# PARTNERING with PURPOSE:

Improving Math Education Outcomes for Clayton County Public School Students and Teachers



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## Chapter 1 Historical Background



MANY STUDENTS LIVING IN THE METRO Atlanta area face significant social barriers to postsecondary education. These barriers stem from poverty, low-income, and high rates of crime. Poverty rates in metro Atlanta are significantly higher compared to Georgia and U.S. rates. The "all persons in poverty" rate for Clayton County (24.3%) is 1.37 times higher than the Georgia poverty rate (17.8%), and it is 1.61 times the U.S. poverty rate (15.1%; U.S. Census Bureau, 2016). The high NSLP-eligibility rates in Clayton County Public Schools indicate further evidence of high need.

The median income in Clayton County (\$42,470) is lower than Georgia's median income level (\$51,037), and it is lower than the U.S. median income (\$55,322). Kids Count research shows that 32.1% of the children in Clayton County live in families with income levels below the federal poverty line compared to a 23.1% rate statewide. This data indicates that these neighborhoods have a higher rate of childhood poverty than an average U.S. neighborhood (19%). Over 27% of children (o to 17) in Clayton County live in single parent homes with a female head of household. The median income reported for that demographic group (female, one-parent family) is \$41,027 (U.S. Census Fact Finder, 2016).



Growing up in a poor neighborhood significantly reduces the chances that a child will graduate from high school (Wodtke et al., 2011). These researchers found that the longer a child lives in a disadvantaged neighborhood, the more harmful the impact will be on that child (Wodtke et al., 2011). To that end, their research is evidence regarding the cumulative impact of growing up in low-income neighborhoods with low high school graduation rates. They found that, "compared to growing up in affluent neighborhoods, growing up in neighborhoods with high levels of poverty and unemployment reduces the chances of high school graduation from 96% to 76% for black children" (p. 713).

Georgia State University (GSU), Curriculum Associates (CA), and Clayton County Public Schools (CCPS) ("the Partnership") assert that the conditions and needs present in Metro Atlanta and CCPS are representative of districts around the U.S. that meet the criteria set forward by the Gates Foundation in this investment initiative. Hence, Clayton County Public Schools (CCPS) is an ideal proving ground for the Partnership's work. The State of Georgia and Curriculum Associates developed a cohesive wraparound transferal professional learning program for high need districts and educators. The partnership sought to foster natural supportive networks among students and collaborative practices among educators. It fulfilled Clayton County Public Schools' needs regarding implementation of the following:

- A Focused curriculum.
- B Equally accessible opportunities.
- C Supporting teachers with diverse, adaptive skills to enhance the achievement of all students.
- D Establishing sustainable, ongoing professional learning services.

The partnership provided professional learning services (for effective use of high-quality instructional materials) that were efficacious for Black, Latino, EL-designated, and low-income students. Direct support and guidance were provided to struggling math mid-level educators to ensure they were responsive to the academic and social needs of Black, Latino, English Language Learners, and students from low-income communities. The manual describes how the needs were fulfilled and replicated in other districts, and how collectively, the expertise of GSU, CCPS, and CA became the capacity building foundational base for what middle school math teachers should know and should be able to do when translating theory into practice.

#### TEAM

The PLP meetings initially were scheduled to make sure all members of the team were updated on project activities. Some aspects of the weekly meetings developed organically to ensure we were working toward accomplishing the goals and objectives of the project with weekly outcomes noted. Once we completed the hiring process and established the membership of our team, we scheduled weekly meetings that included agendas developed with input from the team that was shared prior to upcoming meetings. (A sample of the agenda used can be found <u>here</u>.) The collaboratively planned agendas helped team members feel a sense of engagement and accomplishment prior to the upcoming meeting.

Since our team consisted of a local school district, a higher education institution, and a curriculum publishing company, our roles needed to be defined and shared among the team responsible for project implementation. One of the major roles that contributed to the success of how our team worked together was the willingness of one team member to record the agenda items and another member to record meetings outcomes. The agenda and the minutes were shared through emails to team members and saved to Google Docs for easy access for all team members. Our team included 14 to 16 members at weekly meetings, which demonstrated their commitment to the project over time. Without the use of meeting protocols, all members of the team were encouraged to contribute to the agenda topics, and their contributions were respected and valued by all members.



## WEEKLY MEETINGS

Weekly meetings provided an opportunity to build relationships across the partnership. These relationships will be critical to the dissemination and sustainability of the grant activities over time and after funding ends. Some activities have included encouraging and recruiting district leaders to enroll in doctoral programs, sending invitations for people to participate in other grant writing activities, inviting and encouraging participation at virtual conferences, and strengthening higher education and P-12 partnerships that support students and their teachers.

## READY LOOK FORS: PURPOSE AND PROCESS

Conducting a Look Fors visit with school leaders is a helpful way to engage them in the work taking place in classrooms, analyze progress of implementation, and determine actionable next steps to support teachers in the implementation of i-Ready Classroom Mathematics. The acts of regularly observing mathematics instruction and providing teacher feedback are crucial parts of the implementation reflection cycle. The following explains the phase of each part of the cycle, which also describes the main phases of our classroom walkthrough process:

- Observe: We conduct multiple classroom walk throughs, using the Look Fors to gather data related to relevant top teacher actions.
  - Clayton's dedicated and supporting specialists chose to focus on facilitating meaningful mathematical discourse and eliciting and using evidence of student thinking as the two top teacher actions for which educators can improve their instructional practice.
- Reflect: We look for trends in classroom walkthrough data and identify collective areas of strength and opportunities for growth.
  - During the debrief with administrators, we focused on identifying individual teachers' collective strengths and growth opportunities within those two top teacher actions of focus.
- Take Action: We create and implement a plan for action that builds on existing strengths and provides teacher support related to growth areas.
  - Lastly, our team compiled some collective action steps that our math educators could take to support their improvement in the growth area.

## TOP TEACHER ACTIONS OF FOCUS

The National Council of Teachers of Mathematics (NCTM) Effective Mathematics Teaching Practices represent a core set of high-leverage teacher actions that activate students' application of the Standards for Mathematical Practice. These teaching practices are incorporated into every i-Ready Classroom Mathematics lesson and align to our top teacher actions.

- Facilitate meaningful mathematical discourse Effective teaching of mathematics facilitates dis course among students to build shared understanding of mathematical ideas by analyzing and comparing student approaches and arguments.
- Elicit and use evidence of student thinking Effective teaching of mathematics uses evidence of student thinking to assess progress toward mathematical understanding and adjust instruction continually in ways that support and extend learning.

## PARTNERSHIP

As i-Ready partners, we are a dedicated service team that works alongside our educators and leaders to help build data-driven classrooms where teachers are empowered with actionable insights connected to rigorous instruction, and students are excited about instruction and are invested in their learning. As a collective partnership that deeply cares about education, our core company values coupled with our partner's strategic goals, mission and vision, and values help us to continue to provide an invaluable service in support of not only our teachers of promise but also all our math educators.



# Chapter 2 Online Learning Transitions and Teacher Observations



CLAYTON COUNTY PUBLIC SCHOOLS, THE fifth largest school district in Georgia, is considered a large school system. The district supports an active, well-established professional development department which provides a variety of initiatives related to recruiting, developing, and retaining highly qualified and effective teachers. Some of the teacher development programs offered include TAPP (Teachers Academy of Preparation and Pedagogy), endorsements, model lessons, technology, classroom management, etc.

However, the mathematics department (consisting of a director, several specialists and contract staff) is responsible for coordinating and implementing professional learning opportunities in the mathematics content area to ensure that middle school math teachers have effective, convenient, consistent, and continuous professional learning opportunities.

Over the years, many professional learning activities were conducted and continue to be presented in the mathematics content area. Under the Gates Grant, part time observation coaches were brought onboard to make face-to-face observations in selected classrooms to determine where supplementary support was needed. Due to the pandemic shutdown, the observation coaches were forced to change from to virtual observations of teachers. The observation coaches used the Mathematics Classroom Observation Protocol for Practices (MCOP<sub>2</sub>) instrument which includes 16 items to conduct virtual teacher observations. The instrument is designed to determine whether instruction is fully, partially, or not aligned to high impact practice. Each of the selected classrooms was observed at least once. If for some reason more than one virtual observation was made, only one completed instrument was submitted.

When time and circumstances permitted, the observation coaches spoke briefly to the teachers after virtual

observations and provided limited feedback, along with information related to the next steps in the process. The completed instruments including comments were submitted to Clayton County Public Schools staff for compilation, and for determination of support needed based on observed needs.

## NEEDS ASSESSMENT

To assess the needs of the school district, we analyzed both qualitative and quantitative data. In this section, we will highlight the different tools that were used to assess the district needs. Then we will show how the data can be used to determine the professional development needs.

## Classroom Observation Tools

Three observation tools were used during this grant. Each partner provided a tool to conduct classroom Observations. Georgia State University utilized the Mathematics Classroom Observation Protocol for Practices, Clayton County Public Schools used the CCPS High-Impact Practices Observation Instrument, and Curriculum and Associates used the i-Ready Observation tool. All three tools focused on both teacher and student efforts.



Observation Tool	Items	Focus	Observer(s)
Mathematics Classroom Observation Protocol for Practices (MCOP2)	<ul> <li>Student engagement</li> <li>Problem-solving</li> <li>Mathematical activities</li> <li>Representation of concepts</li> <li>Critical assessment of math strategies</li> <li>Persevering in problem solving</li> <li>Relational/conceptual understanding</li> <li>Modeling with mathematics</li> <li>Examine mathematical structure</li> <li>Precision of mathemati- cal language</li> <li>Encouraged student thinking</li> <li>Provided wait time</li> <li>Respect</li> <li>Communication of ideas</li> <li>Instructional practices</li> </ul>	Teacher facilitation Student engagement	GSU observation coaches
CCPS High-Impact practices observation instrument	<ul> <li>Deconstruction of standards</li> <li>Close reading and evidence-based writing</li> <li>Higher-order questioning</li> <li>Academic discussions</li> <li>Thoughtful work</li> </ul>	Teacher evidence (*Deconstruction of standards only) Student evidence	Teacher-Leaders Administrators Mathematics Specialists
i-Ready Observation Tool	<ul> <li>Facilitate meaningful mathematical discourse</li> <li>Elicits and use evidence of student thinking</li> </ul>	Teacher actions Student actions	Curriculum and Associates – Professional Develop- ment Specialists & Mathe- matics Consultants

Although the observation tools had distinct differences, there was noticeable overlap in the areas of questioning, discourse, and evidence of mathematical thinking. It was our hope that when the data from all three tools were analyzed that the findings would lead to a similar assessment of needs.

## Chapter 3 Plan Development and Implementation



ONE OF THE MOST CRITICAL COMPONENTS of our work with the stakeholders in Clayton County Public Schools was developing and implementing a plan for professional learning. Under the leadership of the grant team, we collectively made decisions to assist with the logistical management of the Professional and Content Learning. As might be expected, district-level decisions were made during the COVID-19 pandemic that called for flexible, forward-thinking shifts in instructional design and planning.

In order to meet the needs of all student populations, the Gates grant committee collaborated with a number of teams to optimize success through creating and delivering professional development that specifically targets the needs of our teachers. The Curriculum Associates team, the Georgia State University team, the English Learner Success Forum (ELSF), the Department of Exceptional Students, and the World Languages Department, which supports English Language Learners (ELL), all collaborated with the CCPS Mathematics department to plan and implement professional learning sessions. Members from the Clayton County Department of Exceptional Students (DES) and the World Languages Department worked in collaboration with the Mathematics department to ensure practices, strategies, and structures supported the needs of the students using these services.

The CCPS Mathematics department started by aligning department goals to the district's vision and mission. Their vision is ..."to prepare ALL graduates to have the skills to pursue and accomplish college, post-secondary training, and/or career opportunities in order to live and compete successfully in a global society." The mission of Clayton County Public Schools is to empower scholars to achieve academic, professional, and personal goals by providing equitable access and experiences that build skills in literacy, creativity, critical thinking, and collaboration. The district Mathematics department goals are as follows:

- Increase the percent of effectively implemented accessible mathematics teaching practices as evidenced by observation, survey, and assessment data.
- 2. Increase mathematical proficiency (i.e., conceptual understanding, procedural fluency, strategic competency, productive disposition, and adaptive reasoning) as evidenced by assessment data, participation in math and STEM events, observation data, and surveys from students, teachers, and parents.
- **3.** Increase the percent of students meeting and exceeding grade-level achievement on the district, state, and national assessments.

The CCPS math team worked with the grant leadership team and supporting partners to review teacher observation data, teachers and students survey data, Ambassador and Department Chair feedback data, student achievement data, and teacher focus group discussions. This data was examined against the department goals to identify a focus for instructional development. The three overarching themes of those identified areas were:

- Content Strategies Methods used to help students develop understanding, build skills, and conceptualize content.
- Instructional Practices Manners in which teachers understand, organize, and implement instruction in order for students to engage with the content strategies and develop mathematical practices. Instructional practices generally reflect beliefs and ethics about the teaching and learning process
- Formative assessments A variety of tools that teachers use to conduct in-process evaluations of student comprehension, learning needs, and academic progress during a lesson, unit, or course with an intended expected outcome.

As a team it was decided that the overarching themes would drive the focus of the professional learning sessions provided to teachers in the district. Through these themes a number of different topics in which best practices for mathematics teachers were used to create engaging sessions. Some of the sessions covered:

- High-Order Questioning: Students actively engage in developing rigorous questions to deepen their learning and/or to challenge the thinking of their peers. Students are able to respond to rigorous questions generated by peers with little guidance from the teacher.
- Thoughtful Work: Students discover opportunities to apply content to their lives as well as real-world application.
- Academic Discourses: Students primarily drive the discussion, consistently adding value to the dialogue with their peers and teacher and respecting the opinion and thoughts of both; the lesson shifts to conversation rather than a Q&A session regarding the major concepts studied.
- Deconstruction of Standards: There is evidence that the teacher has deconstructed the standard(s) due to its effective alignment with the learning target(s), learning task(s), and all students' accessibility to the language of the standards
- Close-Read Evidence Based Strategies: There is meaningful evidence that students are required to demonstrate their understanding of a text (e.g., selection, illustration, graph, etc.) through the use of a close-reading protocol or process. All students demonstrate their understanding by producing an evidence-based written response while referencing a rubric to self-assess and/or revise their response.

Anchoring these practices was a high quality, comprehensive curriculum that aligned with the state standards and the math goals. The curriculum used by middle school mathematics teachers in Clayton County Public Schools is the Curriculum Associates (CA) *i-Ready Classroom Mathematics* along with the i-Ready supplemental program. Curriculum Associates worked with the CCPS Mathematics team to facilitate personalized sessions to ensure the successful implementation of the *i-Ready Classroom Mathematics* and *i-Ready* Mathematics assessment and instruction. Each year, Curriculum Associates worked with the CCPS Mathematics leadership team to develop a training plan and scope of work based on the needs of the teachers and students. This plan targeted the specific needs of each school by outlining a process for job embedded professional learning. Each school received a minimum of three live touchpoints throughout the year with additional support delivered through webinars, virtual office hours, and districtwide teacher leader training sessions. Building leaders and teachers maintained consistent contact with CA consultants and were able to communicate the building level needs in order to maximize the implementation and monitoring of the *i-Ready Classroom Mathematics* curriculum.

Using a personalized job embedded approach to professional learning created the flexibility needed to allow the mathematics department and the grant team to remain consistent with high levels of support in the midst of drastic changes to district operations. This was particularly helpful when faced with the challenges created by COVID or by the district's plan to reduce the testing load experienced by students. The i-Ready program has been in use in CCPS for over three years. Each year the implementation plan was modified to tailor the needs of the students and teachers. Prior to 2021-22 each middle school student was administered the Northwest Evaluation Association Measures of Academic Progress (MAP) assessment along with the i-Ready diagnostic. In 2021, the district removed the i-Ready diagnostic assessment in order to reduce the amount of student testing. The i-Ready diagnostic allowed the i-Ready program to prescribe an individualized plan of action that would place the student on a one-year growth trajectory. The Curriculum Associates team, the grant team, and the Mathematics leadership team worked cooperatively with the district's Research, Evaluation, Assessment, and Accountability Department to ensure teachers were equipped with the necessary content, platform, and data knowledge and support to allow the i-Ready program to continue providing students with customized learning.

The team used a variety of measures to analyze progress toward the identified goals. The i-Ready learning platform provided by Curriculum and Associates was utilized to gather student data and teacher implementation efficacy of the Ready Mathematics curriculum and i-Ready program. The MAP assessment also provided student achievement and growth data. Teacher and instructional coach surveys provided perception data about the organizational, teacher, and coaching effectiveness. Observation data provided insight about the quality and consistency of instructional practices and strategies. In addition to providing reports on student content mastery, Curriculum and Associates included culturally responsive content in their diagnostic testing items and personalized instructional lessons. All of the middle school mathematics lessons were available through their online instructional platform, i-Ready.

The process of ensuring teachers have the necessary strategies in lessons to guide students with disabilities was an intentional process. Observations were conducted through district focus walks, GSU coaches, and Curriculum Associates. The Gates committee met weekly to discuss the results of the observation data to determine the instructional targets that could potentially impact teachers from a top-down perspective. Clayton County's DES and Mathematics Departments worked in concert to develop professional learning opportunities that allowed teachers to consider the reasons and the process for including effective scaffolding for students with disabilities. As a team, the two departments designed, reviewed, and modeled. One specific professional learning experience allowed teachers to engage in a co-developed lesson then examine and discuss the collaborative process that was used to make sure a variety of aligned and effective student supports were included. These co-taught training sessions modeled the expectations of cohesive collaboration that should exist among educators while providing background information needed to build accessible and accommodating learning environments.

Special attention was placed on ensuring the ELL population was served. The CCPS Mathematics department collaborated with the ESOL department and the English Learners Success Forum (ELSF) to align math practices to the needs of ELL students. ELSF conducted a SWOT analysis, identifying strengths, weaknesses, opportunities, and threats (or challenges) faced by the CCPS mathematics department as it related to the knowledge and practices of the mathematics teachers. While the focus was primarily on the Mathematics department's capacity to meet the needs of ELL students, ELSF also examined the department's overall use of evidence-based mathematics practices and strategies. During this partnership, specified professional development was created to target instructional practices and strategies to increase the consistency and efficacy of identified mathematics strategies with the targeted population. The ELSF team set up visits for the middle schools with an increased population of ELL students to identify professional learning needs for teachers to ensure the language needs of the students were targeted for academic success.

Another key area of focus was on new teachers and teachers struggling to implement practices that elevated the students as mathematical thinkers. Administrative teams were asked to provide a list of math teachers who could use additional support within their buildings. These identified teachers were called the Teachers of Promise (TOPs). The TOPs worked with the university coaches to receive additional in class modeling, coaching, and site-based training. The GSU coaches used the Mathematics Classroom Observation Protocol for Practices (MCOP2) tool to gather and report observation data. Based on the results from the TOPs observations the math department created intentional professional learning to target low performing practices. The PLP team aggregated the data from the MCOP2 to ensure that professional learning was aligned with the research-based high Impact Practices.

Clayton County Public Schools took advantage of the flexibility that arose out of the virtual environment created by COVID and was determined to find strategic methods for maximizing teacher work time. The district desired to engage teachers in professional learning without requiring excessive time after work hours. Using virtual learning days that CCPS called extending learning beyond the classroom (ELBC) days, they were able to create opportunities for teachers to engage in professional learning without using personal time and without having to pay additional stipends for afterhours training. On ELBC days, students completed asynchronous activities from home while educators reported to work in person or virtually for the purpose of participating in professional learning or mandatory meetings. The extended learning beyond the classroom days became opportunities for teacher leaders to sharpen content, pedagogical, and leadership skills. Department chairs were allowed time to complete tasks that were typically

completed after hours. Mathematics Ambassadors were given time to collaborate about strategies that support the upcoming concepts for their grade level. All teachers were able to find professional learning opportunities that aligned to their personal and professional goals. All departments, content and auxiliary, were assigned days and times to create and deliver professional development to teachers in the content in which they teach.

Supporting the job-embedded professional learning process were the CCPS teacher leaders. The district aims to create opportunities that equip and empower teachers to lead learning and cultivate purposeful collaboration. The role of the CCPS teacher leader is to pursue continuous growth in professional practice and they are viewed as the first layer of support in schools. Through the utilization of this role, other teachers received job-embedded support to aid them as they plan and create high quality learning experiences for students. The teacher leader engaged colleagues in professional learning communities, training sessions, collaborative planning, and mentoring. The intent was for this exchange to build the capacity of all teachers to enhance instruction and student learning (CCPS, 2018). Teacher leaders for the mathematics department included mathematics ambassadors and department chairs/lead teachers. Each school was permitted to select one ambassador for each grade level and one department chair/lead teacher per building.

Mathematics ambassadors were responsible for participating in monthly district-wide collaborative planning sessions to engage in a modified lesson study process. Mathematics Ambassadors built the knowledge and expertise of colleagues through purposeful use of the department-specific practices, resources, and tools. They assisted site-based mathematics teachers on their grade level with the execution of content specific strategies, practices, and formative assessments. They also maintained consistent communication with the district mathematics department team members to provide input and feedback regarding district-wide professional learning plans.

Mathematics department chair/lead teachers supported the execution of expectations that were unique to the department. They maintained consistent communication with the district mathematics department team members by participating in professional learning sessions which they then prepared and redelivered as professional learning modules and department updates to building leaders and teachers. Each chair/lead conducted regular, productive department meetings to collaboratively research and think through teaching and learning needs and to disseminate important information that innovates learning.

The determination to structure collaborative, comprehensive, and consistent job embedded professional learning greatly improved teacher and student dispositions toward teaching and learning mathematics. Data showed a steady increase in professional learning participation. Perceptions about district support and professional learning effectiveness were also overwhelmingly favorable. Climate and culture among mathematics teachers was positive and collaborative. CCPS educators expressed increased confidence, perseverance, and high levels of self-efficacy. Clayton County plans to build upon the job embedded professional learning structure established during the grant to continue to empower and develop teacher effectiveness.



## Chapter 4 Challenges and Successes



UNDOUBTEDLY, THE 2020-2021 AND 2021-2022 school years had major challenges due to the global pandemic, but there were many successes during the same school year. This section is dedicated to highlighting the challenges and successes of implementing our grant initiatives.

## Challenges

During the 2020-2021 school year, Clayton County Public Schools made the decision to provide virtual instruction for roughly 80% of the entire school year. Chromebooks and hotspots were issued to students so they could receive quality instruction and participate in virtual learning from home. Teachers were able to hold virtual classroom meetings via Zoom and Google Meet. This also meant that all classroom observations, collaborative planning sessions, and meetings would be held virtually. The district's technology department made all efforts to protect teachers and students by ensuring that access and security were at the highest level. Consequently, stringent security rules made it difficult for external support for Georgia State University. Zoom settings only allowed Clayton County Public Schools' students and employees to have access. If outside individuals wanted access to the meeting, their emails needed to be added to the meeting that they wanted to access. School-based instructional coaches assisted with connecting the GSU coaches to the classrooms.

At the school level, different technology resources and expectations were set for their respective students. Establishing a school culture online during a pandemic had challenges. Using a video conferencing software like Zoom required the reestablishment of classroom norms virtually. Schools and teachers set classroom expectations for displaying video, muting microphones, and



participating in the group. Pivoting from face-to-face instruction to online instruction had its challenges as well. Teachers, coaches, and leaders leaned on each other to deliver high quality mathematics instruction while incorporating tools for various online platforms to enhance student learning.

Clayton County Public Schools provided very forward-thinking professional development prior to the pandemic as all teachers were expected to utilize a learning management system and familiarize their students with navigating the platform. Just as students have varying levels of content mastery, teachers have varying levels of mastery of technology. To combat this challenge, collaborative planning time was utilized to help teachers transform paper and pencil activities to online or asynchronous tasks, discover online platforms that could be utilized to enhance instruction and content mastery, and make data-driven decisions to improve student learning. Clayton County Public Schools' portrait for their graduates includes that they will be able to "demonstrate noble character as an engaged, well-rounded citizen and exude self-awareness, self-management, and self-confidence." The social and emotional learning (SEL) curriculum was incorporated into the daily lesson plan to assist with this.

#### Successes

One of our greatest successes for the grant has been the peer-to-peer Facebook group. The social media group gave its members an opportunity for collaboration, guidance, and leadership. As the group began to grow, we determined that social media managers were necessary for sustainability. Several teachers applied for and participated in a performance-based interview for the position. The addition of this role was paramount to group growth and participation. Once selected, the social media managers were invited to attend the grant meetings with CA, GSU, and CCPS team members. The meetings were held every two months to inform the social media managers of the social engagement displayed in the community, address any logistical issues or discuss ways to increase and sustain the level of engagement in the community. A schedule was created each month and disseminated to the Social Media Managers to complete a primary and secondary post. The posts were staggered so that teachers had enough time to respond and interact with each other. To date, the peer-to-peer virtual learning community has grown to nearly 200 members and engagement has become more organic between group members as the page is used as a resource for teachers across all grade levels.

Over the course of the grant, we became engaged in a family-like partnership. We held weekly meetings at 4:15 pm every Thursday. During our weekly meetings we were able to build stronger relationships with one another, share informal and formal data, discuss problems, and seek resolutions to issues identified during our weekly tasks. We have kept copious notes and a running agenda of the details of every meeting in a running google document. All members have access to the meeting notes and can review the tasks and duties assigned to every member of the team. The meetings held us accountable and kept all stakeholders informed. We were also able to brainstorm ways to adapt tools and resources from an in-person format to virtual format. For example, the mathematics observation protocol was imported into Google Forms to accommodate virtual teaching and learning.



## Chapter 5 Sustaining A Virtual Learning Environment



DUE TO THE CONTINUING EFFECTS OF COVID-19, Clayton County Public Schools decided to begin the 2020-2021 school year virtually. The district had to consider many factors quickly. Students would need the ability to be one-to-one with devices, teachers would require training and support to navigate the virtual environment, and students' engagement in this new normal would have to be a top priority.

Clayton County is a Title-I district, suggesting it mainly serves students from economically disadvantaged backgrounds disproportionately impacted by the digital divide. To address the digital divide and ensure students were prepared to engage in learning on the first day of school, the technology department worked tirelessly to quickly provide students with individual devices. Schools set up drive-by pickups for registered students to receive their devices and the county partnered with a local cable provider to enable residents without internet to have low-cost internet access. In cases where families could not qualify for the service due to prior outstanding balances, internet hot spots were provided for the student.

As assistance for students was solidified, a teacher-support focus was also developed. The teacher supports that typically occurred face-to-face had to be modified to support the new virtual environment. The county quickly decided that schools would participate in synchronous and asynchronous days. This model would also support schools if students returned to face-to-face learning, which would allow students to learn from home one day a week to provide an opportunity for the school staff to clean the buildings. Monday through Thursday became synchronous learning days, and Fridays became asynchronous days. The asynchronous days were designated as Extended Learning Beyond the Classroom (ELBC) days. Students were allowed to work asynchronously on provided assignments while teachers received monthly professional development. As ELBC days got underway, the birth of first and third Fridays

gave way to teacher training. On the first Friday of every month, all math teachers engaged in ongoing professional development to support the math classroom.

As the months progressed, so did the training topics. The training sessions were focused and created based on needs identified during classroom observations. Teachers received training in various areas, including eLearning platforms, student engagement, support for English Language Learners (ELL) and students with disabilities (SWD). As we continued to evolve and reflect, 'students' lack of engagement continued to rise to the top of conversations. Students were present online, but they were not present in the academic discourse. Student cameras were off in most classrooms, and discourse was mostly one-sided, or it included very few students. Even the chat was, as students say, "dry," suggesting there was limited to no communication and engagement. Hence, teacher training focused on effective strategies for recruiting students' attention and increasing and maintaining student engagement. Teachers were trained on platforms, such as using Breakout rooms in Zoom, Desmos, PearDeck, Whiteboard.fi, and virtual manipulatives.

While ensuring teachers were able to support students in the new environment, the focus on curriculum also continued through ambassadors attending training on the third Friday of each month. Each school designated a teacher who attended the monthly training that focused on the curriculum and the learning that needed to occur. These training activities were in-depth and allowed teachers to delve into the unit by deconstructing standards, creating lessons that aligned to the learning that needed to occur, and thinking through probing and guiding questions to determine students' understanding. The grade-level teachers worked to provide a baseline that could be taken back to their building and shared with their other grade-level teachers for further expansion.

During the shift to virtual instruction, we needed to ensure that parents did not feel shut out by schools being shut down. Every year, we provide opportunities for students to compete in different math competitions outside and within the district leading to March Mathness. Parents come out and support their students as they compete, so it was important that the opportunity to continue this tradition existed. Based on the number of parents, family, and school staff who typically supported students, we realized that our Zoom capacity would be quickly exceeded. To address these issues, a Facebook page was created to communicate with parents, and it allowed us to go live for events and extend the number of viewers who could participate. Parents quickly engaged in the activity, and the viewership was outstanding as parents shared the link with their relatives and friends across the country. During this next school year, we look forward to supporting our teachers, students, and parents as they continue to make math matter daily.

### Curriculum Knowledge

Knowledge of the curriculum is an essential requirement for teachers to be effective with students in the classroom and beyond. However, implementing the



knowledge is key to optimizing the likelihood of student success. As educators, we must understand how to connect the content with the mathematical practice standards in order to design lessons for our students that foster deeper understanding. In turn, ensuring that teachers understand the alignment of curriculum content standards and the standards of mathematical practice is paramount for content mastery. The collaboration within the grant entities supported a focus on real-time practice with current grade-level standards, modeling best practices, and reflective discourse of the two.

Real-time engagement with grade-level current standards was a consistent and intentional portion of the collaborative planning process with teachers, coaches, and math specialists at the middle school level. At the onset of collaborative planning, the team used the work of the ambassadors to discuss connections that could be made horizontally within the unit and vertically across the curriculum. During this rich discourse, the group often needed to engage in previewing learning tasks provided in the curriculum. As the team previewed the unit task, key considerations were discussed. Those key considerations are as follows:

- I What is the context of this task?
- 2 What part of this task am I unclear about?
- 3 What are the required knowledge areas, skills, and dispositions associated with the task, and how do they support PBL?
- 4 Which of the identified concepts/skills are ad dressed in the task?
- 5 How will this be implemented to deepen student learning?

Discussion around these key considerations led the team to align the content standards and mathematical practice standards. As teachers honestly reflected on their responses to considerations two and five, many "aha" moments occurred. Once teachers acknowledged the portions of the task they were unclear about and discussed how they reflected on their thinking to get to a solution, the math specialists were able to identify the standard of mathematical practices that teachers used to stick with and solve the problems.

The standards of mathematical practice four (model with mathematics) and five (use appropriate tools strategically) became the cornerstone of the training for teachers in the eLearning environment. As the GSU coaches and the math specialists discussed the class observation notes, the spotlight glared on the need for students and teachers to engage more concretely with the content. Hence, the training focused on using virtual manipulatives in the online math class to support conceptual understanding of the content. The opportunities to introduce, model, and practice with the virtual manipulatives became a norm during collaborative planning and professional learning for the teachers. As a result of the training, the discussion around task consideration five (how will this be implemented to deepen student learning) focused on using virtual manipulatives to best support learning targets.[jMI]

#### Collecting Data and Providing Feedback

As students began using the online platforms and virtual manipulatives to engage in the lessons, the teachers could obtain formative data. The data revealed ranged from beginning to proficient performance. It was evident that all students, especially English Language Learners and students with disabilities, could benefit from meaningful mathematical discourse to deepen their understanding of the topics. Inasmuch, the team used the work the ambassadors provided with questioning and applied the same thinking to support a productive struggle during the lesson with focused questions that probed students' thinking.

The math specialists were able to model the use of the talk moves (a discussion strategy) with the planned questions created in collaborative planning to aid in igniting the discourse during synchronous instruction with students. To extend this practice, training was provided with a specific focus on supporting English Language Learners and students with disabilities in the math class. The math specialist partnered with the ELL and SWD teams to plan a lesson with intentional consideration of the needs of these subgroups of students. The lesson engaged the students with sentence starters for verbal and written responses. The intentional implementation of the standards of mathematical practices while teaching the content proved beneficial in developing meaningful lessons.

During the transition to online learning, teachers were challenged with finding ways to engage students virtually. In a 6th-grade geometry lesson observed by the math specialist and GSU coach, students were asked to solve the surface area of rectangular prisms. The students were given a two-minute timer, and at the end, they were instructed to put their responses in the chat box. After the time had elapsed, there was a long period when no students responded until one brave student typed the answer of "60 square feet". Seconds later, the remaining students started to type 60 as well, and the teacher acknowledged the students as being correct and on track for understanding the concept.

At the end of the lesson, the GSU coach and math specialist debriefed with the teacher to give feedback and suggestions to improve the lesson and engagement of the students. The use of the Whiteboard.fi platform was recommended and modeled, and the coach and math specialist explained how it would be beneficial in the virtual learning environment. It would allow students to show their work using different visual representations, colors, or annotations to represent their thinking. This provided the teacher with the ability to give immediate feedback to students as they worked while identifying common misconceptions.

From the data collected from our Georgia State University coaches, we determined that teachers across the board struggled with finding authentic ways to increase student participation in the daily lessons and practical strategies to get students to show their work when solving problems. This struggle led to training provided by the district to give teachers a variety of instructional technology options that were grade-level and content-specific. Whiteboard.fi, Peardeck, Jamboard, Mentimeter, and Poll Everywhere were some of the virtual platforms modeled to show teachers how they could be used in classrooms to engage all learners. Thus, a focus during planning transitioned to training teachers to determine what the appropriate virtual tool or learning platform would be suitable for each lesson. When considering the appropriate virtual resources for students, teachers must decide what tools will be most effective for teaching and learning to allow students to master content standards successfully and meet instructional goals.

# Chapter 6 Planning for Successful Sustainability and Scale Up



SUSTAINABILITY AND THE ABILITY TO SCALE up have typically been challenges after a well-funded project ends. Critical to efforts in sustaining and scaling up initiatives is the formation of partnerships with key stakeholders. Hence, the GSU/Clayton/CA Partnership has focused on fostering relationships with stakeholders from the very beginning. Through these partnerships, we were able to prepare teachers to improve the quality of their mathematics instruction, which in turn, resulted in improved student learning and achievement in mathematics. Furthermore, these relationships have allowed teachers to continue to participate in data-driven professional learning activities based on their specific needs and the needs of their students.

To enhance our capacity to scale up and sustain this work, the partnership currently is seeking additional funding through grants from federal agencies and foundations. Clayton County Public Schools will look at the possibility of restructuring existing funding to ensure the work continues after the funding ends. One major aspect of the success of the program is to maintain the two mathematics coordinators hired through grant funds. These positions have been critical to the success of the Gates Professional Learning Project. The role of the math coordinators is to provide an extra layer of support for all math teachers, and more specifically, they support those who need additional assistance as they work through curriculum implementation and other challenges.

Another funding opportunity is reviewing existing district funding to determine if the two math coordinators positions can be funded through reallocation of programs like the Every Student Succeeds Act (ESSA), which generates funding based on the number of low-income students in the district. It is vital to consider FTE counts to determine if state funds have been maximized to ensure no gaps in student schedules. Institutionalization is key to scale up and promote sustainability. Once the district decides to capitalize on the findings from the research findings, continue supporting teachers through effective PL, and elevate the knowledge of school level and district level administrators, procedures can then be implemented.

## Keys to Sustainability and Scalability

To maximize the potential for the sustainability and scalability of any initiative to improve student outcomes, important questions must be addressed. These questions focus on identifying the expected impact of the initiative (what), its alignment with other existing efforts (how), its need (why), and key stakeholders and partners to obtain their buy-in (who). Therefore, our efforts to improve the sustainability and scalability of this work must address the following critical questions:

- I What is the expected impact of our efforts?
- 2 How does the efforts of our work align with the vision, mission, goals, objectives and policies of the district, university, and curriculum partners?
- 3 Why is there a need to sustain and scale up efforts?
- 4 Who are the stakeholders that are critical to our efforts?

## What is the expected impact of our efforts?

The overall vision of the Clayton County Public School district is "to be a district of high performance preparing ALL students to live and compete successfully in a global society." As a part of the current 5-year strategic plan (2018-2023), Clayton County's performance objectives are as follows:

A Increase the number of students scoring at or above proficiency on state, national, and inter national assessments by 3 percentage points each year.

- B Increase the graduation rate from 69% to 90%
- C Decrease absenteeism specifically by increasing the number of students who are absent less than 10% of the school year.
- D Decrease the number of discipline infractions while simultaneously increasing employee morale and community support.

Given these performance objectives, the work of this grant could support all four of the strategic plan objectives. Academically, the summer mathematics retention rate improved. There was no learning lost during the summer for 8th grade mathematics students. We anticipate that graduation rates will be impacted positively by strengthening the mathematical understanding of middle school students. Academically, the strong supports that are provided by the grant should translate to high graduation rates, improved mathematics course and exam scores, and increased levels of college and career readiness. Other student and teacher outcomes are stronger student-teacher-community relationships, increased self-efficacy, increased motivation, and a reduction of absenteeism.

Relationships are essential in education. Partnerships between research institutions like Georgia State University and local school districts are two-fold. The school district gains access to researchers who can aid with creating, implementing, and evaluating research/ evidence based instructional and intervention strategies. The research institution gains access to a school district to implement grants and directly impact K-12 schools and data for research and publication. While the work between two education institutions can be a beautiful symbiotic relationship, involving companies, politicians, and other community partners can also impact district and university goals positively. Curriculum partners like Curriculum and Associates provide high quality curriculum and implementation resources to assist teachers and schools with instructional planning, delivery, and assessments. A threefold partnership helps strengthen the availability of testimonials from teachers, administrations, and observation coaches for curriculum implementation-based experiences.

While the testimonials could impact the curriculum partners directly, they also serve as a communication point for potential community partners. Within the district instructional/leadership structures, teachers have increased support opportunities for professional growth and development. In turn, this is a transition from compliance to the acceptance of new norms for teachers through implementing effective mathematics teaching practices consistently. One key component that encourages this embracement is the flexible grouping model of the grant. This model allows educators who are identified as teachers of promise to become mathematics ambassadors eventually. Teachers are given opportunities, regardless of a label/experience, to become teacher-leaders.



For example, the social media managers are a mixed group of teachers in regards to their status and years of experience. All social media managers have performed the duties and responsibilities that are associated with the role successfully and innovatively. This is one example of teachers growing their capacity to work towards developing, supporting, and implementing effective mathematics and research-based instruction. All of these roles are essential, especially the role of social media manager because they serve as community touch points to keep community members, leaders, and companies informed on the policies, practices, and performance of the school district. In addition, the suggestions within this manual aligns with policies like ESSA and IDEA due to the noticeable improvement for the educational outcomes for academically and economically at-risk groups.

How does our work align with the vision, mission, goals, objectives and policies of the district, university, and curriculum partners?

Vision statements, mission statements, strategic plans,

and performance objectives are typically present within educational institutions. Two of the goals within Georgia State University's College of Education and Human Development's strategic plan for 2018-2023 are to "enhance its presence as part of a leading public research institution and strengthen its leadership in recognizing and responding to the complexities of cities and urban communities." As a part of the five goals of the CCPS strategic plan, they believe that "communication and understanding among all stakeholders of our diverse community are essential to achieving the goals of education, and education is the shared responsibility of the student, the parent/guardian, the school, and the community." The goals and beliefs of both institutions involve sharing the responsibility of educating students. Each institution stands to benefit by helping each other achieve its goals, which in turn, helps to strengthen in-service teachers, pre-service teachers, researchers, district leaders, and students.

Communicating the goals and aligning grant opportunities with institutional goals help with stakeholder and leader buy-in. They also help with visibility and community/political support. In order to keep communication open, transparent, and consistent, we decided to have one-hour weekly check-ins to discuss the progress and impact of our goals. These weekly check-ins allowed us to be more responsive to the data as it was happening. After two years of support, the teachers, schools, and district leaders have become more familiar with the goals and implementation of the grant, so we are implementing a step-down plan to reduce the frequency of our meetings to monthly meetings for year 3, and we will shift to quarterly meetings thereafter. Although the frequency of the large stakeholder meetings is decreasing, the partner support will remain in place. The data from higher education observation coaches and curriculum partners' support will continue.

Why is there a need to sustain and scale up efforts? It is critical to scale up and sustain efforts to ensure that students and teachers who were not part of the reform work initially are allowed to have an opportunity to benefit and experience similar successes compared to their peers who were included in the intervention. Failure to scale up also can present issues related to inequity in the access to quality educational experiences that benefit educators and by extension, their students. Sustainability is critical for ensuring the long term success of educational initiatives designed to improve teaching and learning.

Overall, we were able to see improved teacher and student outcomes and believe that we must sustain the efforts of this project and scale it up to elementary and high school students and teachers. Some of the improved teacher outcomes were the addition of building level academic coaches and instruction support teachers who were able to identify building needs and communicate expectations to vendors and leadership for professional development. We were able to train teachers on effective mathematical practices and instructional practices and the district level mathematics specialists were able to attend collaborative planning sessions within the schools to allow additional support and engagement during meetings. All of these factors had a positive impact on the student outcomes. A higher number of middle school students took and passed high school mathematics courses while in middle school. Students were invited to participate in the district level Challenge 24 Math Competition. Likewise, parents were invited to support and cheer on their mathletes. This was a byproduct of building student's fluency and self-efficacy in mathematics. Curriculum Associates made resources available to help parents understand their students' progress. The vision statement for Clayton County Public School is to "prepare ALL graduates to have the skills to pursue and accomplish college, post-secondary training, and/or career opportunities in order to live and compete successfully in a global society." The Bill and Melinda Gates Foundation was able to help Clayton County work towards fulfilling our vision and mission statement.