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Middle School Students' Pathways To College: An Investigation Of Middle School Math Placement And College-Going Self-Efficacy

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MIDDLE SCHOOL STUDENTS' PATHWAYS TO COLLEGE: AN INVESTIGATION OF MIDDLE SCHOOL MATH PLACEMENT AND COLLEGE-GOING SELF-EFFICACY

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Dedication

To my Mom and The Queen,

This project is dedicated to you both. Queen, you did not finish school but you made sure your girls did. As you told Mama, and Mama told me, “I can’t write no papers, and I can’t take no tests.” Thank you both for always sending me to the dining room table to work, no matter what. Thank you for praying. Thank you for listening. May our push to help the children and families in our communities continue in this work. I love you both.

Forever and Always,

Jessi

Acknowledgements

To my family and friends (who are really family) – thank you for loving me through this process. Thank you for the early morning phone calls and the late-night listening ears. Your prayers and encouragement are immeasurable. You all mean so much to me. Thank you for pushing me and challenging me. I could not have completed this process without your love and support.

A special note of thanks goes to Dr. Peggie Constantino and Dr. Steven Staples. Thank you for the subtle and not so subtle nudges. Thank you for your commitment to helping me complete this process no matter what life brought my way. To my committee, Dr. Elizabeth Auguste, Dr. Stephanie Blackmon, Dr. Jacob Joseph, and Dr. Tom Ward, I appreciate your guidance and wisdom. Thank you all for believing in me and my work.

To the students, parents, and educators in my school and in my district, thank you. I appreciate your patience, kindness, support and understanding as I walked this journey.

Here is to letting my life do the singing!

Thank you!

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Abstract

Middle school offers an entryway onto the path of college readiness. However, many practitioners and researchers have focused their efforts on high school students. Remaining is a population of potential college-going students, whose opportunities to prepare for college at an earlier stage are overlooked because middle school is not viewed as the appropriate time for students to begin exploring postsecondary options. Admittedly, not every student will pursue a college degree, nor will every student take advanced math classes. This action research study evaluated the college-going self-efficacy perspectives of 90 sixth-grade students, at one middle school, who were placed in three different levels of math—Regular, Honors, and Advanced. Albert Bandura's Self-Efficacy of Motivation (1997) and Social Cognitive Theory (1986) serve as a theoretical framework. A pre-experimental study, this research aimed to evaluate sixth graders' college-going self-efficacy before and after the intervention. The College-Going Self-Efficacy Scale (CGSES; Gibbons, 2005) was designed specifically for middle school students and is used as both the pretest and the posttest. Two focus groups were facilitated to illuminate the quantitative data. A repeated-measures analysis of variance (ANOVA) along with descriptive analysis were completed. The data collected suggests that math placement is not the only influential factor; students' preconceived beliefs, notions and experiences seemed to have a noteworthy impact. There are other factors outside of mathematics that contribute to how students view themselves as potential college-going individuals. This study offered some policy and college-going initiatives to pursue in future cycles of action research. For diverse and underserved students, gaining access to college degree attainment through overlooked on ramps, can be crucial to their success. The results can be generational.

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CHAPTER 1

Background

Across America, a significant decision arises every year for high school students and their families: *"What are you going to do after high school?"* The answer revolves around the idea of earning a college degree to achieve success. Yet students and families alike often might not have the skill set, experience, and access to navigate the college enrollment process and selecting the course of study (Bryan et al., 2011). They might be unaware of the role curricular decisions made in middle school play on their access to college preparatory classes in high school. Students must also develop confidence in themselves to achieve their goals and embody the mindset and behaviors to accompany them. It is well known that there is a strong correlation between students who are academically prepared and college completion (Conley, 2005). Adelman (1999) discovered that a highly influential factor impacting college entrance and bachelor's degree completion is the intensity of the high school curriculum. For those students who have a strong desire to enter this academic arena but are ill-equipped and underfunded, obtaining a college degree is a road filled with potholes that could be better paved with early exposure to the belief systems, expectations, and requirements of higher education.

A fundamental issue that deserves attention is the tardiness with which students are exposed to college pathways and, consequently, become limited in their access to college. It has been demonstrated repeatedly (e.g., Adelman, 2006; Smith, 1996; Useem, 1992) that Algebra I is the "gateway" class to college preparatory courses in high school. In a report commissioned by the U.S. Department of Education (2018), 80% of America's eighth graders attend a school

where Algebra I in the eighth grade is offered, but only 24% of students are enrolled in the course. Students of Asian descent were the highest represented group of students enrolled at 34%, with White and Students of Two or More Races totaling 24% and 23%, respectively. Students of Hispanic descent represented 13%, and African American students were the lowest represented group, totaling 12%. This variable enrollment rate issue merits a closer look into the placement of students in various math classes prior to the eighth grade.

Statement of the Action Research Problem

A related issue to consider is that families are not always informed of the details and preparatory steps to take—for example inquiring about the effect middle school math has on their student's access to high school college preparatory courses—to help their student prepare for college (Hines et al., 2014; Useem, 1992). The conversation between schools and families that, at the very least, makes them aware of benchmarks required for high school and post-high school success occurs as students are either leaving middle school or after their ninth-grade year has begun. This signifies a tradition of starting students on the path to higher education at a disadvantage (Adelman, 2006; Smith, 1996; Useem, 1992) and possibly widening the gap in college completion. Creating resolutions to even the playing field and close the divide for middle school students exploring access to college, is a necessary process. Thus, I investigated the role of middle school math classes and the college-going self-efficacy of middle school students on the exposure and access to higher education pathways.

Evidence Supporting the Existence of the Problem

Students begrudgingly engage in coursework in which they have developed a belief in their inability to succeed, thereby adopting a sense of academic inadequacy. Two mantras that math teachers often hear from students is, *"I can't do math," "Math is too hard."* Similarly,

parents often tell their student's math teacher that, *"Math was my worst subject, so I know my child is going to struggle."* Students can develop what Bandura (1997) describes as an "inability to exert influence over things that adversely affect one's life, breed[ing] apprehension, apathy, or despair" (p. 2). This perceived disbelief in ability can be combated by fostering or strengthening self-efficacy (Bandura, 1997). Unfortunately, this issue of student self-efficacy is one that can be overlooked as a viable method to help students actualize their goals and develop behaviors to assist in overcoming challenges. The U.S. Bureau of Labor Statistics (2018) reported 69.1% of high school graduates enrolled in colleges or universities in 2018. The National Center for Education Statistics (2019) calculated the 6-year graduation rate for students who entered college as first-time students in 2011 to be 60%. Unfortunately, that means that 40% of students who began their postsecondary education dropped out of college. Johnson (2000) found high rates of college aspirations among high school students but low college-going rates in the same school districts. There is a disconnect in students aspiring to attend college and becoming college graduates. Assessing the factors that contribute to the college-going self-efficacy of students as they pursue higher education could play a critical role in their preparation for and completion of their baccalaureate degree. Thus, the question arises: What can educators do to facilitate students' ability to transition from a desire for a college degree to actually achieving this worthy goal?

Hossler et al. (1999) and Gibbons and Borders (2010) submitted that most students have decided what careers they are going to embark upon between the eighth grade and the tenth grade. In developing a measure of college-going self-efficacy for middle school students, Gibbons and Borders (2010) noted that most students in middle school intend on pursuing higher education at a 4-year institution. For those students, ensuring access to college pathways in

middle school is a critical benchmark for students to have the opportunity to take advanced math and science classes in high school, furthering their academic advantage. The advanced classes create a window of opportunity to enroll in Advanced Placement (AP) or International Baccalaureate (IB) curriculums that are designed to enhance student preparation for college. Although curriculum intensity is a strong influencer on college completion, Adelman (2006) and Trusty and Niles (2003), found "the most significant contributor to the strength of the curriculum was the highest level of mathematics completed by the student and that completing one course beyond Algebra II more than doubled the odds that students would complete their baccalaureate degree" (as cited in Sciarra, 2010, p. 196).

From a curricular standpoint, students who take Algebra I in the ninth grade rather than the eighth grade will run out of time to take higher level math courses before graduating from high school. This disadvantage limits their opportunity to take classes linked to college readiness. Thus, it is imperative that students and parents are aware of the curricular options and consequences at the start of middle school, so that when students are designing their course of study for eighth grade and high school to pursue their desired careers, they can go through open doors to achieve these goals instead of being denied access because of unattained prerequisites. Moreover, positively influencing students' beliefs in their abilities, can be a powerful tool to avoiding such academic crises.

Probable Causes Related to the Problem

The lack of middle school students' access and exposure to higher education pathways appears to stem from a lack of communication between schools and families about this subject. It is apparent that there are many students who have an interest in pursuing a college education. In September 2019, I spoke with local college admission and retention personnel at the 2- and 4-

year levels (J. Scott personal communication, 2019). They indicated the lack of exposure and resources to know what college is about and how to begin the entry and navigation processes, once enrolled, are two of the largest factors contributing to students failing to earn a college degree. Another significant factor identified by this group was identity—students are not reared in an environment (home or school) that promotes their development as future college graduates. One of the deans of student services with whom I spoke highlighted that a common language is missing which perpetuates cycles of college incompletion. Phrases such as "after Tony goes to college," or "Andrea can pursue a law degree," are often not proclaimed during childhood which does not instill in them a belief in their college-going abilities. A retention specialist and freshman studies advisor at two different universities mentioned the lack of representation of what success looks like, what college is, how to navigate college systems in order to graduate, and how it could help students advance their goals, as influential factors to low levels of college access and college degree attainment. A second retention specialist spoke in-depth about the lack of resources available to students in many school systems to help students prepare for their postsecondary endeavors. The absence of these critical pieces can have an adverse effect on students' beliefs in their abilities because they are not exposed to examples of college-going students and the long-term benefits a college degree may help provide.

The unexpected common theme between these conversations was the college-going self-efficacy of middle school students. Although this term was not mentioned by name, the repeated notion of "student beliefs," "student confidence," "identity as a college student," "knowledge of expectations," and more were expressed as significant influencers for students to be successful. These subthemes are critical components of a students' belief in their ability to enter college and sustain enrollment to complete the necessary requirements to obtain a college degree which is

otherwise known as college-going self-efficacy (Gibbons & Borders, 2010). This group separately identified the beginning of middle school as the latest time students and families should begin researching their requirements for college entry and successful matriculation. The critical role math plays in student access to college preparatory classes warrants an examination into how students view their mathematical abilities and if they translate to their ability to attend and persist in college. Investigating students' perspectives and beliefs about the multifaceted college-going process, can prove to be informative to educators' efforts to strengthen college preparation resources.

From a policy perspective, a related cause to this problem is the absence of state-level college exploration mandates for middle schools. The Standards of Quality are measures that the Board of Education of Virginia are mandated to meet by the Constitution of Virginia for every student in the state. They require middle schools to provide career exploration initiatives for all students. How each district provides such programming is at the discretion of each district. Both college and career development plans are required for high school students. Standard 4, section D, Part 3 states that "multiple paths toward college and career readiness for students to follow in the later years of high school," shall be established (VDOE, 2021). Further, "each such pathway shall include opportunities for internships, externships, and credentialing" (VDOE, 2021). Many career pursuits require a college education at either the 2- or 4-year level. With the knowledge of the importance of mathematics to accessing college preparatory courses in high school and college degree completion (Adelman, 1999, 2006; Trusty & Niles, 2003), it is incumbent upon the state to obligate middle schools to create and implement college development programming equivalent to the existing career development requirement. The absence of one may serve as a

contributing factor to students' readiness and the achievement gap that persists amongst our systems of education.

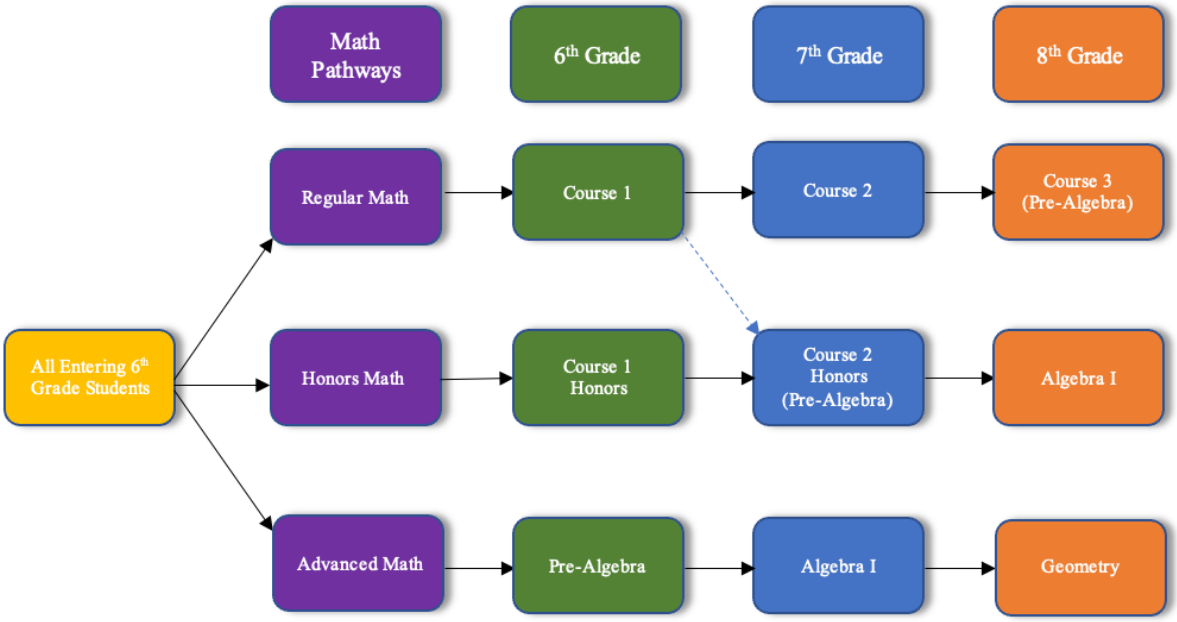
Context for the Action Research Study

This study took place in Cartler Middle School which hosts students in grades 6 through 8. Cartler serves a predominately African American student population (66.7%), with White (16.2%), Hispanic (7.5%), and students of multiple races (7.2%) enrolled in smaller percentages. According to state enrollment records, approximately 60% of the student population qualifies as economically disadvantaged, and 13.5% are students with identified disabilities who receive some level of specialized instruction. The school resides in a heavily transient region that is influenced by multiple military installments. There are currently, approximately 700 students in this public school where they are divided into three levels of math classes for the first time during their sixth-grade year. Sixth-grade students at Cartler Middle School are placed in their math class by their middle school counselors and administrators using data from the fourth and fifth grades. The district mathematics curriculum office submits placement guidelines for Standards of Learning (SOL; the year-end state examination) and quarterly testing cut scores to use when determining students' math course for the upcoming school year. Placement practices vary by school as student population, student need, and number of credentialed teachers also factor into these decisions. The number of qualified teachers can influence what classes are offered and how many sections of that class at each grade level can be held each year, which also affects class size. Students' academic needs (which math class they are placed in) are also an influential factor for the same reasons. Moreover, if there are not enough students to hold a particular math course, it may or may not be offered which are how these inputs influence one another and the school. Displayed in Figure 1, the trajectory of courses offered in this setting

provides students on the Honors level to be 1 year ahead of their peers, and students on the Advanced level to be 2 years ahead of their peers. Algebra II is taken after Geometry and given the math requirements for earning a high school diploma, an alternative route is created for students on the Advanced pathway which allows them to stop taking math courses after completing Algebra II. Specifically, students are only required to have a certain number of high school math credits to graduate. Students on the advanced pathway could, in some cases, stop taking math their junior or senior years or both, because they technically have earned the required math classes to earn their high school diploma. This loophole could disadvantage students who choose this route from the opportunities that are proven to double their odds of college degree completion (Adelman, 2006; Trusty & Niles, 2003). Further, students taking Regular math classes in middle school, in this district, are historically students who struggle in math and may not enroll in Algebra II during their high school career. At Cartler Middle School, once a student is on the Regular math pathway, not very often are they able to move to a higher-level math. Once a student has been placed, this is often where they stay throughout their middle school years. The dotted arrow from Regular sixth-grade math to Honors seventh-grade math represents a possible leap in pathways, as a few students have successfully made that transition. This process is initiated by their math teacher advocating for their ascension to the administrators and school counselors based on the students' performance. In even rarer cases are students moved down from Advanced math to Honors math. There have been a few students who were not academically or socially prepared for an eighth-grade math course in sixth grade, and so in seventh grade they repeat the course. Cartler will not move a student from the Honors pathway to the Regular pathway.

Figure 1

Middle School Math Course Trajectory



Note. Middle School Math Course Trajectory. Classes students will take in middle school based upon a student's fifth-grade math Standards of Learning score, Pre-Algebra Readiness Test, and math class overall grade.

Information Related to the Organization

The local school district is situated in a small urban setting on the peninsula of Virginia. It consists of one early childhood center, 18 elementary schools, two PK-8 combined schools, one gifted center, five middle schools, four high schools, and one alternative school. The total student population is approximately 19,500. The surrounding locale is a very transient area comprised of military families stationed at an Air Force base and is home to a recently decommissioned Army base. The city is predominately African American (49.6%), with the median annual household income at around $50,000. With just under 138,000 citizens, 88.6% of

the population is reported to have a high school diploma, with only 21.8% earning a bachelor's degree or higher. Approximately 89% of residents hold a high school diploma and almost 22% have a bachelor's degree or higher.

Information Related to the Intended Stakeholders

I intended to identify sixth-grade students' college-going self-efficacy beliefs with a consideration of possible variance by each level of sixth-grade math. Secondly, I sought to provide sixth-grade students insight into how their sixth grade math course can affect their access to gateway college preparatory classes. Exploring students' college-going self-efficacy at each level of math at the beginning of their middle school careers instead of the end may help provide guidance on how educators can help strengthen and build students' beliefs in their college-going abilities. With an understanding that college may not be the goal for each student, it is vital to cultivate their belief in their own abilities which can prove to be a transferable trait that can promote and accelerate each child in their chosen and desired field.

Theoretical Framework

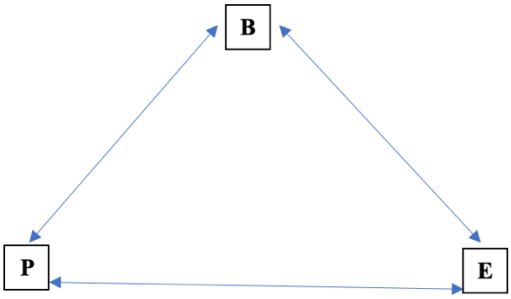
Albert Bandura's (1997) Self-Efficacy of Motivation provides a significant undergirding of this study because of its focus on an individual's belief in their abilities to accomplish the necessary steps to achieve their desired goals. The completion of goals and the process to achieve them is not singular, but interconnected and vital to the health of social institutions such as families, schools, communities, and organizations. As Bandura (1997) described, "if people believe they have no power to produce results, they will not attempt to make things happen" (p. 3). Belief can derive simply from a person's desire to achieve or to prevent an action from happening. Pursuing a college degree is as much about the action steps taken to obtain it as it is the belief in oneself to achieve it (personal agency). Those actions are not solely the result of

outside uncontrollable factors, but also of the internal choices one makes. Math is often viewed as one of the most arduous academic subjects for students, yet it plays an integral role in student access to college readiness courses and college completion. Exercising one's mind to develop the belief in their ability to excel in mathematics, for example, takes practice, evaluation, and requires reflection.

Reflection is a partial representative of the five components of Bandura's Social Cognitive Theory. This was a complementary framework for this study. Forethought, a second of the five, serves as a motivator for individuals to plan and achieve their goals and consider consequences of future actions. Symbolizing, a third component, takes one's goal (going to college) and enables the use of forethought to create actionable steps to complete the pre-determined goal. helping students prepare for college earlier in their academic career enables them to use forethought to their advantage. Vicarious capability presents Bandura's (1986) argument that all learning is not best obtained through action, but more time is saved, and losses cut, through observation. Lastly, witnessing behaviors provides space for ideas to be generated and the creation of exemplars to be formed so that mastery of a concept can be achieved. Students can learn about college readiness by learning from current college students, graduates, or academic advisors. In conjunction with self-regulatory capability individuals become self-motivators which results in them becoming producers of their own action. This leads to reflection which can strengthen one's self-efficacy through discovery and assessment. These five capabilities interact with each other to create a foundation for Social Cognitive Theory and are depicted in a model of reciprocal determinism. As seen in Figure 2, this demonstrates the interactive and dependent nature of each factor—behavior, cognitive and personal, and environmental.

Figure 2

Bandura's Model of Reciprocal Determinism in Social Cognitive Theory



Key:
P – cognitive and personal **B** – behavior **E** – environmental

Note. Bandura's Model of Reciprocal Determinism in Social Cognitive Theory. It demonstrates the three classes of determinants in triadic reciprocal causation. From *Social Foundations of Thought and Action – A Social Cognitive Theory* (p. 24) by A. Bandura, 1986, Englewood Cliffs, NJ: Prentice-Hall Inc.

Bandura (1986) explained the term *reciprocal* as a shared influence on causal factors and *determinism* denotes the effects that are created as a result of various elements and not just one sequence of events. Each of these three inputs do not always share equivalency in their influence on particular experiences. For example, a student may want to pursue a college degree and the behavior (seeking out a mentor) and cognitive personal conditions (applying to be in honors classes) might be more influential than the environmental (parental or home) determinants. These shared actions can contribute to the student's growth and bolster their college-going self-efficacy.

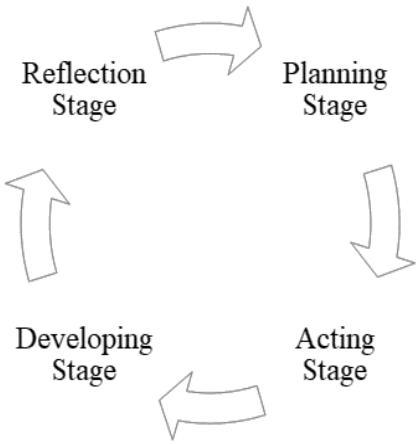
Action Research Model

Mertler's Model of Action Research, as seen in Figure 3, demonstrates the cyclical nature of action research. Mertler (2017) states, "whereas action research has a clear beginning, it does not have a clearly defined endpoint" (p. 36). This study will focus on the initial cycle of action research to investigate the listed research questions. During the first stage of the cycle, the planning stage, I narrowed down a topic of inquiry that originated in PK-16 pipelines and the disconnect between institutions of higher education and PK-12 systems. Funneling down this very layered and complex subject led to this question—"What are the gaps in student preparation for college?" The aforementioned conversations with 2- and 4-year college personnel specified the root of the gaps lied within students' college-going self-efficacy and the tardiness with which students began their exploration of college (after middle school). Armed with this consensus, the knowledge and the literature highlighting the importance of math courses prior to college, and a new framework, I formulated research questions to study this subject in my own middle school. I identified common themes amongst the studies conducted involving college-going self-efficacy and its application in middle schools. They included interventions that involved a college-going activity or set of activities coupled with a college visit to either a 2- or 4-year institution. This led to the acting stage of action research where I formulated research questions, chose the research design and appropriate statistical tests to conduct. This data collection and analysis sets the stage for the third phase of action research, developing, prompting the question – "What actions need to be taken based upon the data collected and analyzed in the second stage?" This is where the action plan is designed and planned to address any areas of need identified by students in the pretest and posttest. It provides insight into what we as educators can do to meet the needs of the students in Cartler Middle School. The final stage of action research, reflecting, will consider the

policy, planning, and leadership implications that will arise from the data to help in the short and long term. Due to the cyclical nature of action research, the reflecting stage will provide the next steps, providing a game plan for continuous improvement that informed the second cycle of this study.

Figure 3

Mertler's Model of the Action Research Process



Note. Mertler's Model of the Action Research Process. From *Action Research* (p. 38), by C.A. Mertler, 2017, Thousand Oaks, CA: Sage.

Brief Description of the Action Research Intervention

The focus of this action research study was to investigate the impact of a college-going curriculum and subsequent college visit on the college-going self-efficacy perspectives of students who are just beginning their middle school careers. First, students will take a pretest using the College-Going Self-Efficacy Survey (CGSES) created by Melinda Gibbons (2005; used with permission; see Appendix A). Participants in this study completed college-going modules in Naviance, a proprietary computer program that was previously purchased by the

school district and is used sparingly by students at the middle school level. This tool is used frequently by students in high school in preparation for their postsecondary endeavors, while middle school serves as an introductory into students' academic and professional interests. Student participants in this study accessed the college-going modules in Naviance during their homeroom class. This study required 2–3 weeks for students to complete multiple modules, where the curriculum timing normally permits the completion of only one per year (students at Cartler only complete three modules—one in each year of middle school). The second component of the intervention consists of students participating in a college visit at a local university. Students attended a college class; toured the campus; learned about college life, financial aid, the admissions process; and participated in a question-and-answer session with current college students. Then participants completed the posttest—the CGSES. The study concluded with a small subset of students participating in one of two focus groups.

Action Research Questions

The questions created to guide this action research study are rooted in two major topics – college access and college exposure. To explore these two areas amongst middle school students, I investigated students' viewpoints on their own college-going abilities using Gibbons' (2005) CGSES. This took place before and after students completed the college-going curriculum and participated in the college visit. Implementing a pretest and posttest model may help determine any changes the intervention may have on students' college-going self-efficacy perspectives. I used the following research questions pertaining specifically to students at Cartler Middle School:

1. What is the impact of a college-going curriculum and college visit on sixth-grade students' college-going self-efficacy perspectives?

2. What are the pretest and posttest results of the CGSES for students in Regular sixth-grade math?
3. What are the pretest and posttest results of the CGSES for students in Honors sixth-grade math?
4. What are the pretest and posttest results of the CGSES for students in Advanced sixth-grade math?

Definition of Terms

- Standards of Learning (SOL) – the curriculum mandated by the state education agency for all Virginia public schools; the end-of-the-year assessment that students must take to demonstrate their proficiency of the SOLs in the given subject is called the SOL Test
- College-going self-efficacy – belief in one's ability to enter college and sustain enrollment to complete the necessary requirements to obtain a college degree
- College-going – the process and activities related to going to college
- Self-efficacy – as defined by Bandura (1997) "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (p. 3).
- College preparatory/readiness – as defined by Conley (2007) operationally "the level of preparation a student needs in order to enroll and succeed – without remediation – in credit-bearing general education course at a postsecondary institution that offers a baccalaureate degree or transfer to a baccalaureate program" (p. 5). It should be noted that the term "succeed" in this definition refers to a student's ability to complete an entry-level college course at a level of proficiency which enables them to take the next level course identified in the program of study.

- College exposure – awareness of entry processes to higher education; knowledge of processes to complete academic, social and financial tasks; benefits of college degree attainment
- Degree attainment – completing the classes/courses necessary to earn a college degree at any level (associate's, bachelor's, master's, doctoral)
- College access – information to enter a degree-seeking program at a college or university
- Degree-seeking – a list of classes required to earn a college degree
- College eligible – as defined by Conley (2005) "to enable students to meet admissions requirements," (p. xi).
- College ready/readiness – as defined by Conley (2007) is a student who "is able to understand what is expected in a college course, can cope with the content knowledge that is presented, and can take away from the course the key intellectual lessons and dispositions the course was designed to convey and develop. In addition, the student is prepared to get the most out of the college experience by understanding the culture and structure of postsecondary education and the ways of knowing and intellectual norms of this academic and social environment. The student has both the mindset and disposition necessary to enable this to happen" (pp. 5-6).
- Naviance – a computer-based college preparation curriculum rooted in research on subjects such as, but not limited to, college choice, student success, and academic readiness; it was designed for students in grades 6 through 12.
- Pathway (higher education pathway) – a path to the pursuit of a college degree including but not limited to an associate's degree

- Pathway (curricular) – the course of study students embark upon at any level – middle or high school or college
- Placement (math class placement) – the math class students are assigned by school administrators
- Standards of Quality – as defined by the VDOE Board of Education (2021) are requirements mandated by the Constitution of Virginia that "must be met by all Virginia public schools and school divisions." They are reviewed every 2 years by the Board of Education of Virginia and approved by the General Assembly.
- Zone school – the elementary, middle or high school that children are assigned to by the school district based off of their geographical location or address

CHAPTER 2

A Review of Related Literature

This action research study seeks to assess sixth-grade students' college-going self-efficacy before and after participating in a college-going curriculum and college visit. This literature review will highlight some factors that may contribute to college degree completion—specifically concerning the influence of mathematics. The intensity of high school coursework is determined by the highest level of mathematics (Adelman, 2006), which Trusty and Niles (2003) indicates one class taken above Algebra II doubles the chances of students completing their bachelor's degree. For decades, researchers and educators alike, have acknowledged math's influence on academic achievement. Adelman (2006), Smith (1996), and Useem (1992), all agree that Algebra I is the gateway to college preparatory courses in high school. Sells (1973) went a step further connecting mathematics to employment, emphasizing that math is a "critical filter" to gaining access to substantial job opportunities. The reason for focusing on sixth-grade students at Cartler Middle School, instead of eighth graders (rising high schoolers) is to explore college access at an earlier time in students' schooling. In this particular setting, students have an opportunity to enhance their math course placement based on their sixth-grade performance. At Cartler Middle School, this does not happen after the sixth grade, which creates an opening to research students' self-efficacy about the college-going process. This could help educators understand students' perspectives on higher education and what programming or resources they need to access their postsecondary goals. Further, this study could inform policy makers in their

decision-making process about mandates for middle school college exploration, given that career exploration is already mandated for middle school students in Virginia. Rooted in an inquiry on college readiness, this I explored the influence of self-efficacy and mathematics, and their possible roles in shaping students' perspectives on their own college-going potential.

College Readiness

Students' under-preparedness for college work is not a new phenomenon. Byrd and MacDonald (2005) recalled the 1980s saw an increase in colleges requiring placement tests to determine college readiness. There was no measure that accounted for skills students acquired through life experiences outside of academia that would benefit their matriculation in college. Time management, goal setting, and planning are examples of these life skills. Subsequently, according to Byrd and MacDonald (2005) and Gaertner and McClarty (2015), there was an uptick in students being enrolled in remedial courses for basic writing, reading and mathematical skills during that decade. Completing a remedial course often meant more tuition spent yet these courses did not count towards degree attainment. Conley (2005) mentioned that 30–60% of students require remedial classes, and there are inconsistencies in the slight rise in SAT and ACT math scores, constant reading scores, and gradual increase in high school grade point averages. College readiness is a complex and diverse undertaking (Byrd & MacDonald, 2005; Gaertner & McClarty, 2015). Conley (2005) added that the gap in college readiness arises because of the disconnect in students' experiences and university's expectations. Although Byrd and MacDonald (2005) focused on first-generation students who were older than average college-going students with some students starting in a community college, one student stated the reason for this gap very pointedly.

> Community college was like high school in a lot of ways. They didn't challenge you intellectually. Your vocabulary could be a lot smaller. When I transferred over to the university, I remember the first text I picked up and I was reading some of those words and I had this, like, what does that mean. (p. 31)

Another student noted that high school AP classes were "the only ones that helped prepare for workload requirements of university studies" (p. 31). Byrd and MacDonald's (2005) findings include the importance of writing, reading and math classes before college to help students prepare for the rigor of collegiate coursework, but they fall short in acknowledging that preparation needs to occur for all students, before they enroll in a university, instead focusing their efforts on first-generation and non-traditional students. This is not to imply that either of these subgroups of students are not equally important to the field of study. The notion of college readiness or college preparation suggests that some work has to be done before enrollment.

Gaertner and McClarty (2015) understood this in their efforts to create a college-readiness index for middle school students. They were firm in their position that "college readiness begins long before high school exit" (p. 20) agreeing with Byrd and MacDonald (2005) that indicators outside of standardized testing must be included in analyzing students' propensity for college entry and college completion. Expanding early alert systems about student progress that depend on assessing a child's attendance, behavior, and course performance—the ABCs—is critical. Gaertner and McClarty (2015) contended that such detection systems, while valuable must shift the goal from achieving success in high school (low dropout rates), to determining students' chances of succeeding in a 4-year university. The concern with the middle school college-readiness index is that it relies heavily on data from standardized test scores (ACT and SAT). The authors critique their usage, but then admit that there is no way to get around

incorporating them because they are what university admissions offices rely on to predict a student's grades during their freshman year. Secondly, they offer that the ACT and SAT are the most researched. Additional factors in the index include motivation, behavior, social engagement, family circumstances, and school characteristics. While the index offers moderate results, it does not provide action steps middle school educators and researchers can take to better prepare students.

Middle School College Readiness

The concept of being college-ready differs from being college-eligible according to Conley (2005). He purported that the former represents "being able to meet the expectations [students] encounter in entry-level college courses" while the latter simply is the ability of students to meet college admissions requirements (p. xi). Although most of the country's states have college and career mandates for high school students (Gaertner and McClarty, 2015), not all have college mandates for middle schools. Virginia, the location of this study, is one of them (VDOE, 2021). Yet, there is an increasing call for middle school students to have access to college-going curriculums and experiences (Maitre, 2014; Ng et al., 2014; Radcliffe & Bos, 2013; Schaefer & Rivera, 2014; Smith, 1996). Radcliffe and Bos (2013) followed 100 middle school students over 7 years, from 6th grade to 12th grade, in their study. Students in the control group produced improvement on state tests, academic and college perceptions. At the time of publishing, the authors could not indicate whether their intervention and programming were effective in helping students achieve in college because their students were in their senior year of high school.

According to Hossler et al. (1999), 8th through 10th grade is when most students have decided on what careers they desire to pursue. It is critical, then, that middle schoolers

"understand how college readiness is central to their learning" (Schaefer & Rivera, 2014, p. 91). Both Ng et al. (2014) and Schaefer and Rivera (2014) conducted studies where middle school students were on campus daily for a 1-week period. Students visited college classes, participated in college-preparation seminars, worked and spoke with college professors and students, gaining hands-on exposure and access to the expectations of college life and coursework. The studies occurred over the period of 2 and 5 years, respectively, collecting data from multiple groups of students. Posting positive results in students' perspectives towards the college-going process and their own self-efficacy, the feasibility of hosting students on campus for 1 week during the school year or the summer may not be reproduced. Moreover, Ng et al. (2014) had a small respondent size limiting the generalizing of their findings. Acknowledging the efforts of these researchers, middle school students are interested in the college-going process prior to high school. However, they stop short of breaking down the role of particular classes in readying students for undergraduate work. Grigal et al. (2019) acknowledged the importance of middle school college and career explorations, but the focus was mainly on helping students investigate possible future careers. When discussing college readiness, the authors stated that as students get closer to high school, "their course choices and grades may directly impact their college options" (p. 68). The research involving middle school students' college readiness ignores the role mathematics plays in course choices and college options.

Role of Mathematics

One of the largest pre-requisites for postsecondary work considers a student's mathematical coursework in middle and high school. Algebra I is a gateway course to proven college preparatory classes in high school (Adelman, 2006; Smith, 1996; Useem, 1992), while completing one class beyond Algebra II doubles the chance a student will earn their bachelor's

degree (Adelman, 2006). When students enroll in intensive math classes in high school, they increase the probability that they will earn a college degree (Trusty & Niles, 2003). Exploring the predictors of an intensive high school math curriculum, Sciarra (2010), discovered a correlation between student expectations of their math achievement and college degree completion. A student who did not expect to earn a bachelor's degree was four times more likely to fail to complete a high school math course beyond Algebra II. The converse is also true, and Sciarra (2010) put the onus on educators, school counselors specifically, to meet the needs of students who expressed a sincere desire to attend college: "If students say they expect to go to college, then it becomes incumbent upon the school counselor to challenge students, evaluate the seriousness of the expectation, and facilitate an intensification of the math curriculum" (p. 204). Educators are aware of the benefits an intensive math curriculum can afford students in high school and in college. Witte (1992) identified one of the strongest policy implications that can be concluded from national large-scale studies is "that mathematics coursework matters to the academic well-being of students" (as cited in Ma & Wilkins, 2007, p. 231). A combination of practice and policy, could be a motivating factor to enhance middle school students' access to Algebra I.

Early Access to Algebra I

In 1996, Julia Smith asked the question, "does an extra year make any difference?" Smith (1996) posed the question regarding early access to Algebra I for students and whether or not they received an advantage in their "access to advance coursework or their mathematics achievement in high school" (p. 142). Smith's (1996) findings were in the affirmative for both components which played a role in advancing the national conversation on enrolling students in Algebra I prior to high school. They also highlighted a known issue—there is a privilege that is

attached to early access to Algebra I that benefits students of higher socioeconomic status and White students more than any other subgroups (Sciarra, 2010; Smith, 1996). One of the suggested reasons for this, and the subsequent gap in mathematical achievement, is perpetuated by schools not having equal or equitable resources, inconsistent and ununiformed placement decisions and course offerings, and a lack of knowledge on the significance of middle school math college preparatory classes (Dougherty et al., 2017; Smith, 1996; Usher, 2009; Wang & Goldschmidt, 2003). Populations of students continue to be disadvantaged without access to Algebra I in middle school.

Moses and Cobb (2001) found an extra year does make a difference—one that is vital to economic success for people of color especially in underfunded school systems where Algebra I is not always offered. They argued that the importance of early entry to mathematical coursework is a "civil right" that will allow disadvantaged peoples full citizenship because math classes open doors to college preparatory coursework (math, science, foreign language), strengthening students' readiness for postsecondary achievement and consequently better employment opportunities. Although many states and school systems adopted policies mandating Algebra I for all eighth-grade students, they retracted those policies after recognizing that students were not mathematically and socially prepared for such a course (Dougherty et al., 2017). This is an example of further compounding the issue. Smith (1996) and other researchers brought to light a pressing concern, but changing policy without fully understanding the work to get students ready for Algebra I in middle school is the equivalent of throwing money at an issue and expecting positive change. Moses and Cobb (2001) understood that to make effective and sustainable change, work needs to be done at the ground level—get to know the students,

teachers and parents in the communities and present localized solutions to the varying populations in order to best reach mathematical achievement for all.

Math Placement

Ma and Wilkins (2007) focused their research on the timing of when students take certain mathematics courses and any growth recorded in students' mathematical achievement. Investigating students' math courses in grades 7 through 12, Ma and Wilkins (2007), reinforced the importance of eighth-grade Algebra I reporting that eighth-grade students in this course grew their mathematical achievement further than students on the regular, honors or advanced math pathways at any grade level and math course. Tyson and Roksa (2016) and Akos et al. (2007) took it one step further and surmised that students' prior math achievement plays a significantly large role in math placement—once a student is on a math pathway, it is most difficult to advance to a higher pathway. Akos et al. (2007) contend that for students who are on the lowest track, regular math, it creates a sense of insufficiency—that while they may be growing their mathematical achievement, it is not enough to advance them to more challenging coursework, relegating students to an experience in math that is stigmatized by low performance throughout their secondary career. Akos et al. (2007) and Wang and Goldschmidt (2003) highlight the role middle school math placement has on the courses students pursue in high school and complete. Reinforcing the importance of students being given the opportunity to take advance coursework in middle school, Wang and Goldschmidt (2003) found that middle school math achievement was found to relate significantly to high school math achievement. Exposure and access to higher level math classes will broaden student access to learning opportunities that ready them for their postsecondary endeavors (Dougherty et al., 2017; Usher, 2009; Wang & Goldschmidt, 2003). Moreover, there is a change in college entry requirements that sees college admissions offices

shifting away from a heavy reliance on standardized tests (SAT and ACT). Woods et al. (2018) suggest that the strength of a students' high school transcript could play a larger role in what introductory English and math college courses students are required to complete. This further emphasizes the need to explore math placement practices prior to the eighth grade.

Assouline and Lupkowski-Shoplik (2005, as cited in Speilhagen, 2006) note the sequential nature of math courses requires eighth graders to enroll in Algebra I if students want to engage in more rigorous college preparatory classes in high school. This supports previous evidence Burton (1989, as cited in Useem, 1992) found linking students who take high school calculus having success in college calculus which is a required class for more than half of the majors on campus. This further reinforces Trusty and Niles' (2003) previously mentioned connection between students completing one class beyond Algebra II in high school and college degree completion. Speilhagen (2006) extrapolates that although not every student is prepared for eighth-grade Algebra I, taking this course in ninth grade and doubling up on math classes in 10th grade could still provide students opportunity, triggering what Tyson and Roksa (2016) called "tight course trajectories" (p. 125). While doubling up is an option, early notification of a possible change in math course placement could be a second viable option.

Specifically, in Cartler Middle School, there is an earlier jump students who are not on pace to enroll in eighth-grade Algebra I can make based upon their sixth-grade math achievement. Figure 1 in Chapter 1 demonstrates the math course trajectory for Cartler Middle School. The dotted arrow from sixth grade regular math to seventh grade honors math demonstrates this change in math placement, which would enable students not originally on track to enroll in eighth-grade Algebra I to do so. I agree with Speilhagen (2006) that every student might not be ready for this course in their culminating year of middle school, but there is an

opportunity, in this setting, to prepare students earlier, so that they will not have to double up in high school. Smith (1996) offered that "it is important to consider early access to Algebra as a point where early disadvantage in educational opportunities might be addressed" (p. 149). The research fails to consider students' ability to identify the absence of equity in access to math classes nor include them as key partners in designing strategies to investigate how math placement impacts their college-going self-efficacy.

Self-Efficacy in Academia

Self-efficacy is a construct that can be applied to various areas of life. When specifically referencing achievement and progress in school, the four sources of Bandura's (1997) self-efficacy theory can be applied (Usher, 2009; Usher & Parajes, 2006, 2008). Bandura (1997) suggested mastery experience was the most influential factor in how one view's themselves and their abilities to accomplish desired outcomes. Beliefs are powerful tools through which people filter their experiences and performances. Growing a beliefs system requires completing tasks that might not initially be accomplished at a mastery level. Through modeling or observing the behavior of others, vicarious experience—the second influential factor, people can strengthen their self-efficacy. This is true in academia. A student is said to exhibit mastery of a concept when they have achieved all levels of proficiency and fully comprehend and apply it. Parajes (1996) indicated that existing research demonstrates a correlation between self-efficacy beliefs and other individualized beliefs such as academic choices, achievement and motivation. While this depends largely on the methodology and effects sizes of each study, it is agreed that one's beliefs in their academic abilities influences their achievement. In an experimental study on students' ability to self-monitor their subtraction skills (various types of subtraction), Schunk (1983) discovered 8- and 9-year-old children exhibited higher self-efficacy and self-monitoring

capabilities than students not exposed to the treatment. Although elementary students are outside the scope of this study, Schunk (1983) demonstrated students' ability to self-assess, motivate themselves, and increase their math achievement. Schunk (1983) discovered that when engaged in self-regulating behavior, students increased their self-efficacy. Collins (1982) also reported that students with high self-efficacy, regardless of math level, correctly completed more problems and corrected more of the problems they initially solved incorrectly. Admittedly, Schunk's (1983) work falls short in connecting his findings to the middle school level and students' readiness for college preparatory prerequisites. However, it signals a possible opportunity for educators to positively influence students' self-efficacy prior to middle school.

Math Self-Efficacy

Teachers and school personnel are representatives of the environmental factors displayed in Bandura's (1997) Model of Reciprocal Determinism displayed in the Chapter 1 (see Figure 2). Dougherty et al. (2017) discussed the negative impact of the "Algebra for All 8th graders" movement detailing students who were not mathematically prepared became discouraged and often did not continue in advanced coursework in high school. Their self-efficacy in mathematics was negatively affected because of a policy change to address a seemingly urgent national concern. Student participants in studies conducted by Chambers et al. (2016) and J. Williams et al. (2016) indicated their math self-efficacy was greatly influenced by their teachers and school counselors. They would often shut down when the teacher did not allow them to ask questions and would disengage when inquiries to implement culturally relevant pedagogy strategies were met with teachers' perceptions of poor behavior on the part of the student. Students felt school counselors did not give them a chance to excel mathematically by failing to place them in higher level courses, despite believing in their own ability to achieve (J. Williams et al., 2016). A

student interviewed in J. Williams et al.'s (2016) phenomenological study suggested that school counselors can

> do a better job of recognizing poor students who have potential for honors class, even if the student hasn't quite met the requirements. I feel like I get passed up a lot because I live on the wrong side of the tracks, per se. (p. 159)

This illustration brings to light the issue of math placement, students' self-efficacy, and the importance of acquiring students' perspectives regarding their course selection. Students' inability to participate in the process of their own mathematical attainment, contributed to lower self-efficacy.

Usher (2009) interviewed eighth graders, their math teachers, and their parents, but the research offered little investigation of entering middle school students and inquires on their self-efficacy. However, social persuasions from parents and teachers played a large role in students' beliefs in their mathematical abilities. These social persuasions or messages received from external sources allowed students to believe in their abilities even during challenging times, bolstering their self-efficacy. Usher and Pajares (2006) offered that "these beliefs in turn helped students maintain the effort and perseverance needed to compensate for their low academic ability or to maximize the fruits of the high ability they already possessed" (p. 8). Coupling these results with the importance mathematics plays in students' college readiness, creates a window to investigate students' college-going self-efficacy at the beginning of their middle school careers—an area that is not frequently reflected in the literature.

College-Going Self-Efficacy

The construct of college-going self-efficacy is not a well-researched topic because it is fairly new and falls second to concepts such as career self-efficacy. Many careers require a

college degree or some postsecondary credentials. The U.S. Bureau of Labor Statistics projects that there will be 17 million job openings annually between 2019 and 2029 in careers such as business, technology, the arts, social and legal services, and healthcare (Torpey, 2020). Approximately 6.25 million of those job openings require a high school diploma or no formal education at all. The remaining estimated 10.75 million jobs require some college education or more, emphasizing a national need for an educated workforce. While the literature's focus on career self-efficacy is warranted, there is an equal need to study a students' college-going self-efficacy. Their beliefs about their abilities to obtain a college education, must be explored in order to assess and prepare students for the careers they desire to pursue.

A search of peer reviewed journals and databases (e.g., ERIC, Education Research Complete) produced few articles or studies on college-going self-efficacy for middle school students. A common thread between the four dissertations found in this search is the use of the CGSES designed by Gibbons (2005). The data collection tools that were previously available focused on high school and college students, despite the call to expand research on college going processes for middle school students (Maitre, 2014; Radcliffe & Bos, 2013; Schaefer & Rivera, 2014; J. Scott personal communication, 2019; Smith, 1996). The participants in each study range from rural to urban students, fifth graders (in an elementary school), seventh or eighth graders or a combination of both, and first-generation college middle schoolers (Gibbons, 2005; Jensen, 2013; Mitchell, 2017; O'Donnell, 2020). Others combined college-going self-efficacy with career self-efficacy in their studies (Glessner et al., 2017). None of these studies are action research, consider the role mathematics plays in college readiness and math course placement, nor do they include students at the beginning of middle school (sixth grade).

Students are aware of their placement in various math classes in comparison to their peers. Merton's (1988) work on the "Matthew's effect" comparably implies that a lack of a positive reputation (not being in an honors or advanced class) could contribute to low esteem and negative belief in one's abilities perpetuating individual and institutional inequalities. The opposite is also true—a student with a positive reputation might have a more constructive viewpoint of their abilities, furthering their work and participating in a system that yields more advantages and opportunities. The stigma and low esteem connected to lower-level math courses, given how pivotal math is to college readiness, merits an investigation into students' college-going self-efficacy. When creating a measure to assess middle school students' beliefs in their ability to attend and persist in college, Gibbons (2005) focused specifically on prospective first-generation college students in the seventh grade. With a data collection tool, educators and researchers can investigate students' perspectives and, if needed, design resources and programming for their students.

Summary

Absent in the literature is a localized effort to examine middle school students' college-going self-efficacy perspectives at the various math levels offered. While several studies examine middle and high school students, an action research study investigating students at the beginning of middle school is lacking. The role of math warrants an exploration into early factors that affect student's collegiate opportunities. This study's participants may be able to provide suggestions for resources and programming to better prepare them before they enroll in high school credit bearing classes with implications for postsecondary work.

CHAPTER 3

Methods

The purpose of this action research study was to examine the college-going self-efficacy perspectives of sixth-grade students at Cartler Middle School. Specifically, I aimed to determine students' viewpoints before and after participating in an online college-going curriculum and college visit. Using Gibbons' (2005) College-Going Self-Efficacy Scale (CGSES), specifically designed for middle school students, this study aimed to contribute to the literature by highlighting an area of college preparatory practices that are often overlooked and a population of students who historically are belatedly introduced to postsecondary options (Halvorsen et al., 2013). Further, in a state that mandates middle school career exploration but not explicitly college exploration, this research could contribute to the support needed to push for expanded legislative requirements for middle school programs. This chapter will provide information about the research design, data collection procedures, statistical analysis, and the research questions, all fashioned through the lens of constructivism.

Constructivist research relies "on the participants' views of the situation being studied" which leads to an understanding of the historical and cultural settings that influence their perspectives and experiences (Creswell & Creswell, 2018, p. 8). The research questions are designed to gather students' outlooks on their own college-going self-efficacy prior to and after participation in the intervention. This insight and knowledge may help better understand their views of their postsecondary pursuits and what Cartler Middle, and possibly the local school district, can do to create an environment that has targeted supports for middle school students to

explore college entry. I used the data collection tool to understand what behavioral (college knowledge, academic planning, study skills) and environmental factors (familial and social supports) affect a student's college-going self-efficacy. Although the constructivist paradigm invokes primarily a qualitative research design, I chose a quantitative approach to gather information in this first cycle of action research. The illumination of an early access point to academic advancement can be vital for the success of diverse and underserved populations. The results can be generational. Such an undertaking requires participant's voices to be heard and action taken to address any inequities, laying the groundwork for students to be empowered in their decision-making. A starting point is to go to the source—ask students about their college-going self-efficacy and then formulate a plan to best meet their needs.

Rationale for Choosing Action Research

Using action research to design this study allowed for a tangible, grass-roots approach to solving problems for those who the problem affects the most. Anderson (2002), Mertler (2017), and Metz and Page (2002), discussed the generalizations made across school districts based on abstract research findings that take little consideration into the "local variations" that make schools different and therefore require varied approaches to solve problems. Secondly, the continuous evaluation of the solutions implemented allows the opportunity for educators to revise strategies, determining effectiveness while providing the ability to move in a different direction should the data indicate such a move be made (McMillan, 2004). Further, action research aligned with the research design of this study which permitted participant's voices to play a role in creating solutions for problems that affect them.

Description of the Action Research Intervention

There are two components of this intervention. Student participants first completed 12 online modules in a college-going curriculum called Naviance. Students were given access to the modules through Google Classroom—an online platform that all students and teachers in the district already used to disseminate and turn in assignments. A new Google Classroom page was setup for student participants who have agreed to participate (with parental approval). It is here that students had access to the pre and posttest, and the links to complete the modules in Naviance. Pertinent information and reminders were also sent through this website. Using the features already built-in to the Google Classroom page, I monitored student progress and identified how many modules they have completed throughout this study. If students had not completed at least half of the modules by the midway point of this study, consideration was given to remove them from the study. The selected modules in Naviance used in this study were designed to help prepare students in the sixth through twelfth grades for post-secondary life. The research-based College, Career and Life Readiness Framework incorporated content from four main areas—college choice, social-emotional learning, academic readiness, and career readiness. These fields were chosen after the authors of the College, Career and Life Readiness Framework consulted 31 states' individualized learning plans, requirements from the federal Every Student Succeeds Act (ESSA), more than 30 peer-reviewed studies, and three national models sponsored by the American Association of School Administrators, the Collaborative for Academic, Social and Emotional Learning, and the American School Counselor Association. From these areas, six core competencies—social-emotional learning, interpersonal skills, academic skills, career knowledge, college knowledge, transition skills—ground the objectives, key themes and activities that students interact with at each grade level. The College, Career and Life Readiness

Framework focuses on “the “strategic why” of driving student outcomes and community engagement rather than the “how”” (PowerSchool, 2021, p. 3). This is crucial to this investigation because it might help identify the reasons behind students’ college-going self-efficacy and provide insight into what students need to be prepared for college. Differing per grade level, these online activities provided age-specific goals for students, measured the completion rate of each activity, and offered best practices for working with students.

Naviance was previously purchased by Cartler City Schools and is used sparingly at the middle school level. Currently, students in the district complete one module during their sixth-grade year, totaling to three during their entire middle school career (one per grade level). The completion of 12 modules in a single school year is a departure from the norm and an increase in the usage of Naviance. The curriculum in Naviance is used in earnest at the high school level. This postpones college planning for students until they are already in high school. Multiple studies have indicated, students know what paths they want to pursue between the eighth and tenth grades (Gibbons & Borders, 2010; Hossler et al., 1999). Having the prerequisite coursework to enter and complete college preparatory classes is some of the information students need to have so they can be better prepared for their future (Glessner et al., 2017). Using a tool, the district has already paid for in a more expansive fashion may help provide a brief snapshot into what students believe about their college-going abilities and could provide insight on what students need to bridge the gap between sixth grade (middle school entry) and eighth grade (middle school exit/high school and post-secondary planning). Moreover, with state mandates that focus on career readiness for middle school students, the college-going curriculum in Naviance often goes overlooked and is under-utilized.

College Visit Objectives

The final component of this intervention is a college visit that enabled middle school students to tour and gain a brief snapshot of campus life. In a few of the studies involving middle school students, the intervention frequently included the completion of age-appropriate college-going activities (in-person or online) which were paired with a campus visit (Glessner, 2016; O'Donnell, 2020; L.B. Williams, 2014). The purpose of the college visit was to provide students with a real-world introduction to the collegiate environment, and to gain information about college entry processes such as admissions. Students garnered first-hand knowledge from current university students on the transition from high school to college and navigating college life. Table 1 provides a schedule of potential activities students will partake in and how they align with the aforementioned objectives for the visit. I communicated the goals and agenda of this visit to both college staff and middle school chaperones.

Table 1

College Visit Agenda and Objectives

Time	Campus Activities/Events	Objectives
8:45 a.m.	Arrive on Campus	
9:00 a.m.	Welcome	
9:15 a.m.	What is College? College Admissions & Financial Aid	Introduce college & how to finance college
10:15 a.m.	Prepare to visit a college class	
10:30 a.m.	Visit a college class	Experience college coursework; length & schedule of classes
11:45 a.m.	Lunch *(with college students)*	Get to know college students, listen and observe their lived experiences
12:30 p.m.	Begin Campus Tour	Witness how college operates; routines; time management
1:45 p.m.	Conversation with Professors & Students	Learn more about college, what students can do as middle schoolers to prepare for undergraduate work
3:00 p.m.	Depart for Cartler Middle School	
3:15 p.m.	Debrief *(students complete the posttest)*	

Students were transported using school buses, arriving on campus at approximately 8:45 a.m. and departing at 3:00 p.m. to return to Cartler Middle School with enough time to debrief and ensure students do not miss their transportation home at the end of the day. One college visit will take place as a part of the intervention. This is due to time constraints in the daily schedule at Cartler Middle School and to lessen the interruption of the regular school schedule. Further, this college visit will not be all-inclusive and provide a comprehensive overview of the realities of college life. This opportunity was designed to introduce middle schoolers to the expectations, benefits, and requirements of college life.

Action Research Questions

For this study, a specific focus on sixth-grade students' college-going self-efficacy was maintained. The research questions are as follows:

1. What is the impact of a college-going curriculum and college visit on sixth-grade students' college-going self-efficacy perspectives?
2. What are the pretest and posttest results of the CGSES for students in Regular sixth-grade math?
3. What are the pretest and posttest results of the CGSES for students in Honors sixth-grade math?
4. What are the pretest and posttest results of the CGSES for students in Advanced sixth-grade math?

Role of the Researcher

As the author of this study, I also serve as a math teacher at Carlter Middle School and the chair of the math department. I am not teaching sixth-grade students during this current school year and I have no influence on students' grades or prospective participation. I will serve in the role of observer as participant during this study. I oversaw the administrative process ensuring that teachers and students have access to the required materials and the campus visit is organized and implemented. I attended the college visit serving as a chaperone. Placement of sixth-grade students in their respective math classes is a process that is completed by the school counselors and administrators based upon student achievement data from the fourth and fifth grades. Middle school teachers, including myself, do not have input on placement for incoming first-year middle schoolers. I will obtain consent from all participants prior to engaging in the data collection process. Parent permission for all student participants was acquired and

assurances provided that student's grades will not be affected by their participation, or lack thereof, and all data provided will be secured.

Participants

The participants of this study were sixth-grade students at Cartler Middle School. This school was chosen because I investigated the school where I work first, before possibly expanding to other middle schools within the district. I used a single-stage, convenience sample as I am accessing data from students in my building. First-year middle schoolers were selected because students not already on the Honors or Advanced pathways (see Figure 1 in Chapter 1) may have the opportunity to join one of these courses. This change in math placement, from Regular to Honors, for example, can occur when certain benchmarks are met. The converse is also true. Students at Cartler are not moved to different levels of math after their first year. If so, it is very rare. When designing their course of study for high school, eighth or ninth graders may be unable to enroll in college preparatory classes because of unmet prerequisites. Investigating sixth-grade students' college-going perspectives could have implications for both elementary school educators (what can be done to prepare students for entry into college gateway courses) and middle school educators (what can be done to advance students' proficiency and mastery of the content of college gateway courses).

Data Sources

CGSES

The CGSES was created by Melinda Gibbons in 2005 as a data collection tool for her research. Gibbons focused specifically on seventh grade first-generation students in four middle schools in a North Carolina school district. Similarly, she chose students who had not selected their high school classes. Gibbons (2005) explained that "the high school registration process

may bias the results [of the study] because it encourages thought about career and college planning" (p. 66). Further, she chose schools that had high numbers of diverse students and students from low socioeconomic status. Two groups were established in her study—first-generation students and students who were not first-generation. This was done to compare their results on perceived barriers to students' postsecondary academic pursuits. According to Gibbons (2005), the CGSES was designed because, to date, a data collection tool assessing middle school students' college-going self-efficacy before they arrived on campus did not exist. Secondly, the literature lacked a tool to assess middle school students specifically, and many of the surveys focused on a student's career self-efficacy and not their college-going self-efficacy, which did not align with Gibbons' research nor does it align with this study. The CGSES has two sections focusing on attendance and persistence. These underlying themes were found in Gibbons' study to be "related yet unique" integral areas to investigate amongst the desired population (p. 68). Before disseminating the survey, Gibbons sought feedback from two counselors with experience working in self-efficacy surveys and with children. Gibbons had two goals in seeking her peers' review. The first was to ensure that each item on the survey was task-specific and second, to ensure that they were age-appropriate. The first section of the survey, attendance, addresses students' beliefs in their ability to complete the necessary preliminary requirements to gain college admittance. The sixteen items in this section cover subtopics addressing finances, ability, family, and decision-making. One of the ability questions specifically asks participants whether they think they can get good grades in their high school math classes and another states "I can go to college after high school" (Gibbons, 2005). Students respond on a four-point Likert Scale that ranges from "not sure at all" to "very sure."

The subtopics in the persistence section of the CGSES focus on the skills students need once enrolled in college. Statements such as “I could pay for each year of college,” or “I could do the classwork and homework assignments in college classes,” or “I could fit in at college” comprise part of the fifteen items in this final segment of the survey (Gibbons, 2005). Attendance, persistence and their corresponding subtopics are common themes which the creators of Naviance, a component of the intervention for this study, found in their research on college choice, student success, and academic readiness (PowerSchool, 2021). Decision-making, college fit, preparing for college, study skills, financial and digital literacy, and goal setting are just a few of the similarities that exist between the intervention and the data collection tool. Moreover, the subtopics connect to Bandura’s Model of Reciprocal Determinism in that they serve as examples of the behavioral (decision-making, academic planning), cognitive and personal (study skills, managing friendships and familial responsibilities), and environmental (college choice) factors that create the model. These shared commonalities align with the overall purpose of this study which sought to understand the college-going self-efficacy perspectives of sixth-grade students.

The CGSES was pilot tested with a group of 22 middle schoolers who were members of the Boy Scouts and Girl Scouts. Gibbons (2005) conducted the pilot study to “investigate the readability and reliability of the instruments designed for this study” (p. 78). To determine the reliability of the survey, Cronbach’s alpha was reported for the attendance (0.81) and persistence (0.92) sections, as well as the overall scale (0.92). This confirmed that the survey maintained an optimum level of internal consistency for continued use in studies outside of the original. Furthermore, the student participants indicated that the survey’s directions and questions were clear solidifying its ease of use.

Focus Groups

Although this study is based in quantitative methodologies, the facilitation of two focus groups of six to ten students each, was used to enhance the data collected from the CGSES. The first group consisted of students demonstrating the lowest change from their pretest to their posttest scores. The second group included students exhibiting the highest change from their pretest to posttest scores. The focus groups allowed students' voices to enrich the quantitative analysis and brought more depth and insight on students' pre and post college-going self-efficacy perspectives and the significance of both parts of the intervention. Focus groups were chosen over interviews for time and feasibility reasons in relation to the study's completion. Further, students might feel more comfortable in a group setting versus an individual setting where the attention is primarily on them. According to Mertler (2017), using focus groups as a data collection tool might help participants provide more information than they would singularly, because they are able to expand upon the responses of their peers. If not facilitated appropriately, students' input can get lost in the conversation by the responses of students who dominate the conversation. As the facilitator of the focus groups, I ensured equitable opportunities for all students to contribute to the conversation.

Data Collection

This quantitative study involved sixth-grade students at one middle school in Cartler City Schools. A quantitative approach better served this study more than a qualitative given the nature of the data instrument. Creswell and Creswell (2018) specified that a survey design gives a quantitative description of "trends, attitudes, and opinions of a population, or tests for associations among variables of a population by studying a sample of that population" (p. 147). I sought to obtain participants' opinions of their college-going self-efficacy prior to and after the

implementation of the aforementioned intervention. A quantitative design permitted subsets of sixth graders' perspectives organized by math level, to be compared answering the second, third and fourth research questions of this study. All sixth-grade students will receive the invitation to participate in this study in their homeroom classes (first class of the day). I provided a brief overview of the purpose and goals of the study and delivered the consent forms and letter introducing the study to students to take home to their parents. Students were reminded to submit their consent forms by the given deadline. O'Donnell (2020) conducted a similar study using Naviance and a college visit as the intervention, along with the CGSES as the pretest and posttest. The school in her study had an advisory period built-in to the school day. This is not the case at Cartler Middle School. All components of this study were facilitated through homeroom classes. An email reminder to turn in completed consent forms was sent to sixth-grade students and parents 1 week after the initial introduction of the study. Students who had not turned in consent forms after 2 weeks received a phone call, with a final email reminder sent at the 3rd week. Teachers kept a message posted in their rooms reminding students to turn in their consent forms.

The CGSES was digitized and distributed to students online. An online classroom was setup for consenting participants through Google Classroom. This provided a platform to post reminders to students, assign modules in Naviance, and distribute the links to the pretest and posttest, and information about the campus visit. The CGSES data was collected through Qualtrics. Homeroom teachers facilitated students completing the selected modules in Naviance over a 3-week time period. Teachers were asked to facilitate students' completion of the Naviance module in a grade level meeting. Teachers who agreed to participate were asked to complete the informed consent form. Then, I met with all consenting teachers to present them

with the details and information for conducting this research study. They received an overall summary of this project including the purpose of this study (the "why"), the research questions, and information on college-going self-efficacy. Consenting teachers were also shown the CGSES and were given a copy of the student and parent permission forms as they were tasked with collecting them from students and forwarding them to me. Teachers were given the lesson materials to accompany each module and had an opportunity to look through the material and ask questions. O'Donnell (2020) met with the teachers in her study every Monday morning before school to provided them with the lesson materials. Due to teacher logistical and travel concerns, this was not duplicated in my study because many of the sixth-grade teachers travel a significant distance to our school building. Teachers were given the lesson materials all at once and I conducted periodic checks after the modules were completed.

I chose the modules with consultation from the sixth-grade school counselor and the sixth-grade administrator. There are over 100 modules available in the college-going curriculum in Naviance, serving students from the 6th to the 12th grade. Only 12 modules were selected for use in this study, and they address students' self-efficacy and academic planning. Academic planning was included so that students could begin to discover their learning preferences, good study habits, and how to overcome academic challenges. Table 2 indicates which of the 12 modules in Naviance link to the research questions of this study. It also provided the items on the CGSES for both the college attendance and college persistence sections that correspond to each research question. Appendix B provides the enumerated list of the 12 modules used in this research study along with their titles. Student participants in O'Donnell's (2020) study completed 20 modules. The eight modules that were not included in this study fell under career planning and finances which is outside the scope of this study. All but one module will take

approximately 15–20 minutes to complete with the module on *"College Myths"* totaling 10–15 minutes. Comparable to O'Donnell's (2020) study, the lesson materials given to teachers will include discussion prompts to provide teachers with supports to facilitate an introduction or closing to the module. The modules are self-paced, and students can accomplish them independent of the teachers. This allowed students who are absent to complete the modules on their own if necessary. This study did not take place during any other college events or initiatives at Cartler Middle School. This helped avoid school-based external influence on student participants during the study.

Table 2

Aligning Research Questions, CGSES, and Naviance Modules

Research Question	CGSES Items	Naviance Modules
1) What is the impact of a college-going curriculum and college visit on sixth-grade students' college-going self-efficacy perspectives?	Attendance: 1–14 Persistence: 1–16	1, 3, 6–9
2) What are the pretest and posttest results of the CGSES for students in Regular sixth-grade math?	Attendance: 1–4, 6, 8,10, 12, 14 Persistence: 2, 6, 7, 9, 11–16	2, 4, 5, 10–12
3) What are the pretest and posttest results of the CGSES for students in Honors sixth-grade math?	Attendance: 1–4, 6, 8,10, 12, 14 Persistence: 2, 6, 7, 9, 11–16	2, 4, 5, 10–12
4) What are the pretest and posttest results of the CGSES for students in Advanced sixth-grade math?	Attendance: 1–4, 6, 8,10, 12, 14 Persistence: 2, 6, 7, 9, 11–16	2, 4, 5, 10–12

Note. All 12 modules were used in this study. The College-Going Self-Efficacy Scale (CGSES) was created by Melinda Gibbons (2005). It is the survey used in this study.

The semi-structured focus groups used open-ended questions to support students' opportunities to elaborate on their experiences and perspectives while conversating with one another. Five open-ended questions were posed throughout the session:

1. What did you think of the Naviance modules?
2. Which module did you find the most interesting and why?
3. Was there anything that surprised you on the college visit? If so, please tell me about it.
4. What did you like most about the visit? Least? Tell me why you made these choices.
5. Did anything about this experience make you think differently about college? If so, what and how did it change your thinking?

Given students' responses, I interjected with a follow-up or clarifying question, but the objective of both sessions was to give students space and time to inform the quantitative data with their viewpoints.

One hour was the allotted time for each session. I used a digital recorder to provide an audio recording of each group. As students were talking, I took notes on how they interacted with each other in addition to their responses to the aforementioned prompts. Students' names were changed to protect their privacy. As I recorded their responses, I placed them into themes or categories that I previously created using a priori coding to help organize their input. Once the sessions were completed, I scanned through my written notes and audio recordings to identify any other emergent themes that arose from the focus groups (Saldaña, 2016). I simultaneously applied in vivo coding to add participants' language to the qualitative data points and illustrated their viewpoints more pointedly.

Data Analysis

The research design for this study was a One-Group Pretest-Posttest Descriptive Design. This pre-experimental design aligns with action research as it allows the teacher-researcher to know if a change has taken place from before and after the intervention (Mertler, 2017). No control group is required because this type of research is preliminary (Creswell & Creswell, 2018; Mertler, 2017). More specifically, a One-Group Pretest-Posttest Descriptive Design provides the structure for this particular study to be a fact-finding mission to determine the realities of the students being served in order to devise programming to better meet their self-reported needs.

The data collected from the CGSES using Qualtrics were analyzed using the IBM Statistical Package for the Social Sciences (SPSS). First, measures of central tendency were determined in addition to the standard deviation to provide descriptive analysis. Second, I calculated a frequency count of the responses in each subsection of the CGSES noting the percentages to provide an overview of students' perspectives in both the pretest and the posttest. This frequency count also included the percentages of responses among the students disaggregated by the three math levels in both tests highlighting any differences in their college-going self-efficacy perspectives. This was done in an attempt to fully illuminate students' viewpoints and answer the research questions listed. Finally, the difference of the means for each subsection—attendance and persistence—and the overall difference of the means was calculated between the pretest and posttest using a repeated measures t-test. An item analysis was also conducted comparing the mean difference for each survey question within the attendance and persistence subsections for each group of students organized by math level. Further, to determine

if the difference of the means is statistically significant, a comparison of the p-value and the alpha level at 0.05 took place.

After the post test results are obtained, a part of the analysis was to consider next steps. The intervention may or may not increase students' college-going self-efficacy. Investigating the amount of growth, if any, in the college-going self-efficacy perspectives for students in each math pathway will help determine if the intervention played a role. This required a repeated-measures ANOVA statistical test. The CGSES served as the repeated measure given twice to students—before and after the intervention. The two factors of the ANOVA are math pathway (Regular, Honors, or Advanced) and time (pretest and posttest). Math pathways are a grouping factor where students are not randomly assigned so the interpretation of the results could differ and cannot be generalized across all students in this study. Students in the Honors or Advanced math classes might not experience large amounts of growth because they are already interested in college. In the same manner, students in Regular math might have low pretest results such that they are going to experience the largest amount of growth because they initially had low college-going self-efficacy perspectives. The repeated-measures ANOVA helped to identify where the biggest change is between and amongst the groups of students and if there is any statistical significance.

The combination of the two factors, time and math pathway, resulted in an Interaction Test. This type of analysis explores a "synergistic relationship between two or more variables that explains something that none of the variables can explain alone" (Berkman & Reise, 2012, p. 101). For this study, I investigated whether the groups of students, organized by math level, experienced change at the same rate. Along with my colleagues, the results of this study will help

us produce programmatic changes at Cartler Middle School aimed to best serve the needs of our students.

Focus groups added a qualitative approach to deepening the understanding of the numerical responses, possibly identifying contributing factors to students' perspectives on the college-going process. I took the data from the CGSES and assigned themes to data outcomes. If the results conclude in themes being repeated in both the CGSES and the focus group data, this indicated students' emphasis on that data point. The CGSES is divided into two sections—attendance and persistence. I specifically assessed the focus group data for themes that align with either of these areas to enhance students' perspectives on the college-going process. The themes within the Naviance modules also coincided with the CGSES and identifying commonalities between the CGSES, Naviance and the focus group data reinforced what students found to be important in this study. Noteworthy, are the themes that do not align as they provided more insight to students' beliefs and understandings that are unaccounted for by myself and possibly other educators. This helped to reinforce what students found to be important statistically. Students' responses given in the focus groups can inform subsequent cycles in this action research study and be used to create changes and initiatives at Cartler Middle School to meet the needs of students. Moreover, these identified areas may play an influential role in the policy changes to meet the school district's current focus on redesigning middle schools.

Assumptions, Delimitations, and Limitations

Assumptions

I made the following assumptions in conducting this action research study:

- Not all students may have the desire to pursue a college degree after high school; some students may choose to enter the military or workforce

- Having the knowledge and exposure to collegiate pathways early may help students who do not go to college right after high school in the long-term, if they decide to enroll in college at a later point in their life
- Students know what college is and what purpose it serves; the CGSES asks for students to identify their college-going self-efficacy perspectives under this assumption
- Students will express some interest in collegiate work after high school
- The intervention – the college-going curriculum in Naviance paired with a college visit – will be an influential factor on students' college-going self-efficacy; students' perspectives on the college-going process may be impacted by other factors unknown
- Students have been properly assigned to their math pathways upon entering middle school.

Delimitations

A quantitative methodology was chosen for feasibility. I chose action research because of my desire to investigate a common trend I witnessed in the school where I work—students were interested in pursuing college degrees but did not have the prerequisite math classes to enroll in high school college preparatory courses. This was due in large part because of their math placement and the academic planning process which began during the final semester of their last year in middle school. While I knew this information, I needed a way to investigate it on a continuous basis to understand truly, the root of the issue. Action research provides the opportunity for me to study a population of students that are convenient in access, and I can apply the knowledge gained to help students and their families prepare for college which is ultimately my goal. Additionally, math self-efficacy is a factor to consider given the importance

of math in accessing college preparatory classes. It is not a concept that I explored in-depth or specifically in this study.

Naviance has several modules for middle school and high school students. Due to the time constraints of this study, not all available modules were able to be used as a part of the intervention. Additionally, the degree of fidelity of implementation in each homeroom class poses a delimitation as not every homeroom teacher ensured student participants completed their modules during the agreed upon time. Although they consented to participate in this study and facilitate the modules, some sixth-grade teachers simply did not do so causing some students to not have the same opportunities as their peers. This division lowered the number of consenting participants who completed all of the study's components and subsequently were unable to be included in the data analysis. A further delimitation is this study's focus on sixth graders and not other middle schoolers – seventh and eighth grade students. This study focused on sixth-grade students intentionally because of the norms of math placement at Cartler Middle School. Once a student completes their sixth-grade year, and has received their math placement for seventh grade, they are not moved to a different math pathway (see Figure 1 in Chapter 1). I thought it crucial to investigate students during their sixth-grade year because they were first-year middle schoolers and the opportunity to change math pathways is present. However, seventh or eighth grade students' maturation and use of the college-going curriculum in Naviance along with their math placement may be assumed to have an effect.

The number of students in the Advanced level math group is a delimitation for this study. Sixth-grade students in Advanced math are in essence taking eighth grade math, so they are 2 years ahead of their peers, mathematically. Historically, at Cartler Middle School, there is only one section of Advanced math students in the sixth grade which is comprised of fewer than 30

students. While a count of 30 or more in each group of participants is generally accepted to determine statistical significance, analysis for this group will be noteworthy and reflected upon in subsequent chapters.

Limitations

Students might be involved in organizations or participate in familial experiences outside of school that I cannot manage or account for. While conducting the posttest after the intervention might indicate some change in students' college-going self-efficacy, other explanations for that change cannot be identified or their existence known. Subsequently, no group comparison can be made because of the nature of this pre-experimental design which excludes a control group, and cause-and-effect relationships cannot be identified (Mertler, 2017). While the collected data is not generalizable because of the nature of action research, it is one of my goals to use this data and this study to help expand the policy, planning and leadership initiatives in my district to focus on college-going for middle school students.

Ethical Considerations

I recognize that I am the math department chair and a member of the school's leadership team. I have no evaluative responsibilities in either of these positions and cannot mandate teachers and students participate in this study, nor issue rewards or consequences associated with the school. Therefore, their refusal to participate will not reflect poorly on them in any way.

I acknowledge my biases related to the college-going process. I know that college immediately after high school is not the path for all students, but it is the path I hope students choose, albeit sometimes they are not prepared. As a public-school educator, I accept that reality and the failure that students are not always prepared for postsecondary coursework. I believe that no matter what path students choose after completing high school, having a college preparatory

experience may help them overall. Moreover, as a math teacher, I witness every year, students and their families not realizing the importance of middle school math in students' access to college preparatory courses in high school. There is a common misconception, in my experience, that a student's college application does not begin until high school—that the high school transcript is the most important. I challenge students, parents, and educators to think about the requirements for access to college preparatory classes in high school and how significant of a role mathematics plays in achieving entry. Illuminating pathways to college at the middle school level, instead of waiting until high school, is a driving force behind this research study.

All participants submitted their consent forms before the start of the intervention. I also obtained consent forms from students' parent or guardian. Students who decide not to participate will not be penalized in any way. The same is true for sixth grade teachers who will serve as facilitators of the online college-going curriculum and chaperones for the college tour. The data was collected honestly and interpreted without bias. The data is protected and accessed only by myself and my faculty committee members. Per district policy, the name Cartler City Schools is a pseudonym.

CHAPTER 4

Findings

This research study examined the college-going self-efficacy perspectives of sixth-grade students in three different math levels at Cartler Middle School. Under the frameworks of Bandura's Social Cognitive Theory (1986) and Self-Efficacy of Motivation (1997), I sought to determine students' viewpoints before and after the intervention—participating in an online college-going curriculum and college visit. The College-Going Self-Efficacy Scale (CGSES; see Appendix A) served as the pretest and posttest and was designed by Gibbons (2005) intentionally for middle school students. The CGSES was coupled with focus groups to function as the data collection tools. Four research questions guided this investigation.

1. What is the impact of a college-going curriculum and college visit on sixth-grade students' college-going self-efficacy perspectives?
2. What are the pretest and posttest results of the CGSES for students in Regular sixth-grade math?
3. What are the pretest and posttest results of the CGSES for students in Honors sixth-grade math?
4. What are the pretest and posttest results of the CGSES for students in Advanced sixth-grade math?

The CGSES is age-appropriate and task-specific, directly inquiring of students' actions related to college access and college persistence. The analysis of the data from this Likert scale instrument were conducted in IBM Statistical Package for the Social Sciences (SPSS). The goal

of the analyses was to ascertain whether or not there was an increase in students' college-going self-efficacy after the intervention, amongst students at three different levels of sixth-grade math instruction—regular, honors, and advanced (see Figure 1 in Chapter 1 for a description of each math level). The CGSES was distributed to students electronically using Google Classroom as the platform and the data was collected in Qualtrics. Two separate CGSES in Qualtrics were generated to separate the pretest and posttest data. The reliability coefficients for the subsections in both surveys were high yielding a strong level of internal consistency. Table 3 identifies the reported Cronbach's Alpha.

Table 3

Measure of Reliability for the CGSES

Section of CGSES	*N*	No. of Items	α
Pretest Attendance	90	14	.852
Pretest Persistence	90	16	.905
Posttest Attendance	90	14	.892
Posttest Persistence	90	16	.923

Note. The College-Going Self-Efficacy Scale (CGSES) was created by Melinda Gibbons (2005). It is the survey used in this study.

The data analysis provided measures of central tendency and standard deviation to garner a descriptive illustration of the students in the study. Once data was collected from both surveys, student data was paired to view students' pretest and posttest score. This pairing process included eliminating data from students who had not signed up for the study and duplicate data entries from consenting participants. Student data was identified by their student email address.

For students who did not enter this information correctly, their data had to be identified and properly labeled to pair their responses.

Google Classroom was used to disseminate important information and access to the College, Career and Life Readiness Framework in Naviance—the online college-going curriculum—to all student participants. A brief instructional guide (see Appendix C) on how to access the modules in Naviance was created. This document was presented to each homeroom class and sixth-grade teacher at the start of the data collection process. Additionally, it was uploaded to Google Classroom for students to reference throughout the study in case they were completing the modules outside of class and required a resource to answer their questions. The teachers received a copy via email.

The semi-structured focus groups were instituted to enhance the self-reported responses of the CGSES giving more depth and insight into students' perspectives. To complete the data collection process of this action research study, participants first completed the pretest, then they took part in the intervention (Naviance modules and college visit), which was followed by the submission of the posttest. Lastly, students participated in the focus groups. The focus groups took place during the school day at lunch time and students were provided with pizza, a snack and a drink. It was possible to hold these sessions during the day because of Cartler Middle School's adjusted schedule at the end of the marking period. The first focus group included nine students who demonstrated the lowest increase between the pretest and the posttest; the second group included the ten students who displayed the highest increase. Both focus groups included students at each level of math. Table 4 reflects the number of students in each focus group per math level.

Table 4

Focus Group Participants by Math Level

Math Level	Focus Group	
	1 (lowest increase)	2 (highest increase)
Regular	4	4
Honors	4	4
Advanced	1	2

Note. Ten students per group were invited to participate. The 10th student in Focus Group 1 (Regular Math) was unable to attend. Approximately 25% of the overall sixth grade is comprised of students in Honors Math. Students in Honors Math represented 40% of focus group participants. Students in Advanced Math represented about 15% of the total sixth-grade class. This mirrors the percentage of Advanced Math students in the focus groups.

After transcribing the data from the audio recording of each group, using a priori coding, student responses were classified along with emergent themes in my written notes and the audio recording. Additionally, students' own language was incorporated to further illuminate their perspectives. Five open-ended questions were presented to students in each group.

1. What did you think of the Naviance modules?
2. Which module did you find the most interesting and why?
3. Was there anything that surprised you on the college visit? if so, please tell me about it.
4. What did you like most about the visit? Tell me why you made these choices.
5. Did anything about this experience make you think differently about college? If so, what and how did it change your thinking?

The methodology originally planned for was amended slightly to accommodate organizational changes and a truncated schedule for student participants. The original timeframe designed for this study was shortened because access to the College, Career and Life Readiness Framework was not available until the spring. The original plan to complete the modules in 3

weeks was shortened to 2 weeks. In lieu of emailing and calling students and parents, I went to each sixth-grade homeroom classroom to remind students to submit their consent forms if they wanted to participate. Additionally, consideration was to be given to remove students who had not completed half of the modules midway through the allotted time. Due to the abbreviated schedule, students who were identified in this category, were given instructional time to complete the modules they were missing. The sixth-grade staff was accommodating in permitting this time.

The sixth-grade teachers, counselor, and I served as chaperones for the college visit as planned, but we also served as tour guides. The college, a 4-year institution, does not provide guides for middle school student tours. Permission to bring our students on campus was given, but an official tour was unavailable. Subsequent research resulted in an age-appropriate college scavenger hunt (Curls and Cursive, 2023) which students completed in lieu of an official campus tour. The scavenger hunt (see Appendix D) is aligned with the overall purpose of this study and provided a contemporary approach to engaging middle school students. The campus visit concluded with a brief informal conversation with current university students, who introduced themselves, identified why they chose to attend and persist in college, and then facilitated a question-and-answer session. A meeting was held with the chaperones before the tour and they were provided with an overview of the schedule for the campus visit, information about facilitating the scavenger hunt, and important locations on campus and facts about the college.

Regarding the analysis of the survey data, the original intent was to complete an item analysis for each question of the CGSES. A review of the author's research established that a factor analysis was conducted to guide approaches for analysis of the survey data. The factor analysis indicated that an individual item analysis did not yield improved results and, instead,

used a total score for determining students' college-going self-efficacy (Gibbons, 2005). I used this approach but I did not conduct an item analysis for this study. A collective score on the CGSES gives "an indication of strength of college-going self-efficacy beliefs" (Gibbons, 2005, p. 69). For this research study, students' collective score was utilized in the analysis of the data. The range of scores on the CGSES is 31–124. A high score indicates a students' strong sense of college-going self-efficacy perspectives (Gibbons, 2005). The findings of this study are discussed in this chapter by first describing the population of students who contributed and then by reporting the results of the statistical analyses for each research question.

Description of the Participants

The findings of this action research study included data from 90 sixth-grade students at Cartler Middle School. There are 195 total sixth-grade students, which yields a response rate of 46%. The composition of students by race and gender are represented in the Table 5 and Table 6 respectively. Seven of the 90 students are enrolled in the Special Education Program and have a functioning Individualized Education Program (IEP) or 504 Plan.

Table 5

Number and Percentage of Students by Race

Race	*f*	%
Black/African American	59	65.6
White	9	10.0
Hispanic/Latino	2	2.2
Multi-Racial	20	22.2
Total	90	100.0

Note. The population of students by race in this study is comparable to other non-participants in the sixth grade.

Table 6

Number and Percentage of Students by Gender

Gender	*f*	%
Female	49	54.4
Male	41	45.6
Total	90	100.0

Note. The ages of students referenced in this study are comparable to other non-participants in the sixth grade.

Most students in this study were 11–12 years old; three students were 13. Table 7 shows the number of students in each of the three levels of sixth-grade math. The sixth grade is comprised of 12 homeroom classes (groups of students). Seven of those classes contain students who are enrolled in Regular Math, three are students in Honors Math, and two consist of students in Advanced Math. This follows the trend of previous sixth-grade classes. The number of Advanced Math classes fluctuates between one or two sections from year to year.

Table 7

Number and Percentage of Students Per Math Level

Math Level	*f*	%
Regular	36	40.0
Honors	32	35.6
Advanced	22	24.4
Total	90	100.0

Results

First Action Research Question

What is the impact of a college-going curriculum and college visit on sixth-grade students' college-going self-efficacy perspectives?

The effects of the college-going curriculum and the college visit had mixed results between data from the CGSES survey data and the responses from students in the focus groups. The first section of the CGSES, college attendance, had a pretest mean of 3.11 out of 4 and a posttest mean of 3.17. The second section, college persistence, had a pretest mean of 3.20 and a posttest mean of 3.23. This information derived from the results of a paired samples t-test which was run to gauge students' college-going self-efficacy perspectives before and after the intervention. While the data is not statistically significant, these slight increases are reported to give awareness to students self-reporting as having a keener insight on their ability to attend and persist in college. Use of mean data obtained from a Likert scale is discouraged (Mertler, 2017), because of the design of some Likert Scales which include a *neutral* option. The CGSES does not offer such a possibility for students to report with *not at all sure*, *somewhat sure*, *sure*, and *very sure* serving as the scale's choices. However, the 4-point design of the CGSES does not provide a lot of room for growth and may prevent a wide variance from occurring. Table 8 displays the probability calculations from the paired *t*-test. The probability of any increase in students' college-going self-efficacy perspectives occurring due to the intervention was little to none. Any increase could have been due to chance.

Table 8

Paired Samples t-Test

Section of CGSES	95% CI of the Difference Lower	95% CI of the Difference Upper	*t*	*df*	One-Sided *p*	Two-Sided *p*
Pre Attendance - Post Attendance	-.13955	.02844	-.1314	89	.096	.192
Pre Attendance - Post Attendance	-.12593	.05232	-.821	89	.207	.414
Pre Total - Post Total	-.12423	.03311	-1.151	89	.126	.253

Note: The two-sided p value is higher than the set alpha level of .05. The College-Going Self-Efficacy Scale (CGSES) was created by Melinda Gibbons (2005). It is the survey used in this study.

Although the survey data yielded very little to no increase in students' college-going self-efficacy perspectives, students' own voices provide further insight into the impact of both the college-going curriculum in Naviance and the college visit. Most of the nine students in the first focus group—comprised of students who had the lowest increase in their CGSES score from the pretest to the posttest—thought that the modules in Naviance were "boring" or "pointless" as a few students indicated that they did not know what kind of answers to reply to the question prompts with because they believed there was "no reason for [the modules]." Both boys indicated some interest in the modules finding them "curious" and "relevant to the field trip" and they both summarized that it is too early to be thinking about college—a sentiment shared by five of their female counterparts. This was a running theme amongst all of the participants in the first group; the remaining two girls thought the modules *My Present vs. My Future* and *Getting Ready for College* challenged them to begin thinking about what they can do presently and in the near future to prepare for college, what they can change, and begin "studying for college."

The responses from students in the second group—comprised of ten students who had the highest increase in their college-going self-efficacy score from the pretest to the posttest—displayed a different perspective than students in the first group. Instead of the modules invoking viewpoints of sixth grade being too early to think about college, students in the second group embraced the prompts and activities. "It's kind of interesting because it expands my mind on my future, my future jobs, and how I'm going to prep for college and stuff," said one female student. Another female student enjoyed the modules because they were not too long, but she did express that they were hard and sometimes she did not know how to answer all of the prompts. Participants agreed that they enjoyed the variety of topics covered in the Naviance modules, and they liked learning things about college that they were not aware of such as applying to college. What made students the most uneasy were the questions about how they were going to pay for college. One student responded that she felt worried, while one of the four boys in this group proclaimed he did not like those questions because he plans on getting a scholarship. He was adamant that this was his only way to go to college and he knows he has to work hard to make that happen. Moreover, six of the ten students in the second focus group found certain modules interesting while this was true for only two of the nine students in the first focus group. In the second focus group, a male student noted that the *Self-confidence* module helped him "be brave about college." As a follow-up to his comment, students were asked, "is anyone else nervous about going to college?" All but one student confirmed their apprehension about going to college. The lone student responded by saying that she is looking forward to leaving her home and moving away from her parents. She already has a list of colleges she wants to apply to—all of them Historically Black Colleges & Universities (HBCUs) outside of Virginia. Eight of the ten students in the second focus group have been on a college campus.

In the first focus group, students indicated that the college visit changed their thinking about college. One student mentioned, “I would have to set certain standards for myself, save my money so I could pay for this.” Out of the nine students in this group, all but two students agreed with her. Students felt that while they knew they had to have good grades to get into college, they were surprised to learn about responsibilities such as setting up their own class schedules, dress code, the physical space on campus and the number of buildings. Students were very intrigued that not all of their classes were in one building. Traveling from one building to the next was a common “aha” moment. The general perspective of students in the first group was the amount of physical space between buildings on campus was a negative aspect of college. While they agreed that the campus was “big,” “wide,” and “welcoming” they felt that “the buildings could be closer together” and that college is “not like regular school.” Students began to brainstorm ways the college could help transport students in between buildings so they would not have to walk. In contrast, students in the second focus group, those who had the highest increase in their college-going self-efficacy score, embraced each building being different. One student stated that college has “different types of areas for different types of learning.” A male student who had been to multiple college campuses previously enjoyed the layout saying that he expected to see different buildings, but it was “neat to see how [campus] differed, but how they have the same things too.” Further, students in both groups were excited that there was a restaurant or café of some sort in most all of the major buildings on campus. This was a common attraction. Although the Naviance modules did not make an impact on students’ college-going self-efficacy perspectives, the college visit did have a stronger increase despite what the survey data produced.

Second Action Research Question

What are the pretest and posttest results of the CGSES for students in Regular sixth grade math?

CGSES

A repeated-measures ANOVA test was completed to assess the effect of an intervention over time on the college-going self-efficacy perspectives of sixth-grade students in Regular Math at Cartler Middle School. With 36 participants, this group indicated an initial moderately high level of belief in their ability to attend and persist in college. Using the College-Going Self-Efficacy Scale as both the pretest and posttest, the resulting descriptive data is listed in Table 9. The incremental amount of change in the mean confirms students' beliefs in their college-going abilities. Students in Regular Math are historically students who struggle with math the most and are the least likely to have a passing score on the annual state test throughout their academic career.

Table 9

Descriptive Data for Regular Math Students

CGSES	*N*	Range	Min.	Max	*M*	*SD*
Pretest	36	73	41	114	93.42	15.32
Posttest	36	62	58	120	94.31	17.34

Note. The College-Going Self-Efficacy Scale (CGSES) was created by Melinda Gibbons (2005). It is the survey used in this study. The range of the CGSES is 31–124.

Focus Groups

Students in Regular Math who participated in the focus groups voiced a variety of responses on their experiences with the intervention. Regular Math participants in Focus Group 1 had a lower posttest score than pretest score on the CGSES. The students in Regular Math in this group had an average decrease of 20.25 points. It should be noted that because Focus Group 1 had students with the lowest increase from their pretest to posttest, this included students' whose scores decreased, so their growth from pretest to posttest resulted in a negative number. The students in the first focus group did not view the modules in Naviance to be useful. They believed that the sixth grade was too early to be considering college and they were unsure of how to answer the questions in the modules. Only one student could recall a module that they found interesting. This differed from their peers in the second focus group who were also in Regular Math. Three out of four students found some of the modules most interesting reflecting that they were challenged to think about balancing their academics with their athletic and other extra-curricular pursuits and working hard to be prepared for college between now and 12th grade. Their experience with Naviance helped to address some of their anxiety about the prospect of becoming a college student.

Participants in Regular Math responded more favorably to the college visit than to the Naviance curriculum. Participants in both focus groups enjoyed the scenery of the campus and learning about college. They were surprised at the number of buildings and how all of their classes would not be in one building which differs greatly from how they have experienced school in a K-12 setting. The size of the campus also opened some eyes to the different types of organizations and extra-curricular activities. Students in Regular Math in Focus Group 1 expressed that their least favorable experiences were not being able to interact with current

college students, visiting a dorm, and the lack of students of color. Three of the eight students at this math level verbally mentioned that this was a concern they had, with their peers at other math levels nodding their heads in agreement. At the conclusion of the campus visit, students were able to speak with two current college students, in a panel discussion, who were both students of color and went to high school in neighboring school districts to Cartler City Schools. Regular Math participants in Focus Group 2 had also hoped for more contact with current college students; however, they were more gracious in understanding that it was a school day for college students, and they had to be quiet to respect the classes that were in progress. Students would have liked the opportunity to visit a resident hall on campus to see how college students live. This sentiment was followed up by a participant questioning the cost of living on campus and the cost of tuition. After hearing the facilitator's response, a different student replied, "I can't pay for that…it's too much money." This was substantiated by Regular Math students in Focus Group 2 as well. The questions in Naviance that asked about paying for college caused some internal angst in that students did not have an answer to the question. Their verbal and physical demeanor when discussing financing college indicated there was palpable concern or anxiety about this topic. One commonality students in Regular Math agreed upon in both focus groups was their pursuit of scholarships to support their college education. Overall, from students' responses during the focus groups, the campus visit influenced students' perspectives on the college going process. A male student in Focus Group 2 saw going to college as an alternative to joining the military. Participants in both groups acknowledged that there was a lot of work they would have to do to prepare academically and financially.

Third Action Research Question

What are the pretest and posttest results of the CGSES for students in Honors sixth grade math?

CGSES

Investigating the college-going self-efficacy perspectives of students in Honors Math, a repeated-measures ANOVA was conducted. Students at this math level reported a moderately high mean on both the pretest (95.94) and posttest (96.41). On average, students maintained their belief in their ability to attend and persist in college. The descriptive statistics collected from this group are displayed in Table 10.

Table 10

Descriptive Data for Honors Math Students

CGSES	*N*	Range	Min.	Max.	*M*	*SD*
Pretest	32	61	58	119	95.94	14.36
Posttest	32	51	69	120	96.41	14.08

Note. The College-Going Self-Efficacy Scale (CGSES) was created by Melinda Gibbons (2005). It is the survey used in this study. The range of the CGSES is 31–124.

Focus Groups

Similar to their peers in Regular Math, Honors Math participants in Focus Group 1 believed the sixth grade to be too early to consider college-going processes. One out of the four Honors students in this group, took interest in a Naviance module where three out of the four Honors students in Focus Group 2 agreed that they were productive. One student began to consider future jobs while another replied that the online curriculum made her want to focus on her test taking skills. Honors students in Focus Group 2 expressed more willingness to assign

positive experiences with Naviance than their peers in Focus Group 1. Although they might not have known how to answer all of the questions presented, students viewed this as a challenge to begin pondering their futures.

This challenge did not apply to the college visit for two honors students in Focus Group 1. While the general consensus among the group was that this experience changed students' thinking about going to college, two girls indicated that it did not have an impact. All four Honors students in Focus Group 1 had a lower posttest score than pretest score, averaging a 14.5-point decrease. Their counterparts in the second focus group displayed a 23.5-point increase from the start to the conclusion of the intervention. This quartet viewed the open space and size of the campus as a positive component of college, comparing it to middle school where "we're around the same people all day in middle school and I'm tired of that." Students liked how they could choose their classes, get to meet new people, and work in quieter environments indoors or outdoors. Not being able to be outside and complete their work was a negative aspect of middle school. Several students noted that even working in the hallways because the classroom is not productive is disadvantageous because students are not going to class, they are playing in the hallways, and they are frustrated. In college, students appeared to want to go to class, and they want to learn. Students enjoyed the freedom of space where they saw college students working and socializing. One Honors Math student stood out as she indicated her reason for going to college was to change her surroundings. Pursuing higher education offers her an escape from her familial situation. She already has her list of colleges she wants to apply for entry and this experience only reinforced her desire to attend college (her pretest score was a 58 and her posttest score was a 99). A final emergent theme among Honors Math students in both focus

groups was a desire to learn more about how college works, to see how to create a college class schedule, and to view the inside of a college classroom.

Fourth Action Research Question

What are the pretest and posttest results of the CGSES for students in Advanced sixth grade math?

CGSES

Sixth-grade participants in Advanced Math at Cartler Middle School numbered twenty-two. This small sample had the highest minimum score on the pretest (71), and posttest (78) among students in all three math levels. Advanced Math students displayed the largest growth in the mean from the pretest to the posttest, with an increase of 3.45, compared to students in Regular (0.89) and Honors Math (0.47). Students at this math level are taking Pre-Algebra, which in the trajectory of classes offered (see Figure 1 in Chapter 1) is considered the Regular Math class for eighth-grade students. Students in Advanced Math in this study are 2 years ahead of their peers mathematically. However, they are historically the smallest subset of students in the sixth grade. Students who are enrolled in this math class, typically have a high SOL (end-of-the year state test) score for both their fourth and fifth grade years, high scores in fourth- and fifth-grade math, and score extremely well on the Pre-Algebra Readiness test administered in the fifth grade. The district does offer math placement guidelines, but ultimately the decision on who is enrolled in this class is made by the middle school administrators and guidance counselors. At most, there are one or two sections of Advanced Math classes per year totaling no more than approximately 40 students. The descriptive data results from the repeated-measures ANOVA testing are identified in Table 11.

Table 11

Descriptive Data for Advanced Math Students

CGSES	*N*	Range	Min.	Max.	*M*	*SD*
Pretest	22	44	71	115	95.55	12.28
Posttest	22	42	78	120	99.00	10.71

Note. The College-Going Self-Efficacy Scale (CGSES) was created by Melinda Gibbons (2005). It is the survey used in this study. The range of the CGSES is 31–124.

Focus Groups

Three students in Advanced Math were participants in the focus groups—one in Focus Group 1 and two in Focus Group 2. While the number of students at this math level is demonstrably too small to draw substantive conclusions, their experiences and viewpoints are notable. Participants viewpoints surrounding their college-going self-efficacy differ from their experience in completing the online curriculum in Naviance and the college visit. All three aspire to attend and persist in college, sharing the goal of earning a college degree. The student in Focus Group 1 wanted to be an educator. Her hesitations revolved around the realization of the number of classes she would need to take, and the distance to and from classes. The student was surprised that she would have to take classes outside of education or her specific content area. While she can get past walking from one building to another to get to class, she indicated that her thoughts about going to college changed slightly because of the academic requirements. This student was visibly timid during our conversation and while she believes college is the pathway to undergo, she is a lot more nervous after our college visit than before. Her pretest score was a 93 and her posttest score was an 80. Her two peers, a girl and a boy, in Focus Group 2 both saw an increase of twenty-one points between their pretest and posttest scores. They embraced the modules in Naviance describing them as “short and simple,” and atypical in the sense that the

prompts asked students about "things you don't typically think about like 'till you're applying to college…it asked you stuff you need to know in advance." Both students thought the timing was premature but contrary to their counterparts in the Regular Math cohort, this concept of thinking about college before high school served as an early alert system to share with them preparation tools and skills. Further, the college visit was "at first terrifying and too much," for the female student but the more she considered college, she was glad she went to visit a campus because it made her feel better about the prospect of attending a university. The male student, who admittedly had been on a few college campuses previously with family members, reflected on the visit, "it made me realize college isn't easy." He was grateful for the opportunity to see himself as a college student and how he needs to start thinking in regards to his future.

Summary of Findings

This chapter presented the findings of the college-going self-efficacy perspectives of sixth-grade students at different math levels before and after an intervention. Conducted in the setting of one middle school, the results of this action research study are collected from students' self-reported viewpoints using the CGSES as both the pretest and the posttest. This pre-experimental design produced participant data indicating a moderately high level of belief in their ability to attend and persist in college before interacting with the online college-going curriculum in Naviance and visiting a local college campus. After completion of this two-pronged intervention, students continued to display a high level of college-going self-efficacy. Students in Regular Math (0.89) and Honors Math (0.47) conveyed an incremental increase in the mean data from the pretest to the posttest. Students in Advanced Math reported a 3.45-point increase. This noteworthy rise demonstrates that while the data is not statistically significant, there was some growth amongst Advanced Math students' college-going self-efficacy beliefs,

after participating in the intervention. At each math level, students experienced a decrease in their college-going self-efficacy score despite the mean data being almost reflective from the pretest to the posttest.

Interestingly, the minimum score on the CGSES for both the pretest and posttest increased from students in each math level to the next. Students in Regular Math had the lowest minimum score on both surveys, 41 and 58 respectively. Honors Math participants had a slightly higher minimum score, 58 and 69, than students in Regular Math, and Advanced students more so than their peers in Honors Math, 71 and 78. This mirrors the focus group data which showed that, generally, students in Regular Math held the perspective that the time to begin considering college is in high school, while their peers in Honors and Advanced Math did not share this mindset. Further, this difference in students' pretest scores indicates a varied belief in their college-going self-efficacy before participating in the designed intervention. Also of note, was the range of scores from the pretest to the posttest and the standard deviation. While students in Honors (-0.28) and Advanced (-1.57) Math saw their standard deviation decrease, students in Regular Math (+2.02) recorded a standard deviation that increased. Participants in Regular Math exhibited a higher standard deviation, suggesting a wider array of college-going self-efficacy perspectives existed after participating in the intervention. For example, there were students in Regular Math in both focus groups, yet despite their shared math level, students held varying beliefs in the college-going process beginning in the sixth grade. Regular Math students in Focus Group 1 believed that the sixth grade was too early to begin college preparation, while their same math level peers in Focus Group 2 believed that this experience served as an early alert system. Students' varied beliefs and experiences contributed to such a difference in the outcomes of the data. Moreover, the focus group data communicated students at this math level in Focus Group 1

were unsure and worried about going to college, while their peers in Focus Group 2 harnessed their anxieties as challenges to become more aware of the college-going processes. From the pretest to the posttest, students at all three math levels recorded a range of scores that decreased. Students in Regular Math decreased their range of scores by 11 points, students in Honors Math decreased their range by ten points, and Advanced Math students lowered their range by two points. The latter group had the smallest range of scores to begin with indicating that they may have a stronger and similar sense of their college-going self-efficacy prior to participation in this research study. Students in both Regular and Honors Math strengthened their perspectives as the range of data tightened and the pretest and posttest scores rose. This is corroborated in the focus group data which revealed Advanced Math students as having a more confident approach to the idea of attending and persisting in college despite their original hesitancies. One Advanced Math student was initially "terrified" of college, but visiting a college campus made her "feel better about going and it might be a better place." The data from two focus groups, mutually comprised of students at each math level, highlighted students' concerns regarding the realities of college attendance and persistence.

The lived experience of visiting a college campus impacted substantially the college-going self-efficacy perspectives of sixth-grade students at Cartler Middle School. Their self-reported viewpoints provided a depth of insight to the quantitative data shining light on some reasons behind the decreasing college-going self-efficacy scores. Primarily, students were not aware that all of their classes were not in one building and that the time in between classes can be fifteen or twenty minutes in which students have to walk from one building to the next. Secondly, students were surprised by the responsibility of creating a class schedule fell to them, albeit with the assistance of an advisor, but the process of registering for classes and living on

campus were areas that they would like to have explored further. The modules in the online curriculum had mixed levels of impact amongst students. Most students in Focus Group 1—students who had the lowest increase from pretest to posttest—did not find the modules helpful because as sixth graders they do not need to be considering college entry. It is too early. Their peers in Focus Group 2—students who had the highest increase from pretest to posttest—communicated the opposite. The prompts challenged their thinking surrounding college and they described it as an early alert system to jumpstart their preparation for pursuing higher education. Assessing the data from 90 sixth-grade students, left this study unable to achieve statistically significant data. The knowledge gained by examining students' college-going self-efficacy perspectives yielded a plethora of information that can influence further college-going and college preparation activities at Cartler Middle School.

Chapter 5

Summary

This chapter offers conclusions of this action research study. First, a summary of the findings is given. Secondly, implications for policy and practice are discussed. The third section presents recommendations for future research. In the final section, limitations of this study are discussed and a closing summation is provided.

Summary Findings From the Study

The purpose of this action research study was to examine the college-going self-efficacy perspectives of sixth-grade students at Cartler Middle School before and after the intervention. The intervention consisted of students completing college-going modules in an online platform called Naviance and participating in a college campus visit. Using the College-Going Self-Efficacy Scale (CGSES) created by Gibbons (2005) as the pretest and the posttest, two focus groups were also facilitated to gather data from participating students. The first section of the CGSES assesses students' college attendance perspectives, and the second evaluates their college persistence. The first focus group consisted of students who had the lowest increase from the pretest to the posttest, while students in the second focus group demonstrated the highest increase. Albert Bandura's Social Cognitive Theory (1986) and Self-Efficacy of Motivation (1997) served as the theoretical supports undergirding this research.

Specifically, students' college-going self-efficacy was analyzed as a group and then according to students' math levels. At Cartler Middle School, first-year middle schoolers are enrolled in one of three different math classes—Regular, Honors, or Advanced. These curricular

placements are made by the middle school counselors and administrative team based upon students fourth- and fifth-grade performance. The pre-experimental design of this research produced an opportunity to gather information to enhance educators' practice and policy initiatives. The small number of participants (90) yielded statistically insignificant results that are specific to the students at Cartler Middle School. The data collected, however, is noteworthy and enlightening for students, parents, educators, district level administrators, and policy makers.

The results from the pretest indicated students began this study with a relatively high view of their abilities to attend and persist in college. This was confirmed with students' posttest data. Both students in Regular and in Honors math demonstrated a pretest mean (93.42 and 95.94, respectively) and standard deviation (15.32 and 14.36) that almost mirrored the mean (94.31 and 96.41) and standard deviation (17.34 and 14.08) of the posttest. Students in Advanced math displayed the greatest increase in the mean data, although small in its growth of 3.45 points, from the pretest to the posttest. Despite students' maintaining a high level of belief in their college-going abilities, multiple students throughout the study, across each of the three math levels, recorded a decrease in their college-going self-efficacy score from the pretest to the posttest. This cohort of students, who comprise the entire first focus group, responded more negatively towards parts of the intervention than the participants in the second focus group. All participating students completed 12 modules in the college-going curriculum in Naviance. The students in the second focus group thought the Naviance modules to be helpful versus their peers in the first focus group. The former group was more inclined to view the modules as a help towards building their college knowledge and proceeded to ask detailed questions about college life, norms and expectations during the focus group discussion. All of the students in the first

focus group, despite their math level, believed the modules to be unproductive, viewing them to be uninteresting.

Moreover, the college visit received mixed results as well. Students in Focus Group 1, were more concerned about the size and number of buildings on campus, often hesitating at the reality that all of their classes were not in one building, which is what they are accustomed to in secondary schooling. Students, realizing they were to walk from one building to another on campus, began brainstorming transportation solutions to this new "crisis" suggesting that the university should be responsible for ensuring students get safely to class from one building to the next. Conversely, students at all math levels in Focus Group 2 viewed the campus visit as an opportunity to grow their knowledge base about the college-going process. This cohort of students compared middle school life to what they witnessed during the visit, and they saw more chances to work and study in a calm environment, and to meet new people. Taking classes in multiple buildings was a value added, one where a student gets to explore new places and learn from various experiences.

Overall, the reaction to the online college-going curriculum and the in-person college visit appeared to vary based upon students' mindset about college and their own personal experiences and belief systems more so than their math levels. Students in the second focus group viewed the intervention to be an early alert system to begin notifying them of components to consider as they prepare for college, whereas their counterparts in the first focus group believed the intervention to be less impactful on their college-going self-efficacy beliefs. Three emergent themes—*self-efficacy*, *too early*, and *college knowledge*—surfaced from the collected data that highlight major areas of interest which could inform the next cycle of action research.

Too Early

Students in Focus Group 1 believed that high school is where they should begin focusing on going to college. This belief was held by students at all three math levels. “No one thinks about college in sixth grade,” one student replied, while another stated emphatically, “because we still have a lot of time left to think about it.” Still a third student plainly summarized, “kids in sixth grade aren’t interested.” Their perspectives are perpetuating this age-old notion that high school is when college preparations begin; that middle school, the sixth grade specifically, is too early to begin such pursuits. This contradicts the research of Useem (1992), Smith (1996), and Adelman (2006) which confirms Algebra I to be the gateway course to college preparatory classes in high school. Students who take one class past Algebra II are twice as likely to not only attend college but also to persist through to graduation (Adelman, 2006; Trusty & Niles, 2003). In Cartler City Schools, gaining access to Algebra I by the eighth grade requires students to take Pre-Algebra in the seventh grade so that they can gain access to Algebra II and beyond in high school (see Figure 1 in Chapter 1). College retention personnel and admissions officers at both the community college level and 4-year institutions, when asked (J. Scott personal communication, 2019) belabored the importance of students beginning their college preparations (academic and growing the soft skills such as goal-setting, communication, and collaboration, associated with college attendance) in middle school, with the eighth grade representing a late start. Ironically, they mentioned “student beliefs,” “student confidence,” and “knowledge of collegiate expectations,” as critical factors to achieve success. Combine students’ beliefs about the sixth grade being too early with their recorded high levels of college-going self-efficacy (survey data) and aspirations to attend college (focus group data), and it results in a contradiction of sorts—students believe they can go to college and graduate but they view middle school,

which has the pre-requisite classes they need for college preparatory classes in high school, as not the right time to begin working towards their goals. Specifically, students do not seem to have a clear understanding that their current sixth grade math class affects their plans for college. This presents an opportunity for educators and policy makers to draw a direct line from sixth grade math level to college preparation informing students and families about higher education and the advantages of accessing college pathways in middle school.

Self-Efficacy

Bandura (1997) posited that an individual's belief in their abilities can be an influential factor in achieving one's goals. This research focused specifically on college-going self-efficacy which is the belief in one's ability to enter college and sustain enrollment to complete the necessary requirements to obtain a college degree. Students in this study maintained a high level of belief in their ability to both attend and persist in college. Their self-reported viewpoints provide an example of Bandura's theory—how people see themselves is critical to succeeding in personal aspirations. This is despite some students recording a decrease in their college-going self-efficacy after completing the intervention. All of the participants in Focus Group 1 started out with a high college-going self-efficacy score on their pretest, with scores ranging from 84 to 119. The highest possible score is 124. The group averaged a 20.25-point decrease from their original pretest score to their posttest score, with one student's score dropping from an 84 to a 65. Participants might have been overly confident in their college-going abilities prior to completing the modules in Naviance. The lessons learned through the intervention possibly caused a reckoning of sorts where students' interpretation of what college is collided with the realities of higher education, resulting in a falter in students' belief in themselves because they lacked information.

The focus group data yielded different reactions to the intervention that appear to be rooted in students' preconceived notions and experiences regarding the college-going process. Surprisingly, each of the two focus groups, differed by their beliefs. The consensus amongst Focus Group 1 participants was middle school, especially the sixth grade, was too early for students to begin the college-going process, and they also held that the Naviance modules were not important. Students in Focus Group 2 maintained the opposite perspective—middle school provided them an opportunity to start the college-going process early and they embraced the modules in Naviance. The focus group data presented similarities within each group but differing perspectives between each group. While the data collection did not explicitly ask for the reasons behind the diminished confidence, students' responses to their experiences conveyed sentiments of concern and anxiety about taking on an endeavor that they obviously did not realize had many layers. Students' reaction to the size of the campus, the library (which in middle school is one extra-large room), the number of buildings and eateries, and the number of classes they have to take to earn a degree, was nothing short of shocking for them. Students' decrease in self-efficacy communicates that they did not understand some of the basic expectations of attending college. When discussing the college-going process with students, educators are tasked with addressing students' understanding and begin to fill in the holes in their knowledge of the academic and social norms and expectations of the college-going process. Teachers, administrators, and school counselors could work collaboratively to implement programming to address students' new understandings of college to possibly uplift and restore their personal beliefs in their ability to be successful in college.

The consensus of the first focus group was that their experience changed their thinking about college as it certainly served as an eye-opener. Yet, they maintained a relatively high level

of college-going self-efficacy primarily because their pretest data was so high before the intervention. When students were met with the experience of learning and seeing college life in action, their pretest scores were already very high, so the decrease in confidence did not result in low levels of college-going self-efficacy. Students in Focus Group 2 shared some of the same anxieties about the college-going process as their counterparts in Focus Group 1 and how they would have to take a more active role in their education than what they are used to in middle school. They did not allow those concerns, however, to dissuade them from leaning in to the realities of college life as they experienced during the campus visit. Instead, they became more inquisitive about the process and began listing action steps for the present that could help them access college pathways in high school. Using the data from the focus group, it can be inferred that a possible factor affecting this group of students' self-efficacy was their previous experience: 80% of Focus Group 2 students had visited a college campus previously. Participants' perspectives and belief systems involving the college-going process embodied themes such as resilience, determination, and grit. They did not respond by pushing off the realities of beginning the college process to high school, they instead embraced them and inquired more about what they could do to prepare as sixth graders. Students in Focus Group 2 had a stronger self-efficacy when met with perceived challenges to their college knowledge than their peers in Focus Group 1.

College Knowledge

Conley (2005) explains a reason for the gap in college readiness is the disconnect between what universities expect incoming students to know and what students actually have experience with related to the college-going process. Students in both focus groups displayed a lack of knowledge of the expectations and requirements of higher education. Concepts that

would be considered common knowledge, were foreign and unnerving for some participants. From primary through secondary school, students have experienced education as being housed in a singular building. They have been told what classes they must take, their schedule has been made for them, and students are generally around the same group of students on a daily basis. The notion of choice for where students can work and study is not normal, as often times access to study rooms in school libraries or exterior spaces are unavailable or non-existent in the K-12 setting. Focus Group 1 responses highlighted students' uneasiness with the questions being asked in the Naviance modules because "I didn't know what was being asked," "I didn't know what to put." The prompts in the module activities did create a lot of wonder in the sense that there were students who expressed a curiosity around learning how to study for college and maybe what things they can change now in their present to positively impact their future. Subsequently, it could be that students found it easier to say these activities were "boring," or "pointless," or that there were "no reason [for them]," because they were unaware of the connection between the activities and their own college awareness or planning. These responses are from the same group of students who were surprised at the realities and logistics of college living and learning while visiting the campus. There is a serious gap in some students' strong levels of belief in their abilities—their college-going self-efficacy—and the realities of attending and matriculating through college to earn a degree. Students communicated through their data that there is room to grow what they know about the practices, norms, expectations, and standards of college achievement.

Math Level Versus Students' Perspectives

Using the data collected from the CGSES and the focus groups, it appears that this group of sixth graders' college-going beliefs and experiences was the catalyst for the difference in the

college-going self-efficacy perspectives from the pretest to the posttest more so than their math level. Unlike their peers in Focus Group 2, students in Focus Group 1 (both groups included students at each of the three math levels) all believed that middle school is too early to consider college and found the modules in Naviance to be unhelpful. Two of the nine students indicated that their thinking about college did not change because of the campus visit, but their peers in the same focus group, including those who share the same math level, reported otherwise. Predicting who will need a more substantiated introduction to the college-going process may require a preliminary inquiry polling students on their understanding of college knowledge, not simply using a review of the math level assignments for class. This will help gauge students' needs more accurately, identifying a baseline of differences in order to provide targeted interventions. Specifically, this will allow for grouping students based upon their college-going beliefs and experiences. Students without any experience visiting a campus or with low levels of college knowledge could participate in a College Exploration Orientation before completing modules in Naviance and visiting a college campus. Students' math level can then be used as a point of analysis only after this initial distinction is made but before and after the intervention. The purpose in differentiating students by math level in a possible subsequent cycle of action research is to investigate further students' college-going self-efficacy given the role math plays in accessing college preparatory classes.

Additional Observations to Consider

The decline in students' college-going self-efficacy occurred at each math level. Each student in the first focus group had a lower posttest score than pretest score. The Advanced Math student in Focus Group 1 had a decreasing score as well. Overall, Advanced Math students had the highest minimum and maximum scores on both surveys, recording a pretest minimum that

almost doubled that of Regular Math students, yet there were some Advanced Math students in this study whose college-going self-efficacy score decreased from the pretest to the posttest. Students seemed to have a collision of their perspectives of college life versus the realities, and what they learned that they were not previously informed of, caused unexpected angst and concern. For example, students in Regular Math, in both focus groups, expressed considerable concern over financing college. There is a prompt in Naviance that asks students about their plans to finance their postsecondary education, and students elaborated on their anxieties about this reality. Interestingly, Honors Math students recorded the same pretest score minimum as Regular Math students' posttest score minimum. Students who shared their beliefs that middle school is too early to consider preparing for college, students in Focus Group 1, do not know about the role curricular choices in the sixth grade have on their ability to access research proven college preparatory classes in high school. They believe college planning begins in high school, so they are missing the on ramp to accessing those classes because they often need a combination of a math, science or foreign language prerequisite that can be obtained in middle school. This describes students having a lack of college academic awareness where they are uninformed of the courses they need to take to ready themselves for postsecondary work. Subsequently, students in both focus groups demonstrated a lack of knowledge of the expectations and requirements of higher education. They were unaware of logistical elements of college, for instance how it operates, the responsibilities of creating their own class schedule, navigating class transitions which may take place in different buildings, accessing laundry services or the residence halls, to name a few. This shows that while the data suggests there is more to explore regarding the differences in students' college-going self-efficacy beliefs and the impact of their preconceived notions and prior experiences, there is still some differentiation in regards to

students' math level that can provide insight for future endeavors to expose and provide access to postsecondary pathways.

Implications for Policy and Practice

In a state that explicitly mandates career development for middle school students, but not college preparation or development, it is suggested that college readiness and development is as equally deserving of state mandates requiring such an exploration to bring a wealth of diverse thought and experiences to the pool of potential college-going students that underserved populations possess. This might help close some of the gaps between students' perspectives of having high levels of college-going self-efficacy and the realities that accompany college attendance and persistence. From this policy, a College Exploration Orientation at the sixth-grade level is a suggested practice. This would take place before a college campus visit. The purpose in this initiative is to inform students about the expectations universities will have of them as college students, and the experiences that would begin to prepare them academically, socially and financially in an age-appropriate manner. Specifically, students would be advised on the role middle school courses play in accessing college preparatory classes in high school. A students' high school transcript can start in middle school, and those opportunities are not solely for the "smart" students. Participants in this study who are in Regular math, which consists of students who historically struggle with the content, voiced very high levels of college-going self-efficacy. They believe, despite their low performance in math, that they can be successful in college. According to Bandura (1997), belief plays a large role in individual success, and there is an opportunity to possibly help students overcome some curricular hurdles to gain access to college pathways.

A collaborative effort to identify middle school expectations with elementary school experiences may help bridge some of the gap. Admittedly, not all students will be ready to begin their sixth-grade year on a pace conducive with enrolling in Algebra I by the eighth grade. Interestingly, would be whether educators at the elementary and middle school levels are aware of the connection between sixth-grade math and students' curricular access to research-proven college preparation classes in high school in this district.

Finally, Cartler City Schools has a resource to promote the college-going process using Naviance. It is proposed that these modules be used more consistently throughout students' middle school years, so that it is not a foreign concept to them, and they can begin to explore higher education and what they can do presently to better prepare themselves for postsecondary life.

Recommendations for Future Research

While math self-efficacy is outside of the scope of this particular study, it may be something to consider investigating at the middle school level in the future, given the critical role math plays in providing access to college preparatory classes. The use or creation of a scale that measures specifically this domain with this age group of students could provide detailed insight into how students view their mathematical abilities leading up to Algebra I. Data gathered from such a scale could help inform practice for math educators, policy on student placement in math classes and college readiness for practitioners and policy makers both. Secondly, the intervention designed for this study included a college campus visit but it was not an official tour orchestrated through the university. Admittedly, there were areas of the campus that students did not get a chance to interact with or experience because while permission was granted to visit, official tours were not granted to middle schoolers as a matter of institutional practice. Students in both focus

groups expressed their desire to see inside of a residence hall, a college classroom and the cafeteria. In the future, instead of a college visit or a college tour, students can simply participate in a field trip to a local university. The goal of the field trip would be to introduce some of the basics about the college-going process, where they learn about how college operates, they can view the inside of a residence hall or the cafeteria, and a college classroom. Further, students would have an opportunity to bolster their logistical awareness about the responsibilities college students have and how to navigate different processes and procedures related to being a college student. The data shows that students hold a high level of belief in their ability to be successful in college, but they cannot gain access to major components of college life. Having an official tour might also have better informed students' college knowledge and decreased the dip in their confidence from the pretest to the posttest because participants could access these areas on campus. This could have possibly lightened some of the anxieties and uncomfortableness students felt about attending and persisting in college. A campus visit does not permit students to see inside a classroom, the cafeteria or a residence hall. This furthers the call for public school systems and institutions of higher education to collaborate on college readiness and early college access initiatives. Moreover, although this study does not focus on either the college academic awareness or college logistical awareness students are required to obtain in order to succeed, for future inquires, these two themes may be areas of focus and collaboration between postsecondary and higher education institutions. Finally, students reported moderately high levels of college-going self-efficacy on the pretest. Learning why and what other factors may have played a role in students' beginning with high levels could help the aforementioned proposed College Exploration Orientation or like programming to better meet the needs of students. In the brief demographic questions that were added to the CGSES, students could be queried about their

previous experience with the college-going process (visiting campuses, participating in a camp at a college, for example). The College Exploration Orientation could have various levels for students to participate in given their level of exposure to elements of college life.

The use of Naviance in future studies is recommended. Cartler City Schools does not utilize it at the middle school level to its full potential, so before moving on from the program, it is essential that it is fully applied. However, it is critical that issues surrounding the modules being implemented with fidelity are to be resolved. This includes ensuring teachers are adequately trained to facilitate students completing the modules consistently, confirming that the modules are being completed on the agreed upon schedule, and making sure the technology needs of students are met so that they have a device to interact with Naviance. Evaluating the program would require consistent use of the software with teachers and students. Exceeding the norm of students only interfacing with Naviance once a year, would be a requirement so that students could begin to take advantage of all of the features and resources offered through Naviance. This may require a policy change facilitated through the district leadership team. Such a decision would primarily be to ensure teachers and students have access to the full College, Career and Life Readiness (Naviance) curriculum and not just one or two modules chosen for use during one school year. Furthering the usage of Naviance as a college preparation curriculum, it should be coupled with the aforementioned College Exploration Orientation. The use of Naviance can be intertwined with this program or used afterwards but college preparation initiatives should not assume that students have a high level of college knowledge or college awareness even though they, according to the data collected in this study, have moderately high levels of college-going self-efficacy. Building a college preparation curriculum should begin from the basics and include activities that introduce college academic awareness and college

logistical awareness to students. It would be combined with a field trip to a local university with each grade level in the building having access to this experience. Similarly to Naviance, such a curriculum can have grade specific activities that are catered to the population of Cartler Middle School and build upon what students experience in the sixth grade, into the seventh and eighth grades.

The findings from this study indicate that other factors outside of math placement may be a good indicator of college readiness. It was not participants' math level that seemingly contributed to their moderately high levels of college-going self-efficacy, but possibly their preconceived notions, beliefs and experiences about college. This challenges the literature that puts a substantial amount of stock behind the role math classes play on the pathway to college readiness and success. This is not to say that college academic awareness is not important and crucial to students' preparedness; however, maybe there are other equally notable factors that are influential. The data collected in this study shows that some students in the sixth-grade view middle school as too early to begin their college preparations. Further, despite recording moderately high levels of college-going self-efficacy on the pretest, after interacting with the Naviance modules and visiting a college campus, some students' posttest score was lower than their pretest score. These regressing scores came from students at each of the three sixth-grade math levels—Regular, Honors, and Advanced. The literature seems to illuminate a path through mathematics to college attendance and degree completion. Nonetheless, not all students are on that path as early as they could be, which perpetuates the gap that widens between subgroups of students who are going to college and those who try and do not succeed.

The 6-year college graduation rate was 60% in 2019. This equates to a college dropout rate of 40% (National Center for Education Statistics, 2019). In the United States, 80% of middle

schools offer Algebra I as an eighth-grade class, and yet only 24% of eligible students are enrolled (U.S. Department of Education, 2018). This leaves a 56% gap of potential students off the path to higher education which has an earlier and accessible entryway than high school. Again, not every sixth-grade student is ready for an Honors or Advanced math class; however, nationally this leaves over half of the population of eighth graders out of a research-proven pathway to college readiness and degree completion. It is difficult to reconcile that there are not students within that 56% that can be and should be enrolled in Algebra I in the eighth grade. Moreover, it also poses the question of how students are prepared in elementary school for such a college pathway. Do elementary educators, administrators, and counselors know of the "math path" that readies students for college? What considerations are they giving to their fourth and fifth grade classes regarding preparing them for middle school math—an overlooked entryway to college preparedness? Further research is suggested on investigating the norms and processes executed in elementary school, and how they play a role, knowingly or unknowingly, in students' access to prerequisite college readiness classes in middle school. Additionally, the placement procedures for how students are enrolled in these classes once they arrive to middle school, deserves to be examined. Factors to consider include, but are not limited to, the district's placement guidelines and how they are created and applied at Cartler Middle School; and how the decision to place students excludes math teachers and includes only one or two administrators and one school counselor. A policy analysis of math placements is recommended, and an exploration into other influencing factors that contribute to students' college-going self-efficacy is required. This may illuminate the pathway to college in a more inclusive manner instead of one centered largely on mathematics.

Limitations

While implementing this research plan, limitations arose surrounding this study. The timeline for data collection was unexpectedly truncated which could have contributed to the number of students needed to collect statistically significant data not being achieved. Moreover, when the time approached to go on the college visit, non-participants were attempting to join the study so they could go on the field trip. It is unknown whether students were simply attempting to go on the field trip to get out of class, or because they were not aware of the opportunity to join the study initially, and thus did not sign up. Cartler City Schools is a very transient area surrounded by several military installments and hosts an ever-changing population. Ensuring all prospective students are informed of the opportunity to participate in further research is important. Secondly, the study involved convenience sampling which coupled with the limited scope of an action research study provides data that is not generalizable to other middle schoolers in the same district as Cartler Middle School. The aforementioned high levels of students' college-going self-efficacy prior to participating in this study, as identified in the pretest data, indicates that other factors influencing their college-going perspectives exists. I cannot account for all of those factors as they could stem from a variety of places including but not limited to, parental collegiate experience or those of older siblings and close extended family members, students' previous campus visits, perspectives, college knowledge or college-going initiatives that are facilitated by civic or religious institutions. Fourth, sixth grade teachers were tasked with ensuring students completed the pretest, assigned modules, and posttest during the allotted class time. Some teachers did not do so with fidelity, and this could have contributed to some students not being able to complete the components of the intervention and their data rendered unusable. This provided challenges along with students' own struggles to complete

simple tasks such as ensuring they entered their student email address properly when logging into the surveys. This caused issues when pairing students' pretest and posttest data. Finally, as crucial as mathematics is to gaining access to college preparatory classes, this study did not consider the process of student placement in the sixth-grade math class participants were assigned. Further research could address the complexity behind the process and procedures of middle school math pathways in conjunction with college-going self-efficacy.

Summary

One of the unstated purposes of this research study was to shine a light on conversations I had with students, families and educators on a regular basis. Students' acute knowledge of higher education and what it takes to get there and achieve at that level is on full display. The focus group data especially illuminated a gap in what students know and what are common norms about universities that incoming students are expected to know about the process and procedures of earning a baccalaureate degree. Further, the established research from over twenty years ago, presented an academic pathway for educators and families to pursue to enable students to be better prepared when they arrived on campus. This would ensure students have the foundation to gird their transition to and matriculation through college level work, because they would be exposed to such curricular expectations and know how to navigate the enhanced rigors they would encounter. The challenge, moving forward, is for intentional and specific programming to be facilitated, for policies to be assessed, revised, and implemented; for stereotypes surrounding high school being the "on ramp" to college preparatory pathways to be dissuaded, and for awareness to be raised of the possibilities and opportunities that often sit dormant because the communities we serve do not know. This will require communication between the school districts and their families, and public-school systems and institutions of higher education.

Daunting? Undoubtedly. Building this bridge is a necessary solution to the college achievement gap that has puzzled researchers and practitioners yet could perpetuate economic, social and generational advantages for years to come.

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Appendix A

College-Going Self-Efficacy Scale
Melinda M. Gibbons, Ph.D., NCC
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Directions: Please read each of the following questions and answer them as honestly as possible. Circle the response that best describes how sure you feel about each question. There are no right or wrong answers. When answering these questions, remember that college means any type of schooling after high school (community college, four-year university).

How sure are you about being able to do the following:

1. I can find a way to pay for college	Not at all Sure	Somewhat Sure	Sure	Very Sure
2. I can get accepted to a college	Not at all Sure	Somewhat Sure	Sure	Very Sure
3. I can have family support for going to college	Not at all Sure	Somewhat Sure	Sure	Very Sure
4. I can choose a good college	Not at all Sure	Somewhat Sure	Sure	Very Sure
5. I can get a scholarship or grant for college	Not at all Sure	Somewhat Sure	Sure	Very Sure
6. I can make an educational plan that will prepare me for college	Not at all Sure	Somewhat Sure	Sure	Very Sure
7. I can make my family proud with my choices after high school	Not at all Sure	Somewhat Sure	Sure	Very Sure
8. I can choose college courses that best fit my interests	Not at all Sure	Somewhat Sure	Sure	Very Sure
9. I can pay for college even if my family cannot help me	Not at all Sure	Somewhat Sure	Sure	Very Sure
10. I can get good grades in my high school math classes	Not at all Sure	Somewhat Sure	Sure	Very Sure
11. I can get good grades in my high school science classes	Not at all Sure	Somewhat Sure	Sure	Very Sure
12. I can choose the high school classes needed to get into a good college	Not at all Sure	Somewhat Sure	Sure	Very Sure
13. I can know enough about computers to get into college	Not at all Sure	Somewhat Sure	Sure	Very Sure
14. I can go to college after high school	Not at all Sure	Somewhat Sure	Sure	Very Sure

<u>If you do go to college</u>, how sure are you about being able to do the following:

1. I could pay for each year of college	Not at all Sure	Somewhat Sure	Sure	Very Sure
2. I could get A's and B's in college	Not at all Sure	Somewhat Sure	Sure	Very Sure
3. I could get my family to support my wish of finishing college	Not at all Sure	Somewhat Sure	Sure	Very Sure
4. I could take care of myself at college	Not at all Sure	Somewhat Sure	Sure	Very Sure
5. I could fit in at college	Not at all Sure	Somewhat Sure	Sure	Very Sure
6. I could get good enough grades to get or keep a scholarship	Not at all Sure	Somewhat Sure	Sure	Very Sure
7. I could finish college and receive a college degree	Not at all Sure	Somewhat Sure	Sure	Very Sure
8. I could care for my family responsibilities while in college	Not at all Sure	Somewhat Sure	Sure	Very Sure
9. I could set my own schedule while in college	Not at all Sure	Somewhat Sure	Sure	Very Sure
10. I could make friends at college	Not at all Sure	Somewhat Sure	Sure	Very Sure
11. I could get the education I need for my choice of career	Not at all Sure	Somewhat Sure	Sure	Very Sure
12. I could get a job after I graduate from college	Not at all Sure	Somewhat Sure	Sure	Very Sure
13. I would like being in college	Not at all Sure	Somewhat Sure	Sure	Very Sure
14. I could be smart enough to finish college	Not at all Sure	Somewhat Sure	Sure	Very Sure
15. I could pick the right things to study in college	Not at all Sure	Somewhat Sure	Sure	Very Sure
16. I could do the classwork and homework assignments in college classes	Not at all Sure	Somewhat Sure	Sure	Very Sure

Appendix B

List of Naviance Modules

1) My Present vs. My Future
2) Self-Confidence
3) My Future Plans
4) My Academic Challenges
5) Habits for Success
6) How I Learn
7) Connecting Interests and Careers
8) Getting Ready for College
9) What is College?
10) College Myths
11) Facing Fears About College
12) What Do Colleges Require?

Appendix C

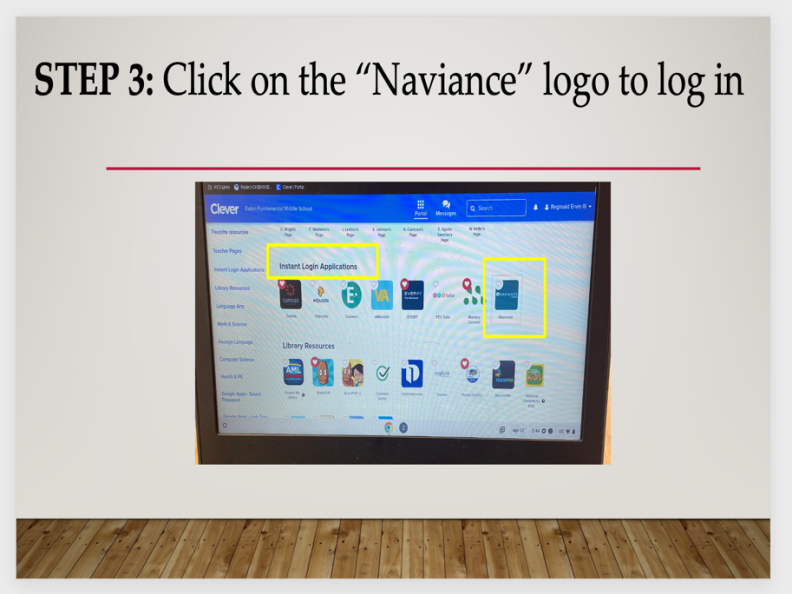
Naviance Instructional Guide

HOW TO ACCESS THE COLLEGE, CAREER & LIFE READINESS CURRICULUM (CCLR) IN NAVIANCE: A QUICK GUIDE

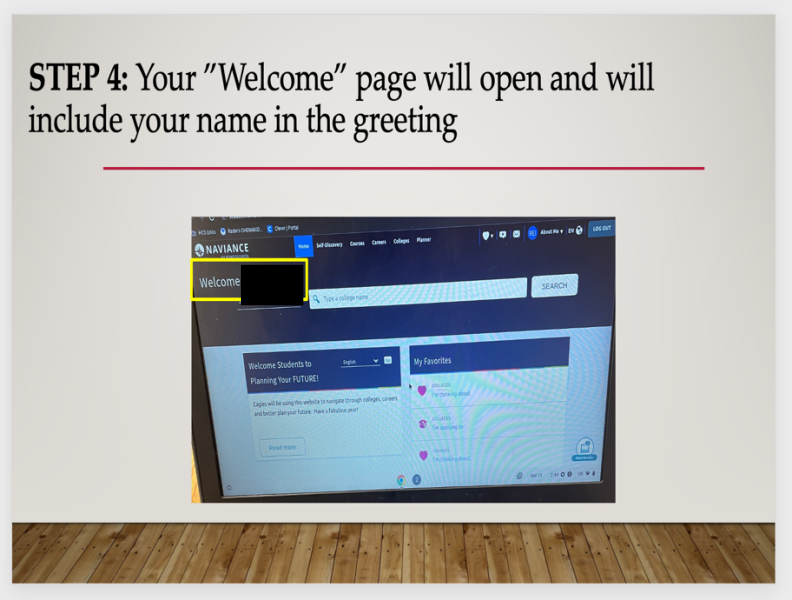
STEP 1: Log into Clever

STEP 2: Scroll down to "Instant Login Applications"

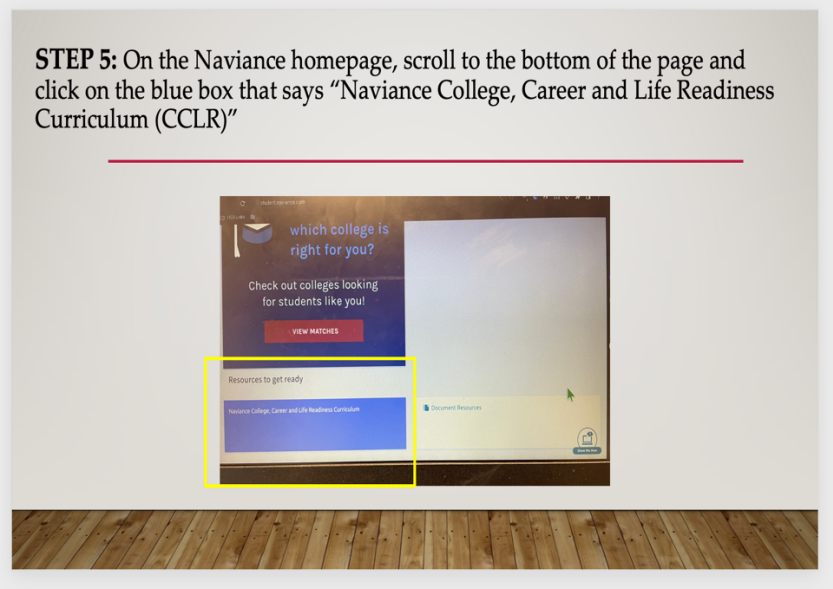
STEP 3: Click on the "Naviance" Logo to log in



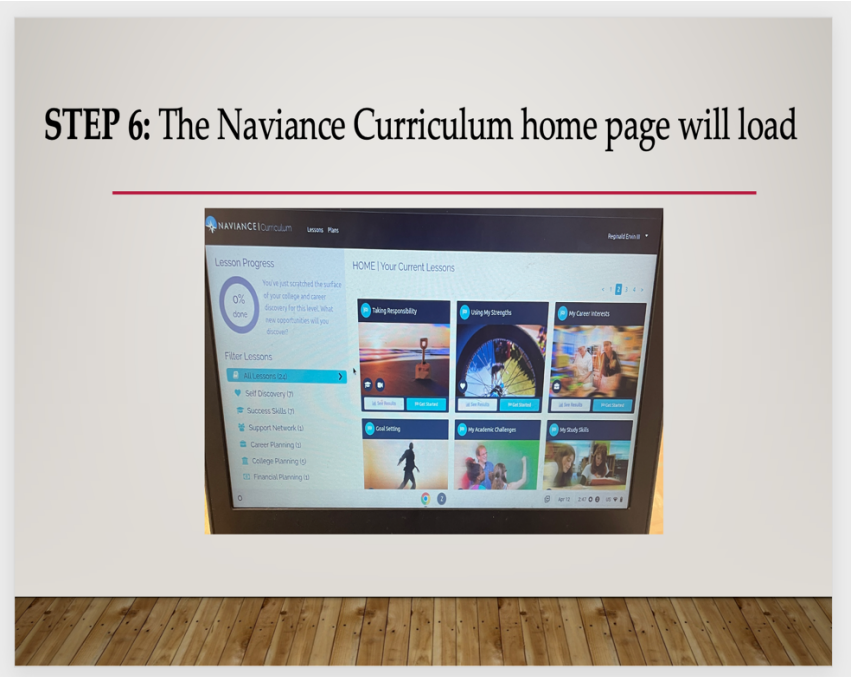
STEP 4: Your "Welcome" page will open and will include your name in the greeting



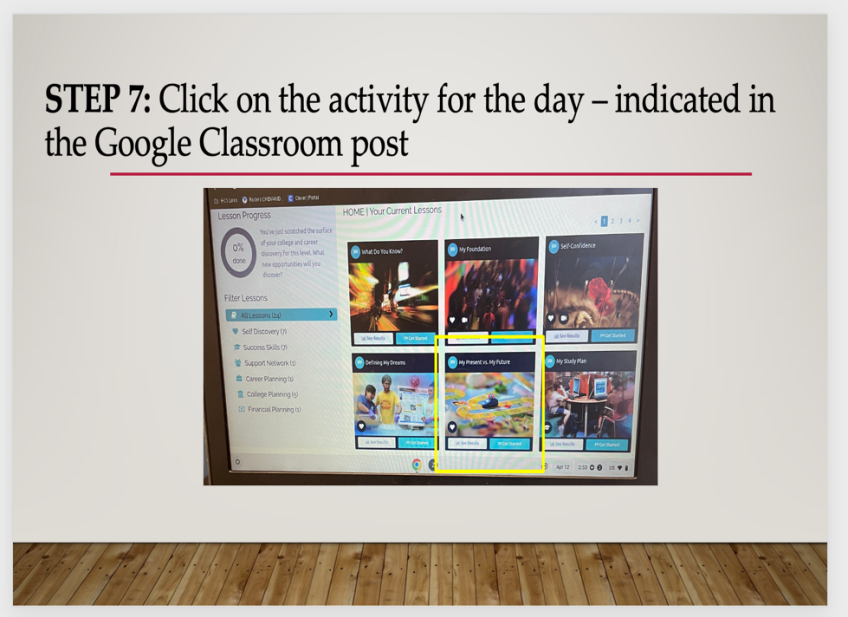
STEP 5: On the Naviance homepage, scroll to the bottom of the page and click on the blue box that says, “Naviance College, Career and Life Readiness Curriculum (CCLR)”



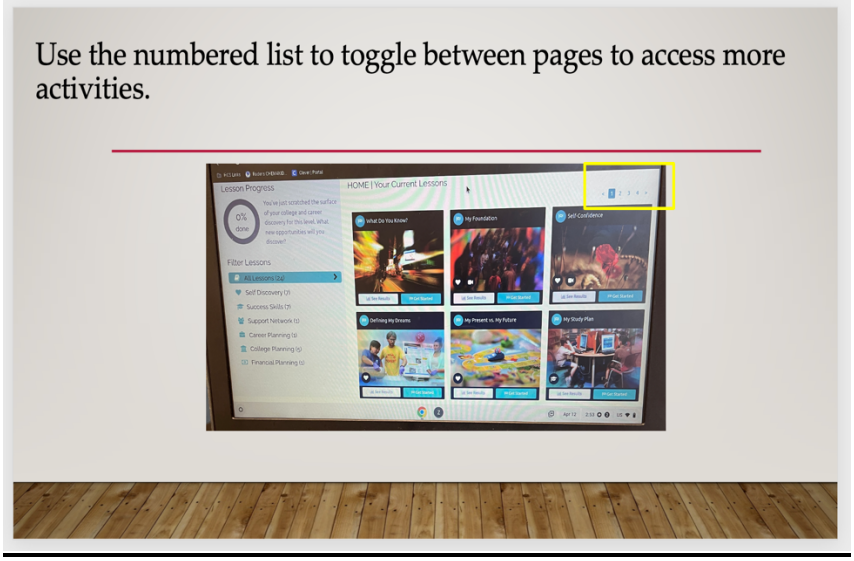
STEP 6: The Naviance Curriculum home page will load



STEP 7: Click on the activity for the day – indicated in the Google Classroom post



STEP 8: Use the numbered list to toggle between pages to access more activities



Appendix D

Scavenger Hunt

Name: _____ Date: _____ College Name: _____

COLLEGE TOUR SCAVENGER HUNT

WELCOME TO COLLEGE

Directions: Welcome to college! As you tour the campus, complete the college tour scavenger hunt (in any order you'd like). You may need to use your phone or electronic device in order to complete some of the challenges.

1 HOW MANY STUDENTS ARE ENROLLED?

HOW DOES THE COLLEGE'S RACIAL DEMOGRAPHICS LOOK? DO YOU SEE YOURSELF REPRESENTED?

_____ % Hispanic _____ % Asian

_____ % Black _____ % Other

2 HOW MUCH IS TUITION?

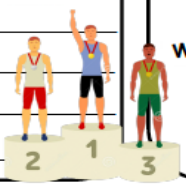
3 WHAT'S YOUR DREAM MAJOR? IS IT OFFERED AT AACC?

4 WHAT IS THE COLLEGE'S MASCOT?

5 WHERE IS THE FINANCIAL AID OFFICE?

6 LIST FOUR SPORTS STUDENT ATHLETES CAN PLAY WHILE ATTENDING THE COLLEGE.

- _____
- _____
- _____
- _____



7 WHAT IS THE NAME OF THE LIBRARY ON CAMPUS?

WHAT ARE LIBRARY HOURS?

M _____ to _____
T _____ to _____
W _____ to _____
Th. _____ to _____
F _____ to _____
S _____ to _____
Su. _____ to _____

8 WHERE DO STUDENTS GO TO WORK OUT ON CAMPUS?

_____
Name of Field

_____
Gym Name

9 NAME THE BUILDING WHERE YOU'D STUDY BASED ON YOUR MAJOR.

_____
My Major

_____

_____
Name of Building

10 HOW BIG IS THE CAMPUS? HOW MANY STUDENTS IN TOTAL ATTEND?

11 TAKE A PICTURE, OR RECORD YOURSELF BROWSING THROUGH THE SECTION OF THE CAMPUS BOOKSTORE SPECIFIC TO YOUR MAJOR.

12 INTERVIEW A STUDENT!

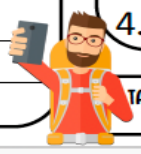
Name, Major, Hometown, Why they chose AACC, Why they love AACC; Plans after community college.

13 LIST AT LEAST 6 STUDENT ORGANIZATIONS THAT ARE OFFERED AT AACC. CIRCLE THE ONE(S) YOU'D JOIN.

- _____
- _____
- _____
- _____
- _____
- _____

14 WHAT ARE THE 4 MAJOR RESTAURANTS ON CAMPUS?

1. _____
2. _____
3. _____
4. _____



15 COLLEGE ISN'T ALL WORK AND NO PLAY. WHERE DO STUDENTS GO TO HAVE FUN?

16 TAKE A PICTURE NEXT TO AN IMPORTANT STATUE ON CAMPUS.

Vita

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	2012 – 2014	Old Dominion University Norfolk, Virginia Master of Science in Education *Educational Leadership: Administration & Supervision Pre-K – 12*
	2005 – 2009	Hampton University Hampton, Virginia Bachelor of Arts *Sociology*
Experience:	2017 – present	Instructional Leader Cartler City Schools
	2014 – present	Teacher, Mathematics Cartler City Schools