2020

Afterschool Reading Intervention Program with At-Risk 10th Grade Students

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This is to certify that the doctoral study by

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Walden University
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Abstract

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Phyllis Alexander Hampton

MA, University of Tennessee Knoxville, 1989

BS, LeMoyne-Owen College, 1979

Research Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

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October 2020

Abstract

This study investigated the effectiveness of an afterschool reading intervention program (ASRIP) in addressing the problem of at-risk English 10 students in an urban high school in danger of failing the Tennessee End of Course Test (TEOCT) because of low TEOCT pretest scores, poor regular school attendance (RSA), and low grade point average (GPA). The theoretical framework for this study was based on Dewey's constructivist learning theory. The purpose of this quantitative ex-post-facto research study was to determine whether participating in the ASRIP led to changes in the official TEOCT scores, RSA, and GPA for at-risk English 10 students who participated (n = 40) in the ASRIP versus those students who did not participate (n = 19). The mixed analyses of variance compared the pretest and posttest data for these 3 dependent variables. Significant main effects and interaction indicated participants' mean TEOCT score increased more than that of nonparticipants. A significant interaction for RSA reflected a decrease in mean days missed by participants but a mean increase for nonparticipants. Consistently higher mean GPA for the participant group resulted in a significant main effect mostly due to initial group differences. These results suggest that implementing an ASRIP may provide a method that will help at-risk of failing students to succeed in the learning environment. The findings of this study may produce positive social change by providing school officials and other stakeholders with information to help at-risk students in meeting or exceeding federal academic mandates.

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Dedication

I dedicate this study to my loving and caring parents, both deceased, Mr. Rodell and Mrs. Dorothy Alexander, II, and my beloved siblings, Mrs. Bettye Jean Alexander-Rice, (deceased) and Mr. Calvin Leon Sims (deceased).

Acknowledgments

I am very grateful to God! I give thanks to my entire family for all of their prayers and support. I am especially appreciative to my husband, Lawrence, my "beautiful daughter," Sandra, my "heroes of a son," Sanderlin, and Rodell, III, and my "intelligent granddaughter," Mckenyze'. I give a special thanks to my niece, Sherrell Rice. Foremost, I am honored to thank my peer editors, Chris Allen, because he has been with me from Day 1 and Wanda Coleman who took the time to grammatically correct my study. Thanks to my schoolmates, Dr. Shera and Dr. Elaine. Lastly, I say thanks Dr. Kathleen Norris, my committee chairperson, Dr. Mary Hallums, my second committee member, Dr. Vicki Underwood, URR, and the entire administration, faculty, and staff of Walden University.

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Section 1: Introduction to the Study

Standardized testing has become a critical component of the high school learning environment because of the passage of the No Child Left Behind Act (NCLB) legislation in 2001 (NCLB, 2001). Although in December 2015, the Every Student Succeeds Act (ESSA) replaced the NCLB, it has not changed concerns about students' achievement results on standardized tests (United States Department of Education, 2015). The United States Department of Education (2015), under the ESSA, deemed that individual states are responsible for providing resources to low performing schools and low academic performing students.

The importance of such testing was particularly true at Dean High School (DHS), a pseudonymous urban high school in a large metropolitan area of Tennessee in the United States. At DHS, students took the end of course tests (EOCT) for Grades 9, 10, and 11 English, Algebra I, Algebra II, Biology, and Chemistry. Further, for each test, the state-mandated score earned by the student on the EOCT count as 25% of the final course grade. As a result, compared to testing before the implementation of NCLB, students were required to take a higher number of EOCTs in high school. The importance of these tests increased because of grade integration and the potential effect on individual student grade point average (GPA). Indeed, performance on one of the EOCTs determined whether a student will pass or failed a required high school course.

Presented in this chapter is the background of the study, problem statement, and the purpose of the study. Additionally, the research questions and hypotheses, a theoretical framework for the study, and the nature of the study follow. The section

further includes a discussion of the definitions, assumptions, scope, and delimitation. Finally, the deliberations of the limitations, significance, and general summary are provided.

The English 10 EOCT was a concern at DHS because student performance on the exam had been weak for 2 consecutive years with end-of-course pass rates of 19% for 2010-11 and 10% for 2011-12.To combat the poor performance of English 10 students, teachers and administrators determined they would focus the school development plan on these students' preparation for the EOCT. Therefore, district leaders at DHS provided an afterschool reading intervention program to offer an extra opportunity for students to be successful on the English 10 EOCT. Vaughn et al. (2015) found that such afterschool intervention tutoring programs provide additional learning time for participating students, which can lead to gains in academic achievement. Further, the NCLB required supplementary educational services to students after regular school day hours (United States Department of Education, 2012). With the implementation of ESSA, the expectations for student assistance remained consistent. The content of these services involved afterschool academic tutoring (NCLB, 2001).

The influence of an afterschool intervention program can be far-reaching and helpful to teachers seeking to assist students in overcoming academic barriers. For example, students may have experienced a failure dating back to elementary school. Supplementary teaching outside regular school hours provides the student with the time and opportunity to compensate for gaps in learning. This approach may obviate negative feelings toward school, and students may view school as a place where their individuality

is valued, and extra academic support is provided (Bass, 2019). According to Balfanz and Byrnes (2018), detachment from school can cause the student to experience academic failure and have no desire to complete school. Balfanz and Byrnes argued that potential dropouts do not see the connection between school and a more prosperous future. These disengaged students believe education must be for someone else. Balfanz and Byrne stated that the more students feel a sense of belonging to the school, the less likely the students would drop out of school. Therefore, an effective afterschool intervention program could serve to promote positive feelings about school generally and academic success more specifically.

Another barrier for students addressed through the afterschool intervention program was a poor performance on standardized tests and low academic achievement in classes, as reflected in grades. Balfanz and Byrnes (2018) suggested that low levels of production have a variety of causes. Low academic achievements of students may include different learning styles, varying degrees of interest, and students mastering content at a different speed than each other. In the case of DHS English 10 students, the explicit goal of the Afterschool School Reading Intervention Program (ASRIP) was to help them pass the English 10 EOCT. Students could improve their GPA by participating in the ASRIP. Because the EOCT represented 25% of the total grade for the course, a higher EOCT score could result in a higher average in the session subject, therefore improving GPA.

Further, additional time spent in the afterschool reading intervention program not only prepared students for the EOCT, but increased focus on class work can also generate dividends in the regular coursework that students completed. This additional time may

lead to improved course grades and a higher GPA, as well. An afterschool reading intervention program should effectively respond to student needs. If it provides the students with some of the benefits mentioned, students could increase their time at school as they become more confident in their abilities in the classroom.

One of the challenges of the proposed study was to determine which students should participate in the ASRIP, which meant identifying students who were at risk of not passing the English 10 EOCT. According to Balfanz and Byrnes (2018), the at-risk student is one who has a high number of school absences, lives in a single-parent household or low-income level for the family, and he or she has experienced academic failure. These challenges may cause an at-risk student to become a potential school dropout (Larrier et al., 2016).

An at-risk student is one who requires extra accommodations to achieve success in his or her academic educational program (Dawson, Jovanovic, Gašević, & Pardo, 2017). The assessment results for the student by a doctor, therapist, or psychologist could find the student to be low or weak in academic development and, therefore, in need of extra assistance. Walker and Graham (2019) stated that students might be deemed at risk when they have experienced academic failure, being retained, disruptive behavior, suspension, teacher conflict, and exclusion.

With all these possibilities considered, a pragmatic choice was made to define at-risk students as those who scored poorly, below 70%, on an EOC practice test given early in the school year. The Tennessee End of Course Test (TEOCT) was administered to English 10 students to assess the participants in reading, grammar, and writing

proficiency (Triumph Learning, 2013). Students must score at least 70% on this test to be considered proficient in English 10. Across Tennessee, all English 10 students were given a practice TEOCT in October 2012 to determine initial proficiency in English 10 and to direct educator planning in preparing students for success on the TEOCT and as such, using a practice test for the EOC was a logical choice to determine which students were at risk of failure. Further, this definition may be applied universally to all English 10 students based on performance on the TEOCT practice test administered to all English 10 students in October 2012.

For the year under consideration, 59 of 120 students at DHS scored below 70% on the practice TEOCT and characterized as at-risk. The school year 2012-2013 was examined because the structure of the TEOCT for Grade 10 changed after 2013. I was a teacher at DHS for more than 20 years, through the school year 2013-2014. Further, in 2013-2014, the afterschool tutoring program was not offered because of a change in administration and the choices made by the new administrators. In 2014-2015, DHS was taken over by the state for restructuring. During the 2014-2015 school year, I was not working at DHS.

Although these changes to DHS have already occurred, the importance of this study lies in determining whether the students were able to improve performance on the TEOCT during the 2012-2013 implementation of the afterschool reading intervention program. If the students were able to improve academic performance, then the results could have significant ramifications for students at my current school and other schools.

This study evaluated the efficacy of the DHS afterschool reading intervention program as a remediation tool for at-risk students. As a part of the afterschool reading intervention, each participant's needs were assessed to develop and focus the content of his or her individualized learning program. This individual attention was an additional incentive for the at-risk student: The personal attention tutoring can nurture academic proficiency in the student, which results in higher academic achievement, and greater self-confidence (Bass, 2019). Finally, an afterschool intervention program, whose aim is to cultivate students academically, is critical to equipping a student in gaining knowledge and skills in preparation for high school graduation and being successful in the world of work (Harpine, 2019). Academic achievement is essential to high school success, but the goal is that students will be fully self-actualized and able to make informed life decisions once they graduate.

Problem Statement

Based on the practice TEOCT scores collected at DHS in October 2012, 50% of students in English 10 were in danger of failing the state-mandated test. Also, these students had low GPAs and exhibited poor regular school attendance (RSA). DHS administrators also found that many students fail in high school because the students enter high school with weak reading skills. Administrators determined the ASRIP would to be a promising program to assist students in improving skills so they could be successful on the TEOCT.

DHS has not met the state mandates annual yearly progress (AYP) since the 2009-2010 school year. When a public school does not academically achieve AYP for 3

consecutive years, students are eligible to receive funding for supplemental educational services, which includes tutoring (Chen, 2019). Since DHS failed to meet AYP in school years 2010-2011 and 2011-2012, it qualified to receive additional support for supplemental services in the school year 2012-2013. DHS determined that a good use for a portion of these funds would be to implement the ASRIP to assist in improving achievement.

Nature of the Study

In this study, there was a consideration for performance differences between two groups of at-risk English 10 high school students on the TEOCT, RSA, and GPA. One group of 40 self-selected students participated in the ASRIP, and the comparison group of 19 students did not participate in it. The goal was to determine if and how much participation in the ASRIP improved the academic performance of students on TEOCT, GPA, and RSA, compared to their peers who did not participate in the ASRIP. The student's participation in the ASRIP was the independent variable. The dependent variables were the study participants' TEOCT scores, GPA, and RSA. The dependent variables may be considered as influential pieces of the students' academic achievement because, if students have a good GPA and RSA, they have a greater chance of academic success on state-mandated tests (Lester, Chow, & Melton, 2020). Practice TEOCT scores determined which students were at the risk of academic failure.

Research Questions and Hypotheses

The following research questions and accompanying hypotheses directed this study:

RQ1: How does the change from mean pretest to mean posttest TEOCT scores differ for at-risk English 10 student participants in the ASRIP in 2012-2013 compared to the at-risk English 10 students not participating in the program?

$H_0$1: There is no significant difference in change from the mean pretest to mean posttest TEOCT scores for at-risk English 10 student participants in the ASRIP in the 2012-2013 school year when compared to at-risk English 10 students not participating in the program.

H_a1: There is a significant difference in the change from mean pretest to mean posttest TEOCT scores for at-risk English 10 student participants in the ASRIP when compared to at-risk English 10 students not participating in the program.

RQ2: How does the change from mean pretest to mean posttest RSA scores differ for at-risk English 10 student participants in the ASRIP in the 2012-2013 school year when compared to at-risk English 10 students not participating in the program?

$H_0$2: There is no significant difference in change from the mean pretest to mean posttest RSA scores for at-risk English 10 student participants in the ASRIP in the 2012-2013 school year when compared to at-risk English 10 students not participating in the program.

H_a2: There is a significant difference in change from the mean pretest to mean posttest RSA scores for at-risk English 10 student participants in the ASRIP in the 2012-2013 school year when compared to at-risk English 10 students not participating in the program.

RQ3: How does the change from the mean pretest to posttest GPA differ for at-risk English 10 student participants in the ASRIP in the 2012-2013 school year when compared to at-risk English 10 students not participating in the program?

$H_0$3: There is no significant difference in change from the mean pretest to mean post-test GPA for at-risk English 10 student participants in the ASRIP in the 2012-2013 school year when compared to at-risk English 10 students not participating in the program.

H_a3: There is a significant difference in change from the mean pretest to mean posttest GPA for at-risk English 10 student participants in the ASRIP in the 2012-2013 school year when compared to at-risk English 10 students not participating in the program.

Purpose of the Study

The goal of this quantitative, ex-post-facto study was to determine whether changes in the official TEOCT scores, GPA, and RSA for at-risk, English 10 DHS students who participated in the ASRIP differed from those of students who did not participate. If those students participating in the ASRIP showed significant improvement in TEOCT, GPA, and RSA, compared to the students who did not participate, then it is possible to infer that the ASRIP did influence students' performance. DHS is an urban high school with many low-income students. Students' participation in the program would suggest that similar high schools might find success with the implementation of ASRIP. According to Lindt and Blair (2017), schools and communities are concerned about the number of at-risk high school students giving up on education. Through

research studies like this, educators may be able to make responsible decisions about best practices concerning appropriate educational interventions to increase student learning and, subsequently, improve students' state test scores.

Theoretical Framework

The constructivist theory provided the conceptual framework for this study. When an afterschool intervention program basis is the constructivist learning theory, the learning is entirely student-centered (Akpan & Beard, 2016). The teacher is the classroom facilitator, and students are actively participating in the learning process (Koh, 2019).

Constructivist techniques have been incorporated by teachers in classrooms for many years and continue to influence instruction to make learning relevant and meaningful (Larrier et al., 2016). According to Moore (2014), constructivism emerged from broader movements in Western intellectual thought. Therefore, learning is less about the teacher teaching but more about the teacher-provided opportunities for student reflection on experiences and concluding these reflections. Through this process, knowledge obtained. Renault (2017) referred to the constructivist learning theory as progressive education, a continuing framework for learning, and a movement toward more democratic and child-centered education. Piaget's (1976) constructivist method involves an active learning approach, direct experience, making errors, and adapting based on those errors, and is an intensely learner-centered process. According to Dewey (1879), the constructivist approach requires educators to plan the teaching and learning experiences to challenge students and thereby enabling them to create new knowledge. According to Piaget, educators should keep in mind nine principles of learning in the

constructivist theory when teaching at-risk high school students. Piaget's nine principles informed the planning of the academic intervention lessons for the ASRIP conducted at DHS.

Kahveci and Ay (2008) expanded on Piaget's ideas and helped to define the role of the educator as a facilitator. According to Kahveci and Ay, individuals base their knowledge on their already existing conceptual frameworks, which provide a reference for giving meaning to new phenomena. One significant role of the teacher is to mediate learning, with the focus on the learner. The classroom environment should be more interactive than in a traditional classroom. Education is a social process of giving meaning to experiences in light of what is already known, specific previous knowledge, and a time for reflection, as well. Furthermore, generating questions may be a way of initiating conceptual conflict and seeking answers to solve the conflict. Also, evaluation is a part of the teaching process rather than a reward or punishment.

Whereas Kahveci and Ay (2008) carefully defined the role of the educator, Larochelle, Bednarz, and Garrison (1998) provided specific guidance on the types of learning strategies for the educator to focus on in the classroom. Larochelle et al. stated that techniques should (a) be problem oriented, (b) foster reflective practice, (c) be context and content dependent, (d) demonstrate sensitivity towards the attentiveness to the learner's previous constructions, (e) use errors as a mechanism to provide feedback to learners' understanding, (f) encourage ownership and voice throughout the learning process, (g) encourage student exploration, and (h) incorporate cooperative learning. The primary goals of the activities developed for students participating in the ASRIP followed

a constructivist approach, building on the skills that students possessed and seeking to incrementally increase their use of strategies to improve their reading skills.

The ASRIP was different from the regular classroom at DHS. Student group sizes were smaller than the typical classroom sizes. Students were self-directed with individualized learning plans. The students were encouraged to collaborate with fellow students during the assessment of their learning needs. This autonomy provided the students with opportunities to take greater ownership of learning. The role of the teacher was to provide daily in-class assistance where requested and offer specific feedback on tasks completed for the individual, academic assessment as such, firmly grounding learning activities in constructivist theory facilitated students building their knowledge and preparing for more excellent academic and social success.

Providing additional learning opportunities such as ASRIP was one way to bridge the gap for students underserved by the traditional classroom. Harpine (2019) argued students who received interventional support advance further and out performed their peers, not receiving the intervention. Such interventions intended to help prevent students from also falling behind academically and provide at-risk students with the possibility of achieving academic success instead of academic failure. However, merely adding a program does not solve the problems faced by at-risk students. Instead, the individual needs of each student are the keys to designing an intervention program that contributes to the success of both the student and in meeting educational standards (Harpine, 2019).

The low academic achievement of many of today’s students has created a crisis in public education. It is essential to develop programs or interventions that address the

individual student's needs. Harpine (2019) added that students who are behind academically had suffered repeated academic failure. This cycle of failure continues as the students' inability to learn affects performance on evaluations that determine academic success, including the TEOCT and their GPA. To break the cycle of failure, intervention programs for at-risk students must address specific learning deficiencies.

Operational Definitions

Adequate Yearly Progress (AYP): AYP is the critical measure in deciding whether a public school or school district meets academic state goals (NCLB, 2013). AYP is a conglomerate phrase that comprises several factors that measure the progress of students, including end of course test performance in various subjects, graduation rate, and performance on national standardized tests such as the ACT.

After school reading intervention program (ASRIP): An ASRIP is a TEOCT academic enrichment-tutoring program designed to assist at-risk students academically (Blazer, 2016).

At-risk students: A student at risk has low academic performance, has school dropout tendency, and, therefore, is at risk of having problems in life (Gray, Dueck, Rodgers, & Tannock, 2017). Specifically, for this study, an at-risk student is a student who scored less than 70% on the practice TEOCT.

Tennessee English 10 End of Course Test (TEOCT): The TEOCT is a state-mandated test required for all English 10 students to evaluate reading and writing skills. Margulies and Goudiss (2013) noted the TEOCT evaluates students' reading, grammar, and writing skills.

Response to intervention: This assessment model enables schools to enhance instructional methods relevant to students' academic success (Sinatra, Heddy, & Lombardi, 2015).

Assumptions

According to Rahimi, Yousofi, and Moradkhani (2019), research assumptions are those elements of the study understood to be true. In this study, the threshold for passing the official TEOCT was 70%, so students scoring below 70% on the practice TEOCT were considered in danger of failing the official TEOCT. The practice TEOCT was assumed to be a reasonable approximation of the official TEOCT. At the time of the testing, students were similar in that they were all in Grade 10 at DHS, were roughly the same age, and came from similar socioeconomic backgrounds. I further assumed that significant differences between the two groups, on the dependent measures, would be due to the participation in the ASRIP.

Limitations

According to Creswell and Creswell (2018), research limitations are potential weaknesses that may arise when conducting research. Random assignment is impossible in the ex-post-facto design because the event has already occurred. When the researcher decides to study the variables that may have influenced the condition of another variable, the groups may differ in another way that may be responsible for the difference between groups the researcher is attempting to study. In ex-post-facto studies, the effect and cause have already occurred, and the researchers may not be able to determine the order of events and how the variables influenced one another. As such, it will not be possible to

draw cause-and-effect conclusions from this research. Instead, the findings will be relational.

A critical limitation of this study was the inability to generalize to the entire population of the school district. The sample selected for this inquiry was limited to students enrolled in English 10 at DHS, located in an urban area in Tennessee, and the students who chose to participate in ASRIP. The 40 participants in the ASRIP were students taught by one English 10 teacher, in one of the six English 10 class sections taught by the teacher during the regular daily schedule. This research study focused on the ASRIP involving English 10 students. The only difference was whether the students chose to participate in ASRIP. Since the participants volunteered to attend ASRIP, selection bias cannot be quantified (see Meinck, Cortes, & Tieck, 2017).

Internal bias may be another limitation of this study. According to Creswell and Creswell (2018), internal bias may result from an estimation process that may result in inadequate and unfair sampling preventing the researcher from collecting precise data about the population in an experiment. Since I was the only English 10 teacher involved in the ASRIP, a peer reviewer limited internal bias through verifying the accuracy of data and data analysis. A peer reviewer is a colleague who critiques one's manuscript and provides useful feedback to the researcher (Curry, 2019). Using a peer reviewer helped ensure quality findings and interpretation, decreased the likelihood of research procedural error, and precluded potential bias in the understanding of the data analysis.

Scope and Delimitations

This study did not explore the specific components of the curriculum or individual practices used during the ASRIP tutoring sessions. The research study involved 59 high school students at risk of failing English 10 enrolled at DHS for the 2012-2013 school year. Data reflected the attendance in the ASRIP (as documented by attendance records), GPA, and RSA (as documented in PowerSchool), scores on the practice TEOCT (which was administered and documented by the school's records secretary before the beginning of the ASRIP), and official TEOCT. Also, the study only involved intervention at DHS. The results may not influence the outcomes of other ASRIPs. Thus, the results may not be generalized to schools using different tutoring programs or schools whose student bodies are vastly different from DHS.

Further, this study's design did not explore the following strategies: differentiated instruction, peer tutoring, and response to intervention used in the remediation process within the ASRIP structure. There was not a consideration of a detailed syllabus of activities and day-to-day activities, nor was the attention of the review of the effect of the ASRIP on student performance on the TEOCT considered.

For reasons mentioned earlier, I examined data from English 10 students for the school year, August 7, 2012 until May 7, 2013. The students took the practice TEOCT on October 1, 2012, and the ASRIP started on October 18, 2012, and ended on May 7, 2013. The students took the official TEOCT on May 9, 2013.

Significance of the Study

This research study was designed to determine whether an afterschool reading intervention program achieves compliance goals of providing effective tutoring for at-risk students in the school year 2012-2013. Since the implementation of NCLB in 2002, the amount of research that evaluated tutoring programs has increased; however, many do not use rigorous research designs, and some address the influence of afterschool intervention programs on the achievement of at-risk of failing students. Because these interventions and their potential effects offer great hope for at-risk students seeking to progress, determining their efficacy for improving student performance is crucial.

The outcome of this research study may provide information that can help school officials make informed decisions about tutoring programs to serve at-risk high school students. Also, this study may enable educators to advance a step further to improve at-risk students' academic performance on state-mandated exams. When students become challenged with reading and writing activities that are academically appropriate with highly individualized instruction, the students may be more likely to be successful in coursework and required standardized tests.

Summary

Organized afterschool reading intervention programs should promote academic development for at-risk students (Simpkins et al., 2017). According to Vandell, Simzar, O'Cadiz, and Hall (2016), afterschool tutoring programs bring higher test scores and significant improvement in academic achievement. Determining the effect of the afterschool tutoring program at DHS, an ex-post- facto research study tested the results of

the ASRIP on 59 at-risk English 10 students. Archived, quantitative data were examined, including the official TEOCT scores, GPA, and RSA, to determine what effect, if any, the ASRIP had on student performance.

Presented in this section were the background of the study, problem statement, and the purpose of the study. Additionally, the research questions and hypotheses, a theoretical framework for the study, and the nature of the study followed. The section further included a discussion of the definitions, assumptions, scope, and delimitation. Finally, provided in this section were the deliberations of the limitations, significance, and general summary.

This study consisted of four more sections. Section 2 includes a review of the literature related to the academic needs of at-risk students. Section 3 discusses how and when data would be analyzed and the use of data analysis procedures. Section 4 reviews the methodology and presented the findings of the study. Section 5 completes the study with a summary of the results and conclusions.

Section 2: Literature Review

The reason for this study was to determine the effect of an afterschool reading intervention program on the achievement of at-risk English 10 students. This literature review contains information regarding the issues associated with at-risk students, NCLB as it relates to the at-risk students, definitions of what it means to be an at-risk student, and the implementation of afterschool tutoring programs. Further, in this section, I considered research about reading failure and its effects and how developing necessary reading skills can aid at-risk students. Finally, I describe the research variables.

Literature Search Strategies

The review of the scholarly literature focused on the following descriptors: afterschool tutoring programs, GPA of at-risk students, attendance of at-risk students, state testing practices and official scores, and reading challenges of at-risk readers at the high school level. Both quantitative and qualitative studies were in the review. To search the literature, I acquired and synthesized information from the following databases: Google Scholar, SAGE Full-text Collection, Education Research Complete, Walden University dissertations and theses, Walden University eLibrary, UMI dissertation publishing, and ProQuest databases. Keywords included the following: *state testing and reading challenges of high school students, after-school intervention program, at-risk students, response to intervention,* and *secondary education.* Peer-reviewed articles came from the Academic Search Complete, ERIC, ProQuest databases, and EBSCO host. Primary documents on NCLB and the ESSA came from government agencies, including

the United States Department of Education (DOE), Northern Regional Educational Library, the United States Congress, and the Tennessee Department of Education.

Theoretical Foundation

The NCLB (2001) made schools responsible for each student's academic success and accountable for failure. As stated by Synders, DeBey, and Dillow (2018), if children cannot read grade-level text with comprehension by eighth grade, they may face academic failure and fall behind peers academically; this leads to dropping out of high school. The reading difficulties for the students permeate all educational endeavors. The designing of many reading intervention programs is to assist in meeting the needs of the struggling, at-risk students (Rasinski, 2017). However, the efficacy of these programs depends on teachers being able to implement the programs effectively and consistently. When a student falls behind, it is challenging for both student and teacher to be successful in closing the gap.

In a research study conducted by McFarland et al. (2017), 19% of high school students in the United States have severe reading difficulties. The inability to read causes the student to have low self-esteem and increases anxiety toward school. This frustration prevents the student from succeeding academically; the student then becomes at risk for failure. Because of the number of at-risk students having problems with reading, it is imperative to determine how to teach weak below-average readers and provide at-risk students more guided reading time (Wilkins & Bost, 2016). The NCLB (2001) required all schools to identify and implement research-based programs and practices to be effective in improving at-risk students' achievement. In that light, DHS administrators

and staff were responsible for helping the at-risk English 10 students enhance performance on TEOCT, raise their GPA, and increase their RSA.

No Child Left Behind Act

The Elementary and Secondary Education Act specified the federal government's role in K–12 education (Chen, 2019). The creating of the NCLB (2001) was to close the achievement gap among disadvantaged minority students and their higher-performing peers. NCLB contains the following principles: stronger accountability for results, expanded options available for parents, and emphasis on proven teaching methods. Over the last 2 decades, the measuring of liability came through student performance on annual standardized assessments. Reviewing the data from the evaluations showed learning gains and deficits for all students, including students requiring special education services.

NCLB (2001) provided funds to schools across the United States; these allocated funds were for early literacy instruction among English language learners and other students at-risk of academic failure (United States Department of Education, 2012). The NCLB required educational systems to develop instructional programs for all learners focusing on academic development and accountability. The NCLB required all students to reach challenging academic standards, and all students were expected to show academic growth as they progressed through the educational system (NCLB, 2001). The implementation of the NCLB ensured that all students, regardless of current learning levels, made learning gains and increased emphasis on accountability testing in all core subjects (Bowen & Kisida, 2017).

Defining At-Risk Students

If at-risk students are evaluated only by the NCLB standards, there is a danger that these students will not be able to maintain or exceed the standards set by the act. At-risk students are low academic achievers who lack interest in school, poor attendance, and have negative relationships with peers (McKee & Caldarella, 2016). The term *at-risk* has many different connotations and meanings. The word has been used by educators, counselors, and human services providers to represent a wide range of the youth population. At-risk students sometimes have difficulties engaging in school, connecting with the school's culture, and face poverty (Peguero, Ovink, & Li, 2016).

Understanding At-Risk Students

Many at-risk students have similar behavior traits. According to Balfanz and Byrnes (2018), the concept of being at-risk for an adolescent refers to underachievement in an academic setting, inappropriate social behavior, and a lack of a personal sense of self-actualization. Some at-risk students have behavioral problems and struggle to function appropriately in society (Balfanz & Byrnes, 2018). The inability to behave in a socially responsible manner can be the student's first step towards failure, and this can label the student as a potential high school dropout (Peguero et al., 2016).

Balfanz and Byrnes (2018) reported that between 25%and 36% of the school-age students have distracting behaviors that do not qualify them for services under the Individuals with Disabilities Education Act (IDEA). Many at-risk students share common characteristics of externalizing aggression, which include defiance and noncompliance and internalizing destruction, which leads to more significant anxiety, self-doubt,

depression, and withdrawal (Balfanz & Byrnes, 2018). Interventions for these students are needed (Heppen et al., 2018). These students often do not meet the requirements, goals, and standards in their regular education classroom setting (McGee & Lin, 2017). Without intervention or remediation, at-risk students are most likely to experience failure and a wide array of adverse outcomes during and beyond the school setting. At-risk students individually perform below their general education peers, earn lower grades, make less academic progress, and have a much higher rate of regular school absences than other students (Balfanz & Byrnes, 2018). Further, at-risk students with academic difficulties and low self-motivation rarely show a desire to participate in learning activities that have the potential to improve their academic skills (Vaughn et al., 2015).

Over time, at-risk students suffer during daily core academic instruction time because of their inability to academically achieve (Peguero et al., 2016). According to NCLB and the mandate of AYP, teachers must concentrate on and ensure academic achievement for all students. Educators must be highly qualified, which assures that they have the professional skills and training necessary to adapt to the diverse population of students served in the 21st-century educational arena.

The Challenge of Reading in High School

Reading is a foundational process of students' education from kindergarten through high school (McFarland et al., 2017). Students entering high school should be able to read proficiently. Usually, high school students having difficulties learning,struggle with literacy throughout their educational career and may never understand at grade level (Vaughn et al., 2015). At-risk students may have literacy

challenges due to the lack of academic vocabulary and effective reading strategies not obtained in their early stages of education (Johnson & Mawyer, 2019).

As reading is promoted and encouraged in elementary grades, the challenge becomes creating and maintaining students' interest in reading as they become adolescents and progress through the middle and secondary classes. Children who dislike reading may engage in learning only to pass their examinations rather than for their personal development or fun or being well informed (Kavi, Tackie, & Bugyei, 2015). It is critical to engage students in actual reading by providing new texts at the appropriate reading level to motivate at-risk students to read (Bippert & Harmon, 2017). Therefore, schools need to implement reading programs that will make learning an experience that is actively sought out by students (Kavi et al., 2015). Sometimes at-risk students with higher motivation in learning advance more than an at-risk student with lower reading motivation (Ahmadi, 2017).

Essential Reading Skills as an Academic Indicator of Success

According to Magnusson, Roe, and Blikstad-Balas (2019), reading comprehension is an integral part of the student's academic performance. Therefore, methods to help at-risk students to improve their reading comprehension skills are needed. The repeated failure experienced by at-risk students, due to the lack of completing assignments successfully and achieving improved assessment grades can result in their lack of interest in reading. As a result, the student suffers, whether it is from low self-esteem because of repeated feelings of failure or from the inability to read. Magnusson et al. further suggested high school students with persistent reading problems

have not cultivated successful reading strategies, which generates negative attitudes toward their perception of reading. There appears to be a lack of motivation among the at-risk students to read, and often these students struggle with academics (Allen, 2016). Further, students with low reading abilities are likely to be retained a grade in school or drop out of high school (Connor, Alberto, Compton, Donald, & O'Connor, 2014).

Gallagher and Kittle (2018) stated that students use different reading techniques for reading in and out of school. When students are reading independently, students choose their text of interest and often use high-level reading strategies, yet when reading in school, students tend to use shortcut strategies to complete assignments. If the reading text is exciting, the students exhibit a wide range of reading strategies. The students' reading comprehension depends on the differing levels of text complexity and the book they read (Berendes, Wagner, Meurers, & Trautwein, 2019).

Perhaps because of past experiences where they were not successful, at-risk high school students often perceive reading intervention programs negatively. These feelings are directly related to and intensify as the degree to which methods, instructions, curriculum, techniques, or programs differ in practice from those of peers. Gallagher and Kittle (2018) investigated the opinions of high school students involved in reading intervention programs and found that students rejected any plan labeled interventional. Gallagher and Kittle (2018) reiterated data found in previous studies to show when students do not appreciate the general purpose of reading in schools. The students tend to dislike the reading experience and participate as little as possible, finding numerous reasons to avoid it or encounter difficulty with it. Harpine (2019) stated that high school

students with reading-related challenges fall further behind in reading skills each school year and even risk losing the baseline skills learned in elementary and middle school. Moreover, reluctant nonreaders make little or no progress acquiring reading gains in the whole class, general educational classrooms, even with supplemental support. At-risk high school students require specific, deliberate, intensive, explicit reading instruction individually or in small groups to deepen their thinking and make significant academic progress (Carreker, 2017).

State Academic Testing and ASRIP

Educational quality is increasingly measured using state standardized test scores in the United States (Dee, Dobbie, Jacob, & Rockoff, 2019). State testing of students in Grades 3–8 in reading and math and testing of students in Grades 9–12 in core academic subjects' was mandated by the NCLB Act of 2001 (United States Department of Education, 2012). The law continued with the reauthorization of the bill in 2016 as the ESSA. These laws were enacted to bring focus to the needs of students who were not meeting grade-level expectations for students in their peer group. To facilitate student success, DHS chose to use an after school intervention program to meet the needs of at-risk students better. Students attending an afterschool intervention program are more likely to improve academically and show a gain on state assessments (Hassell, 2016). Afterschool intervention programs have the potential to build on the instruction during the school day and provide at-risk students with the knowledge necessary to obtain a proficient score on state-mandated exams. The ASRIP in this investigation provided opportunities for individualized and personalized attention for the at-risk students to

address low academic skills needed to achieve gains in-state-mandated assessment testing. These standardized test results can carry high stakes for students, with scores partially determining grade retention and high school graduation (Solórzano, 2019).

Bissell (2015) analyzed various studies of the Afterschool Learning and Safe Neighborhood Partnership Program (ALSNPP) in California since 1998. Bissell found that 1,000 children in elementary and middle schools in an afterschool intervention program achieved test score gains in reading and math that exceeded those of students who did not attend the ALSNPP. The groups who made higher test scores after participating in an afterschool intervention program were those where students had a high attendance rate in the afterschool program (Afterschool Alliance, 2014b).

Ryal (2016) conducted a quantitative study to determine the effect of an afterschool program on high school students' English language arts (ELA) academic achievement on state standardized tests. The researcher examined the effect of the 21st Century Community Centers Afterschool Program (21st CCLC) on the performance of Grade 10 students at-risk of not passing Maryland high school state ELA end of the year exit examinations. According to Ryal, the ELA end of the year test results showed significant differences between the scores of the Grade 10 student participants in the 21st CCLC afterschool program and those of the nonparticipant Grade 10 students. The ELA test results of at-risk students participating in the afterschool intervention program were significantly higher ($p < .05$) than those not participating in the program.

Allen (2015) conducted an afterschool tutoring program to improve state EOCT examination scores in reading and ELA. The afterschool intervention program operated

for 1.5 hours for 27 weeks. The study consisted of 157 students in Grades 3 and 4, 57 nonparticipants, and 100 participants. The comparison of the scores was for students before and after participation in the afterschool program and previous school year EOCT scores of program nonparticipants. Allen reported that participants' ELA EOCT scores were significantly higher than their counterparts who chose not to participate. Reading intervention programs have been effective in elementary grades (Rasinski, 2017); therefore, it is likely that these programs would also be useful in a secondary afterschool reading intervention program.

Under the NCLB, schools' evaluations depended on whether the students met benchmark performance in math, reading, attendance for Grades 3–8, and the graduation rate of high school students. To raise the academic achievement bar for all high school students and raise the accountability bar for students' academic performance, Tennessee adopted a testing program for EOCT in all core subjects', including English 10. Students enrolled in English 10 were required to take the official TEOCT. The official TEOCT scores measure how well a student has learned a Tennessee state curriculum rather than how the student compared with a national group (Tennessee State Department of Curriculum, 2012). In my research, I could not find any peer-reviewed journal articles or findings of a dissertation demonstrating the efficacy of an ASRIP on improving TEOCT scores.

Participation in an Afterschool Reading Program

There is a limited amount of research on the effects of reading afterschool intervention programs. Knopf et al. (2015) found at-risk students participating in an

afterschool intervention program, Grades K-12, enjoyed school more. These students became engaged in their learning process, improved their grades, and experienced improved state-mandated test scores. The afterschool reading intervention program may not only increase the students' time spent on academic activities but also help with learning new skills, assist in raising GPA, and prevent low RSA (Berendes et al., 2019). Afterschool reading intervention programs build on instruction during the school day and provide at-risk students the extra time and support to acquire knowledge and enrichment activities necessary to meet the academic standards as mandated by the state and local educational reforms (United States Department of Education, 2015). Schools assume that by Grade 3, students should have mastered the necessary reading skills. Therefore, the reading instructional focus changes from the process of learning to read to the process of reading to learn and understand (Berendes et al., 2019). When children enter elementary school and have not mastered reading, these students may enter middle school and possibly high school already at-risk and fall behind peers. Therefore, many afterschool intervention reading programs aim to improve the at-risk of failing students' low reading performances (Pensiero & Green, 2017).

Literature Related to the Ex-Post-Facto Method

This section analyzed the review of research related to the ex-post-facto method. The ex-post-facto method was most appropriate to determine the influence of an afterschool reading intervention program on at-risk English 10 high school students' achievement on the official TEOCT, students' GPA, and students' RSA. Creswell and Guetterman (2019) noted that nonexperimental designs are employed where the

researcher attempts to use similar groups as the treatment and nontreatment groups. When randomization is not possible, the researcher must find a way to try to control for pretreatment differences that may exist between groups. The key is to select groups that are as similar as possible to compare. In the case of the afterschool reading intervention program at DHS, all students considered in the study were enrolled in English 10, were similar in age, attended the same school, and defined as at-risk. The only discernible difference was the choice to participate in the afterschool intervention program or not. It would have been unethical and untenable to randomly assign students to groups to receive or not receive tutoring assistance. Therefore, using the ex-post-facto method was appropriate for this study.

O'Donnell and Kirkner (2016) used the ex-post-facto method to assess low-income students' participation in a comprehensive YMCA High School Youth Initiative afterschool program. In this study, high school students who attended the program were compared to the nonparticipant high school students in the program. The researchers found that one-third of the program participants (31%) improved their GPA, compared to 1 in 5 matched nonparticipants. Seventeen percent of the participants improved their English language arts test scores compared to 6% of nonparticipants.

The Afterschool Alliance (2014a) conducted a nonexperimental study with students attending the afterschool program, Beyond the Bell (BTB). The Educational Resource Consultants reported that students participating in BTB had higher academic scores than students not participating in the program. Students attending BTB scored

higher on the California Standard Test (CST) in English-Language Arts (ELA). The ELA scores for the BTB students were 6 points higher than students not participating.

Palko (2012), in a nonexperimental study, compared the data of participants in the Project SHINE (Schools and Homes in Education). Pretest and posttest data for students included report card grades, attendance data, and standardized test data. Students attending SHINE improved RSA by 90%, and the average promotion to the next grade level was 96%. Also, 89% of the parents of the students in the SHINE afterschool program saw improvement in the child's overall behavior.

As in the study by O'Donnell and Kirkner (2016) of the YMCA High School Youth Initiative, students at DHS chose to participate or not participate in the afterschool reading intervention; therefore, group assignments cannot change as one would in a strictly experimental study (Creswell & Poth, 2017). Due to this constraint, this study used an ex-post-facto design to determine the effect of the ASRIP on scores on the TEOCT, as well as GPA, and RSA.

Literature Review Related to Differing Methodologies

Vogel (2013) conducted a qualitative case study methodology to investigate the influence of the READ 180 reading intervention program on the reading comprehension skills of at-risk secondary level students. The case study involved 21 at-risk ninth graders attending a Title I high school in southern California for 4 months in the summer and fall of 2012. Data gathered from interviews, observations, and student documents were analyzed (Vogel, 2013). The results of this data analysis showed that READ 180 was an

effective intervention program because it did improve the reading comprehension skills of the at-risk participants (Vogel, 2013).

Walcott, Marett, and Hessel (2014) investigated the effectiveness of a computer-based assisted reading intervention program to address the problem that many urban middle school students in the state of Tennessee had poor reading skills, student participation, and student academic achievement. The primary research method used was a single subject, across participants' design with inattentive struggling readers compared to attentive struggling readers. The results showed that the computer-assisted approach to learning increased literacy was more effective in providing intervention to alert struggling readers as compared to the inattentive struggling readers (Walcott et al., 2014). Thus, this study confirmed the use of a computer-assisted intervention reading program with attentive struggling readers resulted in significant fluency gain.

Herrera, Grossman, and Linden (2013) conducted an experimental study of the Higher Achievement afterschool program. The researchers found that after 2 years in the program, students showed academic gains. The participants showed significant improvements in their reading when compared to nonparticipants in the program. After a follow-up evaluation of Higher Achievement, the data indicated participants in the program performed significantly better on standardized tests in reading comprehension than the nonparticipants (Herrera et al., 2013).

For this study, archival data were analyzed. Section 3 contained details of the analysis. Because of the nature of the data, there was no consideration to use qualitative methods or mixed methods for this particular study. A quantitative ex-post-facto research

method was the appropriate choice because the statistical data used in the analysis were generated before the research study began, so archived data was used. Therefore, this method was the best choice for use in this study.

Discussion of Variable Grade Point Average

The focus of a successful afterschool intervention program is to improve academic achievement among at-risk students (Moses & Villodas, 2017). In a community-based afterschool program, Jenson et al., (2018) found that participants in grades 9th to 12th had higher GPAs than nonparticipants. Holstead, Hightower King, and Miller (2015) pointed out that children participating in an afterschool intervention program were academically enriched and academically on track.

In a study of at-risk middle school students enrolled in an afterschool intervention program, Herrera et al. (2013) found that participation led to significant GPA gains. The analysis of this program showed that participating youth and nonparticipating peers performed similarly after the first year. However, after 2 years, participating youth showed significant GPA gains compared to nonparticipating peers (Herrera et al., 2013). Thus, researchers have found that quality afterschool intervention programs help at-risk students become more engaged in school and raised their GPAs (Afterschool Alliance, 2014b).

Discussion of Variable Attendance

The Afterschool Alliance (2014b) found that students regularly participating in an academic intervention program tended to not only show academic growth but also in RSA. Moreover, youth who took part in this afterschool program for 2 years saw even

more significant gains, missing approximately 25% fewer days in RSA than nonparticipating peers. Also, Naftzger et al. (2013) studied an afterschool intervention program, the 21st Century Community Learning Centers, located in Texas. The researchers found that attending the program decreased students' school-day absences. The at-risk students in this afterschool program decreased their rate of being absent from regular school by 14%. Those who had high levels of engagement had a 15% decrease in absenteeism from regular school. Thus, according to Naftzger, participants in this afterschool learning program had increased school-day attendance rates.

Summary

As previously stated, the purpose of this quantitative, ex-post-facto study was to determine whether changes in the official TEOCT scores, GPA, and RSA for at-risk, English 10 DHS students who participated in the ASRIP differed from those of students who did not participate. Afterschool reading intervention programs have become prevalent factors of instructional success. Furthermore, the NCLB (2001) outlined the requirements and responsibilities of the teachers, school districts, states, and the federal government toward ensuring each child receives an education of quality, excellence, and equity. Furthermore, according to NCLB, the school must offer supportive services to assist the at-risk of failing students. An afterschool reading intervention program created for at-risk students should address the individual needs of the diverse student population and must offer reflective, reactive, and responsive ongoing assistance to reach each at-risk student's educational needs. Taheri and Welsh (2016) stated that when at-risk students have appropriate instructions, this allows them to improve academically; they

achieve at a higher level of excellence. Thus, an afterschool reading intervention program that implemented the use of a constructivist approach and catered to the diverse and individual needs of every learner is appropriate.

Section 3: Research Method

The reason for this study was to determine the influence of an ASRIP on at-risk English 10 students' GPA, RSA, and official TEOCT scores. The study was designed to investigate the implementation of the ASRIP involving 59 at-risk English 10 students at an urban high school. The objective was to determine if there were differences in the pretest and posttest change of 3 dependent variables, TEOCT, GPA, and RSA, between the two groups: nonparticipants and participants in the ASRIP.

Research Design and Approach

When determining the research design for a particular project, it is vital to consider the nature of the information to be used in the study, how the data can be collected, and how the information will be analyzed (Creswell & Creswell, 2018). The most appropriate research design to implement in this study was the ex-post-facto method. Archived student data included afterschool reading intervention program attendance, official TEOCT scores, GPA, and RSA from the 2012-2013 school year was retrieved and analyzed using ANOVA. The purpose of this analysis was to determine if the afterschool reading intervention program had a measured change in GPA, RSA, and performance on the official TEOCT of at-risk English 10 students. Archival data were examined using the ex-post-facto method, a variation of the nonequivalent group design (NEGD), to compare the two groups. In education, most NEGD research examines two groups after one group has received some treatment that is expected to change the knowledge or performance on some outcome (Creswell & Creswell, 2018). All at-risk

students had the opportunity to participate in the ASRIP, but only 40 chose to participate. These students formed the de-facto treatment group. The remaining 19 students who decided not to join served as the comparison group.

Additionally, most NEGD research in education uses comparable classrooms, groups of students, or schools (Creswell & Guetterman, 2019). It is ideal to select groups that are as similar as possible and randomly assign the two groups, one the experimental group and the other as the control group to compare differences between them (Creswell & Guetterman, 2019). However, in the ex-post-facto method, this was not possible. Group formation occurred due to some preexisting circumstances that I could not control. In the case of DHS, the 59 at-risk students considered in this study were divided into two groups by each student's decision to participate or not participate in ASRIP. The 40 participants who formed the experimental group chose to accept the treatment. The 19 who did not participate in the intervention became the de facto control group by their decision not to participate in the program.

Because the program had already ended, there was no opportunity to control the participants' group assignments, which eliminated any opportunity for a traditional NEGD design. Therefore, an ex-post-facto method was selected. Creswell and Creswell (2018) pointed out that this method provides statistical data among two or more variables, without any manipulation. For that reason, it is essential to use another option, a rigorous research method that allows researchers to consider important questions when data do not meet more traditional requirements. In this study, an ex-post-facto method indicated if students' TEOCT scores had improved through attendance in the afterschool reading

intervention program. Additionally, I determined if participation in ASRIP had a collateral effect by enhancing GPA and RSA as well.

The archival data for this study included two test scores for the TEOCT, GPA, and RSA of the 59 students. The practice test was on October 1, 2012, and the official test was on May 9, 2013. RSA and GPA data were collected from attendance and academic records for the 2011-2012 and 2012-2013 school years to determine if ASRIP influenced these measures as well.

Justification for Methodology

According to Creswell and Creswell (2018), the purpose of experimental research was to show a cause-and-effect relationship by manipulating at least one variable (namely, the treatment or independent variable) to produce different outcomes in other variables (usually called dependent variables). It was not always attainable to control these variables due to the nature of research in education. Implementation of educational policy does not always neatly allow researchers to manipulate variables that relate to the plan. Creswell and Creswell suggested that this is a compelling reason to conduct non-experimental research in education: For most circumstances, it is impossible to assign individuals to treatment conditions randomly.

In studies involving afterschool reading intervention programs, quantitative, nonexperimental designs are appropriate because experimental and control groups already exist, there is a similarity of the groups, sample participants choose to participate in the treatment, and random assignment is lacking (Johnson & Christensen, 2019). When implementing an ex-post-facto design, the researcher introduces an intervention and

measures its results two times through pretest and posttest measurements (Johnson & Christensen, 2019). Thus, conducting an ex-post-facto study is essential because this method offers practical options for researching a real-world setting.

Given the nature of this study, the only available method to research the influence of the ASRIP on students was to look retrospectively at students who participated in the program. The practice test and official test were administered several months apart, and the length of the ASRIP required following the students during the interim. Additionally, to evaluate the influence of the ASRIP on GPA and RSA, the most appropriate units to compare were the yearly GPA and RSA from the previous school year, 2011-2012, with the data from the year under consideration, 2012-2013.

In examining the effects of the ASRIP, the experimental approach was rejected.Experimental designs require that research participants be randomly assigned to control and experimental groups (Edmonds & Kennedy, 2016). However, because the ASRIP had already taken place, this was not possible. Due to this condition and to use only archival data, the best method was to explore the research question by using the nonexperimental method. Additionally, since the testing and tutoring process is part of the overall educational purposes of the school, an experimental design would not apply to this study. It is impossible (because of federal and state mandates) and unethical to only offer the tutoring program to some at-risk students but not others. Edmonds and Kennedy contended that quantitative, nonexperimental research designs are a strategy for educational researchers because many necessary, yet nonmanipulable, independent variables need further study.

Finally, Creswell and Creswell (2018) suggested using quantitative methods to collect data by using inquiry and deductive approaches to produce reliable and valid results during statistical analysis. For this research, data included TEOCT practice and official scores, GPA, and attendance. Analyzing data collected from groups in a nonexperimental research design using descriptive statistics and mixed ANOVA is appropriate (Creswell & Creswell, 2018). Therefore, these methods were implemented to analyze the TEOCT practice and official scores, GPA, and attendance. The mixed ANOVA can be used to determine differences in change between two groups measured on the same dependent variable at two points in time (Creswell & Creswell, 2018). The mixed ANOVA is used to determine if there is an interaction between these two factors (groups and time) that affect the dependent variable (Creswell & Creswell, 2018). SPSS software was used to perform the descriptive statistics and mixed ANOVA calculations, which was used to evaluate the null hypothesis.

Setting and Sample

At DHS, the afterschool reading intervention program gave all students scoring below 70% on the practice TEOCT the opportunity to participate in the ASRIP. A total of 59 out of 120 students scored below 70%. All 59 of these students had the opportunity to participate in the intervention to receive assistance in preparing for the official TEOCT. Of the total 59 students invited into the program, 19 chose not to participate. The remaining group of 40 students decided to take part in the intervention. These 40 students participated consistently until the end of the afterschool intervention program at DHS in 2012-2013; the remaining 19 did not attend. Parents were contacted in writing and by

phone to encourage students to join. Students had individual meetings with teachers where students had a chance to take part in the program. Ultimately, however, it was the choice of the student and parents to participate in the ASRIP.

The sample came from students enrolled in English 10 at DHS, an urban high school located in a large metropolitan area in Tennessee. For the 2012–2013 school year, DHS had a population of 682 students, 7% Hispanic/South Asian, and 93% African American. A total of 211 students enrolled in English 10 for the 2012–2013 school year. The official TEOCT constituted 25% of a Grade 10 student's course grade each year. Failure to pass the official TEOCT made it highly unlikely that a student would pass the course. Thus, I employed a nonrandomized convenience sample, a subset of participants from a group based on specific key characteristics that were used to select the sample (Creswell & Creswell, 2018).

Fifty-nine students were determined to be at risk of failure in Grade 10 because they scored less than a score of 70% on the practice TEOCT on October 1, 2012. Using G*Power to evaluate this study, the power level was calculated to be 0.84. The power level was determined by considering a mixed ANOVA method, a medium effect size of 0.25, an alpha value of 0.05, two groups with four measures, a correlation among repeated measures of 0.5, and an a priori sample size of 59. This analysis seems to fall within acceptable parameters; normative statistical practice seems to be that power of 0.8 or above is considered acceptable, but there is no reason to think that this figure is always appropriate (Hedges & Rhoads, 2010**).** As mentioned earlier, parents were contacted in writing and by phone to encourage students to participate; teachers held individual

meetings with students allowing them the opportunity to take part in the program. Ultimately, however, the students and parents decided to participate in the ASRIP. Forty of the students chose to attend regularly (at least 80% of ASRIP sessions), and these 40 participants comprised the experimental group. Nineteen of the students did not want to participate in the afterschool reading intervention program (attended three or fewer ASRIP sessions); these 19 nonparticipants were the control group.

Table 1 details demographic data pertinent to the total population, race/ethnicity, and socioeconomic status of students at DHS. Almost all students involved in the study received free or reduced lunch, 97% in 2010-2011, 94% in 2011-12, and 88% in 2012-13. Additionally, the vast majority of students were African American, 86% in 2010-11, 93% in 2011-12, and 96% in 2012-13.

Table 1

Demographic Data for DHS Students

School year	Total students	Race/ethnicity	Race/ethnicity	Economic status
		African American	Hispanic, Asian	% of students receiving free/reduced-cost lunch
2012-2013	689	96%	4%	88%
2011-2012	682	93%	7%	94%
2010-2011	832	86%	14%	97%

Table 2 indicates the number of students in Grade 10, the percentage of students who passed the TEOCT, and the number of certified Grade 10 teachers. From 2010-13 the TEOCT scores of the students were deficient. In 2013, 30% of the 208 students who took

the TEOCT passed. The year 2011-12, 10% of the 284 students who took the TEOCT passed. In 2010-11 19% of the 152 students passed the TEOCT. Interestingly, the pass rate for the TEOCT increased from 10% in 2011-12 to 30.4% in 2012-13, the year the ASRIP was implemented and which is being considered in this research.

Table 1

DHS English 10 Students and Teachers

School year	DHS 10th grade students	% of students passed TEOCT	Number of state-certified teachers for 10th grade English
2012-13	208	30.4%	2
2011-12	284	10%	3
2010-11	152	19%	2

Table 3 shows the number of students who were involved in the study, their racial/ethnic identity, and the percentage of students who faced challenging economic status, defined as students who receive free/reduced-cost lunch. The 40 students who participated in the ASRIP were African Americans. Of the 40 students, 95% were challenging economic status. Of the 19 nonparticipating students, 21% were Hispanic, and 84% were of challenging economic status.

Table 2

Race/Economic Status of Study Participants

		Race/ethnicity		
ASRIP Group	Number	African American	Hispanic	Challenging economic status
Participating	40	100%	0%	95%
Nonparticipating	19	79%	21%	84.3%

Treatment

The ASRIP began in October 2012 and ended in May 2013. Participants were tutored after regular school hours, Tuesday through Thursday, from 2:30 p.m. until 4:30 p.m. During these times, an individualized academic intervention plan (AIP) was assigned to each ASRIP participant. Each participant's AIP was designed to correspond with the state curriculum and instructions approved by the Tennessee Department of Education Standards (TDOE, 2013). The primary source study materials used for the students' AIP included independent text work from the Tennessee End of Course Coach, Gold Edition, English II Book (ECB; Triumph Learning, 2013), ancillary materials, teacher-directed instruction, and the Reading Plus Assignment (RP) digital software (Reading Plus Assignment, 2013).

The participants individually completed independent lessons from the ECB. This book provided the students with TEOCT sample lessons and included test items. Each of the assignments had three parts. The first part introduced and explained skills; the second part gave the students a model or an opportunity to practice with the techniques and check progress. The third part gave the participants the chance to practice the craft and monitor progress (Triumph Learning, 2013). Also, computerized TEOCT lessons provided students the opportunity to answer sample questions for the TEOCT and get immediate feedback.

The students' AIP included the students working on RP digital software. The RP digital software is a silent reading assessment and offers intervention solutions (Reading Plus Assignment, 2013).

This program provides the students individualized strategies to build a foundation for academic achievement. The RP digital software was assigned during ASRIP to participants for 1 hour a day. The participants and I were able to assess reports from their individualized RP digital software completed assignments to track achievement and progress for me to prepare the students academically through guided practice.

Additionally, as previously stated, students spoke with me individually during the ASRIP. The one-on-one time was an opportunity for students to ask questions, receive feedback, and reflect on learning and progress. These sessions were individualized but focused on helping prepare the students for the official TEOCT. I maintained detailed records of participation in the afterschool reading intervention program. The students signed in and out when they attended ASRIP. If a participant was absent, I made a follow-up call to parents or guardians to ensure that parents were aware of the absence and to encourage continued student attendance. I volunteered to tutor during the afterschool intervention program. Additional phone calls were also made once per month to parents to provide praise for student participation as well as provide parents with feedback on their student's progress.

Instrumentation and Materials

In this study, archival data were analyzed, including TEOCT practice scores (TEOCT0), TEOCT official scores (TEOCT1), attendance percentages (RSA0, RSA1), and GPA values (GPA0, GPA1). The TEOCT is a research-based English 10 assessment that is used to examine the skills students have learned and the skills needed in the areas of language, communication, writing, research, logic, information text, media, and

literature (Triumph Learning, 2013). TEOCT is aligned with the Tennessee State Standards for English 10 and is the English diagnostic assessment used to identify the skills the students have mastered and those skills the students have not learned. For English/Language Arts education, the test served two functions. First, it produced normative, raw data, interval stanines, percentages, and scale scores for six categories used to report scores from the test. The reporting categories identified trends in student performance. Thus, using test results from the previous year, teachers adjusted teaching strategies to meet the needs of students.

Furthermore, a practice TEOCT, given early in the school year, provided individual diagnostic information about the students' academic level. These results of the diagnostic information assisted the teacher in identifying the specific needs of individual students. Second, the test offered policymakers a simple method to determine student proficiency in English language arts. The TEOCT overall score is generated based on the student's raw score on the test. This total score was used to determine which students passed or failed. The content of the test and state standards were found to be significantly positively related at the .001 level. In this study, the overall score, ranging from 0-100, will be used. This score was a simple percentage determined by dividing the number of questions answered correctly by the total number of items. The official test is of the same length and has the same number of components as the practice TEOCT.

Participants were administered the practice TEOCT on October 1, 2012, and the official TEOCT was given to the participants in May 2013. The score of the TEOCTs

ranges from 0 to 100. The students scoring 70 or less on the practice TEOCT are deemed to be in danger of not passing the official TEOCT.

The practice TEOCT identifies the areas in which the student was deficient. The testing teachers' score students and item analysis for each student's scores were calculated to determine the specific standards on which individual students must focus. Pearson Education scores the official test; the students scoring less than 70 are ranked as Below Basic (nonpassing). Students scoring in the 70-84 range are rated Basic, students in the 85-94 range are classified Proficient, and students in the 95-100 field are considered Advanced.

After the practice TEOCT was administered, test data are collected and analyzed. The students scoring below basic were offered the ASRIP program in English 10 classes. These students, then, self-determined placement in one of two groups: student participants in the afterschool reading intervention program (ASRIP1) and students not participating in the afterschool reading intervention program (ASRIP0). The students were assigned no identification numbers to differentiate between the two groups. Additionally, in this study, two other variables, GPA, and RSA were used to determine the influence of the ASRIP.

As noted earlier, GPA and RSA for school years 2011-2012 and 2012-2013 were retrieved. The GPA measured on a scale of 4.0 and included the students' overall GPAs for 2011-2012 (denoted as GPA0) and 2012-2013 (indicated as GPA1). The second variable, RSA, consisted of the students' overall attendance, which was calculated by

summing the number of total days absent as noted by teachers in the PowerSchool program from school years 2011-2012 (RSA0) and 2012–2013 (RSA1).

The at-risk English students' practice scores and data were collected, and the students were assigned fictitious identities. The participants' official TEOCT scores, GPA, and RSA were retrieved from the official school district transcripts. The school district was contacted via a personal phone call, followed by a visit to the district office with a letter requesting the official school transcripts. The goal was to access meaningful data regarding the intervention program and its effect on the participants' academic performance and behavior. These data were used in comparison to data for the other at-risk English students not attending ASRIP.

Validity

Validity in an ex-post-facto design requires adequate sampling procedures, measurement procedures, and statistical tests (Creswell & Creswell, 2018). The validity determines the degree to which a conclusion is credible. In quantitative studies, researchers must convince others correct procedures were in place and diligently followed. They must follow proper data collection or retrieval procedures and adhere to proper statistical analysis procedures. Additionally, I assumed teachers accurately recorded attendance in the Power Teacher system, which the district uses to document student class attendance, practice TEOCT scores, and official TEOCT scores, GPA, and RSA were accurately recorded and collected.

TEOCT

According to the TDOE (2013), TEOCTs are criterion-referenced tests that measure student progress towards meeting predetermined benchmarks called the Tennessee State Performance Indicators (SPI). The TDOE established student achievement criteria and created parameters to assess schools and student performance at these schools. The testing agencies have spent a great amount of time and study developing tests that determine students' mastery of these SPIs (TDOE, 2013). According to the TDOE, the TEOCT components and Tennessee SPIs were found to be significantly positively related to each other at the .001 level.

Content-related validity–in achievement tests was evidenced by correspondence between test content and instructional content. The developers conducted a comprehensive curriculum review and met with educational experts to determine common educational goals and the knowledge and skills emphasized in curricula. In turn, test developers used this knowledge to write items and assemble tests that reflect the knowledge and skills emphasized in the curriculum for each content area.

Construct validity–what test scores mean and what kinds of inferences they support – is the central concept underlying the EOC test validation process. Evidence for construct validity is comprehensive and integrates proof from both contents- and criterion-related validity. For example, to demonstrate content-related validity, EOC tests must contain items that represent essential instructional objectives. The details for the TEOCT were developed to reflect the skills expected in TEOCT tests using Tennessee performance

standards and SPIs for each content area. Confirmatory factor analysis and correlation analysis were used to examine the construct validity of the TEOCT.

Internal Validity

According to Creswell and Creswell (2018), internal validity means evidence that a program caused the outcome of the program to happen. Also, Creswell and Creswell stated the internal validity of a research design implies adequate controls have been put in place to eliminate or account for any external influences on variables and assure the conclusions drawn offer an accurate representation of the collected data. In this study, the largest area of concern for internal validity was the use of preexisting groups. The expected differences found in the data between the two groups based on the practice TEOCT scores and the official TEOCT scores GPA and RSA resulted from the initial differences between members of the groups and not just the treatment. Of the 59 students considered in the study, 57 were African American; two were Hispanic/South Asian who self-selected to be in ASRIP0. Methodological steps were taken to analyze the preexisting groups and determine if they were equivalent. Results from the mixed ANOVA were used to evaluate the groups on each variable to determine if they were with reasonable confidence, comparable.

Teachers have database access for each student's RSA they are currently teaching. For retrospective data collection, general access was available. However, district officers verbally agreed to provide information on specific students with institutional review board (IRB) approval. A program called PowerTeacher (2013) is used to maintain attendance and course grades at all schools in the district. For this study, I assumed all

teachers took responsibility for maintaining class attendance electronically in PowerTeacher as is required of them by school district mandate and state law. Every teacher is required to enter attendance electronically within the first 15 minutes of each class throughout the day. Students' grade reports contained the total number of absences and tardies for each class for the grading period. On the students' grade report, students received the grade earned for class.

GPA information, cumulative and quarterly, was recorded in PowerTeacher for the students. The program maintains the GPA, PowerTeacher (2013), through the school district, with every teacher mandated to record grades in PowerTeacher electronically. These grades are calculated electronically, providing the GPA for all the students in the study.

ASRIP Attendance Data

Attendance and participation records for the ASRIP confirmed student participation. Students were required to sign in and sign out to verify attendance data. I maintained these records and verified that students correctly logged the time spent in the ASRIP.

Reliability

According to Creswell and Creswell (2018), reliability concerns itself with consistency, stability, and repeatability of the measure collected. A pretest and posttest can be evaluated for stability and the results of both tests can be measured for consistency (Privitera, 2018). Three aspects of this study warrant a discussion of reliability. First is the TEOCT, which was designed and implemented in 2012 by Pearson Education

(Pearson, 2013). Second is student GPA and RSA data collected from student records. The third is accurate ASRIP attendance and participation records.

TEOCT

The TDOE assessed the reliability of the official TEOCT. According to TDOE (2013), the official TEOCTs used KR-20 (Kuder & Richardson, 1937) as a measure of internal consistency. Note that Cronbach's alpha is equivalent to KR-20 for tests with selected-response items. Based on the reliability estimates (greater than or equal to 0.88 for all forms), each of the test forms performed satisfactorily, both overall and concerning the other forms of the test.

GPA and RSA Data

I needed to assume that teachers reported attendance accurately, as mandated by state law, and provided grades that accurately reflect student performance in the course taught. Because all teachers at DHS were state-certified, professional teachers, I deemed it reasonable to assume that GPA and RSA data were recorded accurately.

Data Collection and Analysis

The three RQs considered in this study were addressed by comparing three sets of data to determine the effect of the ASRIP on: (a) the official TEOCT score, (b) GPA, and (c) RSA. Comparing the results of the TEOCT, GPA, and RSA of the groups, nonparticipants and participants determined the effectiveness of the ASRIP.

Because the assignment into groups was not random, which resulted in the use of a nonexperimental design, it was essential to verify that the groups were relatively comparable. Descriptive statistics were used to evaluate intergroup characteristics. These

made it possible to look at the group membership and determine if they appear to be relatively similar. Additionally, the mixed ANOVA was used to determine whether the groups are relatively similar.

Once comparability was determined, the mixed ANOVA was used to analyze the three dependent variables, TEOCT, GPA, and RSA, to determine if there was an interaction between the ASRIP groups and the two testing points in time. The difference in change of the means between the two groups for each of the dependent variables demonstrates whether there was a significant effect of the ASRIP on each of the variables.

Research Questions and Hypotheses

The following research questions and accompanying hypotheses will direct this study:

RQ1: How does the change from mean pretest to mean posttest TEOCT scores differ for at-risk English 10 student participants in the ASRIP in 2012-2013 compared to the at-risk English 10 students not participating in the program?

$H_0$1: There is no significant difference in change from the mean pretest to mean posttest TEOCT scores for at-risk English 10 student participants in the ASRIP in the 2012-2013 school year when compared to at-risk English 10 students not participating in the program.

H_a1: There is a significant difference in the change from mean pretest to mean posttest TEOCT scores for at-risk English 10 student participants in the ASRIP when compared to at-risk English 10 students not participating in the program.

RQ2: How does the change from mean pre-test to mean posttest RSA scores differ for at-risk English 10 student participants in the ASRIP in the 2012-2013 school year when compared to at-risk English 10 students not participating in the program?

$H_0$2: There is no significant difference in change from the mean pretest to mean posttest RSA scores for at-risk English 10 student participants in the ASRIP in the 2012-2013 school year when compared to at-risk English 10 students not participating in the program.

H_a2: There is a significant difference in change from the mean pretest to mean posttest RSA scores for at-risk English 10 student participants in the ASRIP in the 2012-2013 school year when compared to at-risk English 10 students not participating in the program.

RQ3: How does the change from the mean pretest to posttest GPA differ for at-risk English 10 student participants in the ASRIP in the 2012-2013 school year when compared to at-risk English 10 students not participating in the program?

$H_0$3: There is no significant difference in change from the mean pretest to mean posttest GPA for at-risk English 10 student participants in the ASRIP in the 2012-2013 school year when compared to at-risk English 10 students not participating in the program.

H_a3: There is a significant difference in change from the mean pretest to mean posttest GPA for at-risk English 10 student participants in the ASRIP in the 2012-2013 school year when compared to at-risk English 10 students not participating in the program.

Protection of Participants' Right

Only archived data was used in this quantitative, nonexperimental design. The data included the study participants' practice and official TEOCT scores, GPA, and RSA. After receipt of Walden University IRB approval (# 12-07-17-0086223), permission was granted from the school district to retrieve data from DHS. Data were gathered and analyzed without reference to the identification of the individual participants. All information from the study will be maintained in a locked file for at least 5 years beyond this study.

A researcher may have a predisposition to favor or disfavor a group of participants or a preference for an outcome (Creswell & Poth, 2017). Independently or combined, these biases (intentional or not) may affect the management of the research project, data interpretation, or recommendations (Creswell & Creswell, 2018). Also, Creswell and Creswell emphasized the importance of data confidentiality and stated that bias often occurs in the planning, data collection, analysis, and publication phases of research. Thus, as previously noted the 40 participants were not chosen by the researcher to participate but volunteered. Selection bias cannot be quantifiable since the participants volunteered to attend ASRIP (Meinck et al., 2017).

For 39 years, I taught English, including 14 years at DHS. I was a part of the TEOCT administration team and a member of the ASRIP faculty. Although I worked with the students who were in the ASRIP, I analyzed archived data, which limited bias. Also, using statistical analysis limited the intrusion of personal opinions about the research problem and topic.

Summary

The implementation of this study was to determine if an ASRIP significantly affected the official TEOCT scores, GPA, and RSA of at-risk English 10 high school students. Data for two groups of at-risk students were considered to determine if participation in the ASRIP affected the TEOCT, RSA, and GPA of these students. Students divided into two groups: a treatment group and a control group. An analysis was conducted to determine the comparability of the two groups. Then, for each of the dependent variables, the mixed NOVA analysis was used to determine if there was a difference between the mean scores of the two groups. The results of the report were discussed in Section 4.

Section 4: Results

In this study, I considered three research questions where I sought to determine if participation in an ASRIP affected TEOCT, RSA, and GPA. I hypothesized that participation in the ASRIP would have a positive effect on these three dependent variables. More specifically, I examined the efficacy of the DHS afterschool reading intervention program as a remediation tool for at-risk English 10 students who participated in the program as compared to nonparticipants. In this study, an at-risk student is one who scored less than 70% on the TEOCT pretest. I investigated whether there was a difference between the TEOCT pretest and official TEOCT test scores, in GPA between Grade 9 and Grade 10 and RSA between Grades 9 and 10 in the two groups of students. In this section, I have provided an overview of the study, sample description, statistical analysis, tables, graphs, and findings, and a conclusion.

Research Tools

After approval from the Walden University IRB, an examination of three types of archival data commenced. Archival data included TEOCT pretest scores, official TEOCT scores, ninth grade GPA, 10th grade GPA, ninth grade RSA, and10th grade RSA. For this study, archival data were received from the school district office via email. The school district removed all identifying information of students involved in the research before providing me with the information via email notification.

Description of Sample

As previously stated, 59 at-risk English 10 students from DHS were considered in this study. For Group 1, the participant group comprised the 40 students who chose to attend ASRIP regularly. The 19 students who did not participate regularly represented the nonparticipant group. Table 4 shows the distribution by race/ethnicity for both the participant and nonparticipant groups. Table 5 shows the distribution by economic status (disadvantaged, nondisadvantaged) for both the participant and nonparticipant groups. None of the Hispanic students chose to participate in the study, while about 77% of African American students did choose to participate. Additionally, most students who did choose to participate came from economically disadvantaged circumstances.

Table 4

Race/Ethnicity by Groups

	Nonparticipants		Participants	
	n	%	n	%
African American	15	79%	40	100%
Hispanic	4	21%	0	0%

Table 5

Economically Disadvantaged by Groups

	Nonparticipants		Participants	
	n	%	n	%
Disadvantaged	16	84%	38	95%
Nondisadvantaged	3	15%	2	5%

Although it was difficult to compare group demographics because of the relatively small numbers, the students who participated in the ASRIP generally reflected the demographics of the high school. In 2011, 93% of DHS's students were African American, and 7% were Hispanic. Further, 94% were economically disadvantaged. The descriptive statistics showed that most students in both groups fell into the category of economically disadvantaged, with 84% in the nonparticipant group and 95% in the participant group. Similarly, the racial/ethnic background of the largest group who participated in the ASRIP intervention was African American. Since the composition of the two groups was alike on both factors, no analysis of the data was conducted based on race/ethnicity or economic status.

Data Analysis

A one-factor mixed ANOVA test was used to analyze TEOCT, GPA, and RSA data. By examing these three variables, the research questions defined in the project were explicitly addressed. RQs 1, 2, and 3 are considered sequentially in this section.

The mixed ANOVA was chosen rather than a two-way repeated measures ANOVA because of the nature of the participants and nonparticipants. According to

Laerd Statistics (2015), in a two-way repeated measures ANOVA all participants must undergo all conditions; in this case, the pretest, the intervention, and the posttest. However, with the group of students considered here, 19 nonparticipants chose not to take part in the intervention. Because of this, the students were divided into a between-subjects factor, choosing to participate in the intervention. Therefore, the mixed ANOVA was chosen as the best test to evaluate the data.

According to Laerd Statistics (2015), eight assumptions must be met to verify that the results of the mixed ANOVA analyses will be valid. These data easily meet the first three and the eighth. First, the dependent variables are continuous. For TEOCT, RSA, and GPA, all the scores are continuous measures appropriate to the data: TEOCT is the number of questions answered correctly on pretest and posttest, RSA is the number of days absent for ninth grade and 10th grade, and GPA is numerical GPA on a range of 0.0-4.0 for ninth grade and 10th grade. Second, the within-subjects factor should consist of at least two categorical matched pairs. For all 59 students, pre- and post- intervention data are available for three categories: TEOCT, RSA, and GPA. Third, a between-subjects factor should consist of two categorical groups. In this case, the between-subjects factor is choosing to participate, or not, in the ASRIP. This categorical variable provides the primary purpose for the analysis, whether the ASRIP affected TEOCT, RSA, and GPA. Finally, the eighth assumption is that the variances of differences between groups should be equal (Laerd Statistics, 2015). This assumption is also easily met by these data. The test of sphericity is used to test this assumption; however, it is not necessary when the within-subjects factor has only two categories. All three of the measured variables,

TEOCT, RSA, and GPA, only have 2 within-subject categories. Therefore, this assumption is met for all three variables. Next, Assumptions 4 and 5 are considered.

Assumption 4 states that there should be no significant outliers in any cell of the data (Laerd Statistics, 2015). Assumption 5 states that there should be an approximately normal distribution of the dependent variable (Laerd Statistics, 2015). These two assumptions were tested using the SPSS program. First, Assumption 4 was tested by generating box plots of the within-subjects variables by group. For all three variables, TECT, RSA, and GPA, no outliers were identified by inspection of the box plots. Next, Assumption 5 was evaluated for all the within-subjects and between-subjects factor combinations. Initially, the Shapiro-Wilk test was used to evaluate each within-subjects factor for the three factors. According to Laerd Statistics, if the significance value of the Shapiro-Wilk test is $p < 0.05$, then the assumption of normality has been violated; conversely, if significance value is $p > 0.05$, then normality is confirmed. For GPA, the Shapiro-Wilks significance values were greater than $p = 0.05$ for all within-subjects groups: Group 1, GPA1, $p = .448$; Group 2, GPA1, $p = .540$; Group 1, GPA2, $p = .841$; and Group 2, GPA2, $p = .149$. Therefore, GPA meets the requirement for assumption for normality. However, for RSA and TEOCT, the assumptions for normality were violated, with the significance values for all within-subjects groups less than $p = .05$. Because the assumption of normality was violated, according to the Shapiro-Wilks test for both TEOCT and RSA, a decision needed to be made to acknowledge the violations and move forward or transform the data and reconsider the results. Both options were carefully considered. I decided to continue with the analysis and not transform the data. In general,

ANOVA analyses are considered to be fairly robust (Laerd Statistics, 2015). Choosing to use the untransformed data and continue with the analysis was a judgment call that seemed most appropriate in this case.

The final two assumptions to be evaluated are Assumption 6, homogeneity of variances, and Assumption 7, homogeneity of covariances. Concerning Assumption 6, homogeneity of variance was confirmed as assessed by Levene's test of homogeneity of variance ($p > .05$) for all three variables, TEOCT, GPA, and RSA. Assumption 7 was evaluated using Box's test of equality of covariance matrices. The assumption is confirmed when $p > .05$, as it was for the three variables, TEOCT ($p = .643$), GPA ($p = .796$), and RSA ($p = .471$).

With the assumptions evaluated, the results of the analyses were then considered. The variables, TEOCT, RSA, and GPA, are considered below as related to the research questions outlined in this project.

RQ1: How does the change from mean pretest to mean posttest TEOCT scores differ for at-risk English 10 student participants in the ASRIP in 2012-2013 compared to the at-risk English 10 students not participating in the program?

$H_0$1: There is no significant difference in change from the mean pretest to mean posttest TEOCT scores for at-risk English 10 student participants in the ASRIP in the 2012-2013 school year when compared to at-risk English 10 students not participating in the program.

H_a1: There is a significant difference in the change from mean pretest to mean posttest TEOCT scores for at-risk English 10 student participants in the ASRIP when compared to at-risk English 10 students not participating in the program.

The analysis for RQ1 was a one-factor mixed ANOVA conducted on the dependent variable, TEOCT.

Table 6 shows the results of the mixed ANOVA for the data from the TEOCT pretest and posttest. The between-subjects comparison indicates there was a significant difference between the nonparticipant and participant groups, $F(1, 57) = 8.734$, $p = .005$, with the participant group having higher scores on both pretest and posttest. The within-subjects comparison indicates a significant difference between pretest and posttest scores, $F(1, 57) = 76.399$, $p < .001$, indicating increased scores for both groups. There was a medium effect size ($\eta = .573$). Further, there was also a significant interaction between the test period and group, $F(1, 57) = 7.747$, $p = .007$. There was a small effect size ($\eta = .120$).

Table 3

Results of Mixed ANOVA for TEOCT

Source	*df*	*F*	*η*	*p*
Between-Subjects				
Group	1	8.734	[315.237]	.005
Error	57	(36.091)		
Within-Subjects				
TEOCT	1	76.399**	.573	< .001
TEOCT X Group	1	7.747**	.120	.007
Error	57	(9.574)		

The interaction can more clearly be seen in Figure 1, where group 1 was the nonparticipant group, and group 2 was the participant group.

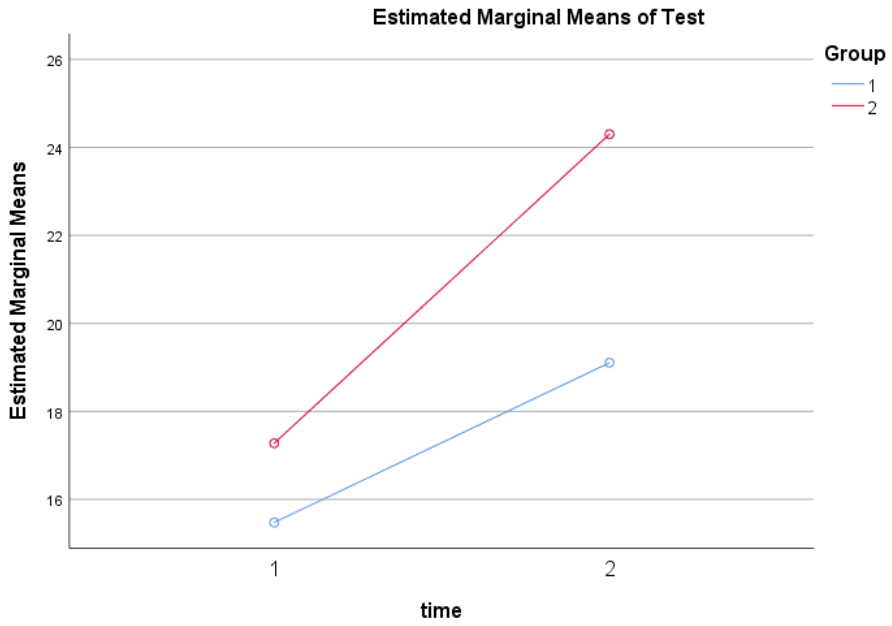

Figure 1. Interaction of group and test period for TEOCT.

Table 7 shows that the mean of the scores on the pretest and posttest TEOCT increased for both groups, from $M = 15.47$ to $M = 19.11$ for the nonparticipant group, and $M = 16.84$ to $M = 25.58$ for the participant group. However, the mean score increased to a much greater degree for the participant group as indicated by the significant interaction. Therefore, I can conclude that the answer to RQ1 was participation in the ASRIP appeared to have a significant effect on the change in mean scores between the pretest and posttest TEOCT.

Table 7

Descriptive Statistics for TEOCT by Testing Period and Group

	Nonparticipants			Participants		
Variable	*M*	*SD*	*N*	*M*	*SD*	*N*
Pre-test	15.47	2.91	19	16.84	3.25	40
Official TEOCT	19.11	5.89	19	25.58	5.14	40

RQ2: How does the change from mean pretest to mean posttest RSA scores differ for at-risk English 10 student participants in the ASRIP in the 2012-2013 school year when compared to at-risk English 10 students not participating in the program?

$H_0$2: There is no significant difference in change from the mean pretest to mean posttest RSA scores for at-risk English 10 student participants in the ASRIP in the 2012-2013 school year when compared to at-risk English 10 students not participating in the program.

H_a2: There is a significant difference in change from the mean pretest to mean posttest RSA scores for at-risk English 10 student participants in the ASRIP in the 2012-2013 school year when compared to at-risk English 10 students not participating in the program.

Pretest and posttest data were analyzed using a mixed ANOVA to test for differences in the mean RSA between subjects (nonparticipant and participant) and within-subjects (pretest to posttest). Tables 8 and 9 show the results of the analysis.

The analysis was a one-factor mixed ANOVA conducted on the dependent variable, RSA. Table 8 shows the results of the mixed ANOVA analysis from the RSA

pretest and posttest data. There was a significant interaction between the test period and group, $F(1, 57) = 13.055$, $p = .001$, with a small effect size ($\eta = .186$). The number of school days missed decreased significantly for the participant group but increased for the nonparticipant group. Because of the significant interaction, the between-subjects comparison indicated there was no significant difference in RSA between the nonparticipant and participant groups, $F(1, 57) = .775$, $p = .382$, and the within-subjects comparison did not show a significant difference between pre-test and posttest RSA $F(1, 57) = .794$, $p = .377$.

Table 4

Results of Mixed ANOVA for RSA

Source	*df*	*F*	*η*	*p*
Between-Subjects				
Group	1	.775	[234.618]	.382
Error	57	(302.587)		
Within-Subjects				
RSA	1	.794	.014	.377
RSAX Group	1	13.055	.186	.001
Error	57	(143.351)		

Note: Values in parentheses represent the mean square error. Values in brackets represent the mean square value.

A graph of the interaction in Figure 2 illustrates the effect, where group 1 is the nonparticipant group and group 2 is the participant group.

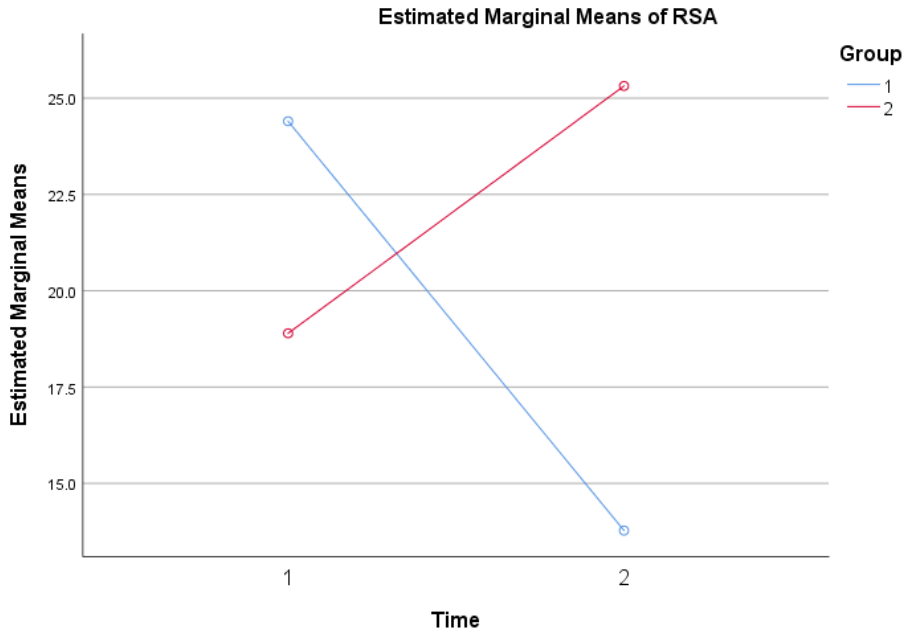

Figure 2. Interaction of group and test period for RSA

Results in Table 9 indicate that the mean of the RSA (indicating school days missed) increased on the posttest for the nonparticipant group (M = 18.89 to M = 25.32) and decreased for the participant group (M = 24.68 to M = 13.11). The Grade 9 RSA for the participant group was higher than the corresponding RSA for the nonparticipant group (M = 24.68 versus M = 18.89)in Grade 9. However, in Grade 10, the RSA decreased for the participant group (almost 10 fewer absences) while increasing the nonparticipant group (almost 5 more absences). Because of the significant interaction, I can conclude that the answer to RQ2 was that participation in the ASRIP appeared to have a significant effect on the change in mean RSA scores between the pretest and posttest RSA.

Table 9

Descriptive Statistics for RSA by Academic Year

	Nonparticipants			Participants		
Variable	*M*	*SD*	N	*M*	*SD*	N
Grade 9	18.89	14.21	19	24.68	15.47	40
Grade 10	25.32	19.83	19	13.11	8.99	40

RQ3: How does the change from the mean pretest to posttest GPA differ for at-risk English 10 student participants in the ASRIP in the 2012-2013 school year when compared to at-risk English 10 students not participating in the program?

$H_0$3: There is no significant difference in change from the mean pretest to mean posttest GPA for at-risk English 10 student participants in the ASRIP in the 2012-2013 school year when compared to at-risk English 10 students not participating in the program.

H_a3: There is a significant difference in change from the mean pretest to mean posttest GPA for at-risk English 10 student participants in the ASRIP in the 2012-2013 school year when compared to at-risk English 10 students not participating in the program.

Pretest and posttest data were analyzed using a mixed ANOVA to test for differences in the mean GPA between subjects (nonparticipant and participant) and within-subjects (pretest to posttest). The results shown in Tables 10 and 11 correspond to RQ3.

The analysis was a one-factor mixed ANOVA conducted on the dependent variable, GPA. Table 10 shows the results of the mixed ANOVA for the data from the GPA pretest and posttest. The between-subjects comparison indicated that there was a significant difference in GPA between the nonparticipant and participant groups, $F(1, 57) = 13.743$, $p < .001$. The within-subjects comparison did not show a significant difference between pretest and posttest GPA, $F(1, 57) = .541$, $p = .465$. Further, there was no significant interaction between the test period and group, $F(1, 57) = 2.558$, $p = .115$.

Table 5

Results of Mixed ANOVA for GPA

Source	*df*	*F*	η	*p*
Between-Subjects				
Group	1	13.743	[6.494]	< .001
Error	57	(.472)		
Within-Subjects				
GPA	1	.541	.009	.465
GPA X Group	1	2.558	.043	.115
Error	57	(14.123)		

Note: Values in parenthesis represent the mean square error. Values in brackets represent the mean square value.

A graph of the data is provided in Figure 3, where group 1 is the nonparticipant group, and group 2 is the participant group.

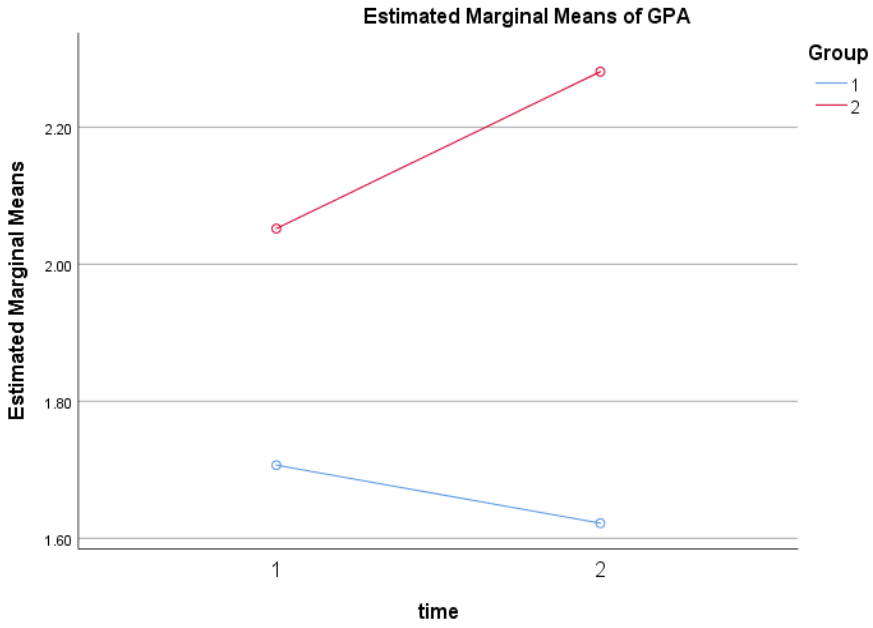

Figure 3. Interaction of group and test period for GPA.

Table 11 shows that the mean Grade 9 to Grade 10 GPA increased slightly for the participant group (M = 2.30 to M = 2.49) but decreased slightly for the nonparticipant group (M = 1.71 to M = 1.62). The between-subjects analysis indicated a significant difference between the groups, the mean scores suggested there appeared to be pre-existing differences between the groups. The mean GPA for Grade 9 (the pretest score) is higher for the participant group than the nonparticipant group. Therefore, I can conclude that the answer to RQ3 was that participation in the ASRIP did not have a significant effect on the change in mean GPA between Grade 9 and Grade 10.

Table 11

Descriptive Statistics *for GPA by Academic Year*

	Nonparticipants			Participants		
Variable	*M*	*SD*	N	*M*	*SD*	N
Grade 9	1.71	.53	19	2.30	.59	40
Grade 10	1.62	.48	19	2.497	.71	40

Summary

This section presented the results of the analyses conducted to respond to the three research questions for this study. Implementing the ASRIP did result in higher mean scores on the TEOCT for the participant group compared to the nonparticipant group and lower mean scores for RSA for the participant group compared to the nonparticipant group. However, implementing the ASRIP did not result in significantly higher mean scores for GPA for the participant group compared to the nonparticipant group. Section 5 includes discussion, conclusion, and recommendations about the study.

Section 5: Discussion, Conclusions, and Recommendations

This section provides an overview of the study and the research questions addressed. Additionally, Section 5 covers the interpretation of findings, the implications for social change, the recommendation for action, and guidance for further study.

Overview

Academic failure of at-risk students is a significant issue, nationally, as well as in Tennessee. Therefore, the results of an afterschool program to assist students in overcoming academic shortcomings are of utmost importance (Walker Graham, 2019). In this study, I examined whether changes in the official TEOCT score, GPA, and RSA for at-risk, English 10 DHS students who participated in the ASRIP differed from those of students who did not participate in the ASRIP. Students attended the ASRIP after regular school hours, Tuesday through Thursday, from 2:30 p.m. until 4:30 p.m. The ASRIP was implemented at DHS from October 2012 through May 2013. During that time, the individual academic needs of the 40 participants were assessed to increase their learning, improve TECOT scores, GPA, and RSA. Pretest and posttest data were evaluated using one-factor mixed ANOVA to determine if there were any statistically significant differences in the participants' TEOCT scores, GPA, and RSA. This study was conducted to evaluate the efficacy of the DHS's ASRIP as a remediation tool for at-risk English 10 students. The results suggested that participation in the ASRIP had a positive effect on TEOCT mean scores and on RSA mean scores. However, there was no significant effect of involvement in the ASRIP on GPA.

Interpretation of the Findings

In this study, one-factor mixed ANOVA tests were conducted to analyze TEOCT, RSA, and GPA data. By individually examining these three variables, the focal points of this quantitative research study provided answers to the research questions. Below are the three research questions and the interpretation of the findings.

RQ1: How does the change from mean pretest to mean posttest TEOCT scores differ for at-risk English 10 student participants in the ASRIP in 2012-2013 compared to the at-risk English 10 students not participating in the program?

In answering RQ1, the pretest and posttest data were reviewed using a mixed ANOVA to test the differences in the mean between subjects (nonparticipant and participant) and within-subjects over the October to May testing periods (see Table 6). The data analysis between subjects showed significant differences between the nonparticipant and participant groups. The within-subjects comparison indicated a significant difference between the pretest and posttest scores. There was a significant interaction between group and time. The interaction suggests that the at-risk English 10 student participants in the ASRIP showed greater improvement in TEOCT scores than the English 10 students who did not participate in the ASRIP. The mean scores on the pretest and posttest TEOCT increased for both groups; however, the mean scores increased to a higher degree for the participant group.

The improvement in test scores of the students who participated in the ASRIP affected the overall school evaluation. In 2012-13 DHS met its AYP requirements in part due to improved TEOCT scores. This growth in scores reinforces the notion that at-risk

Grade 10 students' participation in afterschool reading intervention programs improved state-mandated test scores (Ryal, 2016). The outcome of this study suggests that involvement for at-risk English 10 students in ASRIP had a significant effect on their posttest TEOCT. Parents, community, and stakeholders can view these results as a positive indicator to support offering supplemental instruction. Further, educators may see these results as an opportunity to continue to improve their instructional activities to make learning applicable and meaningful (Larrier et al., 2016).

RQ2: How does the change from mean pretest to mean posttest RSA scores differ for at-risk English 10 student participants in the ASRIP in the 2012-2013 school year when compared to at-risk English 10 students not participating in the program?

In examining RQ2, a one-factor mixed ANOVA was conducted on the dependent variable, RSA (see Table 8). There was no significant difference in RSA between the nonparticipant and participant groups. The within-subjects comparison indicated that there was no significant difference between pretest and posttest RSA. However, there was an indication of a significant interaction between the test period and group where the mean scores on the posttest RSA, reflecting school days missed decreased for the participant group and increased for the nonparticipant group; therefore, there was better attendance for the participant group and, conversely more school days missed and worse attendance for the nonparticipant group. The mean score on the posttest RSA for the Grade 10 nonparticipant group was higher than the participant group indicating that attending an afterschool reading program has a positive effect on the RSA of at-risk of failing students. Palko (2012) conducted a nonexperimental study of an afterschool

program, SHINE, to compare the RSA of participants and nonparticipants. Palko noted that students attending SHINE decreased their number of absences by 90%. Additionally, in a study conducted by the Afterschool Alliance (2014a), students who regularly attended an afterschool academic program progressed not only in academics but in improved attendance, too.

RQ3: How does the change from the mean pretest to posttest GPA differ for at-risk English 10 student participants in the ASRIP in the 2012-2013 school year when compared to at-risk English 10 students not participating in the program?

In answering RQ3, a one-factor mixed ANOVA was conducted on the dependent variable, GPA. There was a significant difference in GPA between the nonparticipant and participant groups, but this appeared to reflect the initial differences between the groups. The data did not show a significant difference in within-subject scores between the pretest and posttest, and there was no significant interaction between the test period and the group. Participation in the ASRIP did not have a considerable effect on the mean GPA scores between the Grade 9 and Grade 10. However, several researchers have found that an afterschool reading intervention program assisted at-risk of failing students to improve their GPA (see Holstead et al., 2015). In the case of this group of students, perhaps they were able to improve their performance on the TEOCT and their RSA because the ASRIP provided them with a chance to focus on specific, manageable skills. GPA, by its nature, comprises grades from a wide variety of classes and differing skills required to be successful in those classes. In order for GPA to improve significantly, students must be able to focus on all those classes and achieve improved results. Perhaps,

for this reason, they were able to achieve success in some areas, like English, but not all their classes as a whole.

Implications for Social Change

The results of this study confirm the positive effect of the ASRIP on students at risk of failing. According to Lindt and Blair (2017), high school students who are not academically achieving in school are most likely to give up on education, not graduate from high school, nor attend college. Their experiences of not performing at grade level in school may be related to at-risk students dropping out of school. These problems are enormous concerns for school administrators, teachers, parents, students, communities, and stakeholders. This quantitative ex-post-facto research study, based on the constructivist theory, was designed to investigate the implementation of the ASRIP involving at-risk English 10 students at an urban high school. Many schools employ successful afterschool programs that target low academic achievement high school students. The results of this study will serve as another approach to improve the learning environment. The information presented in this study was designed for the English 10 at-risk of failing students at DHS. However, it might be inferred that ASRIP, like the one implemented at DHS, could also have positive impacts for at-risk students in similar academic settings.

Recommendations for Action

The constructivist theory influenced ASRIP implementation. Using the constructivist approach in ASRIP affected the diverse and individual academic needs of every participant. This afterschool reading intervention program is a useful remediation

tool for unengaged students, and a guide to aid the at-risk students in becoming more involved in their learning (Akpan & Beard, 2016). This body of principles enables students to construct the meaning of their education and grasp the knowledge of understanding new educational concepts (Akpan & Beard, 2016).

As for recommendations for action, the establishment of the ASRIP should be considered in school districts where at-risk for failing students are struggling with passing state-mandated tests, low GPA, and poor RSA. Therefore, the school district should decide to offer this reading intervention program not only to English 10 at-risk of failing students but to all students. The ASRIP may be used by students voluntarily enrolling and receiving extra academic points to attend. At-risk students might be mandated to participate in the ASRIP afterschool tutoring sessions or an extended enrichment educational program in the summer to improve their academic achievements and social skills.

Recommendations for Further Study

Many K through Grade 12 at-risk students participate in afterschool academic reading intervention programs (McCombs, Whitaker, & Yoo, 2017). Further research is needed not only to focus on improving standardized testing scores, increasing GPA, and improving RSA but on enhancing social skills, increasing homework completion, adjusting work and study habits, and raising parental involvement (Durand, 2018). Incorporating afterschool reading intervention programs as an integral part of the educational curriculum may allow at risk of failing students the opportunity to receive more remediation daily during after school hours for 9 months instead of 7 months. Also,

the current study was limited to students enrolled in English 10 at DHS and not generalized to the entire population of DHS or the whole school district. The longer implementation of the ASRIP may also increase the probability of obtaining a larger sample size and a greater opportunity for possible generalization (see Pearl & Bareinboim, 2018).

For further study, it is essential to examine the program structure of the ASRIP because of the efficacy of individual parts, and AIP may prove to be more beneficial or useful than others. In the current study, the student's AIP was not considered. Perhaps it may be of significance to address the AIP in future research. Moreover, it will be advantageous to have continued assessment of the program participants to determine the long-term effects of the ASRIP on at-risk students' standardized test scores, GPA, and RSA, during their English 11 and English 12 courses (Jenson et al., 2018). Perhaps most importantly, for further study, the views of students, parents, school administrators at the district and local levels can be the focus of qualitative research regarding the ASRIP program and its efficacy.

Conclusion

Through the implementation of the ASRIP at DHS, at-risk failing students improved their TEOCT scores and GPAs were slightly improved. The results of this research study are informative for school administrators, teachers, community leaders, administrators, and parents tasked to ensure at-risk of failing students meet or exceed high stakes of federal mandates (Vandell et al., 2016). The implementation of programs similar to the one in this study should enable all stakeholders to identify and address

unique barriers each student faces; more importantly, the student at-risk of academic failure. Enhancing academics is essential; through the results of this quantitative ex-post-factor study, I discovered that at-risk students could overcome barriers to success.

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