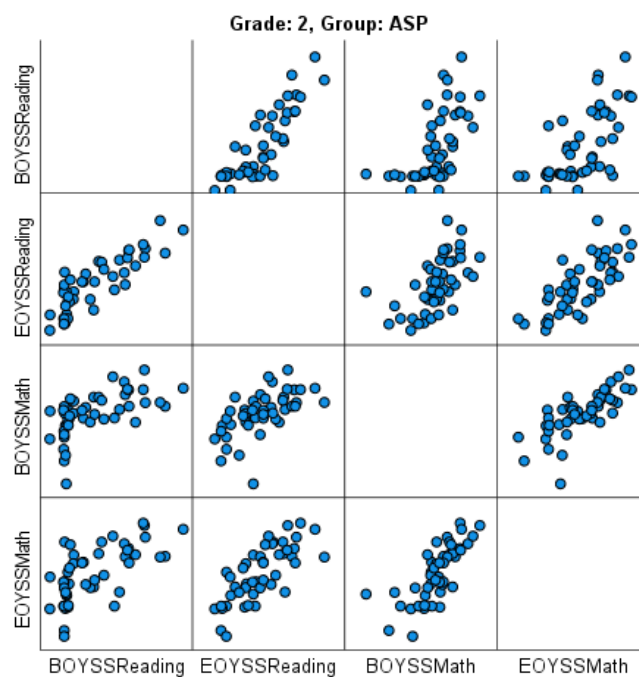
Scatterplots for Linearity

Scatterplot Matrix BOYSSReading,EOYSSReading,BOYSSMath...

Grade: 1, Group: ASP
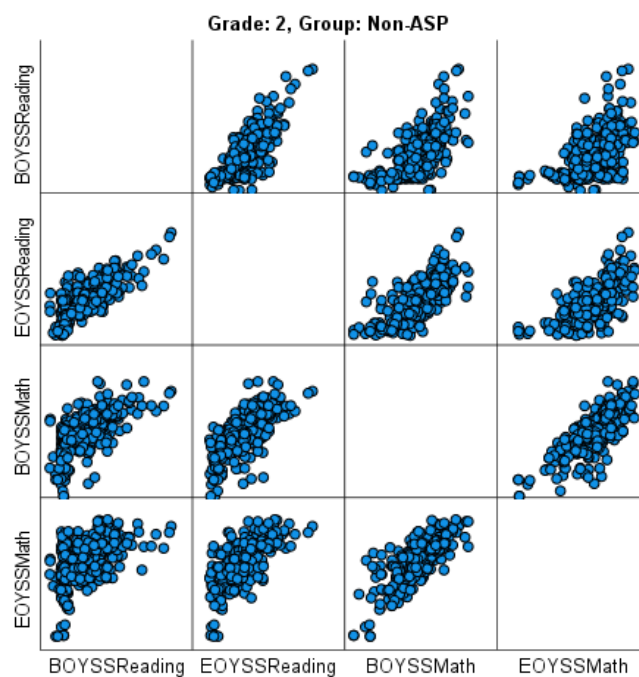

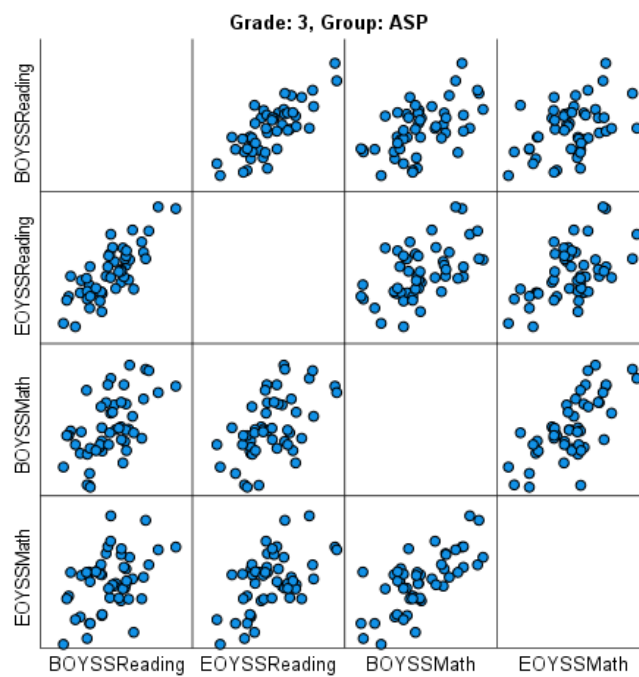Scatterplot Matrix BOYSSReading,EOYSSReading,BOYSSMath...

Grade: 1, Group: Non-ASP

Scatterplot Matrix BOYSSReading,EOYSSReading,BOYSSMath...

Grade: 2, Group: ASP

Scatterplot Matrix BOYSSReading,EOYSSReading,BOYSSMath...

Grade: 2, Group: Non-ASP

Scatterplot Matrix BOYSSReading,EOYSSReading,BOYSSMath...

Grade: 3, Group: ASP

Scatterplot Matrix BOYSSReading,EOYSSReading,BOYSSMath...

Grade: 3, Group: Non-ASP