

ABSTRACT

Cameron Kinsey Custy, OF PASSING AND FAILING: THE INTERPLAY OF CLASSROOM TEACHING AND TUTORING IN HIGH SCHOOL (Under the direction of Dr. R. Martin Reardon). Department of Educational Leadership, December, 2024.

As asserted by Bowers and Sprott (2012) and confirmed by Hart (2019) and Vatterott (2019), academic success can be achieved by students when given proper assistance and guidance during the learning process. Students at Carolina High School (CHS) were given the opportunity to attend tutoring activities during the school day, called *PowerHour*, to eliminate barriers students can face with attending after-school tutoring. The purpose of this study was to evaluate the effectiveness of *Power Hour* on improving student academic achievement. The results of this study were used to further refine the *PowerHour* program to provide the greatest benefit to the students attending CHS. This research focus motivated three research questions: (1) How have teachers' perceptions of tutoring changed? (2) How have students' perceptions of tutoring changed? (3) How have students' academic outcomes changed? To address the research questions, I gathered student engagement data both before and after my intervention to discern if there were any changes in the level of student engagement in the courses the students were studying. I also collected data on teacher and student perceptions using open-ended surveys followed by focus group discussions with the participants. I used student achievement data to gauge any change in students' academic outcomes. I analyzed and theorized the data I collected to help improve the overall *PowerHour* program so that it would provide students with a high-quality tutoring program that has the potential to positively impact their learning outcomes and ultimately set them on a path to future success.

OF PASSING AND FAILING: THE INTERPLAY OF CLASSROOM
TEACHING AND TUTORING IN HIGH SCHOOL

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CHAPTER 1: INTRODUCTION

According to Bowers and Sprott (2012), Patterson et al. (2007) and further illustrated by Hart (2019), student success in the high school setting is crucial in laying a foundation for future student success. Student success can involve achieving academic success in addition to becoming a successful and productive citizen in society (Hart, 2019). While engendering the social virtues among the students in its care is a weighty obligation, it is incumbent on the school in its role as the promoter of academic success to ensure that students learn and understand the content that is taught in each class as they earn credits toward graduation.

Each student learns at his or her own pace (Doubet & Hockett, 2015; Tomlinson, 2014; Vatterott, 2019) and with varying levels of assistance from educators. Some students have the gift of being able to grasp academic concepts quickly, while others need time and support from their educators to gain a comprehensive understanding. This learning process can look different for each student and can vary by subject—a student may be a “rock star” in mathematics and struggle in English (Belfi et al., 2012; Hart, 2019). However, as illustrated by Hart (2019) and explained by Bowers and Sprott (2012), it is extremely important that students learn the material in the course, as there are dire consequences for students who may be delayed on their path to graduation, or who do not graduate at all. There are also dire consequences for the teachers (who would be categorized as poor teachers) and for the school (which would be regarded as a failing school) if learning does not occur. In the case of the student, in a worst-case scenario, continual failure is a precursor to disengagement in the academic setting (Balfanz et al., 2007; Hart, 2019; Mac Iver, 2013; Vatterott, 2019).

To expand on the points raised in the previous paragraph, consequences for students not passing courses in the high school setting lead to concerns of dropping out of or failing to graduate from high school, as illustrated by Hart (2019). While Hart's account ended positively, the negative impact of disengagement from school can haunt students for the rest of their lives. Student disengagement has the potential to impact negatively on teachers also, as students not performing well in their class can lead to the conclusion that they are not competent in teaching the class.

Accountability

As asserted already, it is incumbent on the school to ensure students learn and gain an understanding of the content taught in any course. As such, this responsibility is just as much the teacher's responsibility as it is the responsibility of the school administration. Should it ever be the case that a teacher is either not capable of helping or unwilling to help ensure student success in his or her class, this situation should be addressed as a priority and measures taken to ensure student success in that teacher's class. From the perspective of public accountability, End-of-Course (EOC) tests are specified by the North Carolina State Board of Education and are "used to sample a student's knowledge of subject-related concepts as specified in the North Carolina Standard Course of Study and to provide a global estimate of the student's mastery of the material in the particular content area" (Public Schools of North Carolina, Accountability Services Division, n.d., para. 1). The EOC test is a high-stakes indicator of academic achievement for students in each of English II, Biology, Mathematics 1, and Mathematics 3 (students are rated as proficient if they score well enough and, in general, 20% of their final grade consists of the EOC score) and their teachers (whose proficiency as a teacher rests, in part, on the students' performance).

School grades in North Carolina are based on the following indicators: Reading and Mathematics End-of-Grade (EOG) and End-of-Course (EOC) assessments, Science End-of-Grade assessments, English Learners Progress (ELP), 4-Year Cohort Graduation Rate (CGR), Biology End-of-Course Assessments, NC Mathematics 3 (Math Course Rigor), ACT/WorkKeys Assessments and School Growth (see Appendix H, para. 3). Results of these combined indicators are published each year and are a public reflection on how the school is performing. There are substantial consequences for schools and districts that do not perform well in these areas. These data reflect on the school as a whole and public opinion of the school can be negatively impacted.

Focusing on Success

There are varying levels of support that can be offered to students to ensure their success and minimize the likelihood of their dropping out or failing out of high school. Within the classroom, teachers would do well to use multiple sources of classroom feedback data to inform their instruction. In a landmark study, Kane and Maw (2005) began with presumptions that included (a) students have something worthwhile to say about learning, (b) students have the authority to nominate who speaks for them, (c) students are able to explain learning in a language that conveys meaning and authority, (d) students need to be aware of the outcomes and uses made of data through established feedback cycles that incorporate listening, hearing, and action. Utilizing student feedback data, teachers may be motivated to, for example, introduce new ideas and activities and identify students' misconceptions and address them appropriately (Mandouit, 2018). By taking such a focused instructional approach, teachers would gain real-time feedback data regarding student performance. Ultimately, feedback data would give teachers the ability to customize their instructional approach to fit the needs of each student in

the class, as well as the ability to remediate the entire class using alternative teaching methods. However, this would only be done if the data showed much of the class did not understand the content being taught.

The Place of Tutoring

Adopting an individualized instructional approach involves the teacher directing his or her instruction to address the needs of not just a small percentage of the students in the class (e.g., only those who grasp the concept), but the whole class. If individualized instruction fails, an extra layer of student support that can be utilized to ensure student success is tutoring. The environment in a tutoring session lends itself to a smaller student-to-teacher ratio. A small group setting allows teachers and students the opportunity to work through issues of understanding of the academic content. A small group setting allows the teacher to focus more on the needs of the students who are not understanding the content and allows extra time for teachers to explain the material in alternate ways that the student may understand. Tutoring is not intended to be used to reteach the material in the same manner in which it was taught to the entire class, but rather to provide a set time to remediate the student in specific areas of the content that the student did not understand. Both Grey (2015) and Woodland (2008) agreed that additional levels of academic support can help clear up academic misunderstandings and yield positive learning outcomes.

Context of Study

Carolina High School (CHS), a pseudonym for the study site, is one of the thirty-eight school sites in a relatively large school district located in southeastern North Carolina; however, CHS serves a tight-knit rural community. One of the most enduring assets of CHS is the connection it has with the community it serves. On a regular basis, students and community members are working together on service projects both in and out of the school setting. Many

community leaders, business owners, and elders of the community are alumni of CHS and still have close connections with the school. Like other high schools, many students from CHS attend college after graduation, some enter the workforce, and some pursue careers in the military.

CHS serves families that reside in a large rural area in the western part of the county in which it is located. CHS has a total student population of approximately 900, with approximately 230 students in Grade 9, 235 students in Grade 10, 200 students in Grade 11, and 225 students in Grade 12. The student body consists of 13% African American, 12% Hispanic, 7% Multi-Racial, and 68% White. The staff of the school is comprised of 58 teachers, two counselors, two media coordinators, one career development coordinator, one testing coordinator, one exceptional children liaison, one school social worker, two assistant principals, and several classified staff members who help the school function and support the principal. Of the certified staff, 89% are White, 5% are African American, and 6% are Hispanic.

Background of the Problem

The after-school tutoring program that was previously offered to students at CHS was implemented before I was employed at the school. The program did provide some students with benefits; however, there were many other students at CHS that could have benefitted from the positive impacts of tutoring opportunities that were not attending after-school tutoring. Table 1 shows the number of students who scored below a 60% on a report card in each of the three End-of-Course (EOC) courses (Mathematics 1, English II, and Biology) which were the focus of my action-research study. Table 2 shows the number of students who scored below 60% on final exam grades in the same EOC courses.

These historical CHS data presented in Tables 1 and 2 show the urgency of the issue at hand. For some of the students represented in the data, this marks the first course in which they

Table 1

Number of Students in EOC Courses with Final Course Grades of 60% or Below

Course	2016-2017	2017-2018	2018-2019
Mathematics 1	28	32	17*
English II	26	19	9*
Biology	30	29	12*

Note. *Includes only students who took the course during the fall semester in 2018-2019.

Table 2

Number of Students in EOC Courses with EOC Exam Grades of 60% or Below

Course	2016-2017	2017-2018	2018-2019
Mathematics 1	24	28	11*
English II	23	15	10*
Biology	18	16	8*

Note. * Includes only students who took the course during the fall semester in 2018-2019.

received a failing grade, while others represented in the data have not passed other classes in their academic careers as well. Balfanz et al. (2007), Hart (2019) and Vatterott (2019) would contend that whether it be the first class or one of many that a student has failed, the emotions and feelings of incompetence that are associated with course failure have an impact on the rest of the student's academic career, along with negatively impacting their social and emotional well-being.

Convincing students that the individualized tutoring provided during *PowerHour* (the name given to the tutoring program) is the most effective way of improving their academic performance and empowering them to take advantage of the opportunity are daunting tasks, but the potential impact is far-reaching. First, students will improve their academic performance in the course, thereby lowering their chances of failing (Split et al., 2011; Wallace et al., 2016). Second, the negative feelings and emotions that are associated with failure will be replaced with positive feelings and emotions which have the potential to brighten a student's outlook on the remainder of his or her academic career (Blazar & Kraft, 2017; Hart, 2019). Third, the likelihood of positive relationships being formed between teachers and students is increased providing benefits to both the teacher and the student (Downer et al., 2015; McHugh et al., 2013; Pianta, 2016).

Problem Statement

According to Burns et al. (2004) as well as Rothman and Henderson (2011), rendering extra tutorial assistance to students at risk of failing can positively impact their understanding of the topic and improve their academic performance. Tutoring has long been regarded as one of the most influential forms of instruction that impacts student achievement (Burns et al., 2004; Rothman & Henderson, 2011). Grey (2015), Hetzel et al. (2009) and Zimmer et al. (2010) all

agree that student attendance at tutoring sessions has a major effect on the outcome of tutoring, and, as one would expect, the more tutoring sessions a student attends, the greater the effect on their academic achievement.

The attendance rate for after-school tutoring at CHS had been on the decline. To address this attendance issue, and help control when students were attending tutoring, tutoring sessions were incorporated into the regularly scheduled school day. This change occurred prior to the inception of my study, as the administration at CHS had made increasing student access and achievement a priority. The revised scheduling of the tutoring sessions eliminated barriers students faced with after-school activities and allowed school staff to urge students to attend tutoring instead of risking failure in the courses in which they were struggling.

Historical Overview

In keeping with the generic concept, teachers at CHS offered after-school tutoring for many years with the intention of providing extra assistance for students who did not understand the academic content they encountered in class. The goal of these tutoring opportunities was for teachers to use alternative instructional strategies to positively impact student achievement in their classroom. These tutoring opportunities were geared to students who were struggling with academic content in their courses or who needed an additional layer of support outside of regular classroom instruction.

From the Teachers' Perspective

In keeping with the generic concept, the original intent of offering after-school tutoring opportunities at CHS was for each teacher to tutor his or her students individually or in small-group settings after school. Over time, some teachers regularly offered tutoring opportunities while others struggled to provide this service, due to coaching and other after-school obligations.

This presented students who were interested in attending tutoring with inconsistent access to the tutoring services of their teachers. Even among the teachers who offered tutorial sessions, there was a lack of consistency. Several teachers devised a schedule of tutoring times each week, while others required students to request a specific tutoring session. While none of the scheduling hurdles were insurmountable, multiple conflicts and inconsistencies eroded the original intention of the tutorial sessions and opened the door to wide-ranging impacts that will be explored at greater lengths subsequently in my action-research study.

From the Students' Perspective

Students at CHS were also faced with difficulties in attending the tutoring opportunities. Students who were involved in athletics and clubs were conflicted about whether to attend their extracurricular activities or tutoring. Some coaches and advisors were willing to work with students who needed to attend tutoring after school while others were not—they expected their athletes or participants to be at practice or meetings regardless of the students' academic needs. This disconnect between adults' expectations and students' academic needs gave rise to difficult decisions regarding what to attend after school: “Do I attend practice thereby risking my teacher's being disappointed in me in addition to not performing well in the class, or do I attend tutoring while risking my coach/advisor's being disappointed in me and jeopardizing my ability to continue playing on the team or being a part of the club?” These difficult decisions led students—for some of whom the opportunity to benefit from the social aspects of schooling mentioned earlier was paramount—to forego tutoring.

From the Perspective of CHS

The decreased student participation in tutoring activities that were being offered initiated school-wide concerns as students failed classes. The impact of decreased participation in tutoring

raised concerns about students dropping out or failing out of high school. For example, Student A, a current junior at CHS, was a regular attendee at tutoring with the math teacher during her freshman year. During that year, tutoring was offered by the student's teacher daily after school. Student A attended three-to-four sessions per week, on average, according to her teacher's records. Student A took two math courses with that teacher during her freshman year. The first course she took was Foundations of Mathematics 1, in which she earned a final grade of 88 and a final exam grade of 74. The second course was Mathematics 1, in which she earned a final grade of 77 and a final exam grade of 80. In stark contrast, Student A took Mathematics 2 during the fall semester of the following school year and did not attend after-school tutoring. She earned a final grade of 72 and a final exam grade of 61. While this decrease in grade and final exam score cannot be directly attributed to Student A's failure to attend tutoring sessions, this example highlights the issue at hand. Mathematics 2 is arguably more demanding than Mathematics 1, and it is possible that tutoring may have made no difference. On the other hand, given that Student A failed to take advantage of the opportunity for tutoring, it is reasonable to question whether the school did the best it could to ensure her success. Many other students at CHS were in the same situation, with some being in more dire situations, giving rise to the sense of urgency among CHS teachers and administrators to address the needs of the students through the tutoring process.

Resolution

The issues that were noted with the previous after-school tutoring setup were addressed prior to the inception of my study by moving the tutoring opportunities into the regularly scheduled school day. This restructuring of the tutoring program, called *PowerHour*, allowed each student at CHS the same opportunity to attend tutoring for his or her classes. The

restructuring process incorporated input from teachers and school staff—the *PowerHour* committee includes six teachers, two counselors, two assistant principals (one of whom was me), and the principal. Our committee adopted a Plan, Do, Study, Act (PDSA) (Langley et al., 2014) approach to restructure the tutoring opportunities available to students at CHS. An overview of the steps that we took during the PDSA Cycle is shown in Table 3.

As noted above, the problem of practice my action research study was aimed at improving was the issue of students not passing courses they need to graduate at CHS. This was not just an academic issue, since failing courses can lead to further disengagement from school and prolonged impacts for students who are at risk of dropping-out or failing-out of high school. Thus, the problem of practice on which my study was focused concerns a local issue of educational equity. In making the change outlined above, the expectation of the *PowerHour* committee was that alleviating the barriers students faced regarding attendance at tutoring would improve access to the tutoring program (*PowerHour*) and thereby improve the quality of the instruction provided to students at CHS. Under the new tutoring model, students had an unimpeded opportunity to take advantage of the tutoring that provided an extra level of support to them. With tutoring opportunities offered during the school day, every student on the campus was offered the same opportunity to attend tutoring sessions with his or her teachers and benefit from the increased level of academic support that tutoring provided.

Significance of the Study

Researchers have found that tutoring can have positive impacts on student understanding and can be one of the most influential forms of academic instruction or reinforcement (Burns et al., 2004; Rothman & Henderson, 2011). However, the tutoring programs that have been studied are mainly after-school programs leaving a gap in the literature surrounding the impact of

Table 3

PDSA Cycle Used to Improve the Tutoring Program at CHS

Stage of Cycle	Summary of Activities
Plan	A committee of school staff members met to discuss the issues that were being encountered with the after-school tutoring options. • The committee agreed that steps needed to be taken to address the negative impacts on students of the current tutoring system. • The committee decided to move the tutoring into the school day and call the new program <i>PowerHour</i>.
Do	The <i>PowerHour</i> committee members discussed their vision for the new program. • The committee created a <i>PowerHour</i> Handbook that included the schedule, procedures, and rules for students. • The committee discussed the specifics of the changes that would have to be made to the bell schedule to be able to implement <i>PowerHour</i>. • A new bell schedule was drawn up to incorporate a one-hour period during the day that was to be used for both tutoring and lunch.
Study	The <i>PowerHour</i> committee reviewed the <i>PowerHour</i> Handbook to look for any misconceptions to address or other procedures that needed explanation. The committee also reviewed the bell schedule to make sure the schedule would not interfere with students who attended classes at the local community college or who participated in internships out in the community.
Act	The administrative team of CHS and the <i>PowerHour</i> committee chairman met with each grade level in the school's auditorium to explain the new tutoring program. • The presentation explained the topics covered in the Handbook along with the school's expectations of each student. • The plan was explained in detail and students were given a copy of the <i>PowerHour</i> schedule to take home with them. • The culminating activity for the presentations was for the students to map out their week for <i>PowerHour</i>.

tutoring programs offered during the school day when all students have the unimpeded opportunity to attend. The literature surrounding tutoring has yielded evidence suggesting positive impacts of tutoring in general, but there is little evidence to support the efficacy of offering academic tutoring during the regular school day.

Some evidence of effectiveness of within-school-day academic tutoring has been provided by Staley (2016) who described a flexible lunch program that was implemented at a high school which featured a one-hour lunch period that provided students the time to participate in clubs and activities and attend tutorial sessions. The program also allowed special needs teachers the opportunity to offer more Individualized Education Program (IEP) services. Staley's program offered several benefits including: more time for students to become active in clubs, additional tutoring opportunities for students, character education lessons, and guest speaker presentations. Staley highlighted the possible activities that can be scheduled for students to participate in during a flexible time scheduled into the school day but did not offer data highlighting the impact of the program on student achievement. However, Staley did mention that tutoring during the school day allowed the school to increase accountability for attendance at tutoring sessions and decreased the barriers students faced when tutoring was scheduled after school.

This action research study at CHS, where we have initiated *PowerHour* (a tutoring program scheduled during the school day), has contributed to the body of literature on the effectiveness of tutoring programs, more specifically tutoring programs scheduled during the school day. Highlighting the effectiveness of the *PowerHour* design and refining it through action research methods allowed me to examine the effects of tutoring on student achievement when the activities are offered to all students at a time when they have an unimpeded opportunity

to attend. The results of this study were used to further refine the *PowerHour* program to provide the greatest benefit to the students attending CHS.

My action research study addressed issues of educational equity related to all students having access to the same opportunities that could positively impact their educational experience. My study addressed issues of equity as well by expanding the opportunities for students to participate in tutoring and extracurricular activities. Increasing the total number of tutoring opportunities for students along with utilizing a creative schedule that allowed for these opportunities to be scheduled into the regular school day would alleviate issues that were previously impeding students' attendance at these opportunities.

Study Goal

My action research study was aimed at researching the extent to which the new circumstances regarding tutoring at CHS had changed teacher and student behavior by engaging with my colleagues in implementing PDSA Cycles of improvement. The goal of my study was to systematically examine the impact of *PowerHour* in its current form and revise it throughout the course of three PDSA Cycles to the stage where it was a more influential intervention for students who are in danger of academic failure. If I can show that *PowerHour* is as effective as I believe it can be, it will be evidence I can use to convince the students of Mathematics 1, English II, and Biology (EOC courses) in Grades 9 and 10 at CHS that, if they are struggling—defined as receiving a course grade at or below 60%—then the individualized tutoring provided by the teachers during *PowerHour* is an effective way of improving their academic performance.

Study Participation

This study involved students in Grade 9 and Grade 10 at CHS who were failing a core subject (Mathematics 1, English II, or Biology) on their report card (given every six weeks).

Students in each course who meet the qualifications to participate in the study—scoring at or below 60% on their report card grade—were invited to participate. I followed the participants as they progressed through the courses and observed and interacted with them as they were encouraged to attend tutoring sessions during *PowerHour* to improve their academic performance. As stated above, tutoring is an additional layer of academic support for students who are at-risk of failing their classes. The main intention of tutoring is to impact positively the students' academic understanding and improve their academic performance in the class. According to Hart (2019), when this positive impact is experienced by students who appear likely to fail a course, the positive affect arising from that experience can ameliorate the dire consequences that failure can bring down upon a student. These positive impacts can affect not only the student, but also the parents, the teacher, and the school as well.

Research Questions

I addressed the following questions while conducting this mixed-methods study of the effectiveness of *PowerHour* at CHS:

1. How have teachers' perceptions of tutoring changed?
2. How have students' perceptions of tutoring changed?
3. How have students' academic outcomes changed?

Assumptions

My study was based on underlying assumptions regarding the effects of tutoring in the high school setting. The first assumption was that students will be actively engaged in the instruction and activities during their regular class time. As previously stated, although there are extra levels of academic support that can be offered to students who are not understanding the content, a strong effort by the student is necessary in his or her regular classes as it is

unreasonable for one to think they can disengage in a class and truly learn the material being taught. I assume that if a student was disengaged then he or she will not perform well academically. Therefore, I assume that all participants are actively working and engaged in their classes in order to improve their own academic understanding of the content being taught.

My next assumption was that students who need additional academic assistance will attend tutoring as much as possible. *PowerHour* has been implemented to allow students to attend tutoring sessions during their one-hour lunch period. Staff at CHS needed to empower students to attend these tutoring opportunities and help students understand the importance of attending tutoring sessions. Students needed to take the initiative to attend when they felt the need for additional academic assistance, or when their grade indicated they needed to attend. Teachers and school staff needed to keep students informed of their progress and needed to continually encourage and empower students to attend *PowerHour* sessions.

As noted by Grey (2015), the effectiveness of the tutoring program for each student depends on the student's attendance and engagement at the sessions. Thus, my final assumption was that students will be engaged with the tutoring activities offered during the *PowerHour* sessions. Preparing students for success after graduation is one of the fundamental goals of education and requires that students be actively engaged in their academic futures (Bronn, 2018). However, as previously noted, each student learns at his or her own pace and with varying levels of support. I assumed that teachers would plan and prepare tutoring activities that would take another instructional approach other than the approach they used in the regular class. However, the different instructional approach will have little effect on the student's academic understanding if he or she were to be not engaged and actively participating in the regular class.

Scope and Delimitations

My study was conducted in one high school (CHS) with twelve student participants. Students enrolled in each of Mathematics 1, English II and Biology courses were invited to participate, based on their report card grades (60% or below). I chose this focus on EOC subjects due to the availability of statewide final exam scores, which I utilized in the study to assess the impact of the tutoring on student achievement. Given the small sample size from one high school, it would be inappropriate to extrapolate my findings. However, my focus is on making refinements to *PowerHour* in its CHS context more than it is on providing a model for other schools.

Limitations

One limitation of this study is the fact that I was the assistant principal of CHS. As such, I had input into the current configuration of *PowerHour*, and I had oversight of its operation. Thus, it was not possible to disentangle my personal impact on the efficacy of *PowerHour* from its current configuration as an in-school program. Additionally, my role may have affected how teachers responded during the study knowing that I wanted the program to be seen as successful and knowing that I may have evaluated some of them.

Another limitation of this study was that I conducted it using a sample of students from one high school in a large school district. Thus, my findings were limited to that educational context. Further, within the student population of the school, students were selected based on their report card grades. This could be a limitation of replicability elsewhere based on how student grades are reported and the timeline for doing so. Students in Grade 9 and 10 who appear to be at risk of failing a course, with a grade at or below a 60 on a 10-point grading scale, were invited to participate. While this limitation is necessary to bound my study to manageable

proportions, I fully understand that students who are not at the near-failing stage and who were in Grades 11 & 12—whether failing or not—may have also benefited from *PowerHour*.

Summary

Prior to the inception of my study, after-school tutoring had been available at CHS for many years; however, there had been several challenges associated with it. These challenges led to students not attending with the result that the program did not notably impact student achievement. To alleviate the obstacles students faced with after-school tutoring and to increase the impact of the tutoring program at the school, tutoring was incorporated into the regular school day. The implementation of *PowerHour* as a well-designed, comprehensive tutoring program offered during the school day alleviated barriers students and teachers faced with the previous after-school tutoring opportunities at CHS. *PowerHour* was intended to optimize student achievement outcomes and increase students' chances for academic success. I anticipated that increased academic success would enhance students' feelings of accomplishment in their education thereby decreasing their chances of dropping out of school and facing the lifelong challenges associated with not completing high school.

CHAPTER 2: REVIEW OF LITERATURE

Graduating from high school is an important milestone in a student's life as it establishes a foundation upon which future successes can be built (Bowers & Sprott, 2012; Christle et al., 2007; Henry et al., 2012; Patterson et al., 2007). Graduating from high school provides students with multiple opportunities to better themselves--including attending a post-secondary institution to pursue a degree in their area of interest or entering the job market.

High school graduation is of utmost importance not only because of the opportunities it provides for students after graduation but also because of the negative effects that have been noted when students do not graduate. According to Christle et al. (2007), students who do not graduate from high school experience a more difficult time in life. There are multiple negative impacts on a student's life that can be associated with dropping out including an increased chance of being arrested, decreased chance of being employed, and the likelihood of earning a lower income (Sum et al., 2009).

In the light of the range of potentially negative impacts associated with dropping out of high school, teachers and school staff shoulder an important responsibility to ensure students are nurtured in a supportive yet rigorous school climate. According to Pope et al. (2015) and Vatterott (2019), students experience high expectations that they will achieve elevated levels of academic success. However, Vatterott acknowledged that the workloads and expectations currently placed on students are leading to high levels of stress which are counterproductive since they can negatively impact students' ability and willingness to fully engage in academic lessons (Balfanz et al., 2007; Hart, 2019; Mac Iver, 2013; Vatterott, 2019).

Pope et al. (2015) and Vatterott (2019) agree that teachers, support staff, and school administrators must work together with students towards a common goal of providing students

with a reasonable yet rigorous workload. Such a workload will help keep students engaged and on track towards graduation, while providing them with enough free time to explore other necessary experiences needed for them to grow into well balanced adults (Pope et al., 2015; Vatterott, 2019). According to Vatterott, necessary experiences include time to experience learning as joyful and exciting; read for pleasure; play a game where winning doesn't matter; figure out who they are and what they value; fall in love, not with a person, but with a passion; discover not what the world can do for them, but what they can do for the world; reflect, wonder and dream, breathe, and live in the moment. Pope et al. (2015) and Vatterott (2019) agree this time for necessary experiences is important as it will lead to a decrease in student stress leading to the fostering of an educational environment in which student engagement will be optimized.

Student Engagement

According to Bronn (2018), preparing students for graduation and post-secondary success are fundamental goals of education. These two fundamental goals require students to be actively engaged in their academic career to be successful as they prepare to achieve their goals after high school (Bronn, 2018). Bigelow (2016), Bronn (2018), and Culver (2015) also agree that engagement in the academic setting is necessary for students to get the most out of their academic career as they prepare for their life beyond high school.

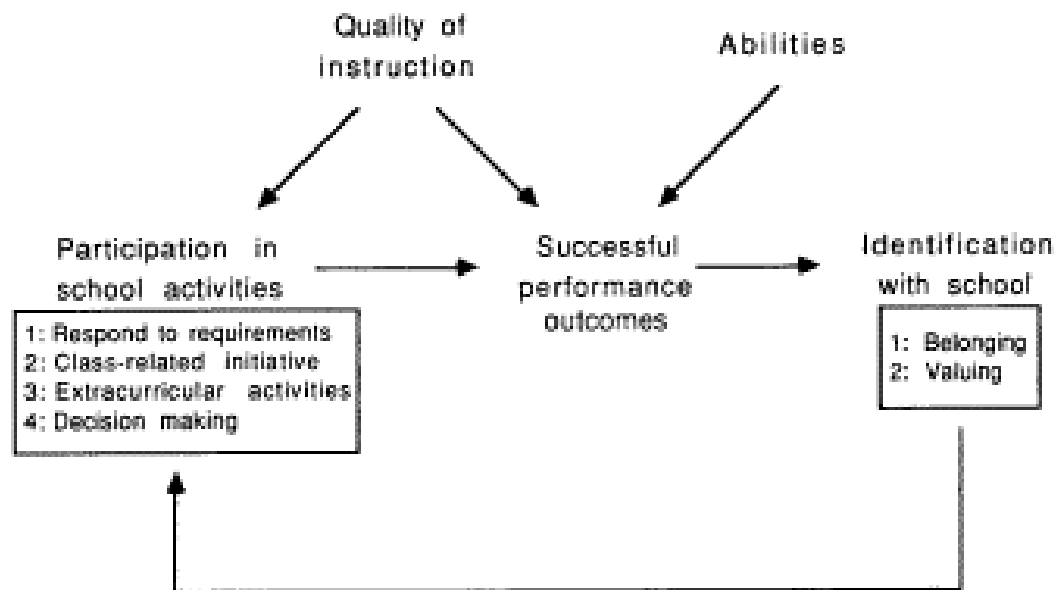
Engagement has been referred to as the link between the classroom and actual learning (Bronn, 2018). Bronn (2018) and Virtanen et al. (2015) agree that engagement leads to greater academic success, along with an increased likelihood of students graduating from high school and finding post-secondary success.

According to Bronn (2018) and Virtanen et al. (2015), academic engagement assumes that students are committed, invested in their learning and willing to participate in school

activities, both in and out of the classroom environment. Figure 1 illustrates Finn's (1989) Participation-identification model. The participation-identification model shows the interlinking nature of a student's identification with their school, engagement in school activities (both in and out of the classroom), the quality of the instruction they receive from their teachers and the students' academic performance. Finn's (1989) model illustrates that instruction, engagement and school identification have a direct impact on students' academic performance.

High school has been known to be especially challenging for students who are not engaged both in and out of the classroom (Bigelow, 2016; Bronn, 2018; Finn, 1989; Meece et al., 2006; Virtanen et al., 2015). High school students have several options to become involved with school outside of the classroom. These options include participating in clubs, athletics, and other extracurricular activities. As noted in Figure 1, students who choose to become involved in their school are often more engaged in the classroom (Bigelow, 2016; Bronn, 2018; Finn, 1989; Virtanen et al., 2015). According to Finn (1989), students who have an increased sense of belonging at school, due to their involvement in both curricular and extracurricular activities. These key areas of involvement in school have been shown to positively impact classroom engagement and ultimately provide positive impacts on student achievement.

Klemm and Connell (2004) have pointed out that students who are engaged are more likely to complete high school, pursue college degrees and have an increased chance of becoming financially able to support themselves and their family. These positive impacts of student engagement point to the dire need for interventions for students showing signs of disengagement in their classes (Klem & Connell, 2004). Culver (2015) points out the fact that researchers continue to search for strategies that address the lack of curricular engagement found



Note. (Finn, 1989).

Figure 1. Participation-identification model.

in some students. He states the importance of this search is to find means of interventions that will help reengage disengaged students to keep them active in school and on the right track toward graduation (Culver, 2015). Bronn (2018) argues that engagement is developed and nurtured in the academic setting. Bronn (2018) and Culver (2015) agree that academic engagement is crucial in preparing students to be successful, ambitious, and motivated in their life outside of school.

There has been a noted decline in student engagement as students' progress further in their academic career. According to Bronn (2018), Meece et al. (2006) and Virtanen et al. (2015), most students are engaged throughout the primary grades, however, a stark decrease in student engagement is noted throughout the secondary grades. According to Pope et al. (2015), nearly half of high school students and college freshmen report feelings of disengagement and boredom in class. This statistic is startling, because poor academic achievement, classroom behavioral issues and dropping out of school are all consequences of being disengaged in school (Pope et al., 2015; Virtanen et al., 2015). Each of these consequences limits the academic performance of the student and further widens the gap between them and other students who are engaged at school leading to concerns of dropping out of school (Bigelow, 2016).

Teacher-Student Relationships

When teachers take the time to show students that they care and show that the success of each student in and out of the classroom is of utmost importance, relationships are formed that can increase the likelihood of student engagement (Roorda et al., 2011). These relationships tend to increase the level of support offered to students by the teacher, which is vital to student success in the educational setting and has been shown to positively impact student engagement and achievement (Roorda et al., 2011).

According to McHugh et al. (2013), teacher-student relationships are formed through intentional interactions and engagement opportunities with students initiated by the teacher. The teacher must put forth effort and remain genuine with students to foster these relationships, even when faced with students who are challenged in the academic setting (Culver, 2015; Downer et al., 2015; McHugh et al., 2013; Pianta, 2016). Downer et al. (2015) points out that teachers who are successful in maintaining positive teacher-student relationships have established classroom environments that are genuine, warm, supportive, encouraging, motivating and respectful. This type of positive classroom environment is conducive to learning and encourages student autonomy and leadership (Downer et al., 2015). When these positive relationships are developed between the teacher and students, the students develop a sense of comfort which leads to an increased willingness to take academic risks and improves students willingness to be actively engaged and involved in the class (Blazar & Kraft, 2017; Culver, 2015; Downer et al., 2015; Pianta, 2016).

Positive impacts on student achievement and teacher effectiveness have been associated with positive teacher-student relationships, providing basic needs for teachers and students as well as being a key indicator of student adjustment and success (Blazar & Kraft, 2017; Culver, 2015; Downer et al., 2015; McHugh et al., 2013; Pianta, 2016; Split et al., 2011; Wallace et al., 2016). The benefits of positive teacher-student relationships are multi-faceted and have been shown to provide impacts to the teacher, the student, and the overall school (Blazar & Kraft, 2017; Downer et al., 2015; McHugh et al., 2013; Pianta, 2016; Split et al., 2011; Wallace et al., 2016).

Benefits for Students

Students who are at risk, due to either academic or behavioral issues, have been shown to benefit from positive teacher-student relationships (Culver, 2015; Downer et al., 2015; McHugh et al., 2013; Pianta, 2016). Positive teacher-student relationships have been known to function as a protective factor for students as negative impacts such as decreased cognitive engagement, increased student anxiety, and increased negative behaviors are signs of needed developments in supportive teacher-student relationships (Culver, 2015).

According to Culver (2015) and Downer et al. (2015), the relationships built between students and teachers have proven to positively impact students' feelings and attitudes toward school. This positive effect on students has been shown to help them perform better in the academic setting (Culver, 2015; Downer et al., 2015). Engagement, effort, persistence, and interest have been shown to increase in students who are at-risk when positive teacher-student relationships are established (Culver, 2015).

The impact of teacher-student relationships on at-risk students has been proven to motivate students and cause them to become more engaged in their classes (Blazar & Kraft, 2017; Culver, 2015; McHugh et al., 2013; Pianta, 2016). These at-risk students are more willing to ask questions and are increasingly receptive to teacher assistance when they know their teachers genuinely care about them and their success (Culver, 2015; McHugh et al., 2013). Teachers who understand the value of teacher-student relationships and its positive effects on students are more willing to reach out and give assistance or advice to students (Culver, 2015; McHugh et al., 2013). Positive teacher-student relationships can lead to a cycle of increased student engagement and increased teacher support; however, the relationships must be maintained across most of the student's daily teacher interactions to be effective. In short, when

there is variability in teacher-student relationships from classroom to classroom, diminished outcomes are noted (Culver, 2015; Pianta, 2016).

Klem and Connell (2004) found that teacher support is important to students and impacts their engagement in academic activities. Culver (2015) notes that the relationships students form with adults are important in their overall development and have been known to promote engagement at school and lead to positive academic outcomes. Increased student engagement has also been shown to impact attendance rates and test scores, both of which have positive effects on student achievement (Bigelow, 2016; Bronn, 2018; Culver, 2015; Meece et al., 2006).

Benefits for Teachers

Spilt et al. (2011) found that relationships between teachers and students can have a positive impact on the self-esteem of teachers both professionally and personally. These relationships can have effects on classroom management, decrease teacher stress, improve overall teacher well-being and foster commitment, leading to a decreased likelihood of dropping out of the profession. According to Pianta (2016), observations that provide data on how teachers interact with their students can be used as a coaching tool. The data found in these observations can provide areas of focus to improve teacher-student relationships. When teachers and administration work together to improve teacher-student relationships, improved teacher behavior, teaching practices and student achievement in the classroom have been noted (Pianta, 2016; Spilt et al., 2011).

Tutoring

Mentoring and tutoring opportunities have been a topic of conversation around the world with a strong focus on after-school programs. For various reasons, countries have implemented programs to offer activities after school for their students. These countries have offered different

levels of support for such programs, some just verbally supporting the efforts and others offering full funding (Woodland, 2008). The focus of these programs in the United States has been to offer academic assistance for students and to help keep them out of trouble (Grey, 2015; Woodland, 2008).

Attendance at mentoring and tutoring programs is a great indicator of success. A study that tracked the achievement gap between African American students and white students noted that attendance at mentoring and tutoring sessions was a significant predictor of the change in GPA gap over time. The study found that African American students attended more sessions and had the most benefit from the sessions. Students who consistently participate in mentoring and tutoring activities show a significant increase in Language Arts and Mathematics proficiency compared to those who do not attend regularly (Grey, 2015).

Positive impacts on low-income African American students have been attributed to attending after-school mentoring and tutoring programs. These students have shown better academic performance, better conduct in and out of school, and better relationships with peers (Posner & Vandell, 1999; Woodland, 2008).

It has been noted that students of all ethnicities and socioeconomic statuses have benefitted from mentoring and tutoring programs that were established to focus on a certain group. When students are encouraged to participate in activities that grab their interests and allow them to try new things, they will be more invested (Woodland, 2008). Enlisting the help and resources of the local community college and other community organizations will allow for expanded activity offerings. These community partnerships have proven to benefit student attendance at tutoring and ultimately impact student performance. Offering exciting activities

along with mentoring and tutoring activities is a good draw to keep students engaged and wanting to attend (Hetzl et al., 2009).

Tutoring Models

There are several formats for tutoring programs that have proven to be effective. These include the Extracurricular Activities Model, the Mentoring Model, and the Cultural Right of Passage (ROP) Model. Each model has different attributes that enhance the educational environment to help engage students. The models are based on student interests and cultural connections to help students connect with the material (Woodland, 2008).

The Extracurricular Activities Model allows sports, art, homework assistance and other activities to supplement the academic environment for students. The Mentoring Model allows students to connect with adults or older mentors who provide them with support and attention in academic realms as well as everyday life. The ROP Model uses culturally based interventions that are aligned to help students as they develop into an adult (Woodland, 2008).

Tutoring Challenges

There are noted challenges to providing mentoring and tutoring sessions, the first being participation. In a study that compared reactions to mentoring and tutoring sessions between students in third grade and eighth grade, it was found that students in third grade were more open to the idea of peer tutoring. Most of the students in third grade (97%) stated they would be interested in continuing peer tutoring in the future. However, the group of eighth graders did not respond as well to enjoying peer tutoring. An overwhelming majority (73%) stated they were not interested in continuing peer tutoring in the future. This trend of interest levels is expected to continue to decline through a student's high school years (Ayvazo & Aljadeff-Abergel, 2014).

Another key challenge with tutoring is attendance. Students and families from across the United States are not taking advantage of these opportunities that are being offered. Research has proven that tutoring activities are not effective unless students attend on a regular basis (Grey, 2015; Hetzel et al., 2009; Zimmer et al., 2010). There are several reasons why students are not attending after-school programs. These include transportation issues, parent communication issues and other after-school obligations (Hetzel et al., 2009). Keeping students in high school interested in mentoring and tutoring activities will have its challenges, making engaging activities and the forming of mentoring relationships more important for student success (Ayvazo & Aljadeff-Abergel, 2014; Grey, 2015; Hetzel et al., 2009; Posner & Vandell, 1999; Woodland, 2008).

Effects of Tutoring on Student Achievement

Tutoring has long been regarded as one of the most influential forms of instruction that impacts student achievement (Burns et al., 2004; Rothman & Henderson, 2011). However, when reviewing recent research, there is inconsistent evidence of the true impacts of tutoring on student achievement (Burns et al., 2004; Rothman & Henderson, 2011; William T. Grant Foundation Working Group, 2004; Zimmer et al., 2010). The William T. Grant Foundation Working Group (2004) points out the lack of maturity of the tutoring programs that were reviewed in his research. The results from these reviews could be skewed due to the programs being so young and not fully developed to the point where services are being implemented and carried out as they were intended (William T. Grant Foundation Working Group, 2004). Other researchers relate inconsistent findings in the effectiveness of tutoring programs to the wide range of tutoring models being implemented, the varying activities used, and the fact that tutoring programs are not highly monitored (Rothman & Henderson, 2011; Woodland, 2008;

Zimmer et al., 2010). Zimmer et al. (2010) acknowledges four predictors of success for tutoring programs. These predictors include strict activity alignment to the standards, frequent assessment of progress, the use of trained tutors and small groups of students in the tutoring sessions.

The William T. Grant Foundation Working Group (2004) evaluated the effectiveness of four tutoring programs in several cities across the United States, including schools in New York and San Francisco. He found negligible gains in performance on tests and noted that none of the programs reported statistically significant improvements on student achievement after participation in the programs for one year (William T. Grant Foundation Working Group, 2004). One program in New York City did note positive impacts in math after students were involved for multiple years (2-3), but there was no effect after one year of participation. The evaluation of these programs did not find any impacts on student achievement in reading (William T. Grant Foundation Working Group, 2004).

Burns et al. (2004) evaluated a tutoring program aimed at students at-risk of failing reading in elementary school. This program uses trained volunteer tutors to work with small groups of students after school on their reading. The study found that students who attended tutoring activities demonstrated more progress than students who did not attend, but the results only show a small positive effect (Burns et al., 2004). Burns et al. (2004) state that these results may not be reliable due to the short period tutoring was offered (5 months) and the fact the baseline data that was used in the study was taken mid-year, only showing the results from half of the school year. Burns et al. (2004) also question the fidelity of implementation in the program, stating that there was no evaluation process to check for implementation and instruction.

Tutoring is one intervention that is used in the educational setting to address academic deficiencies and clear up misunderstandings. Many tutoring opportunities are offered after-school and address academic and behavioral needs (Grey, 2015; Woodland, 2008). Although tutoring is a widely used model for academic intervention, it does not come without issues of its own. The biggest issues being program planning, implementation, engagement, and attendance (Ayvazo & Aljadeff-Abergel, 2014; Burns et al., 2004; Grey, 2015; Hetzel et al., 2009; Zimmer et al., 2010).

Students, whether they be high performing or low performing, need a feeling of support and connection with their class and teacher to be effective in the academic setting (Blazar & Kraft, 2017; Downer et al., 2015; Gard, 2014; McHugh et al., 2013; Pianta, 2016; Spilt et al., 2011; Wallace et al., 2016). This connection can be formed through personal interactions with teachers in extracurricular activities or in small academic based settings, such as tutoring sessions (Bigelow, 2016; Bronn, 2018; Finn, 1989; Virtanen et al., 2015). These personal interactions have been shown to provide positive effects on both the student and teacher and have been linked to increased engagement, which impacts overall academic performance (Culver, 2015; Klem & Connell, 2004; Spilt et al., 2011).

Conclusion

The literature discusses the impact of tutoring on students' academic performance. A strong emphasis was noted between teacher-student relationships, impacts on student engagement and the overall outcomes of student performance. The relationships formed between students and teachers has direct positive impacts on both parties, which is important when realizing that students experience a diminished feeling of support as they progress throughout their educational career.

Schools must shoulder some of the responsibility regarding students attending tutoring sessions. Through reading the research, schools can identify the major areas of weakness faced by other schools and help them plan around those weaknesses. Most importantly, it is the responsibility of the school to remove barriers students face when attending tutoring. Through creative scheduling techniques, schools can alleviate the barriers students face with attending after-school tutoring by moving tutoring activities into the regularly scheduled school day. With attendance as a main concern for most tutoring programs that are unsuccessful, this scheduling can remove the voluntary portion for students and give the school more control over who attends tutoring and how often they attend.

The purpose of this study is to evaluate the effectiveness of “Power Hour,” an alternative tutoring program offered during the school day, to determine its effectiveness on improving student academic achievement. To alleviate the obstacles students face with after-school tutoring, the tutoring at CHS has been incorporated into the regular school day. The plan that has been implemented involves offering a one-hour lunch period that is split in two 30-minute sections, A Block and B Block. Each student chooses to eat lunch in one of the two sections and attend either tutoring or enrichment activities in the other. The focus of my dissertation will be to study the academic impact of Power Hour tutoring sessions on the students’ academic performance. The high school was not noticing success with its previous tutoring program that offered tutoring opportunities after school. Many staff at the school agreed the program was not working as intended due to the barriers students faced with attending tutoring after school. To help alleviate these barriers, tutoring has been moved into the school day. This study is intended to determine if the time spent in the school day on tutoring is providing positive results on student achievement. The creative scheduling used to implement this tutoring program has

removed valuable school time from other school activities to help students with their academic needs and this study will help justify the use of this time by verifying that this program is having an impact on student performance.

CHAPTER 3: PROBLEM OF PRACTICE

Purpose of the Study

As discussed at length in Chapter 1, the purpose of my mixed methods study was to engage meaningfully with students, teachers, and administrators at CHS to improve not only the tutoring program (*PowerHour*) that had been radically changed but also to improve the instruction that was being provided to all students. As substantiated already, there was a problem with students not passing EOC courses at CHS (see Table 4). These historical data on final grades in EOC courses show that for the past three school years, on average about 12% of the students enrolled in an EOC course earned a final grade of 60% or below. These data illuminate the issue and point toward the importance of my study and the need for additional support, such as *PowerHour* tutoring, to be established and refined for the students at CHS.

The *PowerHour* Committee at CHS, of which I was a member/administrator, implemented radical changes to the tutoring program at CHS during the first two years of my tenure as assistant principal at CHS. Those radical changes involved integrating tutoring time into the daily school schedule instead of holding tutoring as an after-school activity. In overview, my action research study was aimed at researching the extent to which the new circumstances regarding tutoring have changed behavior on the part of the teachers (Have the teachers offered more tutoring opportunities for students? Are they more satisfied with the outcomes of offering tutoring during the day?) and on the part of the students (Are they attending tutoring more often when needed? Are they more satisfied with tutoring being offered during the day?) and using the findings of my research to empower Plan-Do-Study-Act Cycles of improvement.

Study Questions

The *PowerHour* committee at CHS made radical changes to the tutoring program over

Table 4

Percentage of Students Enrolled in an EOC Course Who Scored a Final Grade of 60% or Below

Year	Mathematics 1	English II	Biology
2016-2017	6.9%	5.6%	5.2%
2017-2018	6.7%	5.9%	5.4%
2018-2019*	3.3%	2.3%	2.9%

Note. *Includes only students who took the course during the fall semester in 2018-2019.

the past two years. These changes were implemented to enable students to attend tutoring on a regular basis without curtailing their ability to engage fully in extracurricular activities and attend to other after-school obligations. My study was not concerned primarily with the changes that were made to the tutoring program, but rather the downstream impact of the changes that were implemented on both teachers and students from both qualitative and quantitative (academic) perspectives. This research focus motivated three research questions:

1. How have teachers' perceptions of tutoring changed?
2. How have students' perceptions of tutoring changed?
3. How have students' academic outcomes changed?

Research Question 1

This question was addressed using an open-ended survey of the teachers to ascertain their levels of satisfaction regarding the impact of *PowerHour* and the degree to which they believe in-school tutoring has been a positive change. Adopting an explanatory sequential approach (Creswell & Creswell, 2018), I interviewed a focus group of teachers to subsequently enrich the survey data and provide insight into their thoughts and reflections on the impact *PowerHour* may have had on their students and their classes overall.

Research Question 2

This research question was addressed using an open-ended survey of students who attended tutoring. This data helped ascertain the level of student satisfaction regarding the tutoring activities which they are participating in as well as their opinion on how the tutoring is impacting their academic understanding and engagement in class. Mirroring the approach to the teachers, focus group interviews of the students subsequently enriched the survey data and

provided insights into their thoughts and reflections on the impact *PowerHour* was having on their academic understanding and levels of engagement.

Research Question 3

This question was addressed by analyzing student achievement outcomes along with pre-tutoring and post-tutoring measures of student engagement. Descriptive statistics highlighted the impact of tutoring on the students' grades and engagement in the classroom.

Research Design

Carr and Kemmis' (1986) classic definition of action research provides the best explanation of this type of research in the context of my study. They contended that, action research is simply a form of self-reflective enquiry undertaken by participants in social situations in order to improve the rationality and justice of their own practices, their understanding of these practices, and the situations in which the practices are carried out. (Carr & Kemmis, 1986, p. 162)

Action research best fit my study because the processes carried out in my study were self-reflective of the *PowerHour* tutoring program. Reflection on the program led to a more comprehensive understanding and illuminated the need for improvements to benefit the students. These improvements were thoroughly planned, implemented, and reviewed to provide the best tutoring program for the students at CHS.

As discussed previously and shown in Figure 2, the revision of the *PowerHour* tutoring program occurred prior to the emergence of my study. There was no evaluation of student academic engagement conducted prior to the revision, so there are no benchmark data that relate to the level of academic engagement of the students when *PowerHour* was available during out-of-school time. However, I believe that it was reasonable to expect enhanced levels of student

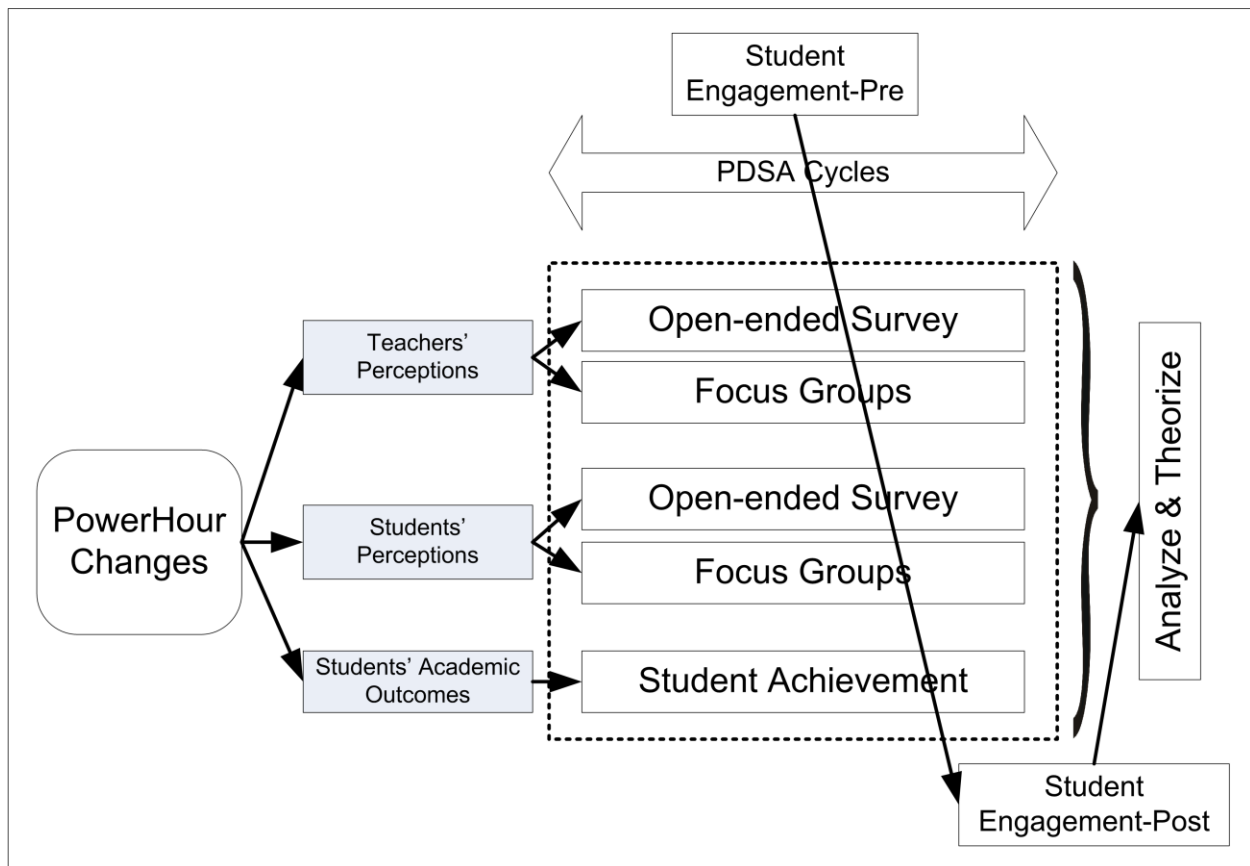


Figure 2. Graphic overview of research design.

engagement to be an outcome on an ongoing basis throughout the years of in-school-time availability of *PowerHour*. Therefore, I commenced my study (see the top of Figure 2) by administering an anonymous measure of student engagement. For this purpose, I used the High School Survey of Student Engagement (HSSSE) developed and maintained by the National Association of Independent Schools (NAIS) in collaboration with the Center for Evaluation and Education Policy (CEEP) at Indiana University (NAIS & CEPR Partnership, 2015).

According to the NAIS and CEEP at Indiana University, the HSSSE is a survey focused on students in Grades 9 through 12 that investigates “the attitudes, perceptions, and beliefs of students about their schoolwork, the school learning environment, and their interactions with the school community” (NAIS & CEPR Partnership, 2015). Since its inception in 2008, the HSSSE has been used to gather data on student engagement in over 110 independent schools. The results from the survey have provided educational leaders with relevant data on student’s perceptions of their engagement in school. The survey, consisting of thirty-one questions, solicits student responses in the form of multiple-choice, yes/no, and Likert rating scale questions with one open-ended question at the end asking for any further information not covered in the survey but pertinent to the student’s experiences in school (see Appendix E).

The data gleaned from HSSSE have been used to help participating schools understand the needs of the students they serve. This information, in turn, has helped inform school leaders—resulting in the initiation of improvements in the practice of teaching, enhanced learning and improved school climates at these HSSSE participating schools (NAIS & CEPR Partnership, 2015). My rationale for utilizing the HSSSE was that, although it seems to have been predominantly used in independent schools, the survey items appear to be entirely appropriate to the context of CHS. In fact, it seemed to me that the sections of HSSSE are

precisely aligned with the focus of my study, and I anticipated that I would be able to use the data gleaned from the survey participants' responses to formulate the students' perspective of how their engagement with the learning environment at CHS has changed in the context of the greater accessibility of the *PowerHour* tutoring sessions.

These data from the HSSSE could also have facilitated my subsequent efforts to enhance the learning environment at CHS through the development of classroom-based improvements that could be expanded school-wide. This research was initially aimed at improving *PowerHour* tutoring sessions; however, it was my desire that the information gleaned through the completion of this study would be able to have far-reaching impacts including nurturing a school culture where students are engaged and getting the best education they can to prepare themselves for their lives after high school.

My rationale for administering the HSSSE prior to initiating the PDSA Cycles was to avoid potentially contaminating my data by signaling to both teachers and students that my study is focused on refining the *PowerHour* program. By administering the HSSSE prior to my systematically moving through the sequence of steps that constitute the PDSA Cycles (as shown in Figure 2—see the steps inside the dotted rectangle), I anticipated avoiding what has become known as the Hawthorne effect (Franke & Kaul, 1978) which is the name given to the phenomenon whereby people behave differently when they know they are being observed.

Teachers' Perceptions

As shown in Figure 2, my study presumed that the changes made to *PowerHour* prior to the commencement of my study may have impacted teachers' perceptions of this tutoring process (see Research Question 1), students' perceptions (see Research Question 2), and students' academic outcomes (Research Question 3). The first of my PDSA Cycles commenced

following the administration of the pre-study administration of the HSSSE. I administered an anonymous open-ended online survey to all the end-of-course (EOC) teacher participants (see Appendix F). EOC tests are specified by the North Carolina State Board of Education and are “used to sample a student’s knowledge of subject-related concepts as specified in the North Carolina Standard Course of Study and to provide a global estimate of the student’s mastery of the material in the particular content area” (Public Schools of North Carolina, Accountability Services Division, n.d., para. 1). The EOC test is a high-stakes indicator of academic achievement for students in English II, Biology, Mathematics 1, and Mathematics 3 (students are rated as proficient if they score well enough and, in general, 20% of their final grade consists of the EOC score) and their teachers (whose proficiency as a teacher rests, in part, on the students’ performance).

The point of this survey, then, was to gather data related to how teachers perceive the impact of *PowerHour* on their students’ academic outcomes. These data, after I analyze them, will provide me with insight into what teachers think about *PowerHour* and how they think it is impacting the academic performance of their students. I analyzed the open-ended survey responses I received by coding them, synthesizing the codes into categories (and, potentially, subcategories), and seeking to assemble the categories into coherent themes (Saldana, 2016).

After analyzing the open-ended survey responses, I shared my findings with the teacher participants and sought the collaboration of the group as they reflected on the information gained from the surveys. Those who were willing to participate in my study were invited to attend a series of three sequential focus groups, each of which would be recorded and subsequently coded as outlined above in *NVivo 12*. Again, I sought to synthesize the codes and develop a concise set of themes. I disclosed the themes I developed from the initial focus group with the participants in

a subsequent second recorded focus group which was analyzed to ascertain the coherence and validate the sustainability of the themes I developed and then fed into the third recorded focus group.

Students' Perceptions

As discussed above, I also administered an anonymous open-ended online survey to all student participants (see Appendix G). The point of this survey was to obtain data regarding how students perceive the impact of *PowerHour* on their academic outcomes. These data provided insight into what students thought about *PowerHour* and how they think it is impacting their academic performance. I analyzed the responses I received by coding the responses, as outlined above. Again, I sought to synthesize the codes and developed a concise set of themes.

After I analyzed the survey responses from the student participants, I shared my findings with the students, from all of whom I sought informed consent and parent/guardian agreement, at a meeting and sought the collaboration of the group as they reflected on the information gained from the surveys. Those who agreed to participate in my study were invited to attend three focus groups, each of which was recorded and subsequently coded as outlined above in *NVivo 12*. I sought to synthesize the codes and developed a concise set of themes. I disclosed the themes I developed with the participants in a subsequent second recorded focus group which was analyzed to ascertain the coherence and validate the sustainability of the themes I developed, and this fed into the third and final focus group.

Students' Academic Outcomes

I utilized overall grade percentages to determine the change over the course of my study in students' academic outcomes. I compared the change in grade for students who attended *PowerHour* to the grades of the students who were eligible to attend Power Hour tutoring but

chose not to. This highlights the difference between the student's course grade from the time they initially entered tutoring compared to their grade at the end of the course after they have been offered the opportunity to attend tutoring. These data were analyzed using descriptive statistical procedures, and I developed conclusions based on my interpretations of the data. Collecting data on students' grades when they were initially eligible to attend tutoring and comparing the grade they earned at the end of the semester after attending tutoring provided quantitative data that was used in determining the effectiveness of the tutoring program on the student's academic achievement in the course.

Intervention Refinement (Study and Act)

At the conclusion of the first PDSA Cycle, I collaborated with the *PowerHour* administrative team to develop revisions to the way the *PowerHour* program operated and implemented those revisions. After the revisions had taken effect (two weeks after implementation), I repeated the sequential steps in the PDSA Cycle (within the dotted rectangle), as shown in Figure 2. All PDSA Cycles utilized the same sample of student and teacher participants. Each of the three PDSA Cycles of improvement were carried out over a period of six weeks, for a total time of 18 weeks.

Student Engagement Post-Test

After three iterations of the PDSA Cycle, as shown in Figure 2, I again administered the HSSSE as an anonymous post-intervention assessment of student engagement and compared it to the pre-intervention assessment data. I anticipated that there would be an improvement in student engagement, and I analyzed the data on a per-question basis to contribute to my synthesis of all my data in the context of my research questions. My overarching expectation was that student engagement would increase from pre-intervention to post-intervention. I did not seek to attribute

causality from this pre/post comparison, but it is clearly desirable that student engagement be at least maintained across the *PowerHour* timeline—as across any year of schooling. The promotion of student engagement—or at least its maintenance—is an important high-level indicator that effective education was occurring in the school.

Participants

The specific population that was eligible to participate in this study were students enrolled in an EOC course at CHS who have been awarded suboptimal grades (60% or below on a 10-point grading scale) in Mathematics 1, English II, and Biology. (For the purposes of this study, Mathematics 3 has been purposely omitted as an EOC course due to the limited number of students at CHS who take the course as their math marker for the North Carolina school accountability model.) Students from each EOC course--Mathematics 1, English II, and Biology--who have earned suboptimal grades, were invited to participate in my study. These student participants, and their parents/guardians, were informed of the study and were invited to give assent and consent respectively to participate in my study before it was initiated, and I begin to gather data. There were 21 students who were invited to participate in my study for English II with four of those students agreeing to be involved. In Biology, 17 students were invited to participate in my study and three of those students agreed to be involved. In NC Mathematics I, 39 students were invited to participate in my study and five agreed to be involved.

The teachers who were invited to participate in the study were teachers at CHS who teach at least one section of an EOC course. The teachers were not required to participate, however, if they elect, they were asked to provide consent to participate in the study. A total of six teachers agreed to participate in the study, two from each subject area.

Ethical Considerations and Informed Consent

Having completed the required Collaborative Institutional Training Initiative (CITI) modules prior to the defense of my proposal, upon the receipt of my dissertation committee's support, I submitted my proposal for Institutional Review Board (IRB) approval. I applied for Expedited Review due to my study utilizing data collected from voice, video, digital, or image recordings made for research purposes. Teachers, participating parents, and students were informed of the study and were invited to give consent/assent as appropriate to participate. The participants were informed that their participation, or lack thereof, will not affect them in any way. The letter used to obtain consent from participants clearly stated that teacher and students were under no obligation to participate and could have withdrawn from the study at any time without penalty.

Data Collection and Analysis

In this section, I will describe in detail how I intended to handle the various data collection and analysis components of my study. This description tracks the progression of research as laid out in Figure 2 and should be read in conjunction with the figure.

Student Engagement “Pre” Component

Prior to initiating any PDSA Cycles of improvement for *PowerHour* at CHS, a pre-assessment of student engagement was completed utilizing the HSSSE. The twelve student participants (Mathematics I-5 participants, English II-4 participants, & Biology-3 participants) completed the HSSSE, and the data was used to determine their perceptions and beliefs about their engagement, their learning environment, and their academic assignments. These data were collected using a paper/pencil version of the HSSSE, and the data were analyzed using

descriptive statistics. These data were also a topic of conversation during the focus group with the EOC teacher participants.

Teachers' Perceptions

Following each PDSA Cycle of Improvement for *PowerHour* tutoring, as illustrated in Figure 2, an open-ended survey for all EOC teacher participants was administered. These data provide information on how teachers perceived the changes enacted during the most recent PDSA Cycle and how they feel the changes have impacted their students' academic outcomes. These data provide insight into teacher's perceptions of the tutoring improvements and how they feel it is impacting their students. To further discuss the findings of the open-ended survey data, a focus group discussion was held with six EOC teacher participants to reflect on the impacts of the tutoring changes on their students. Data collected from the survey and focus groups was utilized to determine the participating teachers' perceptions about *PowerHour* in general, and, more specifically, the changes that have been made in the tutoring program. These data were utilized, in conjunction with the data collected from the student survey and focus group, to determine next steps for the PDSA improvement cycles.

Students' Perceptions

Also, as illustrated in Figure 2, data were collected on student perceptions following each PDSA Cycle of Improvement. An open-ended survey for students was administered and the data collected provided information on how students perceived the changes implemented during the PDSA Cycle. These data are important as they reflect the opinions of the students who are interacting with the changes to the tutoring program who have firsthand knowledge and opinion on how the changes are impacting their tutoring experience. To further discuss the findings of the open-ended survey data, a focus group was held with student participants to reflect on the

impacts of the tutoring changes on their tutoring experience and to reflect on their thoughts regarding the impact the program is having on their educational experiences. These data, along with the data collected from the teachers, were analyzed and used to determine next steps for improvements (PDSA Cycles) to the *PowerHour* tutoring program.

Students' Academic Outcomes

Student achievement data was collected from teacher gradebooks. The suboptimal academic outcomes that students were experiencing when identified as possible participants (60% or below on a 10-point grading scale) in the study were compared with the academic outcome student participants earned at the end of the semester (after attending and engaging in *PowerHour* tutoring). These data were analyzed using descriptive statistics and conclusions were drawn regarding the impact *PowerHour* tutoring, and the improvements made to the program through the PDSA Cycles, on the academic outcomes of student participants.

Student Engagement “Post” Component

Finally, there was a post-assessment of student engagement. Student participants completed the HSSSE after having attended and engaged in *PowerHour* tutoring. These data were used to determine the impact of *PowerHour* tutoring on the perceptions and beliefs student participants had about their engagement, the learning environment, and their academic assignments. An analysis of the responses between the pre-assessment and post-assessment of student engagement was completed and these data were used to draw conclusions about the effectiveness of *PowerHour* tutoring. These data were analyzed using descriptive statistics and will highlight the changes in student's perceptions about their engagement in the learning environment after attending *PowerHour* tutoring. It was my sincere hope that these data would

provide evidence of the benefits of *PowerHour* tutoring on student learning outcomes and their interactions with the learning environment.

Role of the Researcher

I was the assistant principal at CHS during the time my study was being conducted. My background is in teaching science in the middle grades, and I have been in the field of education for 6 years. I have been involved in planning, implementing, and assessing the tutoring program at CHS and this has been a focus of mine since August 2017. Due to this, I have direct knowledge of the planning phase of the program as well as the implementation of the tutoring program into the regularly scheduled school day.

Based on my administrative role at the study site, teachers, participating students, and parents were informed of the study and were invited to give consent/assent as appropriate to participate. The participants were informed that their participation, or lack thereof, will not affect them in any way. The letter used to obtain consent from participants clearly stated that teacher and students were under no obligation to participate and could have withdrawn from the study at any time without penalty.

Summary

The purpose of this action research study was to provide improvements to the *PowerHour* tutoring program at CHS. To initiate the study, student engagement was assessed using the HSSSE. Three PDSA Cycles of improvement were completed with teachers' perceptions, students' perceptions and students' academic outcomes assessed at the end of the cycle. These data were analyzed and used to facilitate my subsequent efforts to enhance the learning environment during *PowerHour* at CHS through the development of classroom-based improvements (the three PDSA Cycles). Finally, student participants participated in a post-

assessment of student engagement using the HSSSE to determine the impact of the *PowerHour* improvements on their academic engagement. This research was initially aimed at improving *PowerHour* tutoring sessions; however, it is my desire that the information gleaned through the completion of this study will be able to have far-reaching impacts including nurturing a school culture where students are engaged and getting the best education they can to prepare themselves for their lives after high school.

CHAPTER 4: FINDINGS

My problem of practice study was developed with the purpose of evaluating the effectiveness of *PowerHour*, an alternative tutoring program offered during the school day, to determine its effectiveness in improving student academic achievement. Prior to my study, CHS had achieved limited success with its previous tutoring program that offered tutoring opportunities after school. Many staff at the school agreed the program had to be revised due to the barriers students faced with attending tutoring after school. To alleviate those barriers the tutoring at CHS was incorporated into the regular school day. The *PowerHour* plan that was implemented and is currently in action involves offering a 1-hour lunch period that is split into two 30-minute sections, A Block and B Block. Each student chooses to eat lunch in one of the two Blocks and attend either tutoring or enrichment activities in the other.

Hence, the focus of my study involved maximizing the academic impact of the *PowerHour* tutoring sessions on the students' academic performance. My study was designed to determine if the time spent during the school day on tutoring—when that time was used to the greatest advantage—would have a positive impact on student achievement. The creative scheduling used to implement this tutoring program reclaimed valuable academic time from other school activities to help students with their academic needs, and my study—should my findings substantiate a positive impact on students' academic performance—will help justify the reclaiming of that time.

Teacher and student input combined with my research on the topic of tutoring to inform three PDSA Cycles of research focused on maximizing the impact of the *PowerHour* program. My goal was to provide students at CHS with a tutoring program that provided necessary academic support to ensure the success of all students.

Data Collection

In this section, I outline my participant recruitment methods and response rates and discuss the time frame for data collection and the data collection methods I implemented for my study.

Participant Recruitment

Participant recruitment was initiated after receiving ECU UMCIRB and district IRB approval in fall 2020. The COVID-19 pandemic had prompted a state-wide declaration on March 14, 2020, that all face-to-face instruction in schools was to cease. The teachers at CHS spent the remainder of the spring 2020 school semester doing their best to teach their courses online. After a summer full of plans and revisions to those plans, students were permitted to be physically present at school 2 days a week—with only half of the student body present on each day—while the remaining 3 days were designated as remote learning days.

The plan that was approved by the Board of Education allowed for students to be split into two equal groups named Cohort A and Cohort B. Cohort A students physically attended school on Monday and Tuesday and participated in remote learning on Wednesday, Thursday, and Friday. Cohort B students participated in remote learning on Monday, Tuesday, and Wednesday and physically attended school on Thursday and Friday. This plan allowed the schools to be open for students four days a week with a designated day, Wednesday, reserved for deep cleaning between cohorts. Other requirements of this return-to-school-plan included limiting student traffic in the hallways during transitions, designating one-way hallways, requiring students to wear masks, ensuring that all desks and learning spaces were spaced six feet apart, requiring students to sit in the same seats each day by using a seating chart in each classroom, and requiring students to use hand sanitizer when entering and exiting classrooms.

Teacher Recruitment

I recruited teacher participants first. I reviewed the master schedule for 2020-2021, and I identified all the teachers who were scheduled to teach at least one section of a course with an EOC exam. I spoke with each teacher face-to-face to inform them of the study and the importance of their input. Following those individual conversations, I sent a follow-up email inviting them to participate in the study and attached the Teacher Informed Consent form. In both the face-to-face meetings and the follow-up email invitations, I explained the study and how the teachers would play an important role, however, I made it clear that their participation was completely optional and that they could withdraw from the study at any time should they wish to do so.

Student Recruitment

Student participants were recruited three weeks into the 2020 fall semester. I accessed the EOC teacher's *PowerSchool* gradebooks to identify students who were earning suboptimal grades (which I defined as scoring 6 or below on a 10-point grading scale). I sent an email to each student's parent/guardian as recorded on file at CHS to explain the study and attached a Parental Informed Consent form to the email. I asked the parent/guardian to sign and return the form if they were willing to allow their student to participate. After receiving the signed Parental Informed Consent form, I contacted the students. I had an initial face-to-face conversation with the students during which I explained the study and what I would be asking them to do if they chose to participate and invited them to provide their assent by signing the Student Assent form.

Participant Response Rates

Figures 3 and 4 depict the number of teachers and students who were invited to participate in my study as well as the number who agreed to participate and the number who declined to participate.

Teacher Participation

Figure 3 illustrates the breakdown of teacher participants in my study. CHS has a total of 57 teachers, three of whom teach at least one section of English II, two teach at least one section of Biology, and two teach at least one section of Mathematics I. All teachers who teach at least one section of these courses were invited to participate in the study, and all except one English II teacher became involved in my study.

Student Participation

Figure 4 illustrates the breakdown of student participants in my study. CHS has a total of 838 students enrolled for the 2020-2021 school year, with a total of 114 students enrolled in an English I class, 106 students enrolled in a Biology class, and 155 students enrolled in a Mathematics I class. At the end of the first 6 weeks, the total number of students enrolled in each of the courses involved in my study were divided into two groups, those with suboptimal grades (60% or below) and those with optimal grades (above 60%). There were 21 students in English II who earned suboptimal grades, 17 students in Biology who earned suboptimal grades and 39 students in Mathematics I who earned suboptimal grades. All these students were invited to participate in my study and as shown in Figure 3, there were four students in English I, three students in Biology and five students in Mathematics I who became involved in my study.

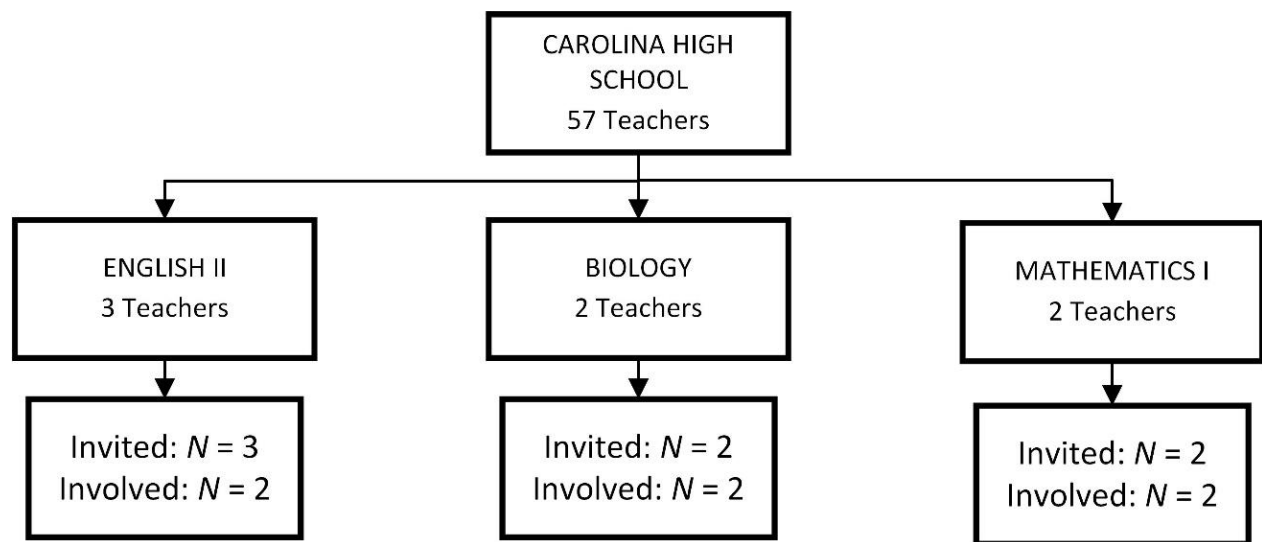


Figure 3. Breakdown of teacher participation in study.

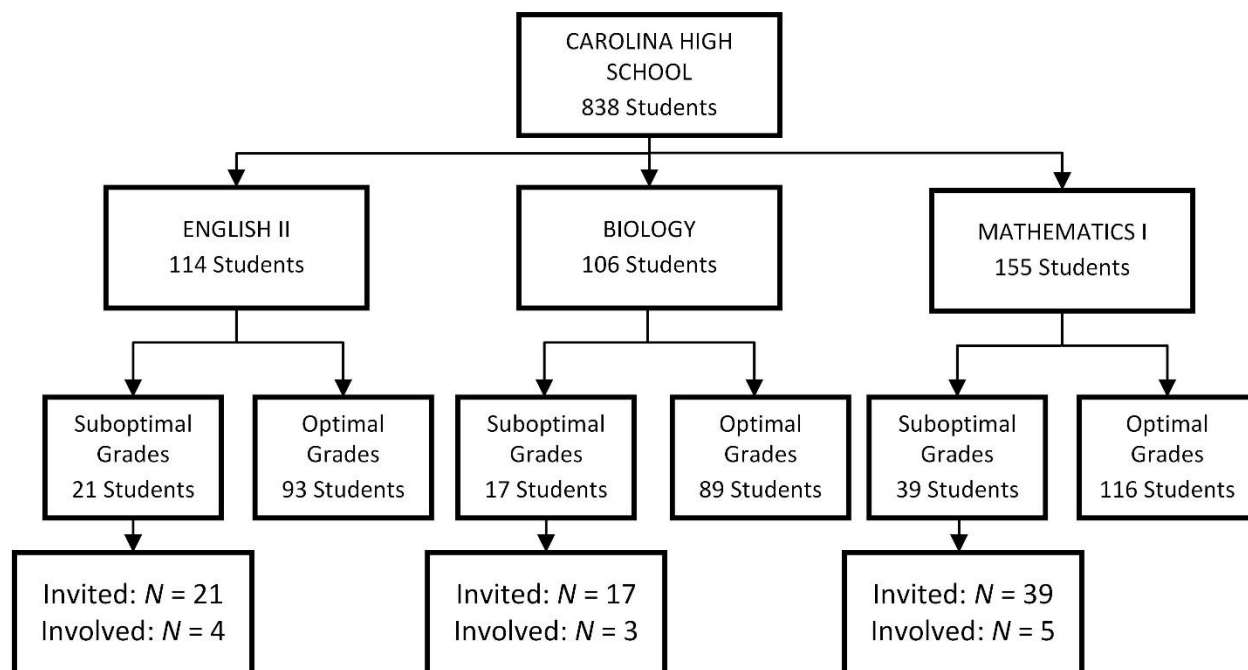


Figure 4. Breakdown of student participation in study.

Data Collection Tools

High School Survey of Student Engagement

For this study, I implemented the High School Survey of Student Engagement (see Appendix E) to collect baseline data on student engagement and compared those baseline data with the data from the same survey that I collected at the end of the three PDSA Cycles of improvement to *PowerHour*. The HSSSE is a student survey that investigates the way students perceive their engagement in classes (NAIS & CEPR Partnership, 2015; see extended discussion earlier in this document).

Teacher and Student Surveys

I also implemented surveys of the participating EOC teachers and students at the conclusion of each PDSA Cycle of Improvement, as shown in Figure 2. These data informed my creation of questions that I then used in the respective focus group discussions to gain more insight into the perceived impact of *PowerHour* at the end of each improvement cycle. The data I collected from these surveys, together with my analysis of the focus group discussions, drove the focus of the next PDSA Cycle. For example, at the end of PDSA Cycle 1, teacher participants reported student participants were not attending the tutoring sessions as they should (see Appendix F, Question 2). Teacher participants overwhelmingly responded that student participants were not attending the tutoring sessions on their remote school days which was impacting the effectiveness of the tutoring program. I used this feedback to develop PDSA Cycle 2 which was aimed at keeping parents informed of their students' unsatisfactory attendance at tutoring.

Teacher and Student Focus Group Discussions

To gain further insight into the perceived impact of *PowerHour* after each improvement cycle, I conducted a series of follow-up focus group discussions with both teacher and student participants. The purpose of these focus group discussions was to ask clarifying questions based on the data I had obtained from the surveys. I chose this method of data collection for my study to gain a more complete understanding of the teachers' and students' perceptions than could be obtained from using only one of these tools. I utilized the combined data from surveys and focus group discussions to refine the direction of the subsequent PDSA Cycle of Improvement. For example, when discussing what would help student participants as we moved out of PDSA Cycle 2 into PDSA Cycle 3, student participants discussed how their parents responded to the automated tutoring attendance emails. Student participants acknowledged that keeping their parents informed of their academic progress on a weekly basis would change some of their academic behaviors due to their reluctance to upset their parents. I used the information provided by the teacher participants on parent feedback and the discussions with student participants during the focus group discussion to drive the direction of PDSA Cycle 3.

Student Academic Outcome Data

I utilized overall grade percentages to determine the change in students' academic outcomes over the course of my study. I compared the change in grade for students who attend *PowerHour* to the change in grades of the students who were eligible to attend *PowerHour* tutoring but chose not to do so. My intention was to highlight the difference between the changes in students' course grade from the time they initially entered tutoring compared to their grade at the end of the course after they had benefited from attending tutoring. I analyzed these data using descriptive statistical procedures, and I developed conclusions based on my interpretations of the

data. Collecting data on students' grades when they were initially eligible to attend tutoring and comparing the grade they earn at the end of the semester after attending tutoring provided quantitative data that I used in determining the effectiveness of the tutoring program on the student's academic achievement in the course.

PDSA Cycle 1

The governor of North Carolina announced on July 14, 2020, that schools would be able to open in the fall of 2020 with strict guidelines in place to mitigate the spread of COVID-19 and help ensure the safety of students and staff. Immediately following this announcement, district administrators began planning for the opening of CHS and other schools in the district. As I outlined earlier, the plan that was approved by the Board of Education allowed for students to be split into two cohorts, Cohort A and Cohort B. Cohort A students were to physically attend school on Monday and Tuesday while Cohort B students were to physically attend school on Thursday and Friday. On the days students were not physically at school, they were required to attend virtually. The plan for virtual classes involved participating via Microsoft Teams (Teams, <https://www.microsoft.com/en-us/59ession59t-365/59ession59t-teams/group-chat-software>) for 60 minutes of the 90 minute "on-campus" block. Students participating via Teams could hear and participate in the class discussions with the students sitting in the classroom. Expectations regarding how schools should handle the remote learning scenario were shared with the students and their families prior to the start of the school year on August 17, 2020.

As school-based staff began planning for the reopening of the school, there were many logistical items to consider including bell schedules, student movement around campus, and classroom cleaning between periods. However, one of the biggest decisions that was made involved bell schedules. Understanding that CHS had placed a major emphasis on student

achievement with the implementation of *PowerHour*, the *PowerHour* Committee quickly convened virtually to determine the feasibility of continuing the program under the new restrictions and to begin planning alternative methods of providing the much-needed student academic support. During these *PowerHour* Committee meetings, it was determined that CHS staff needed to continue to meet the needs of our students in a way similar to the face-to-face *PowerHour* program. However, the committee realized the customary face-to-face format was not the safest way to conduct the program under the pandemic related restrictions. There were too many concerns regarding the safety of the students and staff and the tracking of students in the face-to-face format that would not easily translate into the COVID-19 context.

The *PowerHour* Committee concluded that all teachers at CHS would need to continue offering tutoring and remediation to their students under the new blended learning model and that these services would need to be offered to the students in the classroom as well as to the students logged into the class remotely. The committee decided the best way to accomplish this task was to break each class period into two parts, one part for instruction and the other for tutoring and remediation. The committee discussed several options but agreed on a solution in which there was a 60-minute class portion for instruction and 30-minute portion for tutoring and remediation. Understanding that the new instructional model at CHS was completely different than what was done in the past and the fact that a traditional *PowerHour* period was not the best plan, a new set of instructional challenges arose. The first step in implementing this *PowerHour* process was ensuring all involved knew how to access and effectively use Teams.

Microsoft Teams

The main improvement item in PDSA Cycle 1 was introducing the students and staff to the Teams platform and providing the necessary training for all to become comfortable

navigating, teaching, and learning using the software. I knew that if staff and students were not comfortable with the Teams program, CHS would never be able to offer effective instruction—much less impactful tutoring and remediation. A professional development series was developed in conjunction with the Digital Learning and Teaching Facilitator (DLTF) at CHS to ensure staff knew how to effectively utilize the learning platform and would be able to train their students on the use of Teams in a train-the-trainer approach. All staff were trained in Teams over the course of a three-part professional development (PD) series with follow up one-on-one training sessions, if needed.

The first PD lesson was focused on helping staff learn the basic functions of Teams including how to set up the Team for each class, how to make assignments, how to upload files for students, and how to make channels within the Team for different topics. The second PD session was focused on how to install and utilize the Insights feature in Teams. Insights is a feature within Teams that allows teachers to access an analytics dashboard to show students' Teams activity, including assignment submission and engagement in class. The third and final PD session highlighted the student view in Teams including how to access and submit assignments, how to participate in class discussions, and how to access break-out rooms. These PD sessions were developed through a collaboration of CHS administrative staff and the DLTF and were led by the DLTF.

The teachers then used the information they learned in their PD sessions to inform their students on the use of Teams in their classrooms. Teachers used the first few in-person class meetings to introduce Teams to their students and explain their expectations of their students when participating in class and remotely. After the initial trainings, teachers used the Insights dashboard to identify students who were experiencing difficulties with Teams regarding

attendance or submitting assignments. These students met virtually with the DLTF to obtain individualized help in mitigating their difficulties and helping them to become more comfortable with Teams.

As described in my research design, I gathered teacher participant perceptions of this cycle of improvement using an open-ended survey which was followed up with a focus group discussion so I could gain further insight into their perceptions. I gathered student perceptions of this cycle of improvement using an open-ended survey followed by a focus group discussion to gain further insight into their opinions. I also gathered data on the change in student grades since they initially joined the study and the conclusion of PDSA Cycle 1 at the end of the first 6 weeks of school. I analyzed the data I collected during the PDSA Cycle 1 and used my findings to set the direction of PDSA Cycle 2.

Cycle 1 Analysis

During PDSA Cycle 1, I observed teachers and students receiving training and one-on-one assistance on the use of the Teams platform. By the end of the cycle, teachers and students were navigating, teaching, and learning within the program. The DLTF reported that, although he was still getting specific questions from teachers regarding certain functions of the program, he was no longer getting questions from staff or students on the basics of Teams such as how to post assignments, how to “go live” with students, how to access assignments, or how to submit assignments. The DLTF reported,

All seems to be going well with the implementation (of Teams) within the classrooms.

Some teachers are becoming more inquisitive with the more advanced functions and students are off to a great start with accessing and turning in assignments from the best I can tell.

The DLTF and I continued to observe the use of Teams throughout PDSA Cycle 1, and we found no issues with its implementation.

As I was analyzing the teacher participant feedback on the survey (see Appendix F, Question 2), I noticed a glaring problem: Teacher participants were reporting that student participants were not regularly attending the tutoring sessions. To begin to address this problem, I collected student participant attendance data from the teacher participants. The data, shown in Table 5, as collected by teacher participants, illustrate the student participants' attendance rate for tutoring. The attendance rates were: Mathematics I 47%, English II 50% and Biology 29%. Each of these attendance rates verified the teachers' perceptions of attendance and my observations. Teacher participants were very frustrated with the lack of attendance by student participants. One teacher participant stated,

I don't know what else to do, I am struggling to get the students to talk with me when they are in class and can't make them log in if they are at home! If the students are not going to attend the classes virtually, what makes us think they are going to attend tutoring sessions? I can plan the best lesson or tutoring activity ever, but we are just wasting time if they aren't going to come.

When questioned about attendance at the tutoring sessions, one of the student participants who had not attended any tutoring sessions on his virtual school days seemed to downplay the importance of the tutoring sessions, stating "I have just been taking a nap during tutoring or working on my homework for my next class. I still think I'll pass if I don't go." The thought that tutoring is not important to the student participants seemed to be the common theme as to why they were not attending or participating in the tutoring sessions. The attendance data, along with the student's perceptions of the ineffectiveness of tutoring, presented the first obstacle I needed

Table 5

Student Participant Attendance Data for PDSA Cycle 1 Tutoring Sessions

Subject	Sessions Attended	Sessions Offered	Attendance Rate
Biology	13	45	29%
Mathematics I	35	75	47%
English II	30	60	50%

to address in improving the tutoring program. I decided the best way to address the attendance issue in PDSA Cycle 2 was to inform the parents of the importance of the tutoring sessions and keep the parents informed of their student's attendance status at the tutoring sessions. To accomplish this, I decided to work with one of the teacher participants in developing a method to send daily automated attendance emails to the parents of the student participants to inform them of their attendance status.

PDSA Cycle 2

As described above, at the conclusion of PDSA Cycle 1, my observations and data analysis showed that both teacher and student participants were comfortable with the functionality of the Teams program, but attendance data showed the student participants were not taking full advantage of the tutoring and remediation offerings the teachers were providing. One of the main motivating factors that led to implementing the new *PowerHour* tutoring program during the school day at CHS was eliminating the barriers of outside influences on student attendance at tutoring sessions. The literature clearly supports my belief that student attendance at tutoring sessions has a major impact on the outcome of the tutoring, and, as I expect, the more tutoring session a student attends, the greater the effect on their academic achievement (Grey, 2015; Hetzel et al., 2009; Zimmer et al., 2010).

I realized that the best plan regarding getting students to attend the tutoring and remediation sessions was to keep the parents informed of their students' attendance or lack thereof. My hope was to see an increase in student attendance at the tutoring sessions when the parents were informed of their students' attendance. I enlisted the assistance of one of the teacher participants who was technologically adept (Mr. Savvy, a pseudonym). When presented with the issue and how I wanted to deal with it, Mr. Savvy stated he could set up a system that would

send out automated email messages to parents letting them know whether their students were logged into the tutoring sessions based on the information entered by the teacher in an attendance spreadsheet. Mr. Savvy set up the system and provided a short training session to the teacher participants showing how to incorporate the system into their tutoring sessions so the parents could be informed each day of their child's participation status.

Each of the teacher participants began implementing Mr. Savvy's automated email notification system into their tutoring sessions. Parents were made aware of the new email communication through an announcement in the school newsletter. Parents and students were sent email messages when the student participants did not log into and participate in the tutoring sessions. This was done to bolster student participant attendance in the tutoring sessions so they would get the most academic benefit from the tutoring sessions.

As described in my research design, I gathered teacher participants' perceptions of this cycle of improvement using an open-ended survey which I followed-up with a focus group discussion to gain further insight into their perceptions. Again, I gathered student participants' perceptions of this cycle of improvement using an open-ended survey followed by a focus group discussion to gain further insight into their opinions. I also gathered data on the change in student participants' grades from Weeks 7-12 in the first semester of the 2020-2021 school year. I analyzed data collected during PDSA Cycle 2 and used my findings to set the direction of PDSA Cycle 3.

During PDSA Cycle 2, I observed teacher and student participants working together on tutoring activities both in person and virtually. Attendance rates for tutoring sessions rose for all three courses in response to the automated emails sent to parents during PDSA Cycle 2. The attendance rate increase was evident in the perceptions of teacher participants with one teacher

participant stating, “My students are definitely not attending tutoring 100% of the time, but I have noticed a stark increase since these attendance emails have been going to their parents.” Overall, teacher participants reported more optimistic perceptions about student attendance at their tutoring sessions with the implementation of the attendance emails sent during PDSA Cycle 2. While the teacher participants noted there was still more work to be done to improve student participants’ attendance and participation in the tutoring sessions, they expressed overall positive perceptions about student attendance during PDSA Cycle 2 as compared to PDSA Cycle 1.

When reading through the student survey responses and speaking with the student participants during the focus group discussion following PDSA Cycle 2, I noticed a difference in their tones and attitudes regarding the tutoring sessions. During the focus group discussion, one of the student participants stated, “My parents get mad when I don’t come to tutoring now, so I have been going. It actually has started to help me understand the Biology a little better.” Other student participants agreed with the statement and went on to mention how the tutoring was clearing up some of their misunderstandings in topics previously covered in the regular class period. However, one student participant blatantly stated, “It’s a waste of time, and it’s not a grade so I am not doing it.” Another student participant responded to my asking what his parents said to him when they received the emails about his lack of attendance by stating “My parents don’t care!” While many of the student participants responded positively to the increased pressure to attend implemented in PDSA Cycle 2, there were still some negative perceptions to be overcome.

Overall, there were 360 emails sent to the parents of student participants during PDSA Cycle 2. Of those emails, 245 confirmed that the students had attended tutoring for the specified day and 115 informed parents that their student had not been in attendance for tutoring that day.

Of the 12 student participants, teachers reported receiving responses to the emails from the parents of 10 of the 12 student participants. In response to my inquiry about the content of the responses, one teacher participant stated, “The majority of the parent responses I received were saying thank you for keeping them informed as well as asking about their student’s current grades and progress in my class.” Other teachers verified similar responses from parents.

I used this feedback to help drive the direction for PDSA Cycle 3. Knowing the overall goal of providing tutoring was to positively impact the students’ learning outcomes and ultimately set them on a path to future success, I decided the next improvement that could be made to the current tutoring program, which could also potentially provide benefits to *PowerHour* in the future, was to inform parents of their students’ academic progress on a more frequent basis. I hypothesized that this increase in communication between school and home would help parents be informed of their student’s current academic progress and help support the importance and benefits of the tutoring sessions.

PDSA Cycle 3

At the conclusion of PDSA Cycle 2, teacher participants reflected on their successes with keeping parents informed utilizing the automated email notification system in their tutoring sessions. One key piece of feedback teacher participants reported in connection with the weekly email notifications was that parents were reaching out and asking about the up-to-date class performance of their students. I immediately realized this could be another focus for a cycle of improvement. It seemed to me that a system could be developed to keep parents informed about current class performance and whether students were keeping up with the assignments in class. The school district in which CHS operates sets the schedule for high school progress reports to be sent out, which is every 3 weeks. However, from the teachers’ feedback, it appeared that some

parents of the student participants wanted to have more frequent grade information. CHS implements PowerSchool as a uniform gradebook application and PowerSchool has a Parent Portal function that allows parents 24-7 access to their student's grades. As a school, we have pushed for parents to sign up for a Parent Portal account, but I understood the current request as implying more of a "push" functionality which would deliver assessment information directly to the parents without their having to logon to PowerSchool. I again worked with Mr. Savvy, and we developed an automated tool that sent weekly progress reports directly to the parents of the student participants.

Each of the teacher participants began implementing Mr. Savvy's automated progress reports for the student participants. Parents were made aware of the implementation of emailed progress reports through the previously developed channels of communication. Each week, parents and student participants were emailed updated progress reports to help keep them informed of academic progress and any missing assignments. This improvement was implemented in response to the dialog among parents and teachers following the improvements made in Cycle 2. The improved communication between school and home helped keep parents and students continually informed of how student participants were performing academically and if students were submitting their assignments in a timely manner. This communication also allowed teacher participants the opportunity to stress the importance of the tutoring sessions being offered to students while highlighting the current academic performance of the student participants.

During PDSA Cycle 3, I observed teacher and student participants holding individual conversations regarding the student's current grade, work completion, and understanding of the material being taught in the class. Although these conversations were initiated as an

unintentional consequence of the improvement made during PDSA Cycle 3, they proved to be highly influential in molding the perceptions of teachers and students. Teachers reported feeling more connected with their students and noted the conversations improved their insight into how well the student participants were understanding the content being taught in the class. One teacher participant stated,

I now have a better understanding of what the students know and don't know, all because I like to go over their work with them individually before sending home the weekly progress report. This has helped me battle some of the misunderstandings I was uncovering with the student participants in class.

Other teachers agreed with the above statement, and one went on to say that "the conversations I have with my students about their weekly progress reports have opened their willingness to participate in class and ask questions when needed. It's like we are more connected as a learning team."

When reviewing student participants' responses in the follow-up for PDSA Cycle 3, I noticed that they too displayed more positive perceptions related to their interactions with their teachers during tutoring. One student participant stated,

Knowing that my teacher is going to send my progress report home to my parents each week has made me want to get more stuff done. I don't want to get in trouble for having a bad grade. She also talks with me about my progress report each week, which I like because it's a time I can ask her some questions that I wouldn't ask in front of other people. I like when she talks just to me about my work.

Student participants acknowledged that they were more aware of their academic progress in the classes and even liked the one-on-one time to talk about their grades and academic understanding with the teacher in a safe space.

Results

Research Question 1

The first research question for my study was “How have teachers’ perceptions of tutoring changed?” I analyzed qualitative data in the form of open-ended surveys and focus group discussions to gain insight into their perceptions and how the participating teachers’ perceptions changed during the study. I distributed the open-ended surveys online, using Microsoft Forms, at the end of each PDSA Cycle of Improvement and allowed teacher participants to anonymously respond to the questions for each cycle. I requested participants to respond within 5 business days and reminded them in-person on Day 3 during the tutoring sessions. I coded survey responses to draw conclusions on teacher perceptions regarding the tutoring opportunities being offered and how the improvements were impacting their perceptions. Table 6 details the survey participation from students and teachers during each PDSA Cycle of Improvement. During PDSA Cycle 1, I gathered survey responses from all six teacher participants and eight of the 12 student participants. For PDSA Cycle 2, all six teacher participants responded to the open-ended survey and 10 of the 12 student participants responded. For the open-ended survey at the end of PDSA Cycle 3, again, all six teacher participants responded, and 10 of the 12 student participants responded.

I conducted the focus-group discussions for both teacher and student participants via Microsoft Teams to allow for appropriate social distancing due to the COVID-19 pandemic and recorded them for my later analysis. I conducted a discussion on each of the focus-group

Table 6

Participation in Survey for Each PDSA Cycle of Improvement

Cycle	Responses	Total Participants	Participation Rate
PDSA Cycle 1			
Teacher Participants	6	6	100%
Student Participants	8	12	66.67%
PDSA Cycle 2			
Teacher Participants	6	6	100%
Student Participants	10	12	83.3%
PDSA Cycle 3			
Teacher Participants	6	6	100%
Student Participants	10	12	83.3%

questions with the participants to elicit more specifics on the perceptions of each participant group. Table 7 details the number of teacher and student participants that attended the focus group discussions for each PDSA Cycle of Improvement during the study. Participation in the focus group discussions were: PDSA Cycle 1 five teacher participants participated, and eight student participants participated, PDSA Cycle 2 six teacher participants participated, and nine student participants participated, PDSA Cycle 3 four teacher participants participated, and eight student participants participated.

Based on the survey results and further discussed in the focus group discussions, there were three main themes that I discerned in assessing the participating teachers' perceptions of tutoring: how well students were attending tutoring, how engaged students were in the tutoring activities, and how tutoring was impacting student achievement.

Perceptions of Attendance

From the beginning of the study, teacher participants stressed the importance of getting students to attend the tutoring sessions both on their virtual days and their in-person days. I made sure to ask teachers about their thoughts on how well students were attending their tutoring sessions on each of the surveys that concluded the three cycles of improvement, and this was a topic we discussed in detail during each of the focus group discussions so all teacher participants could hear what other teachers were implementing and whether it seemed to help improve student attendance. I coded each teacher participant's input on the survey responses as either having a positive or negative stance on student attendance during the given cycle.

PDSA Cycle 1. Figure 5 illustrates the change in teacher participants' perceptions of student attendance throughout my study. During PDSA Cycle 1, teacher participants expressed overwhelmingly negative thoughts on the student participants attending their tutoring sessions.

Table 7

Participation in Focus Group Discussions for Each PDSA Cycle of Improvement

Cycle	Attended	Total Participants	Participation Rate
PDSA Cycle 1			
Teacher Participants	5	6	83.3%
Student Participants	8	12	66.67%
PDSA Cycle 2			
Teacher Participants	6	6	100%
Student Participants	9	12	75%
PDSA Cycle 3			
Teacher Participants	4	6	66.67%
Student Participants	8	12	66.67%

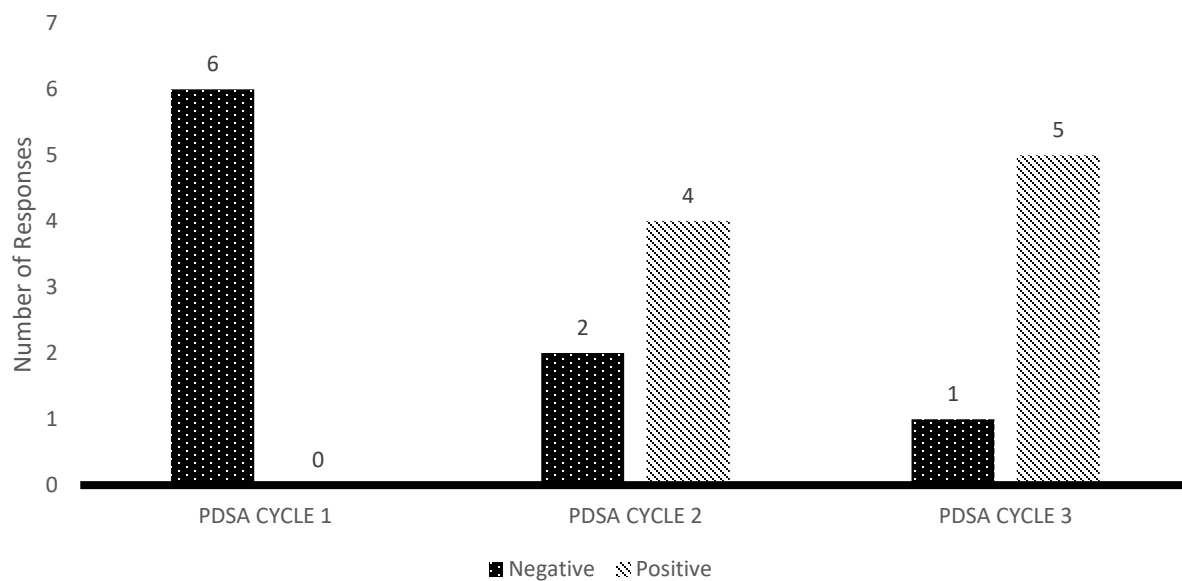


Figure 5. Teacher participants perceptions of student attendance.

One teacher participant stated during PDSA Cycle 1, “getting students to attend classes, much less tutoring, on their remote days is killing me!” Other teacher participants sympathized with this teacher and provided further feedback that student participants who were in class were, at some points, the only students attending the tutoring sessions. When I was talking with the teachers, they attributed the attendance issues I noted throughout my study to the fact that schools were having to operate at a reduced capacity due to COVID-19 restrictions. One teacher participant stated, “I can’t wait until students can come back to school the entire week so we can get a grip on this attendance issue.”

Concerns with student attendance at tutoring sessions were brought up by the teacher participants during the survey and focus group discussion with the teacher participants at the end of PDSA Cycle 1. Teacher participants noted their student participants were not attending the tutoring sessions at a satisfactory rate which impacted the teacher participants’ perceptions of attendance during that cycle of improvement. Although student attendance at tutoring was not addressed in PDSA Cycle 1, it became a major concern for teacher participants at the end of PDSA Cycle 1 when the teachers realized the student participants were attending tutoring sessions in the three focus courses at rates at or below 50%.

Using data collected during the open-ended survey for teacher participants at the end of PDSA Cycle 1, all six teacher participants noted negative perceptions of the attendance rate of student participants at the tutoring sessions. The concerns with student participants’ attendance at the tutoring sessions that were discussed during the focus group discussion at the end of PDSA Cycle 1 helped determine the improvement that I made to the process during the next improvement cycle. Teacher participants realized that the tutoring sessions would not be

impactful for the student participants if they did not attend and therefore wanted to focus on improving this during PDSA Cycle 2.

PDSA Cycle 2. The focus of PDSA Cycle 2 was informing parents of their students' attendance at the tutoring sessions. Data from the open-ended survey at the end of PDSA Cycle 2, illustrated in Figure 5, show the emails to the parents of student participants had an impact on their perceptions of student attendance at tutoring. During PDSA Cycle 2, four of the six teacher participants reported positive perceptions of student attendance during the cycle of improvement. This increase in positive teacher perceptions can be correlated to the increase in the student participants' attendance rate during PDSA Cycle 2.

Students were more responsive to the tutoring sessions with attendance rates of 62% in Mathematics I, 80% in English II, and 62% in Biology. These attendance rates represent a 15% increase in Mathematics I, 30% increase in English II, and a 33% increase in Biology when compared to the attendance rates of student participants in PDSA Cycle 1. The two teachers who reported negative perceptions of student attendance acknowledged the increase but focused on the frustrations brought on by the students who still were not participating in the tutoring which the teachers felt would help them. One teacher participant who expressed a negative view stated, "it bothers me to no end that some of my students won't take advantage of my willingness to help them learn." The other teacher participant with a negative perception expressed,

I realize I can't force my assistance on the students who need it but it sure is frustrating to see them continue to struggle in my class when they won't accept the help my tutoring is providing to other students in the same situation.

PDSA Cycle 3. During PDSA Cycle 3, data on student attendance at tutoring sessions again showed an attendance rate increase along with an increase in positive teacher perceptions

of student attendance. During PDSA Cycle 3, Mathematics I had an attendance rate of 64%, English II had an attendance rate of 82% and Biology had an attendance rate of 69%, all of which were higher than the attendance rates shown in PDSA Cycle 2. Also, teacher perceptions recorded an increase with five of the six teacher participants reporting positive perceptions of student attendance at the end of PDSA Cycle 3. The one teacher who reported negative perceptions of student attendance at the end of PDSA Cycle 3 was a Mathematics I teacher who was still reporting frustrations with the student participants not engaging in the opportunities offered during tutoring.

Perceptions of Engagement

The second theme I discerned by analyzing the data related to Research Question 1 was teacher participants' perceptions of how engaged student participants were in the tutoring activities. As illustrated in Figure 6, I discerned several key ideas among teacher participants' responses to questions on student engagement. Positive responses included comments such as students completing standards-based remediation activities, student participants helping others understand topics, and student participants working in small groups. I grouped negative responses into two categories: using tutoring as a study hall or not attending or participating.

I used the relationships among key ideas I identified—as shown in Figure 6—to track teacher participants' perceptions of student participants' engagement in the tutoring sessions based on their responses in the surveys and focus group discussions. Figure 7 shows how the participating teachers' perceptions of student participants' engagement in the tutoring sessions changed over the course of my study.

At the end of PDSA Cycle 1, teacher participants reported overwhelmingly negative perceptions regarding student engagement during the tutoring sessions. During this cycle, most

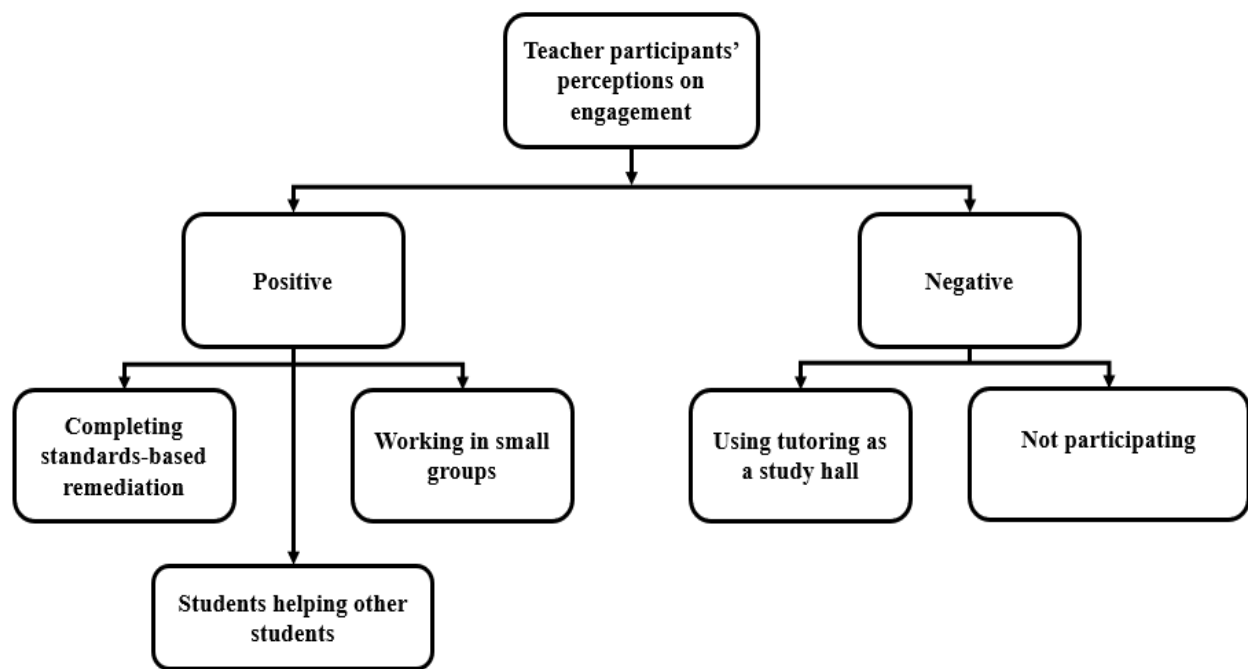


Figure 6. Key ideas from teacher perceptions of student participants' engagement.

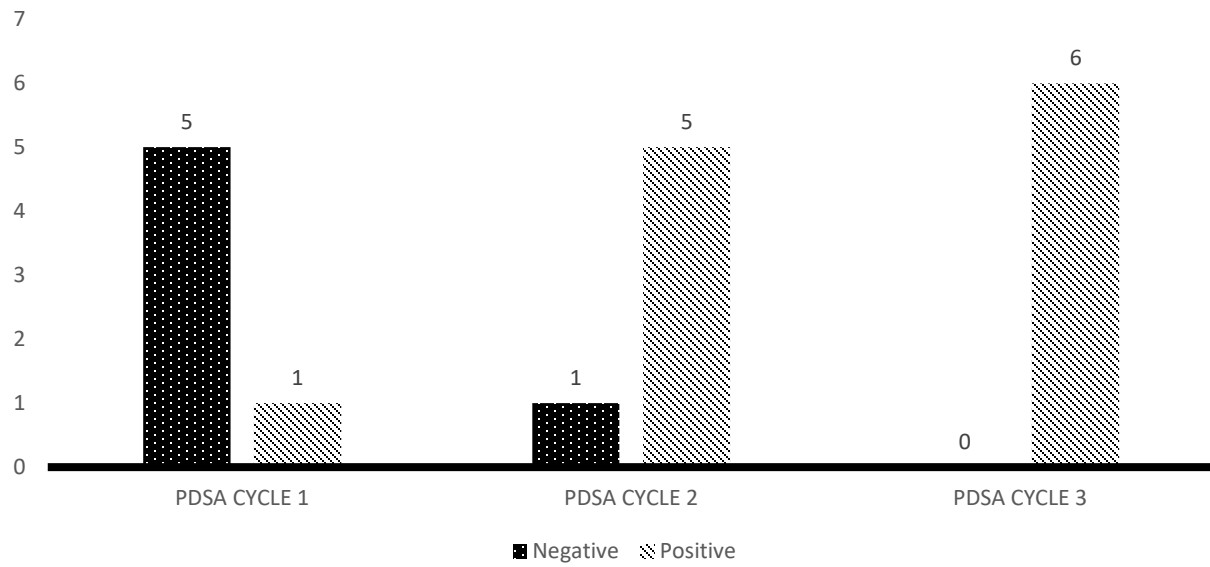


Figure 7. Teacher participants perceptions of student engagement during each PDSA Cycle of improvement.

teacher participants expressed that students were not participating or engaged in the tutoring, which verified my observations during the tutoring sessions. However, as the study progressed, teacher participants reported increasingly positive perceptions regarding the student participants' engagement in the tutoring sessions. At the end of PDSA Cycle 2, five teacher participants reported positive perceptions of student participants engagement in the tutoring sessions, a stark contrast to the one positive perception during PDSA Cycle 1. The number of positive perceptions rose again during PDSA Cycle 3, with all teacher participants reporting positive perceptions of student participants' engagement in the tutoring activities. The reports from teacher participants during PDSA Cycles 2 and 3 aligned with my observations in the tutoring sessions. I observed an increasing number of student participants working in small groups, getting individual help from the teacher and other students, and working individually on remedial activities as the study progressed.

Perceptions of Student Achievement

Question 3 on each of the PDSA Cycle Teacher Surveys was aimed at determining the perceptions of teacher participants of student achievement throughout the study. The results from this question highlighted the changes in teacher participants' perceptions of student achievement. Initially, at the end of PDSA Cycle 1, teacher participants were reporting the student participants were not participating in enough tutoring sessions to determine the impact of the tutoring on their understanding of the content that was being covered. This perception can be attributed to the low attendance at tutoring sessions during PDSA Cycle 1. This was highlighted in the response of one teacher participant when they stated,

I truly can't answer the question because students are not attending the tutoring sessions to be able to participate in the activities. At this point, I don't have enough information

about the students to know if the tutoring activities I have planned would impact their understanding.

When this question was discussed in the focus group discussion, other teachers seemed to feed off this teacher's response and were not able to provide any better responses to the question.

As student attendance began to increase during PDSA Cycle 2, I noted a difference in the nature of the responses from teacher participants regarding the same question. Teacher participants were more optimistic about the impacts the tutoring sessions had on the student participants.

At the end of the final PDSA Cycle, I asked teacher participants to provide a prediction of how they thought their student participants would score on the EOC Exam for their class. I asked the participating teachers to use their knowledge of each participating student's work along with their observations to make the prediction, as shown in Table 8.

Research Question 2

The second research question for my study was "How have students' perceptions of tutoring changed?" I again chose to analyze this research question utilizing the three main themes that I identified throughout the study which were the (a) perceptions of attendance, (b) perceptions of engagement, and (c) perceptions of student achievement.

Perceptions of Attendance

As the study began, the data showed that student participants seemed reluctant to attend and engage in the tutoring activities that were being provided to them. As shown in Figure 8, the average attendance rates in each of the study courses were relatively low during PDSA C1 when compared to the PDSA Cycle 3 attendance rate. Biology initially had the lowest average

Table 8

Teacher Predicted Percentile vs. Observed EOC Exam Percentile

Subject/Participant	Predicted EOC Percentile	Observed EOC Percentile	Difference
Biology			
Biology Student Participant 1	59	78	19
Biology Student Participant 2	13	4	-9
Biology Student Participant 3	77	88	11
Mathematics I			
Mathematics Student Participant 1	23	8	-15
Mathematics Student Participant 2	23	16	-7
Mathematics Student Participant 3	20	23	3
Mathematics Student Participant 4	16	16	0
Mathematics Student Participant 5	47	37	-10
English II			
English Student Participant 1	63	79	16
English Student Participant 2	67	64	-3
English Student Participant 3	35	25	-10
English Student Participant 4	45	47	2

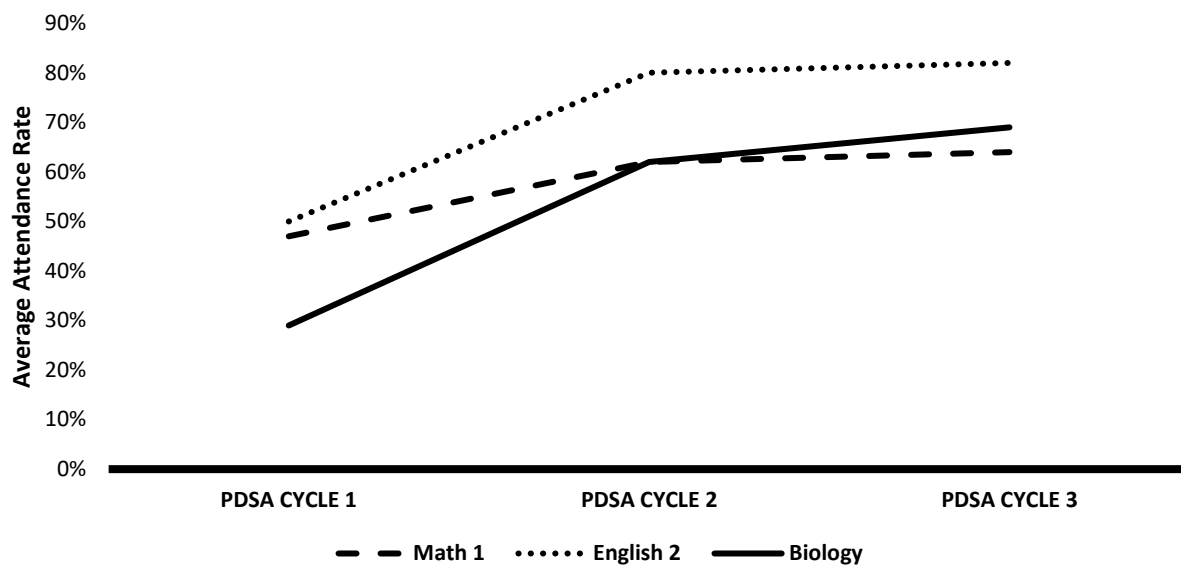


Figure 8. Average attendance rate of student participants in tutoring during PDSA Cycles.

attendance at tutoring with an average attendance rate of only 29% in PDSA Cycle 1. The attendance rate for Biology increased over the next two cycles of improvement with PDSA Cycle 2 having an average attendance rate of 62% and PDSA Cycle 3 having an average attendance rate of 69%. Mathematics I had an initial attendance rate of 47% during PDSA Cycle 1 and saw an increase in attendance throughout the study with PDSA Cycle 2's average attendance rate increasing to 62% and PDSA Cycle 3's average attendance rate increasing to 64%. English II initially had an average attendance rate of 50% during PDSA Cycle 1 and data show the attendance rate increased to 80% for PDSA Cycle 2. The attendance rate for English II again increased during PDSA Cycle 3 to 82%.

As I analyzed the responses student participants provided on the survey questions regarding their perceptions of attendance, I again noted that the responses were generally either positive or negative in nature and coded each response as such. Figure 9 illustrates the main themes, both positive and negative, from the responses of student participants regarding their attendance at tutoring activities.

I used the relationships among key ideas I identified—as shown in Figure 9—to track student participants' perceptions of attendance at the tutoring sessions based on their responses in the student surveys and focus group discussions. One student stood out as I was reviewing the data on student perceptions of attendance during the study. This student was involved in the study under the English II course, and I will refer to them as Sam. Sam was not attending the tutoring sessions at the beginning of the study. However, after Sam's parents were notified of the lack of attendance, Sam began attending tutoring sessions on a regular basis and noted the benefits that they experienced once their attendance was more regular. Sam recognized the

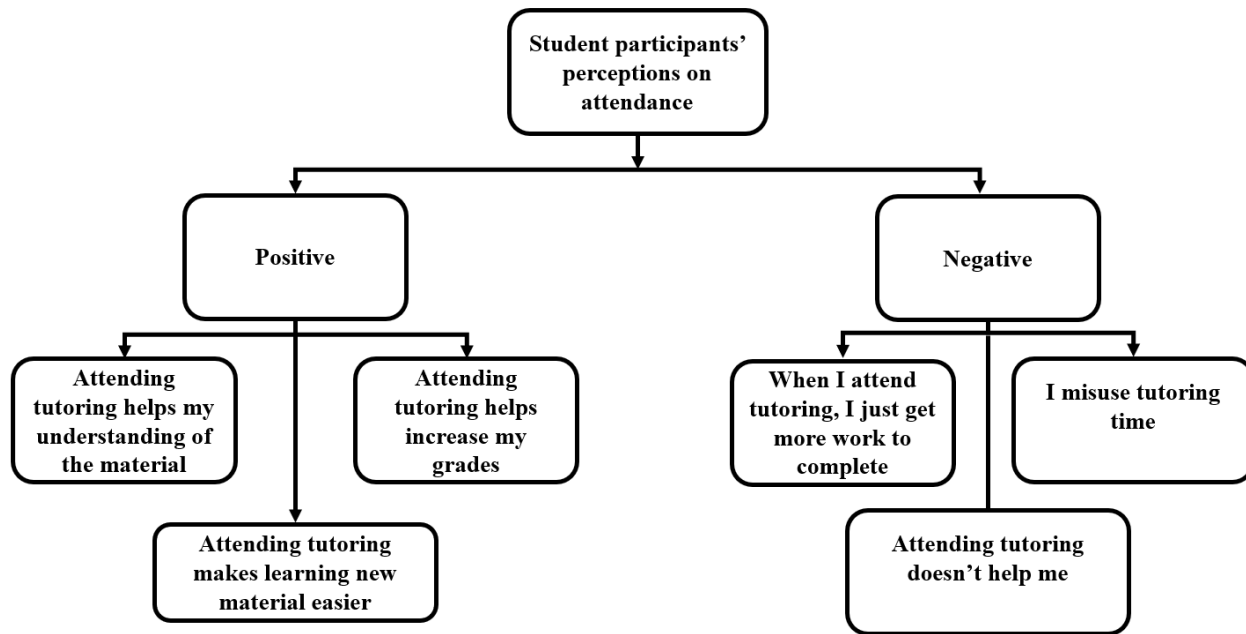


Figure 9. Main themes from student perceptions of attendance at tutoring.

increase in attendance at tutoring was having a positive impact on their academic success and stated, I did not really see how going to tutoring was going to help me at first and I didn't go for the longest time, but when my parents found out that I was not going to tutoring they freaked out a little bit and made me start going. I am glad they did because it has been a big help in English. I understand what is being taught better and I can understand what we are reading in class. This has helped me get my grade up and keep it there. Before tutoring, I would work my butt off to get my grade up and as soon as I could get the grade up, I was already behind because I really didn't understand what was going on and was just going through the motions to get a grade. I know Mrs. X was frustrated with me, but we are on better terms now.

Sam's tutoring testimony made a positive impact on their perceptions of tutoring during the study, but unfortunately, not all student participants availed themselves of the offer of tutoring. As noted in Figure 8, the average attendance rates throughout the study highlight the fact that not all student participants took advantage of the tutoring opportunities. It is unfortunate that there were students who did not attend or engage in any tutoring sessions throughout the course of the study and these students were brief in their answers to the surveys and the questions addressed in the focus group discussions. What I was able to discern from the responses they did provide was that they did not feel the tutoring would help them and were not interested in giving it a try. These students would misuse the tutoring time offered even when redirected and would not log in to the tutoring on their remote days.

Perceptions of Engagement

To discern how student participants' perceptions of engagement changed over the course of the study, I analyzed data from student participants' responses to the High School Survey of

Student Achievement (HSSSE). Student participants were asked to complete the HSSE survey prior to the beginning of PDSA Cycle 1 and again at the end of PDSA Cycle 3. I compared the results from these two survey administrations to see how the perceptions of engagement changed throughout the course of the study.

When analyzing the data collected from the student participants' responses to the pre- and post-survey, I utilized the engagement constructs outlined in the *User's Guide and Toolkit for the Surveys of Student Engagement: The High School Survey of Student Engagement (HSSSE) and the Middle Grades Survey of Student Engagement (MGSSE)* (Martin & Torres, n.d.). According to Martin and Torres (n.d.), student engagement is a multidimensional (multifaceted) construct that typically includes three dimensions: behavioral engagement, emotional engagement, and cognitive engagement. I used the survey data to analyze these three engagement dimensions.

Behavioral Engagement

The first engagement dimension I analyzed was behavioral engagement. Behavioral engagement can be defined as focusing on participation in academic, social, and co-curricular activities (Martin & Torres, n.d.). This engagement dimension directly aligned with Question 8 in the HSSSE survey. Table 9 details the comparison of student responses from student participants between the pre-survey and post-survey for the question: In a typical 7-day week during the school year, about how many hours do you do the following outside of school?

The data presented in Table 9 show that there was a change in the number of hours students were using outside of school to complete homework for their classes. In the pre-survey, eight of the 12 student participants were spending *1 or less* or *2-3* hours completing homework

Table 9

Student Pre-Post Response Comparison for Question 8 on the HSSSE

Focus of Engagement	Pre				Post			
	1 or less	2-3	4-7	8 or more	1 or less	2-3	4-7	8 or more
Completing homework for class	4	4	3	1	2	8	1	1
Studying for tests or quizzes	6	5	1	0	7	5	0	0
Using technology for school assignments	2	2	4	4	1	4	2	5
Reading for your own personal interest (books, magazines, newspapers, online articles, etc.)	7	4	1	0	8	3	1	0
Participating in school-sponsored activities (clubs, athletics, student government, etc.)	8	2	1	1	8	3	1	0
Participating in non-school sponsored activities or hobbies	5	3	3	1	4	3	4	1
Working for pay	7	2	0	3	7	1	1	3
Doing volunteer work	9	2	1	0	10	2	0	0
Exercising for personal fitness	5	3	4	0	3	6	3	0
Watching television, playing video games	1	2	5	4	2	3	3	4
Using technology for personal interests (including talking on the phone, texting, and social media)	1	3	4	4	1	3	4	4

Table 9 (continued)

Focus of Engagement	Pre				Post			
	1 or less	2-3	4-7	8 or more	1 or less	2-3	4-7	8 or more
Spending time with friends in person	3	4	2	3	3	3	4	2
Participating in family commitments (chores, caring for siblings or relatives, etc.)	2	3	5	2	3	2	5	2

for their classes. The post-survey results show that eight of 12 student participants were spending 2-3 hours per week completing homework for class outside of school. The second question addressed in this series of behavioral engagement questions was about the time spent studying for tests or quizzes. The data for this question did not change much from the pre- to post-survey with the frequency of *1 or less* increasing by one and the frequency of 4-7 decreasing by one. Overall, there was a slight decrease in the time participants spent studying for test or quizzes. The next question asked about how much time student participants spent using technology for school assignments. The major change for this question was that the student participants reported the time they spent using technology for school assignments decreased in the post-survey results. The amount of time students spent reading for their own personal interest also decreased in the post-survey results with the majority of the student participants reporting that they only spent one hour or less per week on this topic.

The next topic in this question asked students the amount of time they spent participating in school-sponsored activities. This data remained similar with only one student participant changing their reported time spent on the activity which resulted in an overall decrease in the amount of time spent in this category. Student participants reported an overall increase in the average number of hours spent participating in non-school sponsored activities or hobbies with only one response showing this increase from the pre-survey to the post-survey. Student participants reported an increase in the number of hours working for pay, again with only one response changing from the pre- to post-survey. The student participants noted an overall decrease in the number of hours reported participating in volunteer work from the pre- to post-survey. There was an increase in the number of hours spent exercising for personal fitness with the majority of student participants reporting spending two to three hours per week in this

category. The student participants noted an overall decrease in the number of hours spent watching television or playing video games with the majority of student participants reporting spending three hours or less in this category on the post-survey. The results for using technology for personal interests did not change at all from the pre- to post-survey results. There was an increase in the number of hours reported spending time with friends in person in the post-survey results. Finally, there was a decrease in the number of hours reported participating in family commitments.

Emotional Engagement. The second engagement dimension I analyzed was emotional engagement. Emotional engagement can be defined as focusing on the extent and nature of positive and negative reactions to teachers, classmates, academics, and school (Martin & Torres, n.d.). This engagement dimension directly aligned with Question 23 in the HSSSE survey. Table 10 details the comparison of student responses from student participants between the pre- and post-survey in regard to emotional engagement responses on the HSSSE.

The data shown in Table 10 highlight the change in percentage of emotional engagement amongst the student participants between the pre-survey and post-survey results. Many of the changes in percentages for the categories listed in the table above represent the change in one student response. The changes do not represent a large shift in emotional engagement between the pre-survey and post-survey.

Overall, when comparing the emotional engagement of student participants based on this survey question, there was an increase of student participants who disagreed or strongly disagreed in the following categories: I go to school because I enjoy being in school; I go to

Table 10

Student Pre-Post Comparison for Question 23 on the HSSSE

To what extent do you agree or disagree with the following statements?	Pre				Post			
	Strongly Disagree	Disagree	Agree	Strongly Agree	Strongly Disagree	Disagree	Agree	Strongly Agree
I go to school because I enjoy being in school	41.7	25	33.3	0	41.7	41.7	16.7	0
I go to school because of what I learn in classes	16.7	25	50	8.3	25	41.7	25	8.3
I go to school because of my teacher(s)	25	41.7	25	8.3	25	58.3	8.3	8.3
I go to school because of my friends	8.3	16.7	41.7	33.3	8.3	50	25	16.7
36 I go to school because of my parent(s)/ guardian(s)	8.3	25	16.7	50	8.3	25	33.3	33.3
I go to school because it's the law	25	0	33.3	41.7	8.3	0	50	41.7
I go to school to participate in athletics	33.3	33.3	25	8.3	25	50	25	0
I go to school to participate in band, orchestra, and/or choir	41.7	25	25	8.3	41.7	41.7	8.3	8.3
I go to school because I want to graduate and go to college	16.7	33.3	41.7	8.3	8.3	25	58.3	8.3
I go to school because I want to learn skills to get a good job	8.3	16.7	50	25	8.3	25	41.7	25

Table 10 (continued)

To what extent do you agree or disagree with the following statements?	Pre			Post				
	Strongly Disagree	Disagree	Agree	Strongly Agree	Strongly Disagree	Disagree	Agree	Strongly Agree
I go to school because there's nothing else to do	16.7	16.7	50.0	16.7	16.7	33.3	41.7	8.3
I go to school to stay out of trouble	16.7	25.0	41.7	16.7	16.7	41.7	33.3	8.3
I go to school to get out of the house	8.3	8.3	50.0	33.3	16.7	33.3	33.3	16.7

school because of what I learn in classes; I go to school because of my teacher(s); I go to school because of my friends; I go to school to participate in athletics; I go to school to participate in band, orchestra, and/or choir; I go to school because I want to learn skills to get a good job; I go to school because there's nothing else to do; I go to school to stay out of trouble; I go to school to get out of the house.

There was an increase in the number of student participants who agreed or strongly agreed with the categories: I go to school because it's the law, and I go to school because I want to graduate and go to college. The pre-survey results show that 25% of student participants either disagreed or strongly disagreed with the statement "I go to school because it's the law" while 75% of the student participants either agreed or strongly agreed with this statement. In the post-survey, only 8.3% of the student participants disagreed or strongly disagreed with this statement and 91.7% agreed or strongly agreed. For the statement "I go to school because I want to graduate and go to college," the pre-survey results showed that 50% of student participants disagreed or strongly disagreed and 50% agreed or strongly agreed. In the post-survey results student participants reported an increase in agree and strongly agree responses to this prompt.

Cognitive Engagement. The third engagement dimension I analyzed was cognitive engagement. Cognitive engagement can be defined as focusing on the student's level of investment in learning (Martin & Torres, n.d.). This engagement dimension directly aligned with Question 18 in the HSSSE survey. Table 11 details the comparison of student responses from student participants between the pre- and post-survey in regard to cognitive engagement responses on the HSSSE.

While reviewing the cognitive engagement of student participants based on their responses on the pre-survey and post-survey, I noted that there was an increase in student

Table 11

Student Pre-Post Response Comparison for Question 18 on the HSSSE

How much do you agree with the following statements?	Pre			Post				
	Strongly Disagree	Disagree	Agree	Strongly Agree	Strongly Disagree	Disagree	Agree	Strongly Agree
I have the skills and ability to complete my work	16.7	0	50	33.3	8.3	0	75	16.7
I put forth a great deal of effort when doing my school work	8.3	25	41.7	25	8.3	16.7	66.7	8.3
I am motivated by my desire to learn	25	33.3	25	16.7	16.7	41.7	33.3	8.3
I am motivated by my desire to get good grades	8.3	50	25	16.7	8.3	41.7	41.7	8.3
I am motivated by teachers who encourage me	25	33.3	25	16.7	16.7	41.7	33.3	8.3
I am motivated by my desire to succeed in the world outside of school	8.3	25	41.7	25	8.3	16.7	50	25
I take pride in the quality of my school work	16.7	33.3	33.3	16.7	8.3	33.3	50	8.3
I have worked harder than I expected to in school	25	0	41.7	33.3	16.7	25	33.3	25
I like discussions in which there are no clear answers	25	16.7	33.3	25	25	25	33.3	16.7

Table 11 (continued)

How much do you agree with the following statements?	Pre			Post				
	Strongly Disagree	Disagree	Agree	Strongly Agree	Strongly Disagree	Disagree	Agree	Strongly Agree
I enjoy being creative in school	8.3	16.7	58.3	16.7	8.3	25	50	16.7
I enjoy working on tasks that require a lot of thinking and mental effort	25	8.3	58.3	8.3	16.7	25	58.3	0
My school work makes me curious to learn other things	16.7	16.7	41.7	25	16.7	25	41.7	16.7
In general, I am excited about my classes	16.7	33.3	41.7	8.3	16.7	33.3	41.7	8.3
I see how the work I am doing now will help me after high school	33.3	8.3	50	8.3	33.3	8.3	58.3	0
I feel good about who I am as a student	33.3	8.3	33.3	25	16.7	8.3	58.3	16.7

participants reporting strongly disagree or disagree in the post-survey results in the following prompts: I have worked harder than I expected to in school; I like discussions in which there are no clear answers; I enjoy being creative in school; I enjoy working on tasks that require a lot of thinking and mental effort; My school work makes me curious to learn other things.

Increases in student responses reporting strongly agree or agree were noted in the following cognitive engagement prompts: I have the skills and ability to complete my work; I put forth a great deal of effort when doing my school work; I am motivated by my desire to get good grades; I am motivated by my desire to succeed in the world outside of school; I take pride in the quality of my school work; I feel good about who I am as a student. While these are all positive improvements in cognitive engagement, the results are due to a change in only one to two student participants responses.

Perceptions of Student Achievement

At the end of the final PDSA Cycle, I asked teacher participants to explain the achievement level descriptors for each of the respective content areas to the student participants (see Appendix B, C, D). Student participants were asked to use the information provided on the achievement level descriptions to provide a prediction of how they felt they would score on the EOC Exam for the class in which they were participating in the study. I asked students to use their knowledge of how they performed academically throughout the semester along with how well prepared they felt for the exam to make their prediction of the overall grade they would make on the exam.

Table 12 details the student participants achievement level prediction for each of the study participants along with their earned achievement level on the respective EOC Exams.

Table 12

Student's Predicted Achievement Level vs. Earned Achievement Level on EOC Exam

Course/Participant	Predicted	Earned
Biology		
Participant 1	Level 3	Level 4
Participant 2	Not Proficient	Not Proficient
Participant 3	Level 3	Level 5
Mathematics I		
Participant 1	Fail	Not Proficient
Participant 2	Level 3	Not Proficient
Participant 3	Not Proficient	Not Proficient
Participant 4	Level 3	Level 3
Participant 5	Level 3	Level 3
English II		
Participant 1	Level 3	Level 4
Participant 2	Not Proficient	Level 3
Participant 3	I'm not going to pass	Not Proficient
Participant 4	Level 3	Not Proficient

Overall, three student participants earned a higher achievement level on the EOC Exam than they predicted, five student participants earned the same achievement level as their prediction, and one student participant earned a lower achievement level than their prediction. Biology Participant 1 predicted that they would earn a Level 3 on the EOC exam and earned a higher level, Level 4. Biology Participant 2 correctly predicted that they would earn a Not Proficient achievement level on the exam. Biology Participant 3 predicted that they would earn a Level 3 achievement level but earned a higher achievement level of Level 5.

Mathematics I Participant 1 predicted that they would “fail” the exam and earned a Not Proficient achievement level on the exam. This participant refused to use the specified levels as a prediction and would only say that they knew they would fail the exam. While the terminology used by the student does not correlate to the terminology used by the achievement level descriptors, this prediction was technically correct because it shows the student did not believe they had mastered the standards taught in the course. Mathematics I Participant 2 predicted they would earn a Level 3 achievement level on the exam and earned a Not Proficient. Mathematics I Participant 3 correctly predicted that they would earn a Not Proficient achievement level. Mathematics I Participants 4 and 5 both correctly predicted that they would earn a Level 3 achievement level on the exam.

English II Participant 1 predicted that they would earn a Level 3 on the exam and earned a higher achievement level of Level 5. English II Participant 2 predicted that they would not be proficient on the exam but did show proficiency on the exam earning a Level 3 achievement level. English II Participant 3 was another student who refused to use the terminology that was requested, however, this participant correctly predicted that they were not going to be proficient on the exam. English II Participant 4 was the only student in the study who predicted that they

would earn a proficient score, Level 3 specifically, on the exam but earned a lower achievement level of Not Proficient.

Research Question 3

The third research question for my study was “How have students’ academic outcomes changed?” The data I used to analyze Research Question 3 were collected from each student’s gradebook in PowerSchool. Each student has a “Quick Lookup” screen within the PowerSchool program that shows their current and past grades for the current semester and allows the user to click on the final grade for each reporting term to see the breakdown of the grade. The breakdown of the grade shows all assignments that have been entered in the gradebook, the type of assignment (i.e., homework, classwork, quiz, test, project), the earned grade for the assignment, and icons that provide clarification on each assignment. There are icons for “has description,” “has comment,” “weighted assignment,” “collected,” “late,” “missing,” “exempt from final grade,” “absent,” “incomplete,” and “excluded.” These icons provide a quick reference for parents when they seek clarification regarding a specific assignment.

To analyze Research Question 3, I used three main data sources. First, the overall grade that was earned by the student for each of the 6-week grading periods to show how the tutoring impacted their overall performance in the course throughout the semester. Secondly, I compared the number of missing assignments at the end of the reporting period to the total number of graded assignments in the course for the reporting period. Finally, I analyzed the results from each of the participants on the North Carolina End of Course Exam.

Reporting Period Grades

Students at CHS, where I conducted my study, are evaluated academically on three, 6-week reporting periods per semester. Each of the three reporting periods are then averaged

together with a scale-scored exam grade to determine the student's overall grade in the course.

To qualify for participation in this study, a student must have shown the need for more academic support in the course by scoring at or below 60% on their first report card grade in the course.

Biology. Figure 10 illustrates the change in grades for biology participants throughout the course of the study. There were three study participants who participated in biology tutoring for the study. Biology Participant 1 qualified for the study with a 57% on their first report card. Biology Participant 1 raised their second 6-weeks grade to 68% and further improved their grade to 74% in the final 6-week term. Biology Participant 2 qualified for the study with a 40% final average for the first 6-weeks of the semester. Biology Participant 2 only improved their second 6-weeks grade slightly to 42% and then allowed their third 6-weeks average to fall back to 40%. Biology Participant 3 started the study with a 60% average in the first 6-weeks reporting period. Biology Participant 3 improved to a 73% average for the second 6-weeks and continued the improvement finishing the third 6-weeks with 79%.

When I reviewed the reporting period grades for the biology participants and compared them to the attendance data from the tutoring sessions, I found it interesting to note that biology started with the lowest attendance rate for the tutoring sessions with only 29% of the sessions being attended during the first PDSA Cycle (first reporting period) and ended with the second highest attendance rate at 69%. This 40% increase in attendance rate was the highest gain in attendance rate shown during the study and was associated with an overall increase in average grade for all Biology participants from 52% in the first reporting period to 64% in the final reporting period, a 12% increase over the life of the study.

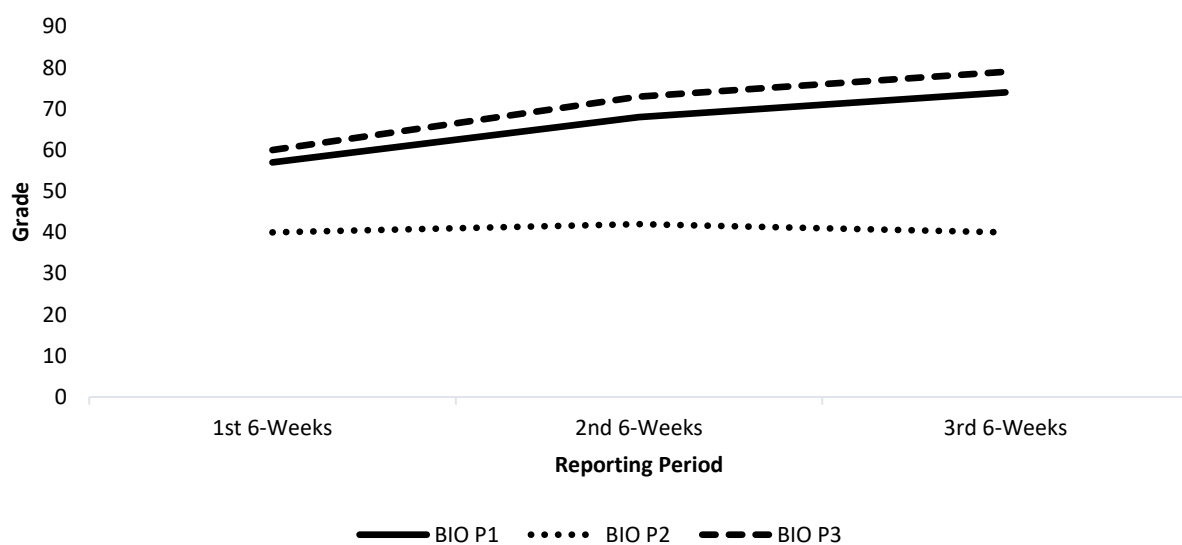


Figure 10. Reporting period grade data from Biology participants during study.

Mathematics I. Figure 11 illustrates the changes in the grades for the Mathematics I participants during the study. There were five participants in the study who were attending Mathematics I tutoring. Of the five participants, the data showed that four improved their report card grade throughout the study while one participant did not show any improvement at all. Mathematics I Participant 1 began the study with a 40% on their first report card and completed the study with the same grade for each of the reporting periods. Mathematics I Participant 2 qualified to participate in the study with a 40% in the first grading period. This participant improved their grades in the final two reporting periods to 52% and 65%, respectively. Mathematics I Participant 3 initially qualified for participation in the study with 54% in the first 6-weeks reporting period. Mathematics I Participant 3 saw a decline in academic achievement during the second 6-weeks reporting period to 40% but improved considerably during the final 6-weeks reporting period to 60%. Mathematics I Participant 4 qualified to participate in the study earning 48% in the first 6-weeks reporting period. Mathematics I Participant 4 improved their grade to 67% in the second 6weeks reporting period and continued to improve their grade in the third 6-weeks reporting period to 70%. Finally, Mathematics I Participant 5 qualified for participation in the study by earning 60% during the first 6-weeks reporting period. This participant improved their grade to 70% in the second 6-weeks reporting period and again improved in the third 6-weeks reporting period to 83%.

Mathematics I participants had the lowest increase in attendance rate during the study, starting with a 47% attendance rate during PDSA Cycle 1 and ending with a 64% attendance rate during PDSA Cycle 3. This 17% increase in attendance rate marked the lowest increase in attendance rate among the three courses I reviewed in the study. When comparing the average

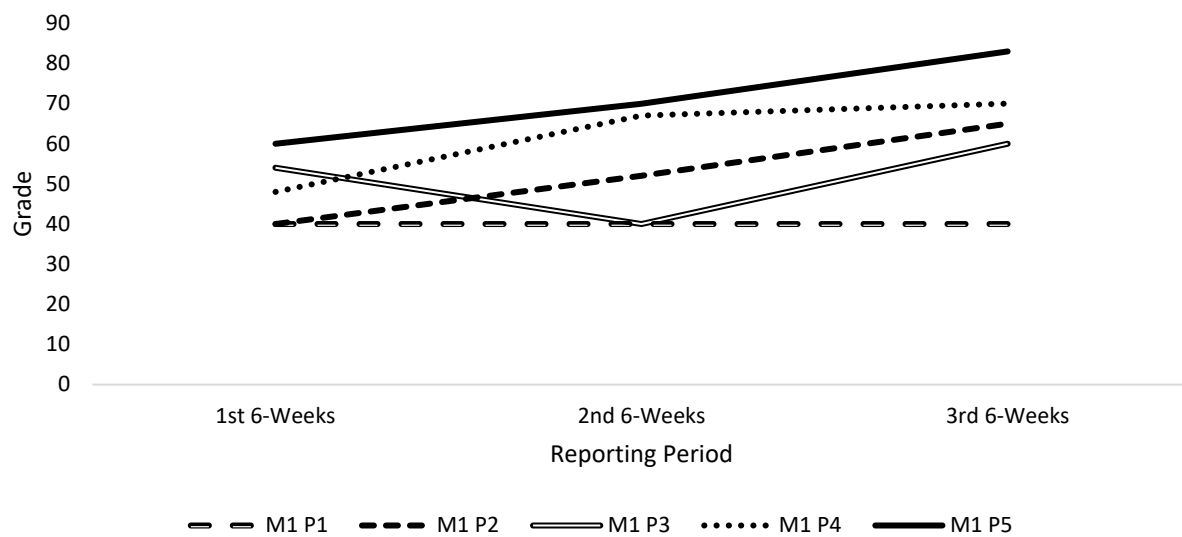


Figure 11. Reporting period grade data from Mathematics I participants during study.

grade for all participants from the first reporting period to the final reporting period, Mathematics I also had the lowest percentage point increase in grade, with the average grade in the final reporting period only improving by 7% over the initial reporting period.

English II. Figure 12 illustrates the changes in grades for the English II participants during the study. There were four participants who attended English II tutoring. The data show that two of the four participants were able to increase their report card grade throughout the study. These two participants were English II Participant 1 and English II Participant 2. English II Participant 1 qualified for participation in the study by earning 40% on the first 6-weeks' report card. This participant increased their grade in the second reporting period to 65% and further increased their grade to 68% in the final reporting period. English II Participant 2 qualified for participation in the study with a 47% in the first 6-weeks reporting period and was able to increase their grade in both the second and third reporting period to 65% and 72%, respectively. English II Participant 3 initially qualified for participation in the study by earning 42% on their first report card. This participant did not show any improvement throughout the remainder of the course, earning 40% in both subsequent reporting periods. English II Participant 4 saw a decrease in the second reporting period to 40% but then increased to a 50% in the third 6-weeks reporting period.

English II participants had the highest overall attendance rate during the study, culminating with an 82% attendance rate during the final cycle. The attendance rate for English II participants increased by 32% over the life of the study. The average grade for the participants in English II for the first reporting period in the study was 45%. This increased to 57.5% in the final reporting period of the study, marking the highest gain in reporting period grades of 12.5%.

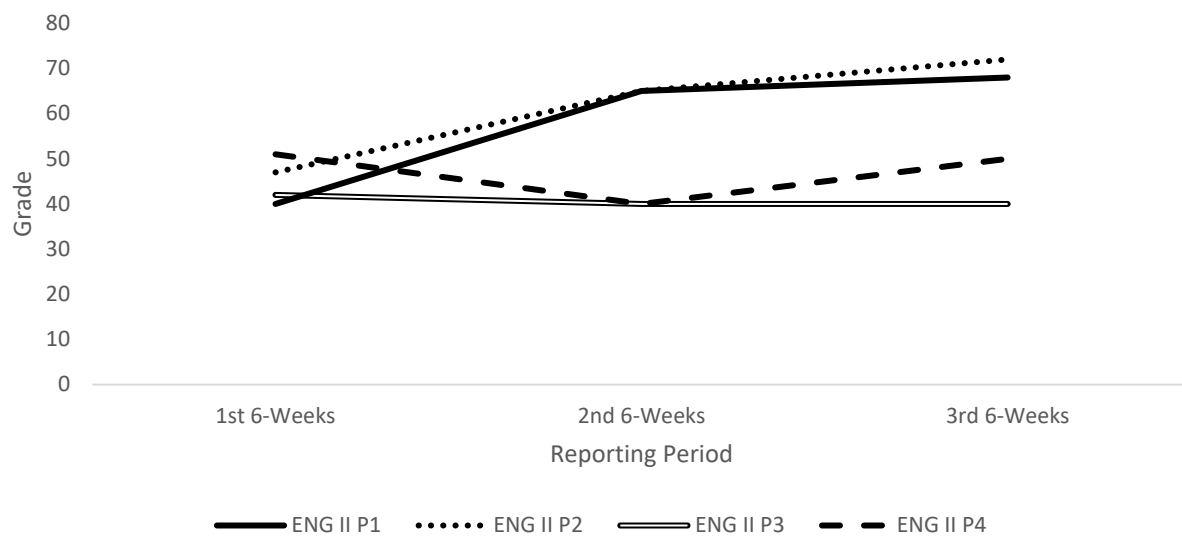


Figure 12. Reporting period grade data from English II participants during study.

Missing Assignment Data

During PDSA Cycle 1, it became evident that missing assignments were a major concern for many of the participants. At the conclusion of PDSA Cycle 1 the cumulative completion rate of assignments for all participants was only 59%, showing that some 40% of the assignments had not been completed by the participants. This completion rate ranged from 83% down to 29% for the participants showing an alarming rate of missing assignments. Teacher participants realized that this should be an area that they should watch closely throughout the remainder of the study to determine how missing assignments would be associated with the overall academic performance of the student participants.

Biology. Figure 13 illustrates the completion rate for biology participants throughout the course of the study. While one participant, Biology Participant 2, maintained a low assignment completion rate during the entirety of the study, there was an increasing trend in the completion rate for all biology participants during the three cycles of improvement. Biology Participant 1 began the study with an 81% assignment completion rate, increased this rate in PDSA Cycle 2 to 94%, and finished the study with a 100% assignment completion rate. Biology Participant 2 struggled with assignment completion throughout the entire study. This participant began the study with an assignment completion rate of only 31%, increased this rate to 33% in the second PDSA Cycle and finished the study with only a 37% assignment completion rate. Biology Participant 3 began the study with an 81% assignment completion rate. This participant increased their assignment completion rate to 90% in PDSA Cycle 2 and completed the study with a 100% assignment completion rate.

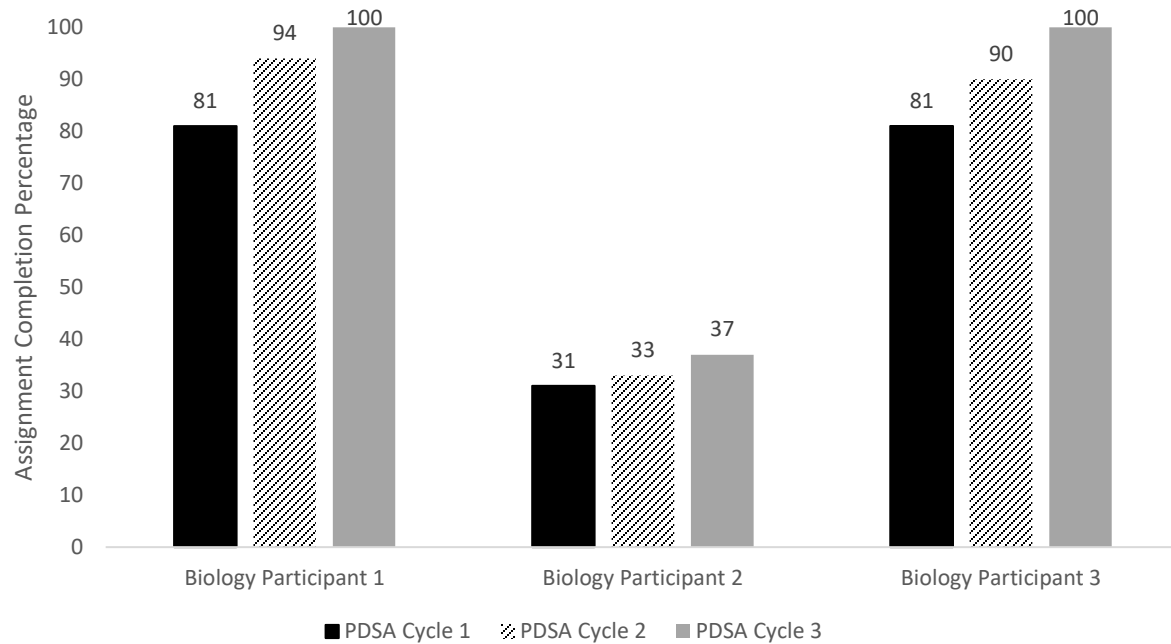


Figure 13. Assignment completion percentage for Biology participants during study.

This data shows a direct correlation between the participants' assignment completion rate and their reporting period grades. Overall, Biology Participants 1 and 3 were more successful in the course due to their increased participation in the coursework that was assigned and graded. Biology Participant 2 did not pass the course or the exam and was overall not engaged in the course or the tutoring offerings during the *PowerHour* period.

Mathematics I. Figure 14 illustrates the completion rate for Mathematics I participants throughout the course of the study. When I compared the final PDSA Cycles assignment completion rate data to the first PDSA Cycle completion rate date, I noted that each of the five Mathematics I participants improved their assignment completion rate over the course of the study. All but one participant had a steady increase in assignment completion rate throughout each of the cycles, with only Mathematics I Participant 3 noting a decrease in assignment completion rate during PDSA Cycle 2.

Mathematics I Participant 1 maintained the lowest assignment completion rate of all Mathematics I study participants throughout the study. This participant began with a 17% assignment completion rate in PDSA Cycle 1, improved this during PDSA Cycle 2 to 21% and completed the study with a 35% assignment completion rate during PDSA Cycle 3. Mathematics I Participant 2 began the study with a 29% assignment completion rate, increased this rate to 75% during PDSA Cycle 2 and further increased their assignment completion rate during PDSA Cycle 3 to 91%. Mathematics I Participant 3 initially had a 72% assignment completion rate during PDSA Cycle 1. During PDSA Cycle 2, Mathematics I Participant 3 saw a decrease to 64% assignment completion rate but increased this assignment completion rate during PDSA Cycle 3 to 91%. Mathematics I Participant 4 started the study with a 64% assignment completion

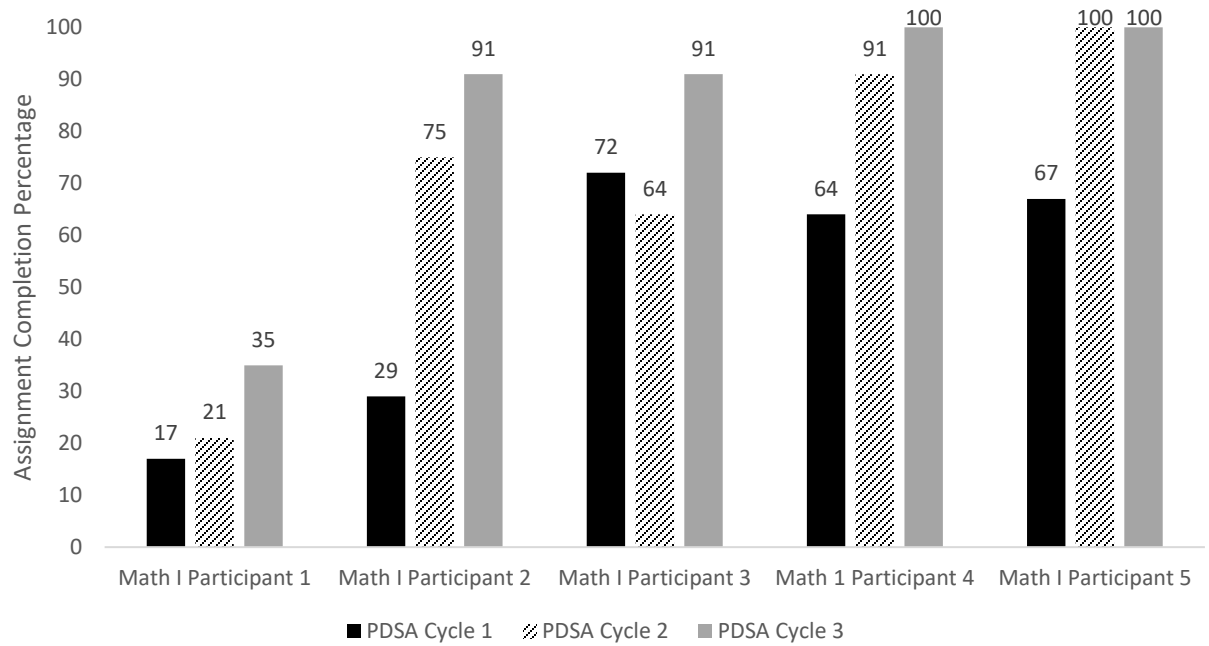


Figure 14. Assignment completion percentage for Mathematics I participants during study.

rate, increased this rate during PDSA Cycle 2 to 91% and further increased their assignment completion rate to 100% in PDSA Cycle 3. Mathematics I Participant 5 began the study with a 67% assignment completion rate and increased this to a 100% assignment completion rate in both PDSA Cycle 3 and PDSA Cycle 4.

English II. Figure 15 illustrates the completion rate for English II participants throughout the course of the study. English II Participant 3 experienced a sharp decline in assignment completion rate over the course of the study with a 45.2% decrease between PDSA Cycle 1 and PDSA Cycle 3. Also, important to note in this group of participants, English II Participant 1 had the highest improvement in assignment completion rate between PDSA Cycle 1 and 2 of all study participants improving the rate by 51%.

English II Participant 1 began the study with a 38% assignment completion rate during PDSA Cycle 1. This participant ended PDSA Cycle 2 with an 89% assignment completion rate and further improved to 95% assignment completion rate for PDSA Cycle 3. English II Participant 2 initially had a 70% assignment completion rate in PDSA Cycle 1, improved the assignment completion rate in PDSA Cycle 2 to 92% and further improved the rate to 97% during PDSA Cycle 3. English II Participant 3 began the study with a 55% assignment completion rate. This participant showed a decline in assignment completion throughout the course of the study. In PDSA Cycle 2 the participant had a 39% completion rate and in PDSA Cycle 3 had a 9.8% assignment completion rate. English II Participant 4 initially began the study with an 83% assignment completion rate during PDSA Cycle 1 and noted a decrease of assignment completion during PDSA Cycle 2 to a 57%, however, improved the assignment completion rate to 87% during PDSA Cycle 3.

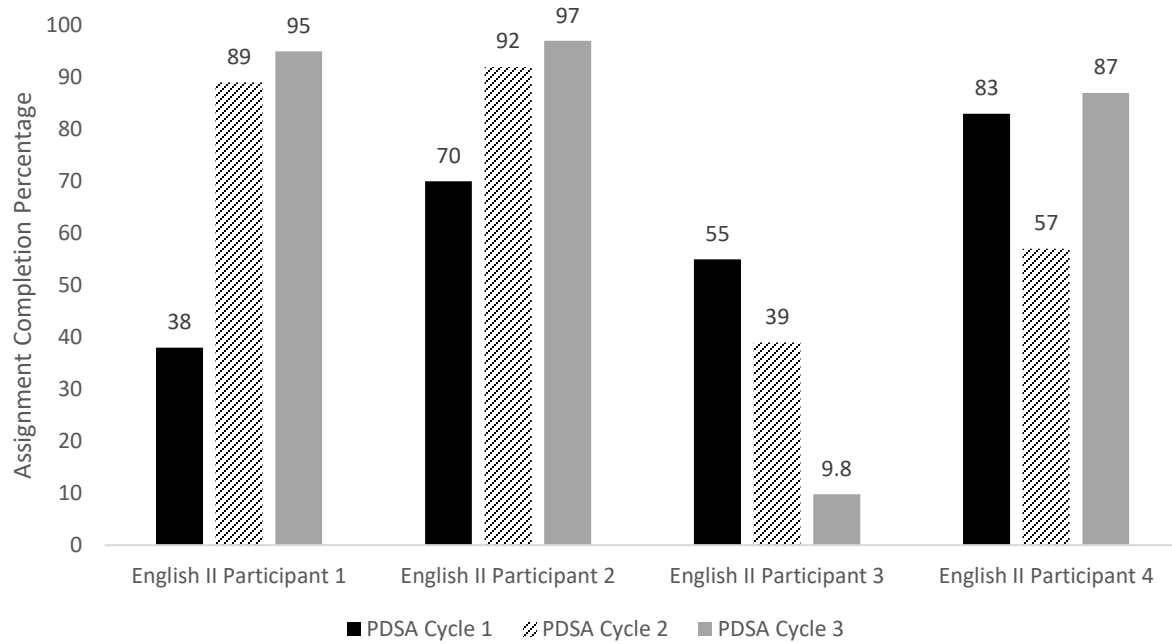


Figure 15. Assignment completion percentage for English II participants during study.

NC End of Course Exam Results

The final data set I reviewed in Research Question 3 comprised the results from the North Carolina End of Course Exams for each of the participants. North Carolina End of Course Exams are administered after the completion of the course and are used to determine the level of students' comprehension and understanding of grade level content and the extent to which they met the learning standards laid out for that specific course.

I reviewed exam results in three main categories. The first category was the EOC Exam Scale Score. According to the North Carolina Department of Public Instruction website (Individual Student Reports NC DPI [ISR], 2024), the scale score is a derived score based on the raw score that allows for comparison of scores earned by the student on other forms of the test. The second category was the percentile rank. The percentile rank shows how a student performed on the exam as compared to students who took the exam during the norming year of the exam, which is generally the first year the test was administered. A percentile rank of 95 indicates that a student's score was better than 95% of the other students' scores. Finally, I reviewed the achievement level attained by each of the participants. Achievement levels are "predetermined performance standards that allow a student's performance to be compared to grade-level expectations" (ISR, 2024). There are four achievement levels used in reporting EOC exam results. These levels are: Not Proficient, Level 3, Level 4, and Level 5. Students who earn the Not Proficient level demonstrate, "inconsistent understanding of grade-level content standards and will need support" (ISR, 2024). Students who earn Level 3 demonstrate "sufficient understanding of grade-level content standards though some support may be needed to engage with content at the next grade/course" (ISR, 2024). Students who earn Level 4 demonstrate "a thorough understanding of grade-level content standards and are on track for career and college"

(ISR, 2024). Students who earn Level 5 demonstrate a “comprehensive understanding of grade-level content standards, are on track for career and college, and are prepared for advanced content at the grade/course” (ISR, 2024).

Biology. North Carolina Department of Public Instruction published information specific to the North Carolina End-of-Course Biology Test (see Appendix B). This publication shows the achievement level ranges cut scores for the exam. Students earn a Not Proficient score when their scale score is less than or equal to 249. Students earn Level 3 when their scale score is between 250 and 251. Students earn Level 4 when their scale score is between 252 and 260. Finally, students earn Level 5 when their scale score is greater than or equal to 261. Table 13 details the EOC Exam Data earned by the biology participants in my study.

Overall, two of the students were proficient on the exam and one student was not proficient. Biology Participant 1 earned an exam scale score of 259, a percentile rank of 78, and a Level 4 achievement level. Biology Participant 2 earned a scale score of 237, a percentile rank of 4, and a not proficient achievement level. Biology Participant 3 earned a scale score of 262, a percentile rank of 88, and a Level 5 achievement level.

Mathematics I. North Carolina Department of Public Instruction published a document that details information specific to the End-of-Course Mathematics I Exam (see Appendix C). One of the pieces of information contained in this document details the cut scores required for students to earn specific achievement levels. According to the document, students earning a scale score of less than or equal to 547 earn a Not Proficient, students earning a scale score between 548 and 554 earn Level 3, students who earn a scale score between 555 and 562 earn a Level 4, and students who earn a scale score greater than or equal to a 563 earn a Level 5. Table 14 details the EOC Exam Data earned by the Mathematics I participants in my study.

Table 13

Biology Participant EOC Exam Result Data

Participant	Exam Scale Score	Percentile Rank	Achievement Level
Participant 1	259	78	Level 4
Participant 2	237	4	Not Proficient
Participant 3	262	88	Level 5

Table 14

Mathematics I Participant EOC Exam Result Data

Participant	Exam Scale Score	Percentile Rank	Achievement Level
Participant 1	514	8	Not Proficient
Participant 2	532	16	Not Proficient
Participant 3	532	16	Not Proficient
Participant 4	549	23	Level 3
Participant 5	552	37	Level 3

Data for Mathematics I participants show that two participants were proficient on the exam, while three participants were not proficient. Mathematics I Participant 1 earned a scale score of 514, a percentile rank of 8 and an achievement level of Not Proficient. Mathematics I Participant 2 earned a scale score of 532, a percentile rank of 16, and an achievement level of Not Proficient. Mathematics I Participant 3 earned a scale score of 532, a percentile rank of 16, and an achievement level of Not Proficient. Mathematics I Participant 4 earned a scale score of 549, a percentile rank of 23, and an achievement level of Level 3. Mathematics I Participant 5 earned a scale score of 552, a percentile rank of 37, and an achievement level of Level 3.

English II. North Carolina Department of Public Instruction published a document, last revised in November 2020, that details information specific to the End-of-Course English II Exam (see Appendix D). One of the pieces of information contained in this document details the cut scores required for students to earn specific achievement levels. Based on information provided in the document, a student who earned a scale score of less than or equal to 548 would earn a Not Proficient achievement level. Students who earned a scale score between 549 and 554 would earn an achievement level of Level 3. Students who earned a scale score between 555 and 564 would earn a Level 4 achievement level. Finally, a student who earned a scale score of greater than or equal to 565 would earn a Level 5 achievement level on the exam. Table 15 details the exam data earned by English II participants in my study.

Data for English II participants in my study show that two of the participants were not proficient on the EOC exam for English II and that two of the participants were proficient. English II Participant 1 earned a scale score of 564, a 79-percentile rank, and an achievement level of Level 4. English II Participant 2 earned a 549-scale score, a percentile rank of 64, and a

Table 15

English II Participant EOC Exam Result Data

Participant	Exam Scale Score	Percentile Rank	Achievement Level
Participant 1	564	79	Level 4
Participant 2	549	64	Level 3
Participant 3	513	25	Not Proficient
Participant 4	544	47	Not Proficient

Level 3 achievement level. English II Participant 3 earned a scale score of 513, a percentile rank of 25, and a Not Proficient achievement level. English II Participant 4 earned a scale score of 544, a percentile rank of 47, and a Not Proficient achievement level.

Summary

The goal of my study was to systematically examine the impact of *PowerHour* in its current form and revise it throughout the course of three PDSA Cycles of improvement to the stage where it was a more influential intervention for students who were in danger of academic failure. This chapter detailed the specific improvements that were implemented during each PDSA Cycle of Improvement, as well as the results of the study. I included both qualitative and quantitative data to determine how the teachers' and students' perceptions of tutoring changed over the course of my study, and how the students' academic outcomes changed.

CHAPTER 5: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

My study was conducted in the fall semester of 2020, which is approximately 4 years ago. It is now the fall semester of 2024, and I am finalizing the writing of my study. I believe it is important to revisit the circumstances of the time when my study was completed and discuss how these circumstances have changed to provide context for the study, the findings, and the current challenges schools still face in this context.

My study was conducted at CHS, one of the 38 schools in a district in southeastern North Carolina. At the time of the study, my role at CHS was assistant principal. During my study, the COVID-19 pandemic caused significant disruption to almost all everyday tasks. In education, schools across the state were reopening their doors for students to return under quite different circumstances. On July 14, 2020, the governor of North Carolina announced that schools would be able to open in the fall of 2020, but with strict guidelines in place to mitigate the spread of COVID-19 and ensure the safety of students and staff. Following this announcement, district administrators began planning for the opening of CHS and other schools in the district.

The plan that was approved by the Board of Education allowed students to be split into two cohorts, Cohort A and Cohort B. Cohort A students were to attend school in person on Monday and Tuesday while Cohort B students were to attend school in person on Thursday and Friday. On the days students were not attending school in person, they were required to attend virtually. The plan for virtual classes involved participating via Microsoft *Teams* for 60 minutes of the 90 minute “on-campus” block. Students participating via *Teams* could hear and participate in the class discussions with the students sitting in the classroom. Expectations regarding how schools should handle the remote learning scenario were shared with the students and their families prior to the start of the school year on August 17, 2020.

As school-based staff began planning for the reopening of the school, there were many logistical items to consider including bell schedules, student movement around campus, and classroom cleaning between periods. However, one of the biggest decisions that was made involved bell schedules. Understanding that CHS had placed a major emphasis on student achievement with the implementation of *PowerHour*, the members of the *PowerHour* Committee (which I Chaired) quickly convened virtually to determine the feasibility of continuing the program under the new restrictions and to begin planning alternative methods of providing the much-needed student academic support. During these *PowerHour* Committee meetings, the members determined that CHS staff needed to continue to meet the needs of our students in a way similar to the face-to-face *PowerHour* program. However, the Committee members also realized the customary face-to-face format was not the safest way to conduct the program under the pandemic related restrictions. There were too many concerns regarding the safety of the students and staff and the tracking of students in the face-to-face format that would not easily translate into the COVID-19 context.

The *PowerHour* Committee members concluded that all teachers at CHS would need to continue offering tutoring and remediation to their students under the new blended learning model and that these services would need to be offered to the students in the classroom as well as to the students logged into the class remotely. Overall, the implementation of *PowerHour* during this time was as effective as it could have been, given the circumstances. The attendance rate during the first PDSA Cycle of Improvement illustrated one of the biggest struggles, which was getting the students to attend and take advantage of the tutoring opportunities that were being offered. The attendance data show, while it took some time and persuasion, the students

eventually began participating and even noted the academic improvements they were benefiting from due to the tutoring program.

While these issues, specifically the need for tutoring opportunities and the students' unwillingness to participate, were prominent during my study, these issues persist today. The data from my study show that tutoring can have positive academic impacts on student achievement, however students must be willing to attend and engage in the tutoring opportunities. Since the completion of my study, there is evidence to suggest that students are still in need of academic tutoring activities.

According to Bowers and Sprott (2012), Patterson et al. (2007), and further illustrated by Hart (2019), student success in the high school setting is crucial in laying a foundation for future student success. Student success can involve achieving academic proficiency in addition to becoming a successful and productive citizen in society (Hart, 2019). Each student learns at their own pace (Doubet & Hockett, 2015; Tomlinson, 2014; Vatterott, 2019) and with varying levels of assistance from educators. This learning process can look different for each student and can vary by subject—a student may be a “rock star” in mathematics and struggle in English (Belfi et al., 2012; Hart, 2019). However, as illustrated by Hart and Bowers and Sprott, it is extremely important that students learn the material in the course, as there are dire consequences for students who linger on their path to graduation, or who do not graduate at all. Consequences for students not passing courses in the high school setting include dropping out or failing to graduate from high school, as illustrated by Hart. While Hart's account ended positively, the negative impact of disengagement from school can haunt students for the rest of their lives.

There are varying levels of support that schools can offer to students to ensure their success and minimize the likelihood of their dropping out or failing out of high school. Within

the classroom, teachers would do well to use multiple sources of classroom feedback to inform their instruction. By taking such a focused instructional approach, teachers would gain real-time feedback regarding student performance. Feedback would give teachers the ability to customize their instructional approach to fit the needs of each student in the class, as well as the ability to remediate the entire class using alternative teaching methods. Adopting an individualized instructional approach involves the teachers' focusing their instruction to address the needs of not just a small percentage of the students in the class (e.g., only those who grasp the concept), but the whole class.

Tutoring offers an extra layer of support that can be utilized to enhance the likelihood of student success. The environment in a tutoring session lends itself to a smaller student-to-teacher ratio. A small group setting allows teachers and students the opportunity to work through issues of understanding of the academic content. A small group setting allows the teacher to focus more on the needs of the students who do not understand the content and allows extra time for teachers to explain the material in alternate ways that the student may understand. Tutoring is not intended to be used to reteach the material in the same way it was taught to the entire class, but rather to provide a set time to remediate the student in specific areas of the content that they did not understand. Both Grey (2015) and Woodland (2008) agreed that additional levels of academic support can help clear up academic misunderstandings and yield positive learning outcomes.

Summary of Findings

Prior to the inception of my study, after-school tutoring had been available at CHS for many years; however, there had been several challenges associated with it. These challenges led to students not attending with the result that the program did not notably impact student

achievement. To alleviate the obstacles students faced with after-school tutoring and to increase the impact of the tutoring program at CHS, I led the restructuring of the daily schedule to incorporate tutoring (re-branded as *PowerHour*) into the regular school day. The implementation of *PowerHour* as a well-designed, comprehensive tutoring program offered during the school day alleviated barriers that both students and teachers faced with the previous after-school tutoring opportunities at CHS. *PowerHour* was intended to optimize students' achievement outcomes and increase students' chances for academic success. I anticipated that increased academic success would enhance students' feelings of accomplishment in their education thereby decreasing their chances of dropping out of school and facing the lifelong challenges associated with not completing high school.

My study aimed to enhance the *PowerHour* tutoring program through a series of improvements using the PDSA (Plan-Do-Study-Act) Cycle. In PDSA Cycle 1, the major initiative focused on integrating Microsoft *Teams* for virtual learning and tutoring in response to the COVID-19 restrictions. This involved a professional development series for teachers to familiarize them with *Teams*, followed by a train-the-trainer approach where teachers instructed students on its use in the classroom (in-person and virtual) setting. Despite the successful implementation of *Teams* and adjustments to the school schedule, attendance at *PowerHour* sessions remained low. Teachers expressed frustration with the lack of attendance, while students shared mixed perceptions, with some recognizing the benefits of tutoring and others lacking the understanding and appreciation of its importance in their academic success. Attendance data revealed that many students prioritized other activities over academic tutoring, limiting the overall impact of the tutoring initiative.

In PDSA Cycle 2, the focus shifted to improving student attendance and participation in the tutoring activities offered during *PowerHour*. An automated email system, using Microsoft *Flow*, was introduced to keep parents informed about their child's attendance at *PowerHour* tutoring sessions. This new communication strategy led to a notable improvement in attendance, with rates increasing by approximately 20% for Mathematics I, English II, and Biology tutoring sessions. Parents responded positively, expressing gratitude for the increase in communication and requesting additional information such as academic progress updates and missing assignment reports. However, with the notable increase in attendance rates, some student participants remained resistant to attending sessions despite the enhanced parental involvement. The increased communication, implemented during PDSA Cycle 2, fostered a stronger connection between parents and the school, which in turn improved student attendance and engagement.

In PDSA Cycle 3, communication efforts were expanded by providing frequent progress reports to parents through Microsoft *Flow*. This system enabled the automated delivery of detailed reports on grades, work completion, and comprehension, enhancing the communication between teachers, students, and parents. This improved communication led to more meaningful interactions between teachers and students. Teachers gained a better understanding of student strengths and challenges, allowing for more tailored tutoring strategies. Students reported increased motivation and engagement, appreciating the personalized feedback and the knowledge that their progress was being communicated with their parents. Overall, the enhanced communication not only improved student academic outcomes but also fostered a more collaborative learning environment, strengthening the relationships between teachers, students, and parents.

Teacher participants reported feeling more connected to the student participants and noted that individual conversations improved their insight into the student participants' understanding of the content being taught in the course. Through the individual work review, teacher participants noted that they gained a better understanding of the students' strengths and challenges, which allowed them the opportunity to further refine the individualized approach in selecting activities for the tutoring sessions for the student participants. One teacher reported that "I now have a better understanding of what the students know and don't know. This has helped me address misunderstandings uncovered during the class."

The teacher participants also noted that the conversations and relationships being cultivated during the *PowerHour* tutoring sessions were having an impact on the student participants' willingness to participate and engage in the classroom. The conversations created a sense of collaboration and teamwork in the learning process that was not as evident prior to the three cycles of improvement on the *PowerHour* tutoring program. One teacher declared that "the conversations I have with my students about their progress reports have opened their willingness to participate in class. It's like we are more connected as a learning team."

Adding to the positive impact noted on teacher-student relationships, student participants also noted more positive perceptions regarding the interactions with their teachers during tutoring sessions. Student participants reported feeling more motivated to complete assignments knowing that their progress and work completion would be shared with their parents through the weekly teacher-parent communication. The student participants appreciated the one-on-one time with their teacher to discuss their grades and their understanding of the material being covered in the class in a safe space. One student asserted that "knowing that my teacher is going to send my

progress report home to my parents each week has made me want to get more stuff done. I like when she talks just to me about my work.”

Overall, the increased communication between the parents and the teacher in PDSA Cycle 3 not only impacted the students’ academic outcomes but it also improved the relationship among the teachers and the students allowing them to have frank conversations about student engagement, understanding, and overall academic progress.

Interpretation of Findings

My action research study was aimed at researching the extent to which the new circumstances regarding tutoring at CHS had changed teacher and student behavior by engaging with my colleagues in implementing PDSA Cycles of improvement. The goal of my study was to systematically examine the impact of *PowerHour* in its current form and revise it throughout the course of three PDSA Cycles to the stage where it was a more influential intervention for students who are in danger of academic failure. If I showed that *PowerHour* was as effective as I believed it could be, it would be evidence I could use to convince the students of Mathematics 1, English II, and Biology (EOC courses) in Grades 9 and 10 at CHS that if they were struggling—defined as receiving a course grade at or below 60%—then the individualized tutoring provided by the teachers during *PowerHour* would be an effective way of improving their academic performance.

Research Question 1: Teacher Participants’ Change of Perception

My findings related to Research Question 1 revealed an evolutionary improvement in teachers’ perceptions of tutoring throughout the study in the areas of attendance, engagement, and student academic achievement. Initially, teacher participants expressed negative perceptions on the efficacy of the *PowerHour* tutoring program due to issues with student attendance at the

tutoring sessions along with little engagement being shown by student participants in both the classroom setting and tutoring setting. Teacher participants knew that if students were not attending the *PowerHour* tutoring program and engaging in the tutoring activities that the efficacy of the tutoring program would be negligible.

Theme 1: Communication Influenced Teachers' Perceptions of Student Attendance

The first theme that I was able to identify during the data analysis related to teacher perceptions was that increased intentional communication positively influences teacher perception of student attendance. At the beginning of the study, teacher participants expressed significant concerns about the low attendance rate of student participants at the *PowerHour* tutoring sessions. These concerns were further exacerbated by the challenges imposed by the hybrid learning setup necessitated by the COVID-19 restrictions. Teacher participants highlighted the difficulties they faced in encouraging student attendance on both virtual and in-person days, with attendance rates at or below 50% during the first PDSA Cycle. Teacher participants, although disappointed by the lack of attendance in the tutoring program, continued to encourage student participants to attend the tutoring sessions on both their in-person and virtual days.

During PDSA Cycle 2, I implemented an improvement to parental communication as leverage to influence the student participants' attendance at the *PowerHour* program. The effectiveness of the Cycle 2 improvements led to an improvement in tutoring attendance with attendance rates in Mathematics I increasing to 62%, in English II to 80%, and in Biology to 62%. These findings highlight the invaluable role parent communication and involvement play in the effectiveness of tutoring (Hetzl et al., 2009).

As the cycles of improvement progressed, teacher participants noted a discernible shift in student attendance. All six teacher participants reported positive perceptions of student engagement during PDSA Cycle 3. Through my qualitative analysis of the open-ended survey responses and focus group discussions, I was able to identify some themes and patterns that impacted the teachers' perceptions of attendance. These themes and patterns included the importance of student attendance in developing and fostering a supportive learning environment, developing, and implementing targeted tutoring interventions to address specific academic needs, and developing and fostering relationships among teachers and students.

The data I collected and analyzed during the study highlighted that, from the teacher's perspective, consistent student attendance at tutoring sessions played a critical role in enhancing a student's chances at obtaining academic success. Teachers viewed these sessions as opportunities to spend individualized time with students who were struggling. This time allowed teachers the opportunity to examine more closely the specific areas where students were having difficulty—even if the student was unable to verbalize where or how they are struggling with the content. This focused interaction provided teachers with the chance to not only identify the gaps in understanding but also to observe patterns in students' misconceptions that may not have surfaced during regular classroom teacher interaction and instruction. As a result of this individualized attention, teachers adjusted their teaching strategies in real time to better meet each student's unique learning needs.

Teachers also emphasized that tutoring enabled them to develop and implement targeted interventions tailored to individual student learning styles and challenges. This often included breaking down complex concepts into manageable steps, reinforcing skills through practice, or

introducing alternative methods of explanation for difficult concepts that were more aligned with the student's learning style.

By offering this dedicated time, teachers could also build stronger relationships with their students creating a supportive environment where students felt more comfortable asking questions and taking risks in their learning. Teachers saw the individualized attention during the tutoring sessions as a path to create a more open and supportive learning environment, which in turn had a profound impact on student motivation and engagement. This personalized setting fostered trust and allowed for better communication between teacher and student. Teachers, in turn, could better understand each student's unique learning challenges, learning preferences, and even the barriers they faced in succeeding academically. This enhanced communication is only able to occur when students attend and are engaged with the teacher and not only aided in developing more effective academic interventions but also strengthened relationships, collaboration and learning experience.

Beyond remediation, teachers perceived attendance at the tutoring sessions as a time for proactive enrichment of the learning that was occurring in the classroom. Teachers used this time to introduce additional resources or exercises that deepened student understanding of the concepts which promoted mastery of the concepts and long-term retention. Sustained participation not only allowed for mastery of the content being covered, but it also allowed the teacher to introduce more complex or supplementary information that went beyond remediation. A student's consistent attendance created a continuous cycle of learning and feedback, where teachers could revisit concepts, reinforce understanding and steadily increase the difficulty of tasks as the student improved.

Theme 2: Small Group Tutoring Sessions Enhanced Student Engagement

The second theme I was able to identify related to teacher perceptions that utilizing small groups in tutoring sessions enhanced student engagement by allowing for deliberate practice and peer-to-peer support. The teacher participants' perceptions of engagement mirrored their perceptions of attendance throughout the study as there was an obvious connection between the two. As student participants began attending the *PowerHour* tutoring program, initially, teacher participants described student participation as either non-existent or passive. However, this description changed throughout the course of my study and culminated in student participants' exhibiting increased engagement in the tutoring sessions. This transformation was shown in teacher participants' observations of student participants actively engaging in collaborative learning activities, seeking personalized academic support, and actively working to develop their proficiency with the content.

By the end of my study, all teacher participants reported positive views of student engagement in the tutoring activities. Overall, these data highlight a positive change in teacher participants' perceptions of student engagement and show the significance of engagement on the teacher's ability to monitor and refine tutoring strategies to ensure meaningful participation and the intended improvement on academic outcomes.

As the study progressed, teacher participants noted an overall increase in student engagement. The findings highlight the importance of the individualized attention that is offered during the tutoring sessions. The smaller, focused setting where students were given the opportunity to engage in deliberate practice activities developed to address their individual needs proved to be impactful on the students who were in danger of academic failure. In these settings, students were given a chance to engage in tutoring sessions where they repeatedly applied what

they learned, asked questions, and assessed their understanding in a safe place. By engaging in deliberate practice in tutoring sessions the students improved their understanding of key concepts more effectively, which became evident to the students and created a willingness to engage further.

An additional benefit of the small group tutoring sessions and the increased engagement among the student participants was the opportunity it provided for the teacher participants to closely monitor student progress. In real-time, teachers could observe how students interacted with the material and with each other, allowing them to refine their tutoring strategies as needed. This real-time feedback enabled teachers to identify which techniques were most effective for each student, adjust as necessary, and ensure that all students were meaningfully participating in the learning process. As a result, the iterative approach to the tutoring process enhanced the overall effectiveness of the tutoring sessions leading to improved student academic achievement. Once students recognized the impact the tutoring was having on their overall academic achievement, student participants were more likely to further engage in the tutoring process. By continually refining the tutoring methods based on student academic needs, teachers ensured further engagement and ensured the tutoring sessions remain targeted, supportive, and conducive to learning, thereby continually fostering student engagement in the tutoring sessions.

Theme 3: Student Attendance Increase Engendered Teachers' Optimism

The final theme I was able to identify related to teacher perceptions was that as student attendance increased, so too did the optimism of teachers regarding student performance. Throughout the course of my study there was a transformation in the perceptions of teacher participants regarding student achievement. This transformation was highlighted by both teacher participants' responses and student performance data. During PDSA Cycle 1, teacher participants

questioned the effectiveness of the *PowerHour* tutoring program and the impact their efforts would have on student achievement due to the limited student attendance. This was echoed by the teacher's feedback, which highlighted their inability to gauge student progress due to poor attendance at tutoring sessions. The subsequent focus group discussion further validated this concern and highlighted the teacher participants' skepticism.

However, as my study progressed to PDSA Cycle 2, a shift in perceptions occurred among teacher participants as attendance rates for *PowerHour* tutoring sessions began to improve. With a marked increase in student attendance at tutoring sessions, teacher participants began to express a more optimistic outlook regarding the potential impact that the program could have on student's academic performance. This change in perception was evident in their responses and in their daily interactions with the student participants.

By the conclusion of PDSA Cycle 3, teacher participants were expressing even more positive perceptions regarding the impacts of tutoring on student academic outcomes. With sustained improvements in student attendance and engagement, teacher participants expressed feeling more confident that the tutoring sessions would have a positive impact on students' academic outcomes. Teacher participants' responses during PDSA Cycle 3 indicated the strongest beliefs amongst them that their efforts during the *PowerHour* tutoring sessions would have a positive impact on student academic outcomes due to their increased awareness of each student participant's level of academic understanding.

My findings illustrate that as student attendance and engagement increase, teacher participants are more likely to report a corresponding rise in their optimism regarding student performance. This positive shift in teacher perceptions stems from their belief that consistent attendance and engagement in the tutoring sessions provides students with increased

opportunities to engage with the material they are struggling to understand in a way that will ultimately increase their level of content knowledge. As the teacher participants observed the higher attendance rates throughout the study, they began reporting that they felt more hopeful about their students' ability to grasp the concepts being covered, their ability to meet academic benchmarks given their increased understanding of the content, and the potential for them to continue to be able to make adequate progress throughout the remainder of the course. This sense of optimism amongst the teacher participants reinforces the idea that the more students are present and engaged in the tutoring activities, the more likely they are to increase their chances of overall academic success.

Throughout the course of my study, teacher participants noted a significant increase in their positive perceptions as student attendance and engagement improved, which mirrored their perceptions on student achievement. This correlation highlights that when students are consistently attending tutoring sessions and engaging with the content and teacher, the teacher has a better ability to gauge student progress and adjust instruction based on real time feedback. These favorable perceptions on student achievement created a reinforcing cycle for teachers—the more students attended and engaged at tutoring sessions and actively participated in the lessons developed for their individual academic needs, the more strongly the teachers believed in the student's ability to be able to succeed academically. I attribute this shift in teachers' perception regarding student achievement to a more supportive and encouraging classroom environment in which both students and teachers are motivated to achieve higher academic outcomes.

The optimistic teacher perceptions I noted towards the end of the study had a notable impact on tutoring outcomes for the students as well. When the teacher participants reported

optimistic opinions about their student's potential to be academically successful, I observed in my supervisory capacity that they were approaching the tutoring with more energy and dedication I noticed, and believe, that when the teacher participants exhibited optimistic perceptions, they were more likely to individualize the instruction and activities offered during the tutoring sessions and established a classroom atmosphere focused on student growth and confidence. In turn, this atmosphere boosted student motivation and engagement in the tutoring process, making the tutoring sessions more productive and successful in impacting overall student achievement.

Research Question 2: Student Participants' Change of Perception

My findings related to Research Question 2 revealed an improvement in students' perceptions of tutoring throughout the study in the areas of attendance, engagement, and student academic achievement. Initially, student participants expressed negative perceptions of the *PowerHour* tutoring program showing an overall unwillingness to attend the tutoring sessions along with little engagement being shown by student participants who did attend. Student participants reported a positive improvement in perception throughout the study as their attendance and engagement increased and they began feeling the impact the tutoring was having on their academic understanding.

Theme 1: Parental Involvement Influential but not Determinative

The first theme I was able to identify regarding student participants was that student attendance may be influenced by parental involvement, but attendance alone does not determine how students conceptualized the value of tutoring. In the initial PDSA Cycle of my study, student participants exhibited notable reluctance towards attending and engaging in tutoring sessions that were offered through the *PowerHour* program. Data from the study revealed that

during PDSA Cycle 1, Biology had the lowest average attendance rate at only 29%, Mathematics I reported an initial attendance rate of 47% and English II had an average attendance rate of 50%. However, as the study progressed through the subsequent PDSA Cycles of improvement, there was a marked improvement in attendance rates across all subjects. By the end of PDSA Cycle 3, Biology had a significant increase in attendance with an average rate of 69%. Mathematics I and English II also experienced similar upward trends, with attendance rates climbing to 64% and 82%, respectively.

These attendance rate increases attested to a positive shift in most of the student participants' willingness to engage with the *PowerHour* tutoring sessions that were offered to them. However, there were some participants who never recognized the potential benefits of tutoring and chose not to attend or engage in a meaningful way. One of these student participants stated, "It's a waste of time and it's not a grade so I am not doing it." Even with these few exceptions, the overall improvements suggest a positive shift in students' willingness to participate in tutoring sessions.

Overall, my study illustrated that parental involvement could play a crucial role in impacting a student's attendance at tutoring sessions. When parents actively engaged with their child's education, they became invested in not only ensuring that their student was attending tutoring sessions, but also emphasized the importance of engaging with the teacher and content during the sessions. While some parents were not capable of providing the individualized assistance that students needed to become academically successful, they provided positive encouragement, transportation, accountability, and the ability to help prioritize the importance of the tutoring activities for the students. While increased parental involvement proved effective in increasing student attendance at tutoring sessions, it did not provide a guarantee that student

participants would fully grasp the value of tutoring or that student participants would fully engage in the tutoring activities while in attendance at the sessions.

Attendance at tutoring sessions, while it can be an indication of future academic success, does not provide an indication of how students conceptualize the benefits of tutoring activities. For students to fully value the tutoring opportunities and benefit from them academically, they must understand how tutoring connects to their ability to learn and has the potential to deepen their understanding of the content they are struggling to comprehend. This requires a mindset shift where students are able to view tutoring as more than just an obligation to attend, but genuinely appreciate it as an educational tool that has the ability to enhance their understanding of complex topics that they struggle to understand. In my study, parents played a crucial role in helping the student participants who found success in the program benefit from the long-term benefits of tutoring.

The value of tutoring sessions and the broader importance of education was not always fully understood by some students participating in my study. For these student participants, they may have attended tutoring sessions due to varying reasons, such as social or parental expectations, but never grasped the long-term benefits of becoming an educated individual. Some of these students lacked intrinsic motivation and never engaged in their education, they only saw it as a task that either would get completed or not. In cases such as these, regular attendance did not provide academic improvements or academic development since the student lacked an understanding of the importance of education in their future.

Additionally, some students may have parents that do not provide the academic push that students need to see the value in education or to engage in the educational process. In some of these situations, this occurs due to a lack of understanding on the parent's part of the importance

of education or external influences such as work demands or limited educational backgrounds for themselves. Without some sort of parental reinforcement, some students may struggle to see the relevance and impact that tutoring or education can have in their lives, leading to a further diminishing of the student's willingness to fully engage with their studies.

Theme 2: Perceptions of Student Engagement Unchanged

The second theme I was able to discern from the data on student perceptions was related to the change in student participants perceptions of engagement from the pre-survey to the post-survey of student engagement using the HSSSE. I implemented the High School Survey of Student Engagement (see Appendix E) to collect baseline data on student engagement and compared those baseline data with the data from the same survey that I collected at the end of the three PDSA Cycles of improvement to *PowerHour*. I utilized the engagement constructs of behavioral engagement, emotional engagement, and cognitive engagement to discern how students' perceptions changed over the course of the study.

In my analysis of the HSSSE results, I focused on the three key engagement constructs: behavioral, emotional and cognitive. These constructs provide a multidimensional view of student's engagement capturing not just the student participant's actions and participation, but also how they feel about their learning environment and the extent to which they are invested in their education. Through this lens, I sought to interpret whether the interventions provided in the *PowerHour* tutoring sessions had a meaningful impact on the student participants perceptions of engagement.

I expected to see an improvement in student engagement from pre-intervention to post-intervention, anticipating that the tutoring sessions would foster stronger participation, deeper emotional connections to their learning and more active cognitive involvement. Given the

structure of the *PowerHour* tutoring sessions, I hoped that there would be notable enhancements in at least one, if not all three of these engagement constructs. At the very least, I anticipated that the engagement levels would remain stable throughout the course of the study and through the cycles of improvement, signaling that the sessions were at least maintaining the student participants' existing levels of connection to their learning.

The results across the engagement constructs did not show the significant improvements that I had initially hoped for. While there were small differences, both positive and negative, these shifts were mostly due to the change in responses of just one or two students in the post-survey, rather than a broader trend across the entire group. While this suggests that there was a limited impact of change in perceptions of student engagement throughout the course of the study, there were still significant impacts from the improvements made to the *PowerHour* tutoring program in other areas highlighted in the study.

Theme 3: Student Predictions Following Tutoring Fulfilled

The final theme I was able to discern from the data on student perceptions was that student predictions of their own achievement after tutoring became a self-fulfilling prophecy. I evaluated students' achievement perceptions by comparing students' predictions of their performance on End-of-Course Exams with their actual achievement levels. This comparison highlighted the alignment between students' perceptions of their academic outcomes across the subjects included in the study.

In Biology, the student participants demonstrated varied accuracy levels in predicting their EOC Exam results. Biology Participant 1 predicted a Level 3 but exceeded their expectations by earning Level 4, showing this student participant held a higher understanding of the course content than they realized. However, Biology Participant 2 accurately predicted the

Not Proficient level, indicating that this student had a realistic understanding that they were not academically prepared during the semester to be proficient on the exam.

Student participants in other study subjects also displayed diverse outcomes in predicting and achieving their EOC Exam performance. While some participants accurately predicted their achievement levels, others exhibited discrepancies between their predictions and actual outcomes.

It is well established in research that tutoring can have a positive impact on student academic outcomes (Burns et al., 2004; Rothman & Henderson, 2011), but its effectiveness is influenced by several critical factors. These factors include but are not limited to, the quality of instruction, the student's attendance and engagement in the tutoring, the alignment of the tutoring activities with the student's needs, and the alignment of the tutoring activities to the desired learning outcome (Zimmer et al., 2010).

Overall, students who received tutoring during my study developed a stronger academic understanding of the content being covered in the course. Additionally, they gained a clearer sense of their own knowledge, leading to their making a largely accurate prediction of their academic outcomes. Of the students who engaged in the tutoring during my study, 25% outperformed their expectations, 42% accurately predicted their academic performance outcomes and only 8% underperformed their expectations. These data show that even the students who were not fully engaged in the tutoring sessions also understood their lack of understanding of the content. The overall heightened self-awareness, both positive and negative, enabled students to assess their progress realistically and predict how well they believed they would perform in the course assessments. By regularly engaging in the academic material being covered in class, coupled with the individualized approach of tutoring, the students were able to gain a sense of

confidence in their understanding of the content and accurately judge their own academic performance outcomes. This self-assessment skill, fostered through the tutoring program is important because it showed that students could use their self-knowledge to set realistic educational goals as they continued to work through difficult academic content.

Research Question 3: Change in Students' Academic Outcomes

My study revealed three distinct aspects of student academic outcomes. The first aspect highlighted the improvements noted in reporting period grades for student participants. Second, student participants showed an improvement in their missing assignment percentage. Finally, the overall achievement results of student participants on the North Carolina End of Course Exams for the courses which I included in my study improved.

Theme 1: Improvement in Grades with Regular Tutoring Attendance

The first theme related to changes in students' academic outcomes relates to the improvements in overall grades due to the impacts of the *PowerHour* tutoring sessions during my study. For instance, in Biology some of the student participants exhibited consistent improvements in their grades and understanding of the content, while others encountered challenges in maintaining and improving their performance in the subject. In Mathematics I, students exhibited a general tendency to improve, although there were some differences in the degree of improvement made by individual student participants. Similarly, English II student participants showed diverse academic achievement outcomes, with some student participants making significant improvements throughout the course of the study while other participants showing more modest improvements.

While reviewing the student achievement outcomes, specific patterns became clear to me, offering insights into the factors influencing student achievement outcomes. In Biology, there

were noticeable improvements in course grades for Participants 1 and 3, while Participant 2 struggled to maintain a consistent grade. The attendance at tutoring sessions directly correlated with these improvements, which suggests attendance at *PowerHour* tutoring sessions had a positive impact on students' academic outcomes. Mathematics I student participants displayed mixed results. Some Mathematics I participants showed steady grade improvements throughout the course of the study, while others maintained low grades despite attending *PowerHour* tutoring sessions. Although attendance rates increased during the study for Mathematics I participants, the corresponding grade improvements were not as noticeable as in Biology. English II student participants displayed the highest attendance rate increase throughout the course of the study and the largest grade improvements of the three subjects included in the study.

The impact that the tutoring activities had on overall reporting period grades was noteworthy for the students who took advantage of the opportunities presented throughout the study. Students who took advantage of the regular, focused interventions offered in the tutoring sessions showed an overall improvement in their reporting period grades. This shows that tutoring provided a level of individualized instruction that allowed student participants to gain a better understanding of the content that once was challenging them since they had to show they were at risk of failing the course (60% or below) to qualify to participate in my study.

Theme 2: Fewer Missed Assignments with Regular Tutoring Attendance

The second theme relating to *PowerHour's* impact on student academic performance outcomes involves a substantial increase in the missing assignment rate for student participants throughout the course of the study. During the early stages of my study there was a concerning realization about the missing assignment rate for student participants during the first PDSA

Cycle of Improvement. This was an indication for teacher participants that either the student participants were not engaged or there were academic challenges for the student participants. Through the improvements attempted in PDSA Cycle 2 and 3, varied impacts on missing assignment data were noted. Eleven of the 12 student participants showed improvements in their assignment completion rate over the course of the study and only one student participant exhibited a decrease in assignment completion rate over the course of the study. It is important to note that this student participant had a significant decline in assignment completion rate over the course of the study initially having a 55% assignment completion rate that dropped to a shocking 9.8% assignment completion rate during the final PDSA Cycle of Improvement.

Throughout the course of my study, *PowerHour* tutoring had an overall positive impact on the assignment completion rate for student participants. The *PowerHour* tutoring program provided student participants with individualized support and guidance tailored to fit their needs and misunderstandings with the content being covered. Through one-on-one and small group activities, the teacher participants were able to help clarify difficult concepts, address gaps in understanding and help students develop better habits regarding their studies. The data show that overall, this program had a positive impact on student achievement, provided a boost in student academic understanding and provided improvements to student confidence and motivation. These overall impacts led to the student participants being more likely to complete their assignments on time. Additionally, the regular tutoring opportunities helped the teacher and student participants develop a classroom culture that welcomed accountability, engagement, and commitment to meeting deadlines within the learning process. This allowed teachers to provide more real-time feedback to their students so both the student and teacher participants had a better understanding of the student's content knowledge. The overall improvement in assignment

completion rate illustrates a connection between the tutoring program and the student participants increased academic performance and outcomes.

Theme 3: North Carolina End-of-Course (EOC) Performance with Consistent Tutoring

The final theme related to the change in student participants' academic outcomes related to their overall performance on the North Carolina End-of-Course (EOC) Exam. These exams provide a standardized measure of student comprehension and understanding of grade-level content standards for the participants. In the Biology EOC exam, two of the three student participants earned proficient scores. In Mathematics I, two participants out of five earned scores that proved proficiency in the content. English II two out of four participants attained proficient scores on the exam.

Although only half of the student participants earned a proficient score on the NC EOC Exam, it is important to remember that every student participant was at-risk of academic failure at the beginning of the course. With this important fact in mind, the significance of 50% of the student participants showing mastery of the academic content is impressive. This finding shows that tutoring can have a positive impact on a student academic performance on a mandated summative assessment that assesses knowledge of each of the concepts covered in a course and shows the students were able to retain the information they learned through the end of the semester. This shows that the individualized academic attention offered during the *PowerHour* tutoring sessions helped students better understand the key concepts covered in the courses. This statistic highlights the fact that when additional support is implemented for struggling students that they can build their academic confidence and perform as well as students who readily understood the content.

Limitations of Study

One limitation of this study is the fact that I was the assistant principal of CHS. As such, I had input into the configuration of *PowerHour*, and I had oversight of its operation. Thus, it is not possible to disentangle my personal impact on the efficacy of *PowerHour* as it transitioned from its initial configuration to the refined form as an in-school program. My role also could have had an impact on the student participants' responses and actions during the study, knowing that I wanted the program to be successful along with my interactions with the student participants in my other duties as assistant principal. Additionally, my role may have affected how teachers responded during the study knowing that I wanted the program to be seen as successful and knowing that I would evaluate some of them.

One of the additional limitations was the variation in selection and implementation of tutoring activities by each of the teacher participants. Each of the teacher participants independently used their professional judgement in selecting tutoring activities for the student participants who were scheduled in their class – activities that they believed would help the student participants better understand the content. Student participants did not understand the content standard in a specific course could have received a variety of tutoring activities to enhance their understanding based on the teachers' perspective on the content standard.

Lastly, the hybrid instructional model that was in effect during my study was a limitation that could have impacted the results. The governor of North Carolina announced on July 14, 2020, that schools would be able to open in the fall of 2020 with strict guidelines in place to mitigate the spread of COVID-19 and help ensure the safety of students and staff. The plan that was approved by the local Board of Education involved students being assigned to one of two cohorts: Cohort A and Cohort B. Members of each cohort attended in-person 2 days per week

and virtually 2 days per week in an alternating pattern. On the virtual days, students attended using Microsoft *Teams*. This hybrid model was the best option for students to attend school as much as possible during the global pandemic, but it presented challenges that could have impacted my study.

Recommendations

Based on the results of my study and its impact on the positive relationship between attendance at and engagement in tutoring activities and the overall impact on student academic outcomes, I would recommend that administrators in schools in which this has not already been done consider expanding their student tutoring offerings and moving their tutoring programs into the regularly scheduled school day. This will address issues of educational equity related to all students having access to opportunities that could positively impact their educational experience regardless of their ability to attend tutoring outside of the school day.

Should school administrators wish to replicate *PowerHour*, I recommend creating a committee to facilitate its implementation. It is important during this process to incorporate input from various viewpoints in the restructuring and implementation process. The committee I convened to guide the implementation of *PowerHour* consisted of six teachers, two counselors, two of my fellow assistant principals and the principal. This committee represented a cross-section of school staff who were dedicated to improving the program for the benefit of our students. One addition to this committee that I would recommend is student participants. Student voice was not present during the restructuring of *PowerHour*, and I believe valuable input could have been provided to the process had we involved some students in the process.

Future implementations should immediately incorporate parent communication. Parent's being informed of their student's engagement and progress in the tutoring program helps drive

further engagement in the tutoring process and proved to be a beneficial addition during my study. I speculate that if parents had been more involved in the first PDSA Cycle of Improvement, students' attendance and engagement might have improved earlier, and this might have had a greater impact on student achievement during that cycle.

Future studies should also further refine the collection of data regarding student performance on specific academic standards. I relied heavily on the grades students earned throughout the course of the study together with their work completion. I recommend that, for a future iteration, the teachers of the content areas create common formative assessments to determine a student's understanding of the content standard being covered in the classroom. Such common formative assessments could be developed by the team of teachers teaching the subject and could consist of a short selection of questions to determine the level of mastery of each of the students in the class. Teachers could then use the same common formative assessment in each of their classes and could compare the data to determine grouping for tutoring sessions. Teachers could use these data during common planning sessions to determine the best approach to enhance a student's understanding during the tutoring sessions and help guide the selection of tutoring activities.

Another recommendation that I would like to suggest addressing one of the limitations of my study regarding the variation in selection and implementation of tutoring activities by the teacher participants would be for teachers to collaborate with other teachers in their subject area. This collaboration with other teachers in the subject area could enhance the teacher's ability to select and implement tutoring activities based on the students' needs and could provide for some alternative activities that a specific teacher may have not thought of if left to their own devices. Teachers could achieve this by participating in subject area meetings where they share best

practices and discuss successful tutoring strategies. Collaborative planning such as this could be helpful in aligning tutoring approaches and ensuring that students receive individualized and impactful tutoring activities across the different classrooms where tutoring may be offered.

Additionally, future studies should address how to help students realize the value of tutoring activities. Schools should consider how the tutoring opportunities are communicated to both students and families, ensuring that the message goes beyond the simple announcements of availability and emphasizes the value of engaging in the tutoring process. The long-term benefits of tutoring, such as improved academic performance, enhanced understanding of challenging subjects, improved student-teacher relationships, and the development of effective study habits should be emphasized in such communications. Schools can foster a more positive perception of tutoring options among students and parents by being intentional in their communications about tutoring which, in turn, offers the potential to encourage greater participation and engagement.

Finally, subsequent studies should further refine the tutoring activities that are offered to students based on the specific content standards that the students are struggling to master. One recommendation in this area is for teachers to develop a repertoire of tutoring activities for each content standard covered in a course. Teachers could work collaboratively to develop research-based intervention activities for each of the main standards covered in a course that could be used should students not understand any specific content standard. Activities could include remedial videos, additional readings, tutoring materials/activities, or tutoring strategies.

Conclusion

According to Burns et al. (2004) and Rothman and Henderson (2011), rendering extra tutorial assistance to students at risk of failing can positively impact their understanding of the topic and improve their academic performance. Tutoring has long been regarded as one of the

most influential forms of instruction that impacts student achievement (Burns et al., 2004; Rothman & Henderson, 2011). Grey (2015), Hetzel et al. (2009) and Zimmer et al. (2010) all agreed that student attendance at tutoring sessions had a major effect on the outcome of tutoring, and, as one would expect, the more tutoring sessions a student attends, the greater the effect on their academic achievement.

The findings of my study have highlighted the importance of offering a tutoring program to struggling students during the school day. In Biology, increased tutoring attendance significantly improved students' academic outcomes, with a 40% attendance rise correlating to a 12% grade increase, while Mathematics I showed a lower attendance increase of 17% and a minimal 7% grade improvement. English II participants, benefitting from a strong collaboration between experienced teachers, had a 32% increase in attendance and the highest academic outcome improvement of 12.5%, attributed to the teacher's systematic approach in addressing individual student needs.

Overall, my study has shown that students' participation in tutoring has the potential to improve academic outcomes for students. Students with improved attendance at tutoring sessions, improved assignment completion rates, and improved teacher-student relationships experienced an improvement in their academic outcomes. Overall, my findings attest to the benefit and importance of monitoring student progress along with providing timely targeted tutoring activities to address academic deficiencies.

Reflections on Leadership

One of my initial reflections throughout this learning process concerns the transition from a teacher to a school administrator. Prior to becoming a school administrator, I was a classroom teacher for 4 years. During my time in the classroom as a teacher, I recall putting forth maximum

effort to understand how my students learned, planning effective lessons, and learning activities, reflecting on how to become a better teacher, and collaborating with veteran teachers to improve my practice. As I reflect on my strengths as a classroom teacher, I visualize the parallels between improving as a teacher and a school leader. While the transition from teacher to school leader has required a mind shift from focusing on individual student outcomes to overseeing the broader school-wide initiatives, it has been important for me to reflect on my time as a teacher when implementing school wide initiatives to ensure they will still have an impact on the individual student outcomes.

This shift in perspective has taught me the importance of broadening my understanding of leadership and support, highlighting my need to be available to teachers and instructional support staff to ensure they are able to provide for the needs of the students while still maintaining an overall vision for the students' long-term success and that of the school. It has been an eye-opening experience in which I have learned the ability to influence change on a bigger scale, while continuing to nurture the positive relationships that were the essence of my teaching practice.

Leadership has taught me the importance of listening to others. For example, this project involved having a vision of offering tutoring during the school day to have a positive impact on student achievement. However, to make that vision a reality, I had to listen to stakeholder feedback. By actively listening to the opinions of staff, students, and parents, I was able to build stronger relationships that ultimately created a culture of respect and collaboration, even when opinions varied on the next steps needed to provide improvements.

My final reflection on this process in the context of my leadership journey is the importance of being a servant leader. By focusing on the needs of the students, the needs of the

PowerHour team and being actively involved in meeting those needs, I led an endeavor to completely revise the tutoring program at CHS. Through my adoption of a servant leadership approach, I saw a greater engagement from both students and teachers in the tutoring process which, in turn, facilitated some impressive outcomes. I have come to realize that serving as a leader means removing obstacles, offering guidance, and being a resource for others all the while keeping the focus on the students and working to improve their learning experience.

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APPENDIX A: INSTITUTIONAL REVIEW BOARD APPROVAL



EAST CAROLINA UNIVERSITY
University & Medical Center Institutional Review Board
4N-64 Brody Medical Sciences Building · Mail Stop 682
600 Moye Boulevard · Greenville, NC 27834
Office **252-744-2914** · Fax **252-744-2284** ·
rede.ecu.edu/umcirm/

Notification of Exempt Certification

From: Social/Behavioral IRB
To: [Cameron Custy](#)
CC: [Robert Beardon](#)
Date: 8/5/2020
Re: [UMCIRB 20-001710](#)
OF PASSING AND FAILING: THE INTERPLAY OF CLASSROOM TEACHING AND TUTORING IN HIGH SCHOOL

I am pleased to inform you that your research submission has been certified as exempt on 8/5/2020. This study is eligible for Exempt Certification under category # 1 & 2b.

It is your responsibility to ensure that this research is conducted in the manner reported in your application and/or protocol, as well as being consistent with the ethical principles of the Belmont Report and your profession.

This research study does not require any additional interaction with the UMCIRB unless there are proposed changes to this study. Any change, prior to implementing that change, must be submitted to the UMCIRB for review and approval. The UMCIRB will determine if the change impacts the eligibility of the research for exempt status. If more substantive review is required, you will be notified within five business days.

Document	Description
Assent Letter IRB Custy(0.03)	Consent Forms
Cameron Custy Dissertation Proposal for IRB.docx(0.01)	Study Protocol or Grant Application
Cameron Custy_Parental-Permission-Consent-Form-3-24-20 (1).docx(0.01)	Consent Forms
Cameron Custy_Teacher Informed Consent Form IRB (1).doc(0.01)	Consent Forms
Focus Group Questions.docx(0.01)	Interview/Focus Group Scripts/Questions
HSSSE_Sample.pdf(0.01)	Surveys and Questionnaires
Parent Student and Teacher Email_Custy.docx(0.02)	Recruitment Documents/Scripts
Teacher and Student Survey Questions.docx(0.01)	Surveys and Questionnaires

For research studies where a waiver or alteration of HIPAA Authorization has been approved, the IRB states that each of the waiver criteria in 45 CFR 164.512(i)(1)(i)(A) and (2)(i) through (v) have been met. Additionally, the elements of PHI to be collected as described in items 1 and 2 of the Application for Waiver of Authorization have been determined to be the minimal necessary for the specified research.

The Chairperson (or designee) does not have a potential for conflict of interest on this study.



Assent Form

Things You Should Know Before You Agree to Take Part in this Research

IRB Study # 20-001710

Title of Study: OF PASSING AND FAILING: THE INTERPLAY OF CLASSROOM TEACHING AND TUTORING IN HIGH SCHOOL

Person in charge of study: Cameron K. Custy

Where they work: Onslow County Schools

Other people who work on the study: Dr. R. Martin Reardon

Study contact phone number: [REDACTED]

Study contact E-mail Address: custyc13@students.ecu.edu

People at ECU study ways to make people's lives better. These studies are called research. This research is trying to find out how *PowerHour* is currently helping you and how we can systematically improve *PowerHour* to provide the best support we can for you as you work towards graduation.

Your parent(s) needs to give permission for you to be in this research. You do not have to be in this research if you don't want to, even if your parent(s) has already given permission

You may stop being in the study at any time. If you decide to stop, no one will be angry or upset with you

Why are you doing this research study?

The reason for doing this research is to help improve *PowerHour*.

Why am I being asked to be in this research study?

We are asking you to take part in this research because you are enrolled in an EOC course (Math 1, English II or Biology) and have earned a grade of 60% or below on the 10-point grading scale used at the school.

How many people will take part in this study?

If you decide to be in this research, you will be one of about twenty-five people taking part in it.

What will happen during this study?

You will be asked to do the following:

- Take the *High School Survey of Student Engagement* (HSSSE). This survey was developed in 2008 and is focused on students in grades 9 through 12. HSSSE investigates "the attitudes, perceptions, and beliefs of students about their schoolwork, the school learning environment, and their interactions with the school community."
- Participate in *PowerHour* tutoring sessions for the EOC courses in which you have received a 60% or below grade.

- Respond during *PowerHour* to an open-ended survey at the conclusion of each six-week period. Your teacher will give you the survey to complete on the final day of each grading period in the Fall 2020 semester.
- Participate in three focus-group discussions regarding *PowerHour* during the Fall 2020 semester. Each focus group discussion will be held on the day you are scheduled to receive your report cards. These focus group discussions will be video recorded for later analysis. The video files will be stored on a secure cloud-based system approved by ECU for storing such data. Only the Principal Investigator and the Study Coordinator will have access to these videos. The videos will be stored for a period of three years following the completion of this research study. After this period, the cloud-based files deleted.
- At the end of the Fall 2020 semester, you will be asked to take the HSSSE again.

This study will take place at Richlands High School and will last one year.

Who will be told the things we learn about you in this study?

Only the Principal Investigator and the Study Coordinator will have access to identifiable data collected during this research study. Any data shared with your teachers involving the research study will be coded and stripped of any identifiers related to you.

What are the good things that might happen?

Sometimes good things happen to people who take part in research. These are called “benefits.” The benefits to you of being in this study may be improved understanding of what you are learning in class and improved grades.

What are the bad things that might happen?

Sometimes things we may not like happen to people in research studies. These things may even make them feel bad. These are called “risks.” There are no known risks involved in this study. You may or may not have these things happen to you. Things may also happen that the researchers do not know about right now. You should report any problems to your parents and to the researcher

Will you get any money or gifts for being in this research study?

You will not receive any money or gifts for being in this research study.

Who should you ask if you have any questions?

If you have questions about the research, you should ask the people listed on the first page of this form. If you have other questions about your rights while you are in this research study, you may call the Institutional Review Board at 252-744-2914.

If you decide to take part in this research, you should sign your name below. It means that you agree to take part in this research study.

Sign your name here if you want to be in the study

Date

Print your name here if you want to be in the study

Signature of Person Obtaining Assent

Date

Printed Name of Person Obtaining Assent



Informed Consent to Participate in Research

Information to consider before taking part in research that has no more than minimal risk.

Title of Research Study: OF PASSING AND FAILING: THE INTERPLAY OF CLASSROOM TEACHING AND TUTORING IN HIGH SCHOOL

Principal Investigator: Cameron K. Custy

Institution, Department or Division: Department of Educational Leadership

Address: [REDACTED] Jacksonville, NC 28540

Telephone #: [REDACTED]

Study Coordinator: Dr. R. Martin Reardon

Telephone #: (252) 328-5278

Researchers at East Carolina University (ECU) study issues related to society, health problems, environmental problems, behavior problems and the human condition. To do this, we need the help of volunteers who are willing to take part in research.

Why am I being invited to take part in this research?

The purpose of this research is to evaluate the effectiveness of *PowerHour*, which, as you know, is an alternative tutoring program offered during the school day, to determine its effectiveness in improving student academic achievement. You are being invited to take part in this research because you teach at least one section of an EOC course that I propose researching in my study (Math 1, English II, & Biology). The decision to take part in this research is yours to make. By conducting this research, I hope to determine the impact of *PowerHour* in its current form and revise it throughout the course of three Plan, Do, Study, Act (PDSA) cycles to the stage where it is a more effective for students who are in danger of academic failure.

If you volunteer to take part in this research, you will be one of about ten teachers to do so.

Are there reasons I should not take part in this research?

There is no reason you should refrain from taking part in this research, if you would like to do so.

What other choices do I have if I do not take part in this research?

You are free to choose not to participate in this research.

Where is the research going to take place and how long will it last?

The research will be conducted at Richlands High School. You will need to meet with me and the other participants in Room 104 on 10 occasions over the course of the next year. The 10 meetings will be confined to one hour or less.

What will I be asked to do?

You will be asked to do the following:

- Meet with me and the other participants on three separate occasions—once at the beginning of each of three improvement cycles—so that the improvements being made to *PowerHour* can be discussed. These meetings will focus on discussing the improvements and answering your questions.
- Subsequent to each meeting, you will be expected to implement each improvement with fidelity.

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- At the conclusion of each improvement cycle, you will be asked to complete a survey seeking your opinions of the improvement cycle and its impact on *PowerHour*.
- After completing the survey, you will be asked to participate in a focus group discussion. The focus group discussion will enable me to gain a deeper understanding of your perspective on how *PowerHour* is improving and the impact it is having on your students. The focus group discussion will be video recorded for subsequent analysis. The Principal Investigator and Study-Coordinator will have access to these recordings during the research study.

What might I experience if I take part in the research?

I don't know of any risks (the chance of harm) associated with this research. Any risks that may occur with this research are no more than what you would experience in everyday life. I don't know if you will benefit from taking part in this research study. There may not be any personal benefit to you, but the information gained by doing this research may help others in the future.

Will I be paid for taking part in this research?

I will not be able to pay you for the time you commit to my research study.

Will it cost me to take part in this research?

It will not cost you any money to be part of the research.

Who will know that I took part in this research and learn personal information about me?

ECU and the people and organizations listed below may know that you took part in this research and may see information about you that is normally kept private. With your permission, these people may use your private information to do this research:

- The University & Medical Center Institutional Review Board (UMCIRB) and its staff have responsibility for overseeing your welfare during this research and may need to see research records that identify you.

How will you keep the information you collect about me secure? How long will you keep it?

Information and data collected during this research study will be stored on a secure cloud-based service approved by ECU for storing such information and data. Hard-copy documents will be stored in a locked file cabinet at Richlands High School. All information and data will be kept for a period of 3 years. After this period, the cloud-based files will be deleted, and any paper files will be shredded. All data will be coded and stripped of any identifiers related to any individual.

What if I decide I don't want to continue in this research?

You can stop participating at any time. There will be no consequences if you stop and you will not be criticized. Should you choose to stop participating, you will not lose any benefits that you normally receive.

Who should I contact if I have questions?

The people conducting this research study will be able to answer any questions concerning this research, now or in the future. You may contact the Principal Investigator at 910-324-4191 (days, 8:00 am-5:00 pm).

If you have questions about your rights as someone taking part in research, you may call the University & Medical Center Institutional Review Board (UMCIRB) at phone number 252-744-2914 (days, 8:00 am-5:00 pm). If you would like to report a complaint or concern about this research study, you may call the Director for Human Research Protections, at 252-744-2914.

Is there anything else I should know?

Most people outside the research team will not see your name on your research record. This includes people who try to get your information using a court order.

Title of Study: OF PASSING AND FAILING: THE INTERPLAY OF CLASSROOM TEACHING AND TUTORING IN HIGH SCHOOL

I have decided I want to take part in this research. What should I do now?

The person obtaining informed consent will ask you to read the following and if you agree, you should sign this form:

- I have read (or had read to me) all the above information.
- I have had an opportunity to ask questions about things in this research I did not understand and have received satisfactory answers.
- I know that I can stop taking part in this research study at any time.
- By signing this informed consent form, I am not giving up any of my rights.
- I have been given a copy of this consent document, and it is mine to keep.

Participant's Name (PRINT)	Signature	Date
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Person Obtaining Informed Consent: I have conducted the initial informed consent process. I have orally reviewed the contents of the consent document with the person who has signed above and answered all the person's questions about the research.

Person Obtaining Consent (PRINT)	Signature	Date
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Study Title: OF PASSING AND FAILING: THE INTERPLAY OF CLASSROOM TEACHING AND TUTORING IN HIGH SCHOOL



Parental Permission to Allow Your Child to Take Part in Research

Information to consider before allowing your child to take part in research that has no more than minimal risk.

Title of Research Study: OF PASSING AND FAILING: THE INTERPLAY OF CLASSROOM TEACHING AND TUTORING IN HIGH SCHOOL

Principal Investigator: Cameron K. Custy (Person in Charge of this Study)
Institution, Department or Division: Department of Educational Leadership
Address: [REDACTED] Richlands, NC 28574
Telephone #: [REDACTED]
Study Coordinator: Dr. R. Martin Reardon
Telephone #: (252) 328-5278

Researchers at East Carolina University (ECU) study issues related to society, health problems, environmental problems, behavior problems and the human condition. To do this, we need the help of volunteers who are willing to take part in research.

Why is my child being invited to take part in this research?

The purpose of this research is to evaluate the effectiveness of *Power Hour*, an alternative tutoring program offered during the school day, to determine its effectiveness on improving student academic achievement. Your child is being invited to take part in this research because your child is enrolled in an EOC course (Math 1, English II, or Biology) and has earned a grade of 60% or below on the 10-point grading scale used at the school. The decision for your child to take part in this research will also depend upon whether your child wants to participate. By doing this research, we hope to learn how we can systematically improve *PowerHour* to provide your child with the best support we can as they work towards graduation.

If you and your child agree for him/her to volunteer for this research, your child will be one of about twenty-five people to do so.

Are there reasons my child should not take part in this research?

There are no reasons your child should refrain from taking part in this research unless you believe he/she is unable to do so or uncomfortable about participating.

What other choices do I have if my child does not take part in this research?

You are free to choose not to have your child participate.

Where is the research going to take place and how long will it last?

The research will be conducted at Richlands High School.

What will my child be asked to do?

Your child will be asked to do the following:

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- Take the High School Survey of Student Engagement (HSSSE). This survey was developed in 2008 and is focused on students in grades 9 through 12. HSSSE investigates “the attitudes, perceptions, and beliefs of students about their schoolwork, the school learning environment, and their interactions with the school community.”
- Participate in *PowerHour* tutoring sessions for the EOC courses in which your child received a 60% or below grade.
- Respond during *PowerHour* to an open-ended survey at the conclusion of each six-week period. Your child’s teacher will give your child the survey to complete on the final day of each grading period in the Fall 2020 semester.
- Participate in three focus-group discussions regarding *PowerHour* during the Fall 2020 semester. Each focus group discussion will be held on the day your child is scheduled to receive your child’s report card. These focus group discussions will be video recorded for later analysis. The video files will be stored on a secure cloud-based system approved by ECU for storing such data. Only the Principal Investigator and the Study Coordinator will have access to these videos. The videos will be stored for a period of three years following the completion of this research study. After this period, the cloud-based files deleted.
- At the end of the Fall 2020 semester, your child will be asked to take the HSSSE again.

What might I experience if I take part in the research?

We don’t know of any risks (the chance of harm) associated with this research. Any risks that may occur with this research are no more than what you would experience in everyday life. We don’t know if your child will benefit from taking part in this research study. There may not be any personal benefit to your child, but the information gained by doing this research may help others in the future.

Will my child be paid for taking part in this research?

We will not be able to pay you or your child for the time you volunteer while being in this research study.

Will it cost me anything for my child to take part in this research?

It will not cost you any money to be part of the research.

Who will know that I took part in this research and learn personal information about me?

ECU and the people and organizations listed below may know that your child took part in this research and may see information about your child that is normally kept private. With your permission, these people may use your child’s private information to do this research:

- The University & Medical Center Institutional Review Board (UMCIRB) and its staff have responsibility for overseeing your child’s welfare during this research and may need to see research records that identify your child.

How will you keep the information you collect about my child secure? How long will you keep it?

Information and data collected during this research study will be stored on a secure cloud-based service approved by ECU for storing such information and data. Hard-copy documents will be stored in a locked file cabinet at Richlands High School. All information and data will be kept for a period of 3 years. After this period, the cloud-based files will be deleted, and any paper files will be shredded. All data will be coded and stripped of any identifiers related to any individual.

What if my child decides he/she doesn’t want to continue in this research?

Your child can stop at any time after it has already started. There will be no consequences if he/she stops and he/she will not be criticized. Your child will not lose any benefits that he/she would normally receive.

Study Title: OF PASSING AND FAILING: THE INTERPLAY OF CLASSROOM TEACHING AND TUTORING IN HIGH SCHOOL

Who should I contact if I have questions?

The people conducting this research study will be able to answer any questions concerning this research, now or in the future. You may contact the Principal Investigator at (910) 324-4191 (days, 8:00 am-5:00 pm).

If you have questions about your child's rights as someone taking part in research, you may call the University and Medical Center Institutional Review Board (UMCIRB) at phone number 252-744-2914 (days, 8:00 am-5:00 pm) you would like to report a complaint or concern about this research study, you may call the Director of Human Research Protections, at 252-744-2914

Is there anything else I should know?

Most people outside the research team will not see your child's name on the research record. This includes people who try to get your child's information using a court order.

Your child's information collected as part of the research, even if identifiers are removed, will not be used or distributed for future studies.

I have decided my child can take part in this research. What should I do now?

The person obtaining informed consent will ask you to read the following and if you agree, you should sign this form:

- I have read (or had read to me) all of the above information.
- I have had an opportunity to ask questions about things in this research I did not understand and have received satisfactory answers.
- I know that my child can stop taking part in this research study at any time.
- By signing this informed consent form, my child is not giving up any of his/her rights.
- I have been given a copy of this consent document, and it is mine to keep.

Parent's Name (PRINT)

Signature

Date

Person Obtaining Informed Consent: I have conducted the initial informed consent process. I have orally reviewed the contents of the consent document with the person who has signed above, and answered all of the person's questions about the research.

Person Obtaining Consent (PRINT)

Signature

Date

APPENDIX B: NORTH CAROLINA END-OF-COURSE BIOLOGY TEST

North Carolina End-of-Course Biology Test

In October 2013, the State Board of Education (SBE) adopted college-and-career readiness Academic Achievement Standards and Academic Achievement Descriptors for the End-of-Grade (EOG) and End-of-Course (EOC) tests and their alternate assessments. After considering much input on the importance of student achievement reporting, in August 2019, the State Board of Education (SBE) adopted new college-and-career readiness Academic Achievement Standards and Academic Achievement Descriptors for the End-of-Grade (EOG) and End-of-Course (EOC) science tests and their alternate assessments. Effective with the 2019-20 school year, the State will report four levels on the Biology EOC as follows:

Achievement Level	Meets On-Grade-Level Proficiency Standard	Meets Career-and-College Readiness Standard
Level 5	Yes	Yes
Level 4	Yes	Yes
Level 3	Yes	No
Not Proficient	No	No

*Detailed achievement level descriptors are available on the following pages.

Biology Achievement Level Ranges (Cut Scores)

Test	Not Proficient	Level 3	Level 4	Level 5
Biology	≤ 249	250-251	252-260	≥ 261

Biology Achievement Level Descriptors

Not Proficient

*Students who are Not Proficient demonstrate **inconsistent** understanding of grade level content standards and will need support.*

Students identify some basic structures and functions of cells. They identify some components involved in the flow of energy and cycling of matter and recognize some interactions between organisms within their ecosystem (including the impact of human activity). Students identify basic structures and functions of DNA, the inheritance and expression of genetic traits, and the application of DNA technology. They identify species change over time and can recognize biological classification systems. Students can identify some biological molecules and recognize that organisms acquire and use energy.

Achievement Level 3:

*Students at Level 3 demonstrate **sufficient** understanding of grade level content standards though some support may be needed to engage with content at the next grade/course.*

Level 3 students identify basic structures and functions of cells and describe how cells can adapt to the environment. They identify components in the flow of energy and cycling of matter and describe interactions between organisms within their ecosystem (including the impact of human activity). Students recognize a relationship between the structure and function of DNA, the inheritance and expression of genetic traits, and the application of DNA technology. They identify natural selection as a mechanism for species change over time and can interpret biological classification systems. Students can identify major biological molecules and recognize biochemical processes and energy use in the cell.

Achievement Level 4:

*Students at Level 4 demonstrate a **thorough** understanding of grade level content standards and are on track for career and college.*

Level 4 students compare the structure and function of cells and analyze how cells adapt to their environment. They analyze the flow of energy and cycling of matter and understand interactions between organisms within their ecosystem (including the impact of human activity). Students understand the relationship between the structure and function of DNA, the inheritance and expression of genetic traits, and the application of DNA technology. They understand natural selection as a mechanism for species change over time and can analyze biological classification systems. Students understand the relationship between the major biological molecules and analyze biochemical processes and energy use in the cell.

Achievement Level 5:

*Students at Level 5 demonstrate **comprehensive** understanding of grade level content standards, are on track for career and college, and are prepared for advanced content at the next grade/course.*

Level 5 students distinguish relationships between the structure and function of cells and analyze how the cell can adapt to the environment. They can deconstruct the flow of energy and cycling of matter and analyze interactions between organisms within their ecosystem (including the impact of human activity). Students understand and analyze the relationship between the structure and function of DNA, the inheritance and expression of genetic traits, and the application of DNA technology. They understand and attribute natural selection as a mechanism for species change over time and can analyze and evaluate biological classification systems. Students analyze the relationship between the major biological molecules and evaluate biochemical processes and energy use in the cell.

APPENDIX C: NORTH CAROLINA END-OF-COURSE TESTS OF MATHEMATICS NC MATH 1 & NC MATH 3

North Carolina End-of-Course Tests of Mathematics NC Math 1 & NC Math 3
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On July 8–11, 2019, a committee of 97 North Carolina educators participated in a multi-phase standard setting for the North Carolina tests of general mathematics in grades 3–8, NC Math 1, and NC Math 3; and for the NCEXTEND1 Mathematics tests in grades 3–8 and NC Math 1. The goal of the workshop was to identify cut scores that divide students into four achievement levels for general mathematics (*Not Proficient* through *Level 5*) and three achievement levels for NCEXTEND1 (*Not Proficient* through *Level 4*).

In August 2019, the State Board of Education (SBE) adopted college-and-career readiness Academic Achievement Standards and Academic Achievement Descriptors for the End-of-Grade (EOG) and End-of-Course (EOC) mathematics tests and their alternate assessments. Effective with the 2018-19 school year, the State will report four levels as follows:

Achievement Level	Meets On-Grade-Level Proficiency Standard	Meets Career-and-College Readiness Standard
Level 5	Yes	Yes
Level 4	Yes	Yes
Level 3	Yes	No
Not Proficient	No	No

NC Math 1 & NC Math 3 Achievement Level Ranges (Cut Scores)

Test	Grade	Not Proficient	Level 3	Level 4	Level 5
General Education Mathematics	NC Math 1	≤ 547	548-554	555-562	≥ 563
	NC Math 3	≤ 549	550-555	556-562	≥ 563

Mathematics Achievement Level Descriptors – NC Math 1

Level 5

*Students at Level 5 demonstrate **comprehensive** understanding of grade level content standards, are on track for career and college, and are prepared for advanced content at the next grade/course.*

Level 5 students can:

- Analyze and interpret how changing the parameters of the expression impacts the contextual situation;
- Use factoring to reveal solutions and zeros of quadratic equations, and analyze the relationship between the factors, zeros, and solution of a quadratic equation;
- Add and subtract quadratic and linear expressions, and multiply linear expressions, given a contextual situation;
- Compare zeros and solutions given an equation, table, or graph of a quadratic equation;
- Create, solve, and analyze problems that require creating linear, quadratic, or exponential equations and inequalities in one or two variables in context;
- Justify why replacing one equation in a system of linear equations with the sum of that equation and a multiple of the other produces a system with the same solutions;
- Create and compare explicit and recursive forms of arithmetic and geometric sequences;
- Compare key features of two different linear, exponential, or quadratic functions, given different representations;
- Use coordinates to compute perimeters and areas of polygons, and verify when a set of points produces a particular type of polygon in context;
- Determine and justify which representation best fits the data using residuals;
- Determine and justify which function best illustrates the data (linear/exponential).

Level 4

*Students at Level 4 demonstrate a **thorough** understanding of grade level content standards and are on track for career and college.*

Level 4 students can:

- Rewrite algebraic expressions in two or more variables with integer exponents using any combination of exponent properties;
- Interpret expressions and parts of expressions in terms of a context;
- Use factoring to reveal solutions and zeros of quadratic equations in the form $ax^2 + bx + c$, where $|a| \neq 1$;
- Add and subtract quadratic and linear expressions, and multiply linear expressions;
- Determine the solutions of a quadratic equation *not* given in factored form;
- Model situations by creating systems of linear equations or inequalities;
- Solve formulas for a quantity of interest;
- Use mathematical reasoning to justify all steps in solving linear and quadratic equations;
- Solve quadratic equations in one variable by taking square roots and factoring;

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- Solve systems of equations using tables, graphs, and algebraic methods, and interpret the solutions;
- Graph the solutions to a linear inequality or a system of linear inequalities on a coordinate plane;
- Use the domain and range of a relation to determine whether the relation is or is not a function;
- Evaluate functions for inputs in the domain and interpret statements that use function notation in terms of a context;
- Recognize that arithmetic sequences have a range which is a subset of the range of a linear function and geometric sequences have a range which is a subset of the range of an exponential function;
- Interpret functions and key features of representations of functions in terms of a context;
- Calculate and interpret the average rate of change of a function over a specified interval;
- Analyze linear, exponential, and quadratic functions to show and identify key features;
- Compare key features of two of the same functions, given different representations;
- Build linear and exponential equations from a mathematical or real-world context, including combining two functions;
- Represent situations with recursive and explicit forms of arithmetic and geometric sequences, and translate between the two forms;
- Identify situations that can be modeled by linear and exponential functions, and justify the choice of function type to model the situation;
- Interpret the parameters of linear and exponential functions in terms of a context;
- Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, and verify when a set of points produces a particular type of triangle or quadrilateral;
- Use coordinates to determine whether two lines are parallel or perpendicular, and find the equation of parallel or perpendicular lines when given a line and a point not on the line;
- Use coordinates to find the midpoint and endpoints of line segments;
- Represent data with histograms and box plots using technology, and interpret the data in context;
- Compare the center and spread of different data sets, and interpret differences in shape, center, and spread in context;
- Represent data on a scatterplot, and describe the relationship between the variables;
- Fit a function to the appropriate model (linear/exponential) given a data set, and use fitted function to solve problems;
- Interpret the rate of change and intercept of a linear model, and interpolate and extrapolate to predict values;
- Analyze the relationship between two variables using correlation coefficients and residuals;
- Distinguish between association and causation.

Level 3

*Students at Level 3 demonstrate **sufficient** understanding of grade level content standards though some support may be needed to engage with content at the next grade/course.*

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Level 3 students can:

- Rewrite algebraic expressions in two or more variables with integer exponents using one property of exponents;
- Interpret expressions in terms of a context;
- Use factoring, the quadratic equation, and graphing to reveal solutions and zeros of quadratic equations;
- Add and subtract quadratic and linear expressions;
- Determine the solutions of a quadratic equation given an equation in factored form;
- Create and solve linear, quadratic, or exponential equations and inequalities in one variable;
- Create and graph linear, quadratic, or exponential equations in two variables;
- Identify graphs of systems of equations that model a context;
- Use mathematical reasoning to justify all steps in solving linear equations;
- Solve linear equations and inequalities in one variable;
- Solve quadratic equations in one variable by taking square roots;
- Solve systems of equations using tables and graphs, and interpret the solutions;
- Justify how the graph of a two-variable equation represents the set of all solutions to the equation;
- Graph the solutions to a linear inequality on a coordinate plane;
- Identify the domain and range of a function;
- Evaluate functions for inputs in the domain;
- Recognize recursively and explicitly defined sequences as functions with a domain that is a subset of the integers;
- Interpret representations of functions in terms of a context;
- Calculate the average rate of change of any function over a specified interval;
- Analyze linear and exponential equations to show and identify key features;
- Compare key features of two exponential or quadratic functions given the same type of representation;
- Build linear and exponential equations from a mathematical or real-world context;
- Represent situations with recursive and explicit forms of arithmetic sequences;
- Identify situations that can be modeled by linear or exponential functions;
- Interpret the parameters of linear functions in terms of a context;
- Use coordinates to compute perimeters of polygons and areas of triangles and rectangles;
- Use coordinates to determine whether two lines are parallel or perpendicular;
- Use coordinates to find the midpoint of line segments;
- Represent data with histograms and box plots using technology;
- Compare the center and spread of different data sets;
- Examine the effects of extreme data points on shape, center, and/or spread;
- Represent data on a scatterplot;
- Fit a function to the appropriate model (linear/exponential) given a data set;
- Interpret the rate of change and intercept of a linear model, and interpolate to predict values;
- Analyze the relationship between two variables using correlation coefficients.

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Not Proficient

*Students who are Not Proficient demonstrate **inconsistent** understanding of grade level content standards and will need support.*

Not Proficient students can:

- Rewrite algebraic expressions in one variable with whole-number exponents using one property of exponents;
- Identify parts of expressions;
- Determine the zeros of a quadratic given a quadratic in factored form;
- Add and subtract linear expressions;
- Determine the zeros of a quadratic equation by looking at a graph;
- Use linear equations and inequalities to solve problems;
- Solve linear equations in one variable;
- Solve systems of equations using tables and graphs;
- Understand that the graph of a two-variable equation represents the set of all solutions to the equation;
- Calculate the average rate of change of a linear function;
- Compare key features of two linear functions, given the same type of representation;
- Identify situations that can be modeled by linear functions;
- Determine the distance between two points on a line;
- Identify components of histograms and box plots;
- Calculate the mean and median of a data set;
- Identify extreme data points informally;
- Informally, find the line of best fit.

APPENDIX D: NORTH CAROLINA TEST OF ENGLISH II

North Carolina Test of English II

In August 2020, a committee of North Carolina educators participated in a multi-phase standard setting for the North Carolina test of English II. The goal of the workshop was to identify cut scores that divide students into four achievement levels for English II (*Not Proficient* through *Level 5*). Effective with the 2019-20 school year, the State will report four levels as follows:

In September 2020, the State Board of Education (SBE) adopted college-and-career readiness Academic Achievement Standards and Academic Achievement Descriptors for the End-of-Course (EOC) English II.

Achievement Level	Meets On-Grade-Level Proficiency Standard	Meets Career-and-College Readiness Standard
Level 5	Yes	Yes
Level 4	Yes	Yes
Level 3	Yes	No
Not Proficient	No	No

English II Achievement Level Ranges (Cut Scores)

Subject	Not Proficient	Level 3	Level 4	Level 5
English II (Starting with 2019-20 school year)	≤548	549–554	555–564	≥565

Achievement Level Descriptors – English II

Not Proficient:

Students who are not proficient demonstrate **inconsistent** understanding of grade level content standards and will need support at the next grade/course.

Reading: Literature

- Attempt to cite textual evidence to support a simplistic analysis of what the text says explicitly, as well as inferences drawn from the text.

- Attempt to determine an explicit theme of a text and attempt to analyze simplistically its development over the course of a text; attempt to provide a simplistic objective summary of the text.
- Attempt to analyze simplistically how complex characters develop over the course of a text, interact with other characters, and/or advance the plot or develop the theme.
- Attempt to determine the meaning of common or familiar words and phrases as they are used in the text; attempt to analyze simplistically the impact of specific word choices on meaning and/or tone.
- Attempt to analyze simplistically how an author's choices concerning how to structure a text, order events within it, or manipulate time create effects such as mystery, tension, or surprise.
- Attempt to analyze simplistically a particular perspective or cultural experience reflected in a work of literature from outside the United States, drawing on a reading of world literature.

Reading: Informational

- Attempt to cite textual evidence to support simplistic analysis of what the text says explicitly, as well as inferences drawn from the text.
- Attempt to determine an explicit central idea of a text and attempt to analyze simplistically its development over the course of the text; attempt to provide a simplistic objective summary of the text.
- Attempt to analyze simplistically how the author unfolds an analysis or series of ideas or events including the order in which the points are made and the simplistic connections that are drawn between them.
- Attempt to determine the meaning of common or familiar words and phrases as they are used in a text; attempt to analyze simplistically the impact of specific word choices on meaning and/or tone.
- Attempt to analyze simplistically how an author's ideas or claims are developed or refined by particular sentences, paragraphs, or larger portions of a text.
- Attempt to determine an author's point of view or purpose in a text and attempt to analyze simplistically how an author uses rhetoric to advance that point of view or purpose.
- Attempt to delineate and evaluate simplistically the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; attempt to identify false statements.

Language

- Attempt to determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 9–10 reading and content, choosing flexibly from a range of strategies: sentence-level context clues, known word parts, simple word relationships, and reference materials.
- Demonstrate emerging understanding of figurative language and nuances in word meanings; attempt to interpret common or familiar figures of speech in context based on grades 9–10 reading and content.

Achievement Level 3:

Students at Level 3 demonstrate sufficient understanding of grade level content standards though some support may be needed to engage with content at the next grade/course.

Reading: Literature

- Cite strong textual evidence to support a simplistic analysis of what the text says explicitly, as well as inferences drawn from the text.
- Determine an explicit theme of a text and analyze simplistically its development over the course of a text, including how it emerges or is shaped or refined by details; provide a simplistic objective summary of the text.
- Analyze simplistically how complex characters develop over the course of a text, interact with other characters, and/or advance the plot or develop the theme.
- Determine the meaning of common or familiar words and phrases as they are used in the text; analyze simplistically the impact of specific word choices on meaning and/or tone.
- Analyze simplistically how an author's choices concerning how to structure a text, order events within it, or manipulate time create effects such as mystery, tension, or surprise.
- Analyze simplistically a particular perspective or cultural experience reflected in a work of literature from outside the United States, drawing on a reading of world literature.

Reading: Informational

- Cite strong textual evidence to support simplistic analysis of what the text says explicitly, as well as inferences drawn from the text.
- Determine an explicit central idea of a text and analyze its development over the course of the text, including how it emerges or is shaped and refined by specific details; provide a simplistic, objective summary of the text.
- Analyze simplistically how the author unfolds an analysis or series of ideas or events including the order in which the points are made, how they are introduced and developed, and the simplistic connections that are drawn between them.
- Determine the meaning of common or familiar words and phrases as they are used in a text; analyze the impact of specific word choices on meaning and/or tone.
- Analyze simplistically how an author's ideas or claims are developed or refined by particular sentences, paragraphs, or larger portions of a text.
- Determine an author's point of view or purpose in a text and analyze simplistically how an author uses rhetoric to advance that point of view or purpose.
- Delineate and evaluate simplistically the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements.

Language

- Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 9–10 reading and content, choosing flexibly from a range of strategies: sentence-level context clues, known word parts, simple word relationships, and reference materials.

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- Demonstrate simplistic understanding of figurative language and nuances in word meanings; interpret common or familiar figures of speech in context and analyze their role in the text based on grades 9–10 reading and content.

Achievement Level 4:

Students at Level 4 demonstrate a **thorough** understanding of grade level content standards and are on track for career and college.

Reading: Literature

- Cite strong and thorough textual evidence to support analysis of what the text says explicitly, as well as inferences drawn from the text.
- Determine a theme of a text and analyze in detail its development over the course of a text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.
- Analyze how complex characters develop over the course of a text, interact with other characters, and advance the plot or develop the theme.
- Determine the meaning of words and phrases as they are used in the text; analyze the cumulative impact of specific word choices on meaning and tone.
- Analyze how an author's choices concerning how to structure a text, order events within it, and manipulate time create effects such as mystery, tension, or surprise.
- Analyze a particular perspective or cultural experience reflected in a work of literature from outside the United States, drawing on a wide reading of world literature.

Reading: Informational

- Cite strong and thorough textual evidence to support analysis of what the text says explicitly, as well as inferences drawn from the text.
- Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an objective summary of the text.
- Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.
- Determine the meaning of words and phrases as they are used in a text; analyze the cumulative impact of specific word choices on meaning and tone.
- Analyze how an author's ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text.
- Determine an author's point of view or purpose in a text and analyze how an author uses rhetoric to advance that point of view or purpose.
- Delineate and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.

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Language

- Determine and/or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 9–10 reading and content, choosing flexibly from a range of strategies: context clues, word parts, word relationships, and reference materials.
- Demonstrate understanding of figurative language and nuances in word meanings: interpret figures of speech in context and analyze their role in the text based on grades 9–10 reading and content.

Achievement Level 5:

Students at Level 5 demonstrate **comprehensive** understanding of grade level content standards, are on track for career and college, and are prepared for advanced content at the next grade/course.

Reading: Literature

- Cite strong and thorough textual evidence to support an in-depth analysis of what the text says explicitly, as well as complex inferences drawn from the text.
- Determine an implicit theme of a text and analyze in detail its development over the course of a text, including how it emerges and is shaped and refined by specific details; provide an in-depth objective summary of the text.
- Analyze in depth how complex characters develop over the course of a text, interact with other characters, and advance the plot or develop the theme.
- Determine the meaning of uncommon or unfamiliar words and phrases as they are used in the text; analyze in depth the cumulative impact of specific word choices on meaning and tone.
- Analyze in depth how an author's choices concerning how to structure a text, order events within it, and manipulate time create effects such as mystery, tension, or surprise.
- Analyze in depth a particular perspective or cultural experience reflected in a work of literature from outside the United States, drawing on a wide reading of world literature.

Reading: Informational

- Cite strong and thorough textual evidence to support in-depth analysis of what the text says explicitly, as well as complex inferences drawn from the text.
- Determine an implicit central idea of a text and analyze in depth its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an in-depth objective summary of the text.
- Analyze in depth how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the complex connections that are drawn between them.
- Determine the meaning of uncommon or unfamiliar words and phrases as they are used in a text; analyze in depth the cumulative impact of specific word choices on meaning and tone.
- Analyze in depth how an author's ideas or claims are developed and refined by particular sentences, paragraphs, or larger portions of a text.

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- Determine an author's point of view or purpose in a text and analyze in depth how an author uses rhetoric to advance that point of view or purpose.
- Delineate and evaluate in depth the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.

Language

- Determine and/or clarify the meaning of unknown and multiple-meaning words and phrases based on grades 9–10 reading and content, choosing flexibly from a range of strategies: paragraph-level context clues, word parts, complex word relationships, and reference materials.
- Demonstrate in-depth understanding of figurative language and nuances in word meanings: interpret uncommon or unfamiliar figures of speech in context and analyze their role in the text based on grades 9–10 reading and content.

APPENDIX E: HIGH SCHOOL SURVEY OF STUDENT ENGAGEMENT

High School Survey of Student Engagement

Thank you for your participation in this survey! **Engagement** is a term often used to mean “**involvement**” or “**participation**.” Your responses, along with responses from other students, will help your school better understand your needs as a student in order to create a school environment that is engaging, challenging, and productive for you. Please answer thoughtfully and honestly - we appreciate the time and energy you put into this survey.

This survey is administered by the Center for Evaluation and Education Policy, 1900 East Tenth Street, Bloomington, Indiana, 47406.



Marking Instructions

- Use black or blue pen or a number 2 pencil.
- Make dark marks that fill the oval completely.
- Do not use pens with ink that soaks through the paper.
- Make no stray marks.
- Fill in only one response per question, except where indicated.

WRONG MARKS

RIGHT MARK

1. What is your current grade? ☐ 9th ☐ 10th ☐ 11th ☐ 12th

2. Select the highest level of education you expect to complete

☐ Will not finish high school ☐ Community college degree (Associate's), technical school, or vocational/trade certificate

☐ GED ☐ Four-year college degree (Bachelor's)

☐ High school diploma ☐ Master's, Doctorate, or other advanced degree

3. What is your sex? ☐ Male ☐ Female

4. To what extent do you agree or disagree with the following statements related to your high school?

	Strongly disagree	Disagree	Agree	Strongly agree
a. Overall, I feel good about being in this high school	☐	☐	☐	☐
b. I care about this school	☐	☐	☐	☐
c. I feel safe in this school	☐	☐	☐	☐
d. My opinions are respected in this school	☐	☐	☐	☐
e. There is at least one adult in this school who knows me well	☐	☐	☐	☐
f. I feel supported by the following people at this school:				
i. teachers	☐	☐	☐	☐
ii. administrators (principal, head of school, assistant/vice principal, dean)	☐	☐	☐	☐
iii. counselors	☐	☐	☐	☐
iv. other adults (secretaries, librarians/media specialists, coaches etc.)	☐	☐	☐	☐
v. other students	☐	☐	☐	☐
g. Teachers engage me in classroom discussions	☐	☐	☐	☐
h. I can be creative in classroom assignments and projects	☐	☐	☐	☐
i. I am comfortable being myself at this school	☐	☐	☐	☐
j. I am an important part of my high school community	☐	☐	☐	☐
k. This school's rules are fair	☐	☐	☐	☐
l. This school's rules are applied and enforced consistently	☐	☐	☐	☐
m. If I could choose a high school right now, I would choose this school	☐	☐	☐	☐

5. How much do each of the following classroom activities and assignments interest or engage you?

	Not at all	Very little	Some	Very much
a. Teacher lectures	☐	☐	☐	☐
b. Discussions and debates	☐	☐	☐	☐
c. Individual readings	☐	☐	☐	☐
d. Writing projects	☐	☐	☐	☐
e. Research projects	☐	☐	☐	☐
f. Group projects	☐	☐	☐	☐
g. Giving presentations and speeches	☐	☐	☐	☐
h. Art, drama activities, and role plays	☐	☐	☐	☐
i. Projects and lessons involving technology	☐	☐	☐	☐

6. How much does your high school emphasize each of the following?				
	Not at all	Very little	Some	Very much
a. Memorizing facts and figures for classes	☐	☐	☐	☐
b. Understanding information and ideas for classes	☐	☐	☐	☐
c. Analyzing ideas in depth for classes	☐	☐	☐	☐
d. Studying and completing school work at home	☐	☐	☐	☐
e. Spending time preparing for state and district standardized tests	☐	☐	☐	☐
f. Participating in school events and activities (athletics, plays, performances, academic competitions)	☐	☐	☐	☐
g. Using computers or other technology for class work	☐	☐	☐	☐
h. Furthering education or training beyond high school	☐	☐	☐	☐
i. Building positive relationships with students of different backgrounds (religious, ethnic/racial, political, and economic)	☐	☐	☐	☐
7. How much has your experience at this school contributed to your development in the following areas?				
	Not at all	Very little	Some	Very much
a. Acquiring skills for a job after completing high school	☐	☐	☐	☐
b. Writing effectively	☐	☐	☐	☐
c. Speaking effectively	☐	☐	☐	☐
d. Thinking critically (reasoning, asking "Why?")	☐	☐	☐	☐
e. Developing creative ideas and solutions	☐	☐	☐	☐
f. Reading and understanding challenging materials	☐	☐	☐	☐
g. Using technology to gather and communicate information	☐	☐	☐	☐
h. Working well with others to complete a task	☐	☐	☐	☐
i. Learning independently	☐	☐	☐	☐
j. Applying school-based knowledge to everyday life	☐	☐	☐	☐
k. Learning what life is like for other people in your community outside of school	☐	☐	☐	☐
l. Developing career goals	☐	☐	☐	☐
m. Understanding why what you learn in school will be important for life after high school	☐	☐	☐	☐
n. Understanding yourself	☐	☐	☐	☐
o. Treating people with respect	☐	☐	☐	☐
p. Developing personal beliefs and values	☐	☐	☐	☐
8. In a typical 7-day week during the school year, about how many hours do you do the following outside of school? (Number of hours per week)				
	1 or less	Hours per Week		8 or more
		2-3	4-7	
a. Completing homework for class	☐	☐	☐	☐
b. Studying for tests or quizzes	☐	☐	☐	☐
c. Using technology for school assignments	☐	☐	☐	☐
d. Reading for your own personal interest (books, magazines, newspapers, online articles, etc.)	☐	☐	☐	☐
e. Participating in school-sponsored activities (clubs, athletics, student government, etc.)	☐	☐	☐	☐
f. Participating in non-school sponsored activities or hobbies (clubs, athletics, community theater, church-related activities, or other personal interests)	☐	☐	☐	☐
g. Working for pay	☐	☐	☐	☐
h. Doing volunteer work	☐	☐	☐	☐
i. Exercising for personal fitness	☐	☐	☐	☐
j. Watching television, playing video games	☐	☐	☐	☐
k. Using technology for personal interest (including talking on the phone, texting, and social media)	☐	☐	☐	☐
l. Spending time with friends in person	☐	☐	☐	☐
m. Participating in family commitments (chores, caring for siblings or relatives, etc.)	☐	☐	☐	☐
9. During this school year, about how often have you done each of the following?				
	Never	Rarely	Sometimes	Often
a. Asked or answered questions in class	☐	☐	☐	☐
b. Talked to a teacher about your class work	☐	☐	☐	☐
c. Made a class presentation	☐	☐	☐	☐
d. Prepared a draft of a paper or assignment before turning it in	☐	☐	☐	☐
e. Completed a creative writing assignment (reflections, journaling, short stories, poetry)	☐	☐	☐	☐
f. Completed a formal writing assignment (research paper, speech, lab report, position paper)	☐	☐	☐	☐
g. Received feedback from teachers on assignments or other class work	☐	☐	☐	☐
h. Attended class with all assignments completed	☐	☐	☐	☐
i. Worked on a paper or project that required you to do research outside of assigned text	☐	☐	☐	☐
j. Worked on a paper or project that required you to interact with people outside of school (for interviews, observations, etc.)	☐	☐	☐	☐
k. Worked with other students on projects/assignments	☐	☐	☐	☐
l. Discussed questions in class that have no clear answers	☐	☐	☐	☐
m. Connected ideas or concepts from one class (or subject area) to another in classroom assignments or discussions	☐	☐	☐	☐
n. Discussed grades with teachers	☐	☐	☐	☐

CONTINUED

9. During this school year, about how often have you done each of the following?		Never	Rarely	Sometimes	Often
o. Discussed ideas from readings or classes with teachers outside of class		☐	☐	☐	☐
p. Discussed ideas from readings or classes with others outside of class (friends, family members, coworkers, etc.)		☐	☐	☐	☐
q. Talked to an adult in the school about career goals		☐	☐	☐	☐
r. Talked to an adult in the school about how to apply to college		☐	☐	☐	☐

10. During this school year, how often have you been picked on or bullied by another student?		Never	Rarely	Sometimes	Often
		☐	☐	☐	☐

11. During this school year, how often have you witnessed an act of bullying?		☐	☐	☐	☐
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12. How often have you skipped school, faked an illness to stay home, or deliberately come to school late because of disinterest in school?		☐	☐	☐	☐
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13. Have you ever been bored in class?					
☐ Never (Go to question 14) ☐ Rarely ☐ Sometimes ☐ Often		If you have been bored in class, why? <i>Fill in all that apply.</i> ☐ Work wasn't challenging enough ☐ Work was too difficult ☐ Material wasn't interesting ☐ Teaching methods not interesting ☐ Material wasn't relevant to me ☐ No interaction with teacher ☐ No interaction with classmates			

14. Have you ever considered transferring from <i>this</i> school?					
☐ Never (Go to question 15) ☐ Rarely ☐ Sometimes ☐ Often		If you thought about transferring schools, what type of school would you prefer? <i>Fill in all that apply.</i> ☐ a charter school ☐ a magnet school ☐ a religious school ☐ home school ☐ a private independent school ☐ a public high school ☐ an online high school			
		Why have you considered transferring to another school? 			

15. Have you ever considered dropping out of <i>this</i> high school?					
☐ Never (Go to question 16) ☐ Rarely ☐ Sometimes ☐ Often		If you have thought about dropping out of <i>this</i> high school, why? <i>Fill in all that apply.</i> ☐ The work was too hard ☐ The work was too easy ☐ I didn't like the school ☐ I didn't like the teachers ☐ I didn't see the value in the work I was being asked to do ☐ I was picked on or bullied ☐ I needed to work for money ☐ No adults in the school cared about me ☐ I felt I was too far behind in credits to graduate ☐ I failed required standardized tests for graduation ☐ Adults in school encouraged me to drop out ☐ Personal or family medical issues ☐ Other family issues ☐ Other: specify reason _____			

		Yes	No
16. Have you ever repeated a class or course for credit in high school?		☐	☐
17. Do you believe you might have to repeat a class or course taken this year?		☐	☐

18. How much do you agree or disagree with the following statements?		Strongly disagree	Disagree	Agree	Strongly agree
a. I have the skills and ability to complete my work		☐	☐	☐	☐
b. I put forth a great deal of effort when doing my school work		☐	☐	☐	☐
c. I am motivated by my desire to learn		☐	☐	☐	☐
d. I am motivated by my desire to get good grades		☐	☐	☐	☐
e. I am motivated by teachers who encourage me		☐	☐	☐	☐
f. I am motivated by my desire to succeed in the world outside of school		☐	☐	☐	☐
g. I take pride in the quality of my school work		☐	☐	☐	☐
h. I have worked harder than I expected to in school		☐	☐	☐	☐
i. I like discussions in which there are no clear answers		☐	☐	☐	☐
j. I enjoy being creative in school		☐	☐	☐	☐
k. I enjoy working on tasks that require a lot of thinking and mental effort		☐	☐	☐	☐
l. My school work makes me curious to learn other things		☐	☐	☐	☐
m. In general, I am excited about my classes		☐	☐	☐	☐
n. I see how the work I am doing now will help me after high school		☐	☐	☐	☐
o. I feel good about who I am as a student		☐	☐	☐	☐

APPENDIX F: TEACHER SURVEY QUESTIONS

1. How are you identifying the students who need to attend tutoring during *PowerHour*? How do you hold them accountable regarding attendance and participation in tutoring?
2. What type of activities are students participating in during *PowerHour* tutoring sessions? How do you know the activities are impacting student understanding?
3. Have you noticed any change in overall student performance in your classes since *PowerHour* was implemented at CHS?
4. Has *PowerHour* tutoring impacted the interactions you have with your students? (ex. Are students more comfortable with you? Are they more willing to ask for help? Do you feel more connected with your students?)
5. How could the *PowerHour* tutoring program at CHS be improved?

APPENDIX G: STUDENT SURVEY QUESTIONS

1. There are a total of fifteen *PowerHour* tutoring sessions offered each week. On average, how many tutoring sessions do you attend in a week? Do you attend voluntarily or are you required to attend? (If you are required to attend, what are the qualifications your teacher has set that require your attendance?)
2. What do you do in *PowerHour* tutoring sessions?
3. Do you feel the activities you complete in *PowerHour* tutoring help you understand the content better/deepen your understanding of the topics being covered?
4. Has *PowerHour* tutoring had any impact on your relationship with your teachers? Do you feel more comfortable with your teachers?
5. How could the *PowerHour* tutoring program at CHS be improved?

APPENDIX H: ACCOUNTABILITY BUSINESS RULES

Accountability Indicators and School Performance Grades Business Rules 2018–19

This document contains the business rules applied to data used in North Carolina school accountability indicators reporting and the calculations of the School Performance Grades (SPG) for the 2018–19 school year. It provides information on how an indicator is calculated (determining the numerator and denominator). The following sections are found in this document:

Indicators in Every Student Succeeds Act (ESSA) Accountability Model (SPGs) Calculations for School Performance Grades

As noted, some indicators and calculation processes have distinct business rule documentation that explains those indicators.

The following notes apply to all indicators and School Performance Grade calculations:

Students must meet partial enrollment for each accountability indicator except Cohort Graduation Rate to be included in the School Performance Grades. Please refer to Partial Enrollment business rules for more information. Partial Enrollment business rules can be found on the Accountability Services website.

Subgroup Rules

- Students categorized as a Student with Disabilities (SWD) or an English Learner (EL) at any time during their designated 4-year graduation cohort count in these associated subgroups for calculations of the Cohort Graduation Rate.
- Students who met the defined criteria for exiting English Learners (EL) status at any point in the previous four years are included in the denominator of the EL subgroup for all indicators, except the English Learners Progress indicator.
- The following subgroups receive a school performance grade:
 - Race/Ethnicity groups (American Indian, Asian, Black, Hispanic, Two or More Races, and White)
 - Students with Disabilities
 - English Learners
 - Economically Disadvantaged

Indicators in ESSA Accountability Model (School Performance Grades)

Reading and Mathematics End-of-Grade (EOG) and End-of-Course (EOC) Assessments

Science End-of-Grade Assessments

English Learners Progress (ELP)

4-Year Cohort Graduation Rate (CGR)

Biology End-of-Course Assessments

NC Math 3 (Math Course Rigor)

ACT/ WorkKeys Assessments

School Growth

Elementary/Middle School Growth (Reading, Math and Science)

High School Growth (Reading and Math)

I. Reading and Mathematics End-of Grade (EOG) and End-of Course (EOC)

Annual assessments are administered as follows: EOG English Language Arts (ELA)/Reading and Mathematics at grades 3–8, EOC assessments in NC Math 1, NC Math 3, English II and the related alternate assessments (NCEXTEND1) for students receiving instruction on the extended content standards.

The ELA/reading assessments are reported as five academic achievement levels (Level 1, Level 2, Level 3, Level 4 and Level 5) with Levels 3–5 demonstrating North Carolina grade-level proficiency and Levels 4–5 demonstrating on track for career and college. The mathematics assessments are reported as four academic achievement levels (Level 2 and Below, Level 3, Level 4 and Level 5) with Levels 3–5 demonstrating North Carolina grade-level proficiency and Levels 4–5 demonstrating on track for career and college. SPG calculations use scores that meet grade-level proficiency (Levels 3–5).

1. The denominator includes all current year assessment scores for eligible students in membership (i.e., enrolled in a school) at grades 3 through 8 and in high school courses in which an EOC assessment is required.
 - a. The participation expectation for all assessments is 95%. If a school fails to meet the 95% participation rule for ELA/reading or mathematics, an adjustment is made to the denominator to ensure the denominator accounts for 95% of students expected to test. For more information regarding participation rules, go to the Accountability Services website.
 - b. Students who are in their first or second year in a U.S. school are not included in proficiency calculations;
 - c. NC Math 1 scores for students taking the course prior to their grade 8 year are counted when the student is in grade 8 – Please refer to NC Math Exemption Business Rules on the Accountability Services website.
 - d. The mathematics high school accountability assessment for students who took NC Math 1 for the first time prior to grade 9 is NC Math 3. Refer to the NC Math Exemption Business Rules on the Accountability Services website.

Note: When a student who took NC Math 1 for the first time prior to grade 9 repeats the NC Math 1 course for credit in high school, the NC Math 1 assessment, if administered, is used for accountability School Performance Grade calculations for that year. The student's NC Math 3 assessment will be used for all accountability calculations including School Performance Grades, long-term goals and grade 11 participation expectations. For this indicator to be included in SPG calculations, the school must have a total of 30 reading and mathematics scores combined.
 - e. Students with a North Carolina Department of Public Instruction (NCDPI) approved medical exemption are excluded from all relevant proficiency calculations.
2. The numerator is based on the number of students scoring grade level proficiency. Annual assessments for SPGs are calculated by determining the percent of students who score at Achievement Level 3 or higher.
 - a. If two valid scores are received in the same accountability year for a student enrolled in an EOC course, the higher score is used for proficiency calculations.
 - b. Students earning credit through the Credit by Demonstrated Mastery (CDM) program in a course that administers an EOC assessment are counted as proficient.
 - c. Students in Grade 3 who are not proficient on the EOG but receive an Achievement Level 3 or higher on the Beginning of Grade 3 ELA/Reading Test (BOG) count as proficient.
 - d. Students who score below Achievement Level 3 on an EOG or EOC assessment (or the NCEXTEND1 alternate) in the current school year and obtain a higher score while enrolled in a summer program, that is completed (and test scores are submitted) before the published end of the accountability year, have the higher score replace the lower score in the performance calculations. (Testing for this purpose is available for grades 4–8 ELA/reading and English II.).

Note: For the 2018–19 school year mathematics assessments are not available for summer program administration due to standard setting.

II. Science End-of Grade Assessments

Annual assessments administered are as follows: EOG Science at grades 5 and 8 and the related alternate assessments (NCEXTEND1).

The assessments are reported as five academic achievement levels (Level 1, Level 2, Level 3, Level 4, and Level 5) with Levels 3–5 demonstrating North Carolina grade-level proficiency and Levels 4–5 demonstrating on track for career and college. SPG calculations use scores that meet grade-level proficiency (Levels 3–5).

1. The denominator includes all current year assessments for eligible students in membership (i.e., enrolled in a school) at grades 5 and 8.
 - a. Students who are in their first or second year in a U.S. school are not included in proficiency calculations.
 - b. Students with a North Carolina Department of Public Instruction (NCDPI) approved medical exemption are excluded from all relevant proficiency calculations.
2. The numerator is based on the number of students scoring grade level proficiency. Annual assessments for SPGs are calculated by determining the percent of students who score at Achievement Level 3 or higher.
 - a. Students who score below Achievement Level 3 on an EOG assessment (or the NCEXTEND1 alternate) in the current school year and obtain a higher score while enrolled in a summer program, that is completed (and test scores are submitted) before the published end of the accountability year, have the higher score replace the lower score in the performance calculations. (Testing for this purpose is available for grades 5 and 8 science.)

III. English Learners Progress

1. The denominator is the number of ELs in grades 3–8 and 10.
2. The numerator is the number of ELs who met North Carolina’s definition of progress toward English language attainment as demonstrated on the language proficiency test, including exiting the English learner status.

Additional business rules for the EL Progress Indicator can be found on the Accountability Services website.

IV. 4-Year Cohort Graduation Rate

The Cohort Graduation Rate is the number of students that are part of a designated cohort as defined using the 4-year Cohort Graduation Rate business rules found on the Accountability Services website.

1. The denominator is the total number of students expected to graduate within four years in the current year’s cohort.
2. The numerator is the number of students who graduate (earned a high school diploma) on time as defined by the designated cohort.

V. Biology End-of Course Assessments

Annual assessments administered are as follows: Biology and the alternate assessment (NCEXTEND1).

The assessments are reported as five academic achievement levels (Level 1, Level 2, Level 3, Level 4, and Level 5) with Levels 3–5 demonstrating North Carolina grade-level proficiency and Levels 4–5 demonstrating on track for career and college. SPG calculations use scores that meet grade-level proficiency (Levels 3–5).

1. The denominator includes all current year assessments for eligible students in membership (i.e., enrolled in a school) in high school courses in which an End-of-Course (EOC) assessment is required.
 - a. Students who are in their first or second year in a U.S. school are not included in proficiency calculations.
 - b. For schools starting with grade 9, biology assessments taken prior to grade 9 are banked to grade 9 for calculations. Banked biology scores are not included in the school where the student took the assessment at grade 8 unless it is the same school in grade 9.
 - c. Students with a North Carolina Department of Public Instruction (NCDPI) approved medical exemption are excluded from all relevant proficiency calculations.
2. The numerator is based on the number of students scoring at grade level proficient. Annual assessments for SPGs are calculated by determining the percent of students who score at achievement Level 3 or higher.
 - a. If two valid scores are received in the same accountability year for a student enrolled in an EOC course, the higher score is used for proficiency calculations.
 - b. Students earning credit through the Credit by Demonstrated Mastery (CDM) program in a course that administers an EOC assessment is counted as proficient.
 - c. Students who score below Achievement Level 3 on an EOC assessment (or the NCEXTENDI alternate) in the current school year and obtain a higher score while enrolled in a summer school program, that is completed, and test scores are submitted before the published end of the accountability year, have the higher score replace the lower score in their performance calculations for SPG. (Testing for this purpose is available for biology).

VI. Passing NC Math 3 (Math Course Rigor)

1. The denominator is based on all grade 12 students. Grade 12 students are determined by grade level at each school's First Day of Spring (FDS) data collection or mid-year graduates or mid-year certificate earners who were also in grade 12 at First Day of Fall (FDF) data collection.
 - a. Students who transfer into a school are included in the denominator.
 - b. Students who are instructed in the Extended Content standards or on the Occupational Course of study are included in the denominator.
2. The numerator is the number of grade 12 students who have earned credit in the designated math course of NC Math 3 or equivalent. The course codes used to determine course credit are: 2300, 2301, 2302, or 2309.

VII. ACT/ WorkKeys Assessments

3. The denominator is the number of grade 12 students who have either a valid ACT (from grade 11) or a valid WorkKeys assessment score (i.e. student must also be a Career and Technical Education (CTE) Concentrator).
 - a. Students with an approved ACT or WorkKeys Exemption score are included in the denominator.
 - b. Grade 12 students are students who are in grade 12 at the First Day Spring testing date or mid-year graduates who are in grade 12 at the First Day Fall testing date.
 - c. English Learners who take both assessments during their first or second year in a U.S. school are not included.
 - d. Students who do not have a valid ACT or WorkKeys assessment are not included in the denominator, this includes:
 - i. Students who are instructed on the Extended Content Standards and participated in the *NCEXTENDI* at grade 11
 - ii. Students with an NCDPI approved Medical Exemption

- iii. Students who take the College and Career Readiness Achievement Assessment (CCRAA) alternate assessment.
 - iv. English Learners who earned the score in their first or second year in a U.S. school are excluded from the denominator for SPG purposes but are included in other state reporting documents.
 - v. For 2017 and prior ACT scores, the EL exemption rule only applies to students who were in their first year at a U.S. school at the time of testing and applies to SPG calculations and all other state reports.
4. The numerator is the number of students who either achieved a composite score of 17 or higher on the ACT or achieved a Silver, Gold or Platinum on the WorkKeys assessment.
- a. Students with an approved ACT or WorkKeys exemption are included in the numerator.
 - b. When an eligible English Learner takes the WorkKeys assessment in their third year in a U.S. school the score is included. If the WorkKeys assessment is not proficient (Silver or higher) the ACT score is reviewed and if proficient (Composite 17 or higher), the student is included in the numerator.
 - c. A student's WorkKeys score is only considered for inclusion in the numerator if they are also a CTE concentrator.

VIII. School Growth

North Carolina uses the EVAAS growth index for the specified subjects and converts the index to a 100-point value prior to inclusion in the SPG.

Rules applied to growth are as follows:

- a. Elementary and middle schools use ELA/Reading EOG, Mathematics EOG/EOC and Science EOG assessments for growth calculations.
- b. High schools use ELA/Reading and Mathematics EOC assessments for growth calculations.
- c. EOG and EOC mathematics assessments taken in the current accountability year are used in school accountability growth calculations. Some assessments are included in growth that may not be included in other accountability measures like proficiency, participation, or long-term goal calculations. For example, students who take NC Math 1 in grade 7 will have their NC Math 1 EOC score used when the student is in grade 8 for proficiency, participation and long-term goals. This student's NC Math 1 score will be included in the growth calculation for the year the student was in grade 7.
- d. Only NC Math 3 EOC assessments of students on the accelerated pathway (i.e. took NC Math 1 prior to grade 9) are used in school accountability growth calculations. (All NC Math 3 EOC assessments are used for educator growth calculations.)
- e. Subgroups receive a growth score for inclusion in the subgroup school performance grade.
- f. A growth index is only used if there are 30 current year scores that are used for the growth calculation for the school/subject or subgroup.
- g. Summer program scores are not used for growth, only in performance as noted above.
- h. If two valid scores are received in the same accountability year for a student enrolled in an EOC course (i.e. student took the assessment in both the fall and spring semesters), both scores are included in growth calculations.

Growth for high schools is defined as part of the academic achievement indicator, but the weight of growth, as required by § 115C-83.15, is 20% of the model.

For elementary and secondary schools that are not high schools, the School Quality or Student Success Indicator for all grade spans and all schools is growth which accounts for 20% of the model as required by §115C-83.15.

North Carolina school growth is measured by EVAAS, a value-added growth model that includes student performance on all applicable subject assessments for that school. The growth model calculations result in a composite growth value. The composite growth value spans a range from -10.0 to 10.0 (it is possible to achieve values greater than 10.0 or below

-10.0 but are transformed to 10.0 and -10.0 for use in the accountability model). These composite growth values are transformed to a 100-pt score rounded to 10th and this score is used as 20% of the overall school/subgroup grade. North Carolina reports the growth values that correspond to EVAAS designations for all schools. The distribution of the growth designations (did not meet, met, and exceeded) allows for additional meaningful differentiation between schools and subgroups.

- If a school or subgroup achieves a composite growth value below -2.0, the growth expectation was not met.
- If a school or subgroup achieves a composite growth value between -2.0 and 2.0, the growth expectation was met.
- If a school or subgroup achieves a composite growth value equal to or above 2.0, the growth expectation was exceeded.

Calculations for School Performance Grades

For all indicators, the denominator must meet the minimum number of data points (30), after all business rules are applied, to be included in the SPG or subgroup grade calculation. All non-growth indicators account for 80 percent of the SPG. The indicators' denominators are added together to create the composite denominator. The corresponding numerators are added to make the composite numerator. The numerator is divided by the denominator and multiplied by 100 to get a total achievement score rounded to 10th. This score is multiplied by .8 (80%). This result is added to the converted 100-point growth score after it is multiplied by .2 (20%) to achieve a final SPG or subgroup grade.

Sample high school Calculation, assuming all Indicators had at least 30 scores after all business rules are applied:

Measure	Numerator	Denominator	Achievement Score Used in Final Calculations
Academic Achievement Assessments (AAA) (Combines ELA/Reading and Math)	117 (Math) + 135 (English II)	269 (Math) + 274 (English II)	
4-year Cohort Graduation Rate	284	330	
EL Progress	9	34	
EOC Biology	124	240	
ACT/WorkKeys Assessments	197	238	
Math Course Rigor	261	273	
Total	1127 (sum of numerators)	1658 (sum of denominators)	1127/1658 = 68.0
	Composite Index		Growth Score Used in Final Calculations
Accountability Growth Score (Reading and Math Composite)	-0.95		75.2

$$\text{Total Score} = 68.0(.8) + 75.2(.2) = 54.4 + 15.04 = 69.44$$

A similar calculation is conducted to determine a separate Reading and a separate Mathematics SPG for schools serving grades 3-8. Separate Reading and Mathematics SPGs are for whole school only, not subgroups.

When calculating the SPGs and subgroup grades, the achievement score is rounded to the 10th before being combined with the growth score. Prior to assigning all letter grades the final score is rounded to the whole.

As per the ESSA, School Performance grades are used to meaningfully differentiate schools for the identification of:

1. Comprehensive Support and Improvement (CSI) schools and;
2. Targeted Support and Improvement (TSI) schools

The following rules may apply to schools without enough data for calculations:

- a. K-2 schools receive the same SPG as the school in the LEA receiving the highest percentage of their students for third grade.
- b. When a school does not have any indicators with enough data to compute a designation using current year data only, the school's SPG is determined from a combined 3-year calculation.

- c. If a school who does not have enough data to compute a designation is also a NC approved alternative school, the school has the option to use a 3-year calculation or have all scores returned to other schools within the district and the alternative school receives the SPG of the school to which most of the scores were returned. Alternative charter schools will default to a 3-year calculation option if needed.

Alternate Calculation for Special Weighting

To ensure School Quality or Student Success (SQSS) measures do not have significantly more weight in the High School accountability model, NCDPI conducts a relative percent analysis to ensure the growth (20%) plus the Achievement Relative Percent (HS Math, HS Reading, 4-year cohort graduation rate and EL Progress measures) is greater than the relative percent of the SQSS measures (Biology, AWA Indicator and Math Course Rigor).

The following calculations is used for this analysis:

Achievement Denominator (AD) = HS Math denominator + English II denominator +
4-year Cohort Graduation Rate denominator + English Learners Progress
denominator

SQSS Denominator (SD) = Biology denominator + AWA Indicator denominator + Math Course Rigor
denominator

Growth Percent (GP) = 20 (or 0 if not enough data to calculate growth)

Achievement Relative Percent (ARP) = $[AD/(AD+SD)] \times 0.8$

SQSS Relative Percent (SRP) = $[SD/(AD+SD)] \times 0.8$

If $(GP + ARP) < SRP$ then SQSS has more weight than the Achievement Indicators. When this occurs, these schools' measure of annual differentiation is adjusted in the following manner:

The English EOC, Math EOCs, 4-year Cohort Graduation Rate and EL Progress academic achievement indicators: account for 31% of the schools' overall score. The growth academic achievement indicator accounts for 20% of the overall score. All the academic achievement indicators combined account for 51% of the model. Thus, the high school SQSS measures (Biology, AWA Indicator and Math Course Rigor) account for 49% of the schools' overall score. This ensures that the academic indicators result in a greater weight than the SQSS indicators.

Additional details regarding the calculations of SPGs can be found in the *Accountability Brief: School Performance Grades* on the Accountability Services website.

