GEORGIA'S INNOVATION FUND:

Profiles of Innovation Fund Grantees

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Introduction

In August 2010, the United States Department of Education awarded a $400 million grant to Georgia to implement its Race to the Top reform plan. As part of the reform plan, the state created the Innovation Fund, a $19.4 million competitive grant program administered by the Governor's Office of Student Achievement (GOSA). The purpose of the Innovation Fund is to spur unique partnerships across education entities to achieve four objectives:

- Raise student achievement by developing and delivering applied learning opportunities and experiences, especially in STEM fields.
- Improve teacher and leader effectiveness by supporting innovative teacher and leader induction programs.
- Increase the pipeline of effective educators by developing local capacity through Grow Your Own Teacher programs.
- Develop or expand charter schools that have special characteristics and that leverage nontraditional partnerships.[i]

During Race to the Top, the Innovation Fund provided 23 grants—across three rounds—to programs focused on providing K-12 applied learning opportunities, creating teacher and leader induction programs, growing the teacher and leader pipeline, or developing or expanding STEM-focused charter schools.[ii] This publication highlights promising practices that emerged from five round one and round two grantees: **(1) KIPP Teachers Fellow Program, (2) UGA/GAEL Early Career Principal Residency Program, (3) Morehouse College Student Applied Learning, New Teacher Induction and Staff Leadership Program, (4) Gwinnett STEM Targeted Educational Program (STEP) Academy, and (5) Tift County Mechatronics Partnership.**

Though it is too early to assess the long-term effects of these programs, we hope that the Profiles featured in this publication can serve as a framework for other Local Education Agencies (LEAs) looking to implement, expand, or replicate innovative approaches to teaching and learning. The pages that follow provide an overview of each program, offer a brief description of the program design, discuss key success factors, and present early indicators of program success.

[i] For more information about Georgia's Innovation Fund, visit at http://gov.georgia.gov/press-releases/2012-09-06/deal-announces-third-round-race-top-grant-winners

[ii] Governor's Office of Student Achievement. (2015, February). Innovation fund annual report. Atlanta, GA: Author. Retrieved from http://gosa.georgia.gov/sites/gosa.georgia.gov/files/Innovation%20Fund%20Annual%20Report-021715-WEBSITE_FINAL.pdf

KIPP Teacher Fellows Program

Atlanta and Fulton County, GA

Overview

The Knowledge Is Power Program (KIPP) Metro Atlanta Schools[i] serve students from economically under-resourced communities throughout metropolitan Atlanta and south Fulton County, Georgia. The majority of students in the KIPP Metro Atlanta pipeline are African American (95%) and qualify for free or reduced-priced lunch (75%).[ii] Urban schools with comparable demographics often struggle to attract and retain highly effective teachers. Often, these schools are staffed with inexperienced teachers who receive little—if any—instructional and coaching support, causing students to miss out on valuable educational experiences.[iii]

The **KIPP Teacher Fellows Program**—a partnership between KIPP Metro Atlanta Schools, Mercer University's Tift College of Education, and Georgia State University's Teacher Education Program—aims to address the teacher quality gap in urban schools by achieving three goals:

- **Goal 1:** Provide ongoing training and professional development to new teacher fellows.
- **Goal 2:** Provide ongoing training and professional development to mentor teachers who support new teacher fellows.
- **Goal 3:** Build relationships between partner institutions that facilitate a pipeline of high-quality applicants.[iv]

By reaching these goals, the "program [would] serve the dual purpose of creating a highly effective teacher induction program while increasing the pipeline of highly effective teachers in underserved communities"[v] throughout Atlanta and the region.

Innovative Program Design

Planning for the **KIPP Teacher Fellows Program** began during the 2011-2012 school year, followed by full implementation in 2012-2013. The purpose of the program was to provide a comprehensive teacher induction experience to a small, strong crop of new teachers. Program staff cast a wide recruitment net to identify and select teachers who exhibited the greatest potential for completing the program successfully and becoming effective KIPP teacher fellows. Recruitment efforts included career fairs at the University of Georgia, Georgia Charter School Association, and Tennessee State University; an information session at Mercer University; a KIPP Metro Atlanta Prospective Teacher Open House; and a national job posting on the KIPP website.[vi] After applications were reviewed, select candidates were invited to participate in a two-tiered screening process of phone interviews followed by in-person interviews. The **KIPP Teacher Fellows Program** set a goal of recruiting six fellows for each cohort. This target was met; however, one fellow was terminated and replaced in September 2012.[vii]

Once selected, the teacher fellows simultaneously gained hands-on experience while receiving ongoing training through a series of workshops delivered by master teachers and leaders. Workshops included topics such as SMART Aims—where fellows learned how to develop instructional objectives that are specific, measurable, attainable, rigorous, and time-bound—and the Teaching Cycle, which provided tips and strategies on implementing components of the teaching cycle.

The program also provided the teacher fellows with a mentor teacher. During the first year of the program, principals in KIPP Schools were asked to recommend mentor teachers who met certain criteria. Among meeting other criteria, these teachers needed to be veteran teachers, influential and motivating, reflective and open to feedback, and focused on results. All principals recommended two potential mentor teachers. Mentor teachers were then chosen based on teacher fellows' placements.

Mentor teachers trained teacher fellows through a "gradual release" plan—a strategy that allowed for a smooth transition from formal education to practical application to fulltime classroom teaching. Initially, teacher fellows and mentors co-planned lessons and co-taught classes.[viii] Mentor teachers also observed the teacher fellows and provided ongoing feedback on their progress. Eventually, the teacher fellows developed lesson plans and taught classes alone, while still receiving guidance from the mentor teacher.

Key Success Factors

Early success of the **KIPP Teacher Fellows Program** hinged not only on the essential components of the program design but also on three additional important factors: rigorous mentor selection coupled with ongoing professional development, mentor teachers as advocates for teacher fellows, and a highly engaged and invested director of teacher fellows.

- **Rigorous Mentor Selection Coupled with Ongoing Professional Development.** Mentors played a critical role in the professional development of teacher fellows. Therefore, every effort was made to fill the mentor role with individuals who not only possessed the knowledge and skills required for the position but also demonstrated a strong desire to support the development of novice teachers through professional support and instructional coaching.[ix] The screening process included a formal application as well as an opportunity to offer feedback on a five-minute sample lesson video. Once hired, mentor teachers were expected to participate in monthly professional development sessions designed to increase their capacity as instructional coaches. Session topics ranged from Conducting a Classroom Observation and Mentoring New Teachers to Video Analysis. One session in particular focused on how to engage fellows in courageous conversations and included role-playing and other strategies for delivering adjusting feedback. These strategies better equipped mentors to approach potentially difficult situations thoughtfully. For example, one mentor was able to use effective feedback strategies to facilitate a courageous conversation on culturally responsive pedagogy following an activity when a teacher fellow instructed students to stand up with their hands in the air. During the debrief session, the mentor posed a series of probing questions designed to promote reflective thinking:[x] Where are the majority of these students from? What do you think they associate with putting their hands in the air? Do you think this activity accomplished the intended goal? At the end of the session, the fellow realized that an activity designed to get students up and moving around may have been reminiscent of negative or frightening interactions with authority figures for some students.

- **Mentor Teachers as Advocates for Teacher Fellows.** Because teacher fellows' experiences varied, the manner in which mentors exercised support differed. A major source of variation in the fellows' experiences related to the treatment they received from others in the school building. Some staff members understood that the primary purpose of the teacher fellow experience was to prepare aspiring teachers to be highly effective teacher leaders, and these staff members behaved in a manner that helped the teacher fellows maximize their time in the schools. Others, however, exhibited behaviors that left some fellows feeling as if they were not a "living, breathing part of the culture."[xi]

Some fellows felt that they were being treated like the "substitute" or just an "extra pair of hands,"[xii] which they believed would result in students viewing them as such. Negotiating this tension could prove challenging even for an experienced educator, which is why mentors stepped in as advocates to run interference for the fellows. When appropriate, this included modeling appropriate ways to engage and empower the fellows. Ultimately, teacher fellows thrived when mentors ensured that the fellows were seen—by both students and other teachers—as an authority in the classroom.

• **Highly Engaged and Invested Director of Teacher Fellows.** Program success was due in large part to the commitment of the director of teacher fellows to every aspect of the program, from leading recruitment efforts to spearheading training. This included activities such as attending recruitment fairs, conducting interviews, and overseeing professional development for mentor teachers and teacher fellows. Throughout the school year, the director provided mentor teachers with a combination of baseline (foundational skills all mentors should possess) and individualized (tailored to the mentors' needs) support.[xiii] The director also provided support to help teacher fellows navigate the residency, such as facilitating an activity through which the fellows created roadmaps to visually represent where they had been, where they were, and where they were going. The director then used the maps as a tool to facilitate one-on-one conversations with fellows about the support needed to reach the destination on the map.

Results

The long-term effects of programs such as the **KIPP Teacher Fellows Program** often are not fully evident for several years. Early indicators summarized below, however, show that the program is contributing to improved teacher practice and student performance and combating the struggle to attract and retain highly effective teachers in underserved communities:

• **Teacher Effectiveness Standards.** Per reporting requirements for Innovation Fund grantees, all teachers were evaluated against the Teacher Effectiveness Standards rubric GOSA used to assess program success. The rubric uses a four-level performance rating scale (1 = Ineffective; 2 = Needs Development; 3 = Proficient; 4 = Exemplary) to evaluate teachers on 10 behaviors across five dimensions—Planning, Instructional Delivery, Assessment of and for Learning, Learning Environment, and Professionalism and Communication.[xiv] All 12 teacher fellows across cohorts 1 and 2 were rated Proficient on eight of the 10 behaviors; for the remaining two behaviors, 10 fellows were rated Proficient and two were rated Needs Development. Ratings were informed by a combination of informal and formal observations. Mentor teachers and the director of teacher fellows conducted informal observations at least three times per week, while formal observations by the fellows' managers (dean, grade-level chair, or principal) occurred less frequently—five times over the course of the school year.[xv]

• **Intent to Remain in the Profession.** The challenges associated with closing the teacher quality gap often are most pronounced in high-poverty schools, where high turnover rates and revolving doors of inexperienced teachers persist.[xvi] The **KIPP Teacher Fellows Program** is based on the belief that participation in a high-quality residency program will increase the probability that fellows will remain in the profession longer than those who receive limited support and training prior to their first year of teaching.[xvii] While it is too early to assess how the fellows' teaching careers compare with the tenure

of other KIPP teachers (or teachers in traditional Atlanta Public Schools) who did not participate in residency programs, the data are promising. Post-program data indicate that the overwhelming majority (83%) remained in the profession **(see Table 1)**. This is a step in the right direction because, as research suggests, "The problem is not finding enough [of the right] teachers to do the job—the problem is keeping them in our schools."

Table 1. KIPP Teacher Fellows Post-Program Data

	Fellows Completing the Program		Fellows Teaching at KIPP After the Program		Fellows Teaching Another District	
	Percentage	Number	Percentage	Number	Percentage	Number
2012-13 Cohort (7 teacher fellows)	86%	6*	67%	4*	---	---
2013-14 Cohort (6 teacher fellows)	100%	6	83%	5	17%	1

**Note: KIPP fired one Teacher Fellow during the beginning of the 2013-13 school year.*

UGA-GAEL Early Career Principal Residency Program

Athens, Georgia

Overview

What do most early-career principals need but often lack? The answer, in a word, is *induction*—a process through which new principals are supported and guided to adapt to their new roles as school leaders. With so many school districts lacking formal principal induction programs, the College of Education at the University of Georgia (UGA) and the Georgia Association of Education Leaders (GAEL)[i] partnered to address this largely unmet need in Georgia by establishing the **Early Career Principal Residency Program (ECPRP)**. This two-year program provides principals with real-time, professional learning at the point when they need it most.

Research suggests that a high-quality induction program for new principals is one of the most effective ways that districts can support principals in the school improvement process,[ii] and practitioners echo this sentiment. In fact, the impetus for **ECPRP** came directly from superintendents' recognition that a comprehensive induction experience is essential to new school leaders' success.[iii] The partnership between UGA and GAEL intends to meet this demand head-on through four goals:[iv]

- Goal 1: Develop school leaders who have the knowledge and ability to promote the success of all students.
- Goal 2: Increase the retention rate of educational leaders in the principalship.
- Goal 3: Improve principals' ability to support teachers in a manner that results in an increase in the level of faculty and staff stability in schools.
- Goal 4: Increase student academic achievement and close academic achievement gaps among sub-groups of students.[v]

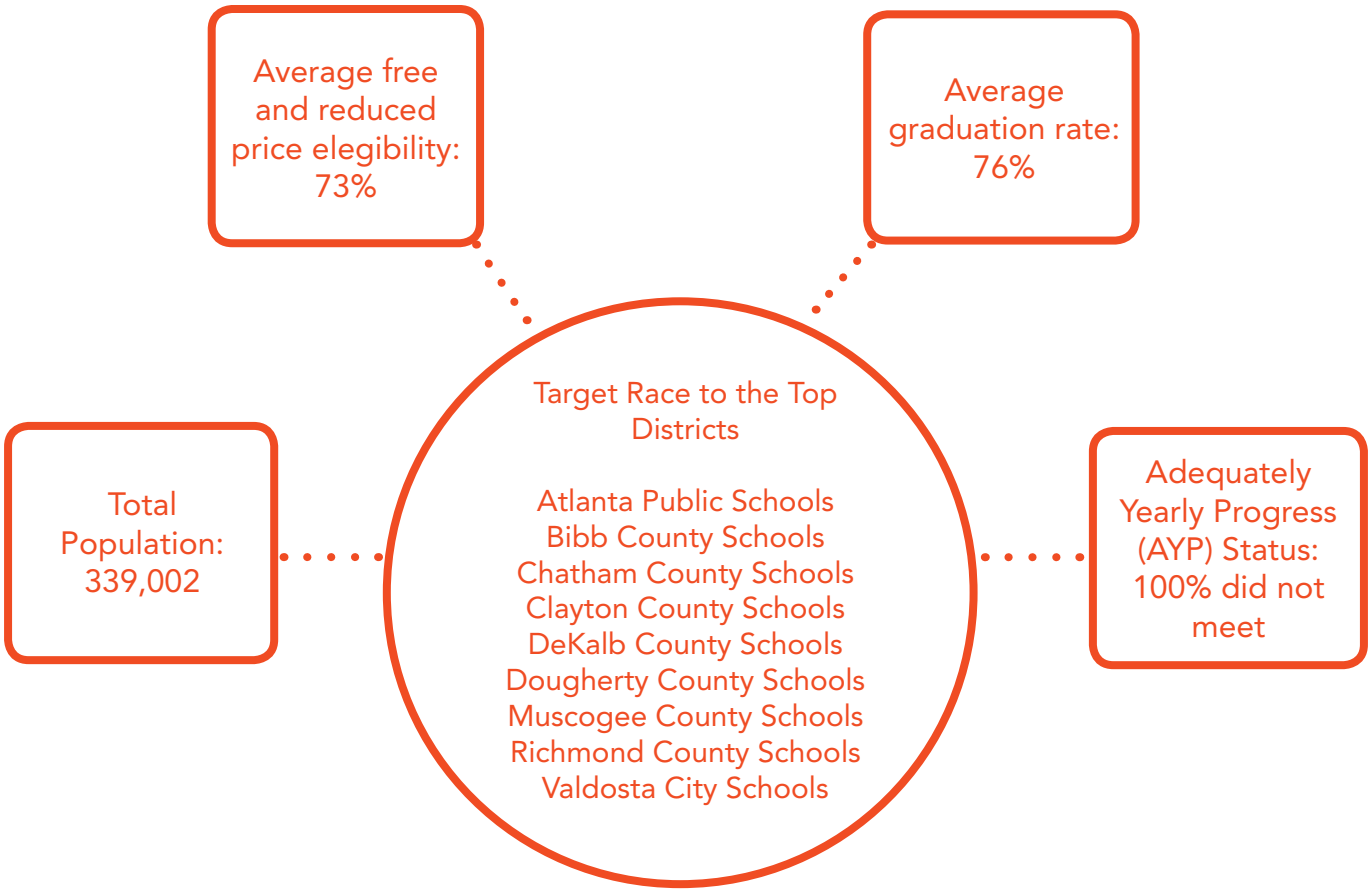
Achieving these goals will usher the partnership one step closer toward its vision of all schools in Georgia being "led by a highly effective principal who has the knowledge and ability to promote the success of all students."

Innovative Program Design

The program welcomed its first cohort of 15 early-career principals in October 2010. Within one year, the partnership sought to expand its reach to even more early-career principals. Knowing that the $2,500 program registration fee for **ECPRP** could be cost prohibitive, the partnership secured an Innovation Fund grant to offset program costs for a subset of cohort 2 participants. This subset was identified through targeted recruitment of early-career principals in Georgia's most challenged Race to the Top districts (see **Figure 1** for a list of target districts).

As a result of **ECPRP**'s efforts to expand, cohort 2 included 22 early-career principals in two groups. The first group began in January 2012 with 12 early-career principals, admitted under regular financial requirements. The remaining 10 participants—all of whom were recruited from high-poverty, high-minority schools in Race to the Top districts—began in March 2012, receiving full financial support through the Innovation Fund grant.[vi] Because the bulk of grant funds was leveraged to provide this financial support, the remainder of this Profile will focus primarily on cohort 2 of the program.[vii]

Figure 1: Target Race to the Top Districts and Characteristics



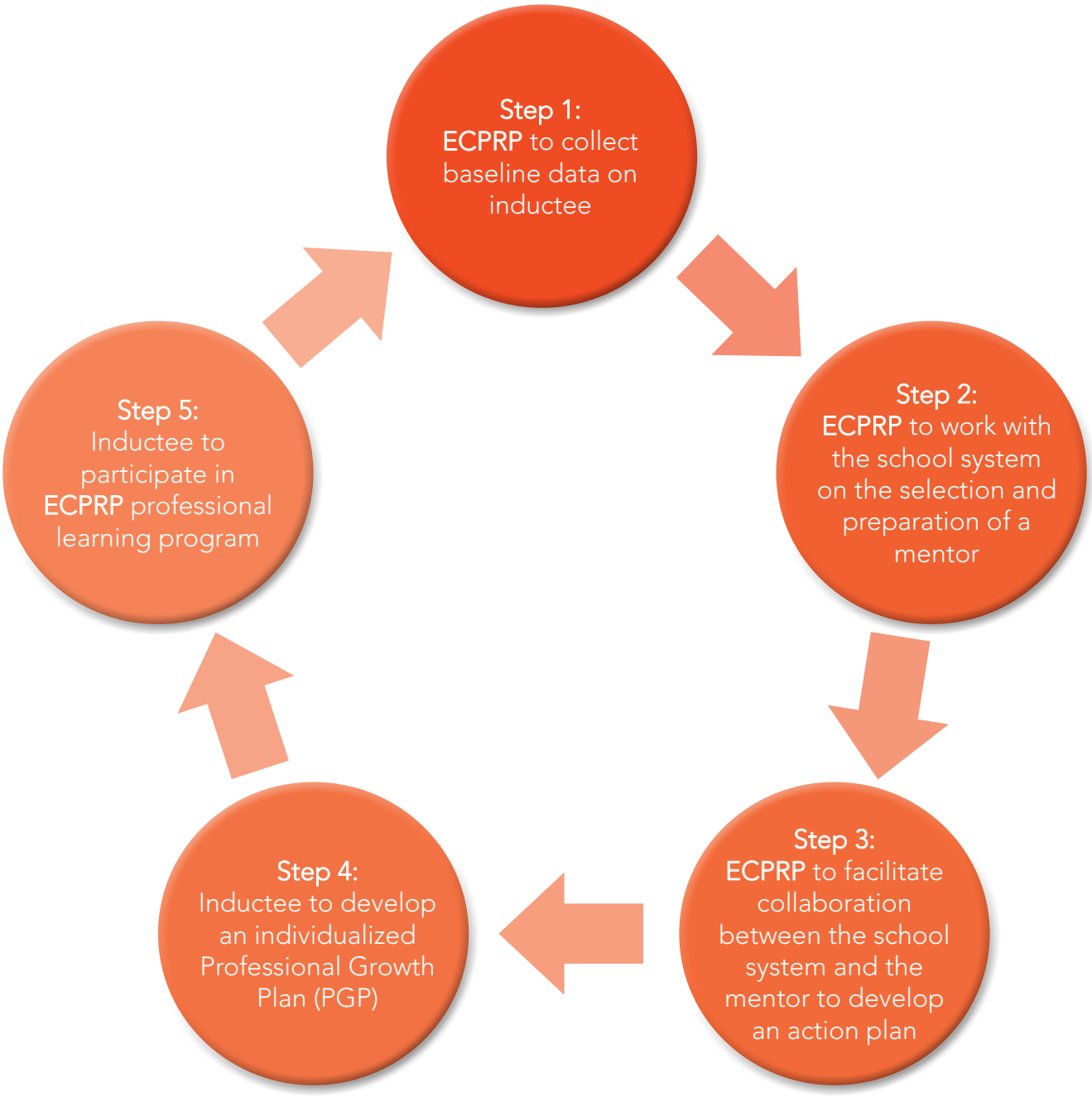
Note: Characteristics shown were reported the year prior to proposal submission (2009-2010 school year).

Once admitted to the program, participants engaged in a 360° Leadership Assessment to obtain feedback from their supervisors, faculty, and staff on their effectiveness as a school leader. The results of the assessment served as a reference point for development of individualized professional growth plans and helped guide coaching conversations. Coaches were chosen using one of two methods. Either **ECPRP** collaborated with the school district on the selection of coaches, or the district leadership made the selections in isolation with no input from **ECPRP**.[viii] The Georgia School Superintendents Association used the Coaching Clinic® model[ix] to train coaches to encourage consistent, high-quality support for all program participants. It is important to note, however, that the coaching support was not as strong as intended and varied depending on how coaches were selected.[x]

The **ECPRP** cohort model[xi] promoted frequent interaction with peers. Participants engaged in web-based activities, attended professional conferences, and came together 12 times over the two-year period for program sessions that were scheduled based on a "just-in-time" approach.

The program used a blend of university faculty members and practitioners for instruction to achieve a balanced curriculum—one that exposed participants to both theory and practice. Sample presenters included UGA College of Education faculty members with previous classroom and administrative experience, two leaders employed in school systems, one employee from the Georgia Department of Education (GaDOE), and a retired assistant superintendent. Despite presenters' varied affiliations, all professional learning aligned with the Educational Leadership Constituents Council (ELCC) standards.[xii] **Figure 2** shows the five components of the program design.

Figure 2: The Early Career Principal Residency Program Design



Key Success Factors

In addition to the overall program design, which provided a framework for **ECPRP**, two other factors have played important roles in the program's initial success: meaningful interactions with other early-career leaders and targeted program design.

- **Meaningful Interactions with Other Early-Career Leaders.** One of the most promising elements of **ECPRP** was the opportunity for early-career principals to share experiences with others in similar roles and similar stages of their careers. This was an intentional component of the program, because leaders are often isolated in their own schools and districts, and it is rare that leaders—particularly those in the early stages of their career— have opportunities to engage in these types of interactions. The interactions were designed to stimulate organic and authentic learning exchanges through which participants could "share knowledge, reflect on practice, identify challenges and weaknesses and develop new skills and strategies."[xiii] Although most participants were drawing on different contextual experiences, their conversations converged around a common desire to improve leadership practice. When asked to describe these experiences as part of **ECPRP**, one participant stated: "It changed my whole perspective … It was great to talk with other principals who had the SIG grant. I also discovered that high school principals can learn something from elementary [school leaders]. I have stolen ideas from the group …"[xiv]

- **Targeted Program Design.** Participants' feedback following each session illuminated program strengths and weaknesses. It also helped inform the selection of future presenters. For example, several participants requested additional support in the areas of school finance and budgeting. **ECPRP** responded to participants' needs by inviting Doug Eza, a retired assistant superintendent, to share tips on how to manage and maximize their allocations. He personalized his presentation by providing participants with their school's allotment sheets. Areas of concern also surfaced informally during session discussions. When participants indicated that they needed to learn more about using data—specifically, the Statewide Longitudinal Data System—to lead school improvement, **ECPRP** invited Bob Swiggum, the chief information officer at GaDOE, to present strategies for interpreting and utilizing data to inform instruction.[xv]

Results

ECPRP has shown great promise as a comprehensive induction program for newly-minted school leaders, with evidence of gains on the College and Career Ready Performance Index (CCRPI), increased self-efficacy, and improved leadership capacity among program participants:

- **Gains on the College and Career Ready Performance Index (CCRPI).** Many of the 10 schools led by grant-funded principals in cohort 2 demonstrated positive outcomes on the CCRPI, Georgia's single statewide accountability system. The CCRPI measures a school's performance in key areas related to college and career readiness, such as content mastery on state assessments, student attendance, graduation rate, and ability to close achievement gaps.[xvi] Between the 2011-2012 school year (when cohort 2 principals joined the program) and the 2013-2014 school year (when the principals completed the program), five of the 10 schools achieved greater improvements in CCRPI scores than both the

state and their districts. Seven out of 10 schools outpaced their districts—and nine out of 10 outpaced the state—in improving CCRPI Progress scores, meaning that students in these schools are generally improving at a faster rate than the state and their respective districts.[xvii]

• **Increased Self-Efficacy.** As new principals entering the program, most participants had not fully grasped that they were the leaders in their schools. Rather than embracing their increased leadership responsibilities, many participants still behaved as assistant principals, lacking the preparation to step confidently into their new roles. Over the course of the program, however, participants shifted from "head task manager" to leader. In fact, **ECPRP** personnel indicated that by the end of the cohort experience, participants had grown more skilled and confident in overseeing financial matters, personnel issues, and legal issues; resolving conflicts; using data to drive decisions; developing school improvement plans; engaging parents and community in school initiatives; and articulating the vision and mission of the school.[xviii]

• **Improved Leadership Capacity.** Toward the end of cohort 2, coaches and principals' supervisors were asked to rate how well **ECPRP** prepared participants along 10 dimensions. These 10 dimensions were rated on a four-point scale, with 1 indicating no progress at all and 4 indicating great progress. The dimensions rated highest by coaches included school leadership, instructional leadership, culture and climate, and professional development leadership, each with a mean rating of 3.7. Supervisors' feedback was even more positive, with mean ratings of 4.0 on three dimensions: school leadership, instructional leadership, and school culture and climate.[xix] It is important to note that school and instructional leadership were among the top-rated items across both coaches and supervisors. While these are perception data, they point to clear indications that the program is having a positive effect on early-career principals' knowledge and skills in critical leadership dimensions.

Morehouse College Student Applied Learning, New Teacher Induction and Staff Leadership Program

Morehouse College and Clayton County Public Schools, Georgia

Overview

Education plays a central role in preparing students for the workforce. Given trends in the global labor market,[i] the United States faces increasing pressure to better prepare young people with the knowledge, skills, and competencies to pursue careers in highly specialized fields.[ii] A stronger emphasis on science, technology, engineering, and mathematics (STEM) education is one way that the American educational system aims to meet this challenge. This strategy could pay big dividends that benefit the individual as well as the larger society, especially in light of recent research that projects employment in STEM-related fields outpacing other fields by 2020.[iii] Unfortunately, labor market demands are growing faster than supply, due in part to "a shortage of both interested and adequately prepared K-12 students in STEM subjects, especially among minority youth and young women."[iv]

In 2011, Morehouse College and the Clayton County Public Schools (CCPS) established the **Student Applied Learning, New Teacher Induction and Staff Leadership Program** to address disparities in the STEM educational pipeline. The profile of CCPS, the fifth largest school district in Georgia, mirrored that of many urban districts: a high enrollment of economically disadvantaged and minority students and persistently low academic performance, particularly in STEM subjects. The district also struggled to attract and retain highly effective teachers and had even more difficulty finding and keeping effective teachers certified in mathematics and science.[vi]

The Student Applied Learning, New Teacher Induction and Staff Leadership Program attempted to mitigate these structural challenges not only by exposing more high school students to quality STEM opportunities and building teachers' instructional capacity in STEM subjects, but also by equipping leaders with relevant resources to promote more effective teaching and learning in CCPS. Ultimately, two goals guided the partnership:

- **Goal 1**: Implement a high school *student* summer and academic year program that develops students' higher-order thinking skills through applied learning opportunities.

- **Goal 2**: Implement a comprehensive induction program that empowers new high school science *teachers* and *leaders* to deliver more complex instruction, to motivate students and teachers, to incorporate high expectations, and to make better use of available instructional resources.

Innovative Program Design

Morehouse College, postsecondary partner to CCPS, ranks fifth in the nation for graduating African American males who go on to obtain a Ph.D. in STEM fields.[vii] Although Morehouse College was well positioned to support CCPS in any number of ways, the partnership honed in on the district's weakest areas. An analysis of student learning data across CCPS showed poor performance on biology and physical science standardized assessments. More specifically, in 2009, only 40% of students scored at the "meets" or "exceeds" performance levels on the biology End-of-Course Test (EOCT), while 53% of students did so on the physical science EOCT. The partnership focused these content areas, as well as chemistry, physics, sustainable energy, and environmental sciences. The final program design consisted of three components: 1) the High School Student Program, 2) the New High School Teacher Induction Program, and 3) the New Leader Training Program.

1) The *High School Student Program* had two distinct subprograms—the Research Program and the Scholars Research Program:

- The High School Student Research Program was a four-week summer experience for 40 rising juniors and seniors. Each day, students participated in a Scientific Literacy class, which consisted of web-based interactive instructional modules, investigative case-based learning, research simulation case studies, interactive lectures on the discovery process, and research seminars led by faculty and undergraduate students. Students were also divided into two guided inquiry research laboratories (sustainable energy and environmental biology), where they received the basic skills and tools to develop an original research project.

- The Scholars Research Program provided four additional rising seniors with the opportunity to participate in the six-week summer program and to conduct original research in a college setting. Scholars Research Program students assimilated into the Pre-Freshman Bridge Summer Science Program at Morehouse College, where they took a Scientific Literacy course, and either an Applied Mathematics or Calculus I course. Then, Scholars Research Program students conducted original research and received one-on-one mentoring from a research faculty member at Morehouse College.[viii]

2) The *New High School Teacher Induction* provided teachers with a variety of professional development opportunities intended to promote stronger instructional practices in their classroom and school. The six-week summer induction program was divided into three distinct yet complimentary segments:

- **Segment 1**: During the first week, teachers received training in educational pedagogy, with a focus on delivering applied learning experiences such as web-based modules, investigative and research case studies, and guided inquiry laboratories.

- **Segment 2**: Teachers spent the next four weeks teaching the technology-based curriculum and skills they learned in the first week to the High School Student Research Program participants.

- **Segment 3**: Teachers used the last week of the program to map out plans for infusing new skills into their instructional practice, with a particular emphasis on biology, chemistry, physics, and/or physical science classes. In addition, experienced CCPS teachers served as mentors and worked closely with new teachers, supporting them to establish professional development plans and collaborative goals to be monitored throughout the school year.

In the subsequent academic year, teachers participated in monthly group meetings with teacher mentors, Morehouse College faculty and staff members, and on several occasions, leadership and inquiry-based pedagogy experts from Emory University. In these meetings, teachers discussed implementation successes and challenges, as well as experiences with teacher mentors that occurred outside of the monthly meetings.[ix]

3) The *New Leader Training Program* aimed to facilitate the development of specific leadership skills required in CCPS, while simultaneously promoting positive interactions with new teachers. Leaders and teachers came together for a two-day workshop over the summer to engage in reflective activities for two purposes: to strengthen new leaders' capacity in key areas and to orient new teachers to the district in an effort to decrease attrition rates.

Table 1 (on the next page) provides more details about each program component, including target populations, selection criteria, programmatic activities, and anticipated results.

Table 1. Overview of Program Components

	Target Participation	Selection Criteria	Programmatic Activities	Anticipated Results
High School Student Program	*Summer-Research Program*			
	40 high school juniors/seniors	Students had to express interest in STEM via an online application, have good academic standing, and obtain recommendations from their high school science teachers	(Students resided off campus and were bused to campus each day) • Morning (Mon–Thur): Scientific Method, Research Training Laboratory • Afternoon (Mon–Thur): Applied Learning class and Scientific Literacy class • Innovation Day (Fri): Field trips, site visits, and student presentations	Increase students' GPA by 0.5, increase in college attendance to 90%, and increase participation in STEM college majors to 70%.
	Summer-Scholars Research Program			
	4 high school seniors	Students had to meet the above criteria. In addition, students had to have completed at least one Advanced Placement (AP) science course, have a high school GPA of ≥ 3.5, and complete an essay about their interest in conducting a scientific research project.	(Residential) • Morning (Mon–Thurs): Scientific Literacy class • Afternoon (Mon–Thurs): Conduct original research with one-on-one support from Morehouse faculty • Innovation Day (Fri): Field trips, site visits, and student presentations	Increase students' GPA by 0.5, increase in college attendance to 90%, and increase participation in STEM college majors to 70%.
	Academic Year			
	---	---	Students in new teachers' classes continued to engage in problem-based learning (PBL) and applied learning activities. Students were generally assigned to small groups for the facilitation of PBL.	Increase the percentage of teacher inductee's students scoring at the levels of "meets" or "exceeds" by 30% on the biology EOCT and by 27% on the physical science EOCT.
New High School Teacher Induction Program	*Summer*			
	7 new teachers from three pre-identified high schools and one program center	Prospective participants submitted an application	A six-week professional development experience divided into three parts: • Segment 1: One week learning key concepts. • Segment 2: Four weeks practicing and teaching key concepts. • Segment 3: One week finalizing curriculum infusion, professional development plan, and collaborative goals for the academic year	---
	Academic Year			
	7 new teachers from three pre-identified high schools and one program center	Prospective participants submitted an application	Throughout the academic year, induction-related activities centered on promoting effective application of the core instructional practices presented during teachers' summer experience: • Curriculum implementation • Classroom visits •Professional development and leadership workshops	
New Leader Training Program	19 participants across three roles: 7 new teachers, 5 teacher mentors and 7 new leaders (i.e. principals, assistant principals, or department heads)	Central office staff selected new leader training program participants. Participants received a $1000 stipend.	The training program covered topics spanning PBL, case study implementation, and "team learning" techniques. The initial activities were taught during a two-day workshop, with refreshers and demonstrations throughout the end of the subsequent academic year.	---

**Note: Target participation was by year*

Key Success Factors

The interwoven approach to student applied learning and teacher/leader professional development set the stage for a strong program, but three important factors bolstered partnership success: contextualizing STEM in unique and meaningful ways, oversight and guidance by program staff, and multi-layered support for teachers.

- **Contextualizing STEM in Unique and Meaningful Ways.** One of the greatest benefits of this program was that it engaged students in applied learning activities designed to increase their scientific literacy, while also providing them with the motivation to learn science in ways that otherwise may not have been afforded them. For example, eight students from the summer residential program—four in 2013 and four in 2014—participated in the High Altitude Research Project (HARP), which took them to Wyoming alongside pre-freshman in Morehouse College's Summer Science Program to launch a weather balloon into "near space conditions."[x] In addition, field trips and site visits at STEM-based laboratories and facilities throughout the summer provided real-life interactions with scientists in their professional environments. These experiences heightened students' perceptions of a scientific identity and intellectual behaviors essential to success in STEM-related fields.[xi]

- **Oversight and Guidance by Program Staff.** The program staff spent many hours in the field observing the use of problem-based learning activities by new teachers. These observations served as an opportunity for program staff to assess teachers' ability to implement applied learning techniques in the classroom, as well as an opportunity to provide coaching. Coaching conversations generally centered on managing instructional time, facilitating groups of varying sizes, and using evaluation tools to assess students' ability to convert learning into real-life application. In addition, program staff used monthly meetings and email communication to address any issues or concerns as they developed.

- **Multi-layered Support for Teachers.** Support was offered in many forms and by a variety of sources. By design, program staff and mentors played a formal role in supporting new teachers throughout the summer and academic year. The program manager was the first line of support and brought to the program years of experience as a teacher within the public school system. Mentors served as an in-house support mechanism for information and advice on how to implement and adapt strategies as needed in the classroom. Finally, as the teachers grew more comfortable with program expectations, they developed an informal network amongst themselves to support each other in moving the work forward.

Results

The **Student Applied Learning, New Teacher Induction and Staff Leadership Program** has proven to be a worthwhile initiative in CCPS. The examples below illustrate expanded academic and professional interests in STEM and increased teacher proficiency in problem-based learning:

- **Expanded Academic and Professional Interests in STEM.** The program helped boost students' interest in STEM. Between 2013 and 2014, a total of 83 students—75 from the Research Program and 8 from the Scholars Research Program—completed the Applied Learning Student Questionnaire

(ALSQ).[xii] The ALSQ is designed to measure pre-program to post-program gains related to student problem-solving and communication skills, self-management, and engagement. The ALSQ results showed an increase in the percentage of students reporting that they intended to obtain a college degree in a STEM-related field, climbing from 64% before the program to 79% after the program. More students also considered a career in STEM following participation in the Student Applied Learning, New Teacher Induction and Staff Leadership Program, jumping from 67% to 84%.

• **Increased Teacher Proficiency in Problem-Based Learning.** An external evaluator administered the Teacher Assessment Survey to gauge the inclusion of essential elements in the design, content, and implementation of student lessons and activities.[xiii] Teacher responses showed strengths in the "use of varying means to represent phenomena (e.g., models, drawing, graphs, symbols, concrete material, etc.)." In fact, this item achieved the highest rating (4.2 on a five-point scale). Feedback also suggested that teachers had grown adept at promoting reflective learning communities among students in an attempt to spur innovative thinking. For example, while maintaining fundamental concepts as the basis of all subject matter, teachers encouraged students to continually seek and value alternative modes of investigation and problem-solving pertaining to their predictions and hypotheses.

Gwinnett STEP Academy

Gwinnett County Public Schools, Georgia

Overview

Nationally, upwards of 1 million young people drop out of high school each year.[i] Research finds that over-age students—those who are more than a year older than their peers in the same grade level—are particularly at risk of dropping out or aging out of the public education system.[ii] This pattern was the unfortunate reality for Gwinnett County Public Schools (GCPS) in Georgia. In 2011, GCPS's graduation rate hovered around 67%.[iii] An internal analysis of district data showed that only 13% of the 434 students who entered 9th grade over-age in the 2006-2007 school year received a diploma or certificate of attendance four years later.[iv] The district knew that it had to do something to address this problem. In an effort to improve the outcomes of over-age students, GCPS partnered with Gwinnett Technical College (Gwinnett Tech) and the Gwinnett Chamber of Commerce to implement a unique instructional model:[v] the **Gwinnett STEM Targeted Educational Program (STEP) Academy**. Housed at two sites, the academies enrolled students from four middle schools (see **Figure 1**).

Figure 1. Gwinnett STEP Academy Sites

The **Gwinnett STEP Academy** uses a five-pronged approach to get over-age 8th-grade students on the path to on-time graduation:

- Compacted and accelerated coursework, allowing students to progress through all of the 8th-grade core content and earn *up* to 6.0 Carnegie Unit credits during their 8th-grade year;
- Development of student character and self-efficacy to build students' capacity for ongoing academic success;
- A career pathway in middle and high school focused on science, technology, engineering, and mathematics (STEM);[vii]
- Real-world applications for students in STEM-based fields; and
- Extensive teacher training and support for working with a unique group of academically at-risk learners.

The **Gwinnett STEP Academy** has already shown promise as a unique solution to one of GCPS's most pressing problems. Notably, in 2014, the academy at Moore MS earned a visit from First Lady Sandra Deal as part of her "statewide tour on behalf of the Georgia Children's Cabinet."[viii]

Innovative Program Design

Participants were selected from Moore MS, Richards MS, Sweetwater MS, and Berkmar MS students who were entering 8th grade at least one year over-age.[ix] For the 2012-2013 cohort of the **Gwinnett STEP Academy**, the district generated a report of all 8th-grade students at participating schools who were born on or before September 1, 1998. The report included other pertinent information about qualifying students, such as number of days absent, discipline history, Lexile score (which had to be higher than Grade 5 to qualify for the program), Criterion-Referenced Competency Test (CRCT) scores, and accommodations for students with disabilities and English language learners.[x] In total, 156 students were selected to participate in the program (77 from Moore MS and 79 from Sweetwater MS).

Once selected, students in the **Gwinnett STEP Academy** progressed through the 8th-grade and high school core academic content simultaneously, essentially completing two years' of curriculum in one school year.[xi] To achieve this goal, students enrolled in courses such as *Introduction to Healthcare*—a prerequisite for all Healthcare Science career pathways—in 8th grade, positioning them to earn high school Carnegie Units while in middle school.

A culture of high expectations alone was not enough to get students to and through high school. They also needed appropriate and adequate support, and the **Gwinnett STEP Academy** recognized this need. The program used targeted instructional strategies to help students meet the demands of the rigorous **Gwinnett STEP Academy** curriculum. For example, mastery learning[xii] at Sweeter MS afforded students 30 minutes of extra instructional time each day. During this time, students were regrouped based on their mathematics performance in the previous semester, receiving differentiated and individualized support to help them master the accelerated STEP coursework.[xiii] Still, some students buckled under the pressure of increased rigor and expectations. Of the 156 students selected to participate in the 2012-2013 cohort, 120 (77%) completed the program. All of these 120 students (100%) were promoted to the 9th grade (see **Table 1**). The remaining 36 students either withdrew or exited the program early. Retention rates have steadily improved over time, which will likely contribute to higher completion rates for future cohorts.

Table 1. Student Retention At Moore MS and Sweetwater MS

	Enrolled in 2012-2013 Cohort	Withdrew/ Exited*	Completed Program	Completed as Sophomores	Completed as Freshman
Moore MS	77	18 (23.38%)	59 (76.62%)	42 of 59 (71.19%)	17 of 59 (28.81%)
Sweetwater MS	79	18 (22.78%)	61 (77.22%)	59 of 61 (96.72%)	2 of 61 (3.28%)

**Reasons for withdrawals or early exits: Discipline, poor academic performance, lack of interest in the program, or transfer to another county.*

Key Success Factors

Three key practices were at the root of the **Gwinnett STEP Academy**'s early success in preparing over-age 8th-grade students to matriculate to and through high school: increasing students' awareness of careers in STEM-related fields, training teachers to build positive relationships with students, and fostering a teacher support network across schools.

- **Increasing Students' Awareness of Careers in STEM-Related Fields.** The program afforded students various opportunities to explore careers in STEM-related fields. In the classroom, lessons delivered by Gwinnett Tech faculty not only deepened students' understanding of basic scientific principles but also promoted early awareness of professional opportunities in the life science industry. Every other week, Gwinnett Tech faculty visited STEP Academies at both schools to simulate science experiments through hands-on activities, continually demonstrating the applicability of the **Gwinnett STEP Academy** curriculum. Conversations with counselors and presentations from guest speakers took learning a step further by encouraging students to explore future career options. Outside the classroom, career-oriented field trips reinforced learning and prompted greater interest in STEM-related fields. Students especially valued a visit to the Georgia Aquarium, because it gave them an opportunity to apply what they were learning in science class to what they were observing throughout the aquarium. They also talked with a professional dolphin trainer about careers in marine science, a field most students had not considered prior to the field trip.

- **Training Teachers to Build Positive Relationships with Students.** Research suggests that developing positive relationships with students helps increase student engagement.[xiv] Accordingly, the **Gwinnett STEP Academy** heavily emphasized strong student–teacher relationships. The topic even served as a focus of a professional development session facilitated by the METIS Leadership Group,[xv] where teachers learned strategies for building one-on-one relationships with students and facilitating effective goal-setting conversations with students. This development opportunity was viewed as particularly useful in light of the discomfort educators often experience when trying to establish trust and rapport with at-risk students.

- **Fostering a Teacher Support Network Across Schools.** Collaborative planning across the two schools was a key driver of the program's success. Weekly online planning sessions between Moore MS and Sweetwater MS teachers provided a forum to share ideas and discuss instructional strategies. Conversations typically revolved around curriculum planning, pacing, scheduling, and behavior/academic interventions. In addition to facilitating much-needed peer support, the sessions increased interaction with county representatives (e.g., curriculum directors, assessment directors, technology and grade book directors), who often participated in the discussions and provided valuable expertise and insights aimed at helping teachers improve their practice.[xvi]

Results

The **Gwinnett STEP Academy** is helping over-age students take a giant leap toward high school graduation. Evidence that students are on a more positive trajectory than before participating in the program can be observed in the improved outcomes, higher aspirations, and increased knowledge:

• **Improved Student Outcomes.** The program exceeded two of three student outcome goals. Of the 120 students who persisted through the complete program, all students (100%) at both Moore MS and Sweetwater MS were promoted to 9th grade, and all students (100%) at both schools earned at least 1.0 Carnegie Unit credit. However, the program fell short of its most ambitious goal that 70% of students—*at each middle school*—would earn at least 5.0 Carnegie Unit credits. While 99% of students at Sweetwater had earned at least 5.0 credits by the end of the 2013-2014 school year, only 68.3% of students at Moore did so.[xvii] **Table 2** shows the schools' progress toward achieving all three student outcome goals.[xviii]

Table 2. Gwinnett STEP Progress on Three Goals

	2012-2013		2013-2014	
Student outcome to be measured	Target	Actual	Target	Actual
At least 90% of full academic year 8th-grade students in the program will be successfully promoted to 9th grade	90%	100%	90%	100%
At least 80% of full academic 8th-grade students in the program will earn 1.0 or more Carnegie Unit credits	80%	100%	80%	100%
At least 70% of full academic 8th-grade students in the program will earn 5.0 or more Carnegie Unit credits	70%	84%	70%	Sweetwater: 99% Moore 68.3%

• **Higher Aspirations.** In May 2014, 118 students (52 at Moore MS and 66 at Sweetwater MS) completed the Applied Learning Student Questionnaire (ALSQ).[xix] The ALSQ is designed to measure gains from the beginning of the program and the end of the program (pre–post) related to students' problem-solving and communication skills, self-management, and engagement. Significant gains were observed in students' intentions to pursue higher education. After participating in the program, 31 students (27% of those responding to the question) who had not previously intended to pursue graduate or professional school now believed they would do so.

• **Increased Knowledge in Critical Skill Areas.** Across both Moore MS and Sweetwater MS, pre–post ALSQ results showed statistically significant increases in students' intrinsic motivation, self-management/self-regulation skills, and intent to persist. The largest student gains observed were in the intrinsic motivation construct. Before the program, less than half of all students indicated that they "derive value and see the importance in learning about STEM." At the end of the program, that number climbed by more than 30 percentage points to 78% of students agreeing that they were intrinsically motivated to engage in STEM-related tasks and projects.[xx]

Tift County Mechatronics Partnership

Tifton, Georgia

Overview

In 2012, Tift County High School (TCHS) was like many high schools in America. Academic achievement was shaky, especially for minority and economically disadvantaged students, who were failing standardized tests at rates up to three times higher than their white and more economically advantaged counterparts.[i] Students' aspirations for the future were just as varied. With persistently high unemployment rates plaguing Tift County,[ii] some students just hoped to get a job—any job—upon graduation. But in the skills-intensive economy of the 21st century, it was evident that students would need a leg up to compete successfully in local and global labor markets.

Determined to chart a new course for its young people, the Tift County Board of Education (K-12 education), Moultrie Technical College (MTC, higher education), Heatcraft (business), and the Tift County Chamber of Commerce (business) came together to forge the **Tift County Mechatronics Partnership**.

The central mission of the partnership was straightforward: Improve student and community outcomes by expanding applied learning opportunities to better prepare students for a wide range of postsecondary options—especially in high-skill, high-demand, and high-wage science, technology, engineering, and mathematics (STEM) fields.

In just two short years, the Mechatronics program at TCHS—the first of its kind in a Georgia high school—has shown great promise. Boasting improved academic achievement, increased knowledge in critical skill areas, and higher aspirations among participating students, the **Tift County Mechatronics Partnership** now serves as a model to Local Education Agencies (LEAs) looking to expand STEM education and career opportunities, particularly among traditionally underrepresented subgroups.[iii] In December 2014, the Tift County School System, in partnership with Grady County Schools, was awarded an Innovation Fund *Scaling Grant* to replicate its Mechatronics program at Grady County's Cairo High School College and Career Academy.

Mech • a • tron • ics
(*noun*)

Mechatronics combines various disciplines to teach students a holistic approach to developing solutions for engineering applications. Mechatronics is used extensively in manufacturing aerospace equipment, food processing equipment, medical devices, heavy equipment, and automobiles. Mechatronics training prepares students to work on electrical and electro-mechanical systems in a variety of industries. The Mechatronics program at TCHS is aligned with the Peach State Pathways CTAE Foundation Skills and can be taught as part of the current Engineering or Manufacturing Pathways. [iv]

Innovative Program Design

The Mechatronics program began with a weeklong STEM summer camp on the campus of MTC, where middle and high school students received an initial dose of academically rich content and hands-on learning. Each morning, students participated in coursework and real-world simulations that allowed for hands-on learning about robotics, coding, and programmable logic controllers. Afternoons included field trips to local industry or postsecondary institutions such as the Museum of Aviation in Warner Robins, Heatcraft Manufacturing in Tifton, and the University of Georgia campus in Tifton.

All rising 10th-graders were encouraged to enroll in the school-year program, even if they had not participated in the summer camp. In the original program design, eligibility for the school-year program was based on a student's expressed interest in the program as well as a score on the COMPASS test that was high enough to qualify for dual enrollment at MTC.[v] Once enrolled, students engaged in academically appropriate coursework that included challenging college-level concepts. To help ensure that students' preparation tightly aligned with postsecondary expectations, the **Tift County Mechatronics Partnership** brought an instructor from MTC[vi] into the high school setting to deliver the Mechatronics curriculum. The course instructor and program director completed training on Section 504 accommodations and Response to Intervention in order to provide tiered interventions to struggling students (e.g., targeted/pull-out services for struggling students, intensive support for students who did not respond to interventions). While some remediation was offered to shore up students' mathematics skills, the vast majority of instruction was delivered at a college level.

The final component of the program consisted of a paid apprenticeship to be completed during the third year of the program. The Program Director and Tift County School System's Learning Coordinator coordinated placements at Heatcraft and Bell Plantation.

Key Success Factors

While the program design described above was important, four additional factors contributed substantially to the program's success: a robust participant recruitment strategy, real-world learning experiences, instructor respect for students, and family engagement and involvement.

- **Robust Participant Recruitment Strategy.** Selecting a strong group of students was essential. The guidance counselor, the Career, Technical, Agricultural Education (CTAE) director, 9th-grade CTAE instructors, the assistant principal, and a parent liaison executed a robust recruitment strategy directly targeting students who had completed the prerequisite 9th-grade engineering class. This recruitment strategy utilized personal phone calls and mass emails to parents, flyers with Mechatronics facts distributed at school, and table displays at fall semester schedule pick-ups to attract students to the program. The school also hosted end-of-year assemblies to familiarize students with the program. Recruitment efforts were so effective that the partnership exceeded its target enrollment of 40 students by 210%. Because the Mechatronics program at TCHS is best suited for motivated, self-directed students who work well with others, it was expected that some students would not persist through the end of the program. Of the 84 students originally selected to participate in cohorts 1 and 2, 18 exited early. The remaining 66 students maintained solid records, with an average absentee rate of fewer than six days and minimal discipline infractions over the two-year period. **Table 1** summarizes participation across both cohorts.

Table 1. Mechatronics Program Participation

	Cohort 1	Cohort 2	Total
No. of students selected for the program	41	43	84
No. of students retained by the program	25	41	66
Reasons for early exits: Discipline, expulsion, lack of interest in the program, conflict with athletic schedule, interest in another career pathway, and transfer to another county.			

• **Real-World Learning Experiences.** The program combined academically rigorous coursework, experiential learning activities, and field-based experiences to introduce and review key concepts related to robotics, physics, and applied mathematics. Students indicated that they especially enjoyed opportunities to engage in hands-on activities that taught skills applicable in their daily lives. Repair clinics enabled students to simulate real-world situations by working in teams to troubleshoot or develop new equipment. For example, the high school's disco ball, which illuminates the dance floor at events such as prom, was broken. The Mechatronics students engaged in a weeklong project to disassemble the fixture and determine how to repair it. Students worked together across class periods to design and execute a plan for repairing the ball. Students also collaborated with the school system technology staff to coordinate lighting and wiring for the ball, once it was repaired.

• **Instructor Respect for Students.** The instructor's capacity to build trusting relationships with students undoubtedly contributed to students' overall engagement in and connection to the Mechatronics program, and thus to the overall success of the program. When asked what piqued and sustained their interest in the program, students were emphatic about the role of their positive relationship with the instructor. In particular, students spoke about how the Mechatronics program differed from other educational experiences because they felt that it was taught by an instructor who "respected" them, treated them as "professionals," and encouraged teamwork and intellectual curiosity.[vii]

• **Family Engagement and Involvement.** Twice each year, students and their family members came together for a family STEM event. These events deepened family members' engagement in their student's academic pursuits while also building awareness about STEM education. At the beginning of the events, the course instructor typically reviewed program progress and presented a brief slide show about STEM, postsecondary options, and concepts students were learning. The events concluded with students demonstrating their learning by coaching family members through hands-on activities such as programming a robot and soldering. Parents often commented that the best thing about the events was seeing their student's learning in action.

Results

The **Tift County Mechatronics Partnership** is unlocking new opportunities for students at TCHS. As evidenced in the following examples, growth and positive change are occurring in academic achievement, knowledge in critical skill areas, and aspirations of participating students:

• **Improved Academic Achievement.** A primary aim of the partnership was to increase graduation rates and standardized test scores. In the year prior to program implementation, TCHS's graduation rate for all students hovered around 80% but was closer to 72% for economically disadvantaged students. In spring 2014, all 66 students in the Mechatronics program (100%) were on track for graduation, as indicated by credit attainment.[viii] Students also posted improvements on the mathematics End-of-Course Test (EOCT), though not consistently across both cohorts. While 100% of cohort 1 students passed the mathematics EOCT, only 56% of cohort 2 did so. This decrease was somewhat expected, however, given changes to mathematics standards in Georgia.[ix] Still, both groups' performance was higher than the school's average pass rate of 51% in 2011.

• **Increased Knowledge in Critical Skill Areas.** Students acquired critical skills during their participation in the Mechatronics program. Each semester, the course instructor completed a skills assessment to measure changes on eight core competencies. Results of this assessment showed improvements in students' leadership skills—a score of 8.2 in May 2014, up from 7.9 in May 2013 (on a 10-point scale). Similarly, ratings on the Applied Learning Student Questionnaire (ALSQ)[x] indicated that students perceived their *intrinsic motivation* and *self-management/self-regulation* more favorably following their participation in the program.

• **Higher Aspirations.** The program also contributed to a growing interest in postsecondary opportunities. Students reported that the program helped them form career goals and gain useful skills for employment. In fact, data from the ALSQ indicated that students' intent to pursue additional education and a career in STEM jumped from approximately 50% before the program to more than 90% in spring 2014. And the dual enrollment program between TCHS and MTC is preparing them to do just that—86% of students who completed the spring 2014 semester already had earned credit hours from the Technical College System of Georgia.[xi]

Appendices

Profile References

Appendix A: KIPP Fellows References

[i] A consortium of eight charter schools in the metropolitan Atlanta area operated by the Knowledge Is Power Program (KIPP).
[ii] Georgia Race to the Top Innovation Fund KIPP teacher fellows program proposal. (2011, June 30). Atlanta, GA: KIPP Metro Atlanta, Mercer University, Georgia State University. Retrieved from http://gosa.georgia.gov/sites/gosa.georgia.gov/files/IF%20KIPP%20Teacher%20Fellows%20Program.pdf.
[iii] *The high cost of teacher turnover.* (2007). Washington, DC: National Commission on Teaching and America's Future.
[iv] Georgia Race to the Top Innovation Fund KIPP teacher fellows program proposal. (2011, June 30). Atlanta, GA: Kipp Metro Atlanta, Mercer University, Georgia State University. Retrieved from http://gosa.georgia.gov/sites/gosa.georgia.gov/files/IF%20KIPP%20Teacher%20Fellows%20Program.pdf.
[v] Ibid., p. 6.
[vi] Postings were listed on the KIPP Careers page of the KIPP website.
[vii] Prior to termination, the teacher fellow received extensive coaching and an intervention planning. The teacher fellows' contract included a clause that required fellows to repay a portion of their professional development cost if they failed to complete the program.
[viii] Teacher fellows participated in other responsibilities as assigned, including (but not limited to) sponsoring extracurricular activities, chaperoning field trips, grading student work, and teaching non-core classes.
[ix] The first year of the program placed a greater emphasis on selecting and hiring teacher fellows than on identifying top-notch mentor teachers. Going forward, the program utilized a more rigorous application process and offered more appropriate professional development opportunities to boost the caliber of mentor teachers.
[x] *Providing effective instructional feedback*. (2014, June). Lawrenceville, GA: Georgia Leadership Institute for School Improvement.
[xi] KIPP Teacher Fellows Program 2012-2013 Teacher Focus Group (Part 3), p. 6.
[xii] KIPP Teacher Fellows Program 2012-2013 Teacher Focus Group (Part 3), p. 2.
[xiii] KIPP Teacher Fellows Program 2014 Teacher Focus Group, p. 13.
[xiv] KIPP also evaluated teachers using KIPP Metro Atlanta Teacher Pathways Rubric which is based on the KIPP Framework for Excellent Teaching.
[xv] KIPP Teacher Fellows Program 2013-2014 End-of-Year Report.
[xvi] *The high cost of teacher turnover*. (2007). Washington, DC: National Commission on Teaching and America's Future.
[xvii] Georgia Race to the Top Innovation Fund KIPP teacher fellows program proposal. (2011, June 30). Atlanta, GA: Kipp Metro Atlanta, Mercer University, Georgia State University. Retrieved from http://gosa.georgia.gov/sites/gosa.georgia.gov/files/IF%20KIPP%20Teacher%20Fellows%20Program.pdf.
[xviii] *The high cost of teacher turnover*. (2007). Washington, DC: National Commission on Teaching and America's Future, p. 2.

Appendix B: UGA-GAEL References

[i] The Georgia Association of Education Leaders (GAEL) is a statewide organization that was established in 1974 to oversee several administrative groups that met separately beforehand. The purpose was to bring the groups together to have discussions and act upon issues. Currently, GAEL encompasses seven professional affiliate organizations. The organization provides support activities, conferences, legislative representation, and insurance programs for its members. As of 2009, the organization consisted of more than 1600 members. For more information on GAEL, visit http://www.gael.org/gael/history.

[ii] Bottoms, G., & Schmidt-Davis, J. (2010). The three essentials: Improving schools requires district vision, district and state support, and principal leadership. Southern Regional Education Board: Atlanta, GA.

[iii] Leadership induction and development is a key priority of the College of Education's (University of Georgia) Superintendents Education Policy Advisory Group. For more information, see the Georgia Race to the Top Innovation Fund UGA-GAEL Early Career Principal Residency Program proposal, available at https://gosa.georgia.gov/sites/gosa.georgia.gov/files/IF%20University%20of%20Georgia.pdf, p. 9.

[iv] The grant proposal included a fifth goal: Improve participants' levels of proficiency on the Educational Leadership Constituents Council Standards/Elements. This goal was intentionally omitted from the Profile, because it was not used in the grant.

[v] Georgia Race to the Top Innovation Fund UGA-GAEL Early Career Principal Residency Program proposal. (2011, October 31). Athens, GA: University of Georgia, Georgia Association of Education Leaders. Retrieved from https://gosa.georgia.gov/sites/gosa.georgia.gov/files/IF%20University%20of%20Georgia.pdf, p.6.

[vi] To date, ECPRP has provided induction support to four cohorts of early-career principals.

[vii] Georgia Race to the Top Innovation Fund UGA-GAEL Early Career Principal Residency Program proposal. (2011, October 31). Athens, GA: University of Georgia, Georgia Association of Education Leaders. Retrieved from https://gosa.georgia.gov/sites/gosa.georgia.gov/files/IF%20University%20of%20Georgia.pdf, p.30-37.

[viii] Each Race to the Top cohort 2 participant's mentor was selected by the school system leadership; therefore, ECPRP did not have any control over the make-up of the coaches/mentors.

[ix] The Coaching Clinic® is a two-day seminar for professionals to learn coaching skills and competencies. The goal of the Coaching Clinic Model is to change the way leaders engage one another and foster a culture of collaboration and accountability. For more information on the Coaching Clinic®, visit http://www.coachinc.com/CCU/Programs%20and%20Services/Clinic/default.asp?s=1.

[x] "The level of engagement with the coaches [varied]. Although coaches were required to communicate with their inductee at least once a month (face-to-face, via email or the phone), this was not the case. It is unclear why coaches chosen by the school district do not provide feedback to ECPRP about their coaching contacts with participants. Despite the offer of a $750 stipend for serving as a coach and providing the program with documentation of all coaching contacts, none of the coaches selected by the school system reported any of their contacts with program participants" (UGA-GAEL ECPRP 2013 Final Report, p. 22.).

[xi] Cohorts are defined as "collaborative learning through peer groups." A cohort group would consist of principals from one district or multiple school districts who work together to learn about or practice relevant content material. Principals can meet in one location or utilize virtual meeting services to collaborate on projects or issues presented by the facilitating organization. For more information on how the cohort model can be used to facilitate principal professional development, visit http://www.newschools.org/files/PrincipalDevelopment.pdf.

[xii] UGA-GAEL ECPRP 2012 Mid-Year Report.

[xiii] Darling-Hammond, L., & Meyerson, D., Davis, S., & LaPointe, M. (2005). School leadership study: Developing successful principals. Stanford, CA: Stanford Educational Leadership Institute.

[xiv] UGA-GAEL ECPRP 2013 Mid-Year Report, p. 23.

[xv] UGA-GAEL ECPRP 2012 Mid-Year Report, p. 11.

[xvi] It also includes a Progress score, which measures the percentage of students exhibiting typical or high growth relative to students across the state with similar prior achievement.

[xvii] Georgia Department of Education. (2015). College and Career Ready Performance Index, 2012 through 2014. Retrieved from http://www.gadoe.org/CCRPI/Pages/default.aspx

[xviii] UGA-GAEL ECPRP 2013 Final Report.

[xix] UGA-GAEL ECPRP 2013 Mid-Year Report, p. 23; Because cohort 2 was comprised of both grant-funded and non-grant–funded participants, there is no way to differentiate between the two groups in terms of perceived improved leadership practices.

Appendix C: Morehouse References

[i] Dobbs, R., Madgavkar, A., D., Labaye, E. , Manyika, J., Roxburg, C., … & Madhav, S. (2012 June). The world at work: Jobs, pay, and skills for 3.5 billon people. Atlanta, GA: McKinsey Global Institute.

[ii] For more information, visit http://www.jec.senate.gov/public/index.cfm?a=Files.Serve&File_id=6aaa7e1f-9586-47be-82e7-326f47658320

[iii] Ibid.

[iv] More information available at http://www.bgca.org/newsevents/PressReleases/Pages/STEM_White_Paper.aspx

[v] In 2011, the year prior to program implementation, CCPS enrollment soared to 59,826 students, 85% of whom qualified for free or reduced-price lunch. Black and Hispanic students also represented an overwhelming majority of the district's student population, at 71% and 17%, respectively.

[vi] For more information, visit http://ssl.csg.org/innovations/2007/2007applications/Southapplications2007/07S50GATAPP.pdf; Ahram, R., Stembridge, A., Fergus,E., and Noguera, P. (n.d.). Framing urban school challenges: The problems to examine when implementing response to intervention. New York, NY: RTI Action Network. Retrieved from http://www.rtinetwork.org/learn/diversity/urban-school-challenges

[vii] Georgia Race to the Top Student Applied Learning, New Teacher Induction and Staff Leadership Program proposal. (2011, November 1). Jonesboro, GA: Clayton County Public Schools. Retrieved from http://gosa.georgia.gov/sites/gosa.georgia.gov/files/IF%20Morehouse%20College.pdf

[viii] Student Applied Learning, New Teacher Induction and Staff Leadership Program 2014-2015 End-of-Year Report.

[ix] Student Applied Learning, New Teacher Induction and Staff Leadership Program 2014-2015 End-of-Year Report.

[x] For more information on Morehouse College's Pre-Freshman Bridge Summer Science Program curriculum, visit http://www.morehouse.edu/academics/HBCU_UP/PDF/2014/Pre-Freshman-Brochure.pdf

[xi] Student Applied Learning, New Teacher Induction and Staff Leadership Program 2014-2015 End-of-Year Report.

[xii] The ALSQ, an assessment co-developed by GOSA and The Findings Group, uses a pre–post retrospective design in which students provide two answers for each item. One answer represents their opinion or understanding before participating in the program, and the other answer represents their opinion or understanding at the time of survey administration. As a result, students gauge growth on each item in one rather than two survey administrations. This design prevents their frame of reference from changing between administrations.

[xiii] Student Applied Learning, New Teacher Induction and Staff Leadership Program 2013-2014 End-of-Year Report.

Appendix D: Gwinnett STEP References

[i] See, for example, http://broadeducation.org/about/crisis_stats.html and http://www.theatlantic.com/national/archive/2013/06/high-school-graduation-rate-hits-40-year-peak-in-the-us/276604/.

[ii] Davis, J., & Bauman, K. (2013, September). School enrollment in the United States: 2011. Washington, DC: U.S. Census Bureau.

[iii] This was the first year Georgia used a new method to calculate graduation rates. The cohort rate calculates graduation rates by comparing the number of students who graduate with the number of students who began high school four years earlier. For most states, including Georgia, the new way of calculation led to a decline in the graduation rate totals. Under the old Lever method, GCPS's graduation rate would have been closer to 81% in 2011. Retrieved from http://onlineathens.com/local-news/2012-11-27/georgias-high-school-graduation-rates-near-bottom-us

[iv] Thirty-nine students earned a college prep diploma, a vocational diploma, or both. An additional 19 completed a special education diploma or a certificate of attendance. In total, only 13% of the 434 students who entered 9th grade over-age completed high school with the class of 2011. Retrieved from http://archives.gadoe.org/_documents/gaosa/Round2/Gwinnett%20STEP%20Academy.pdf

[v] At the time the grant proposal was submitted, the Central Gwinnett High School cluster was one of the district's lowest-performing clusters.

[vi] During the 2012-2013 school year, program administrators decided to drop physical education (PE) from the accelerated coursework because they recognized that students were struggling with the core subjects (math, science, social studies, and language arts) and wanted to give the students more time to focus on passing these four core subjects. Since PE was dropped as a requirement, students were expected to earn 6.5 Carnegie Unit credits. Gwinnett STEP Academy 2013 End-of-Year Report, p. 6.

[vii] Due to restructuring of curriculum, no career pathways were offered between August and December 2013.

[viii] Farmer, K. (2014, January 8). Sandra Deal visits Moore Middle's STEP Academy. Gwinnett Daily Post.

[ix] Over-age was defined as 14 years old or older as of September 1 of students' 8th-grade year.

[x] Transition students were not included.

[xi] All STEP teachers are required to be certified at the middle school and high school levels for their content areas.

[xii] Guskey, T. R. (2010, October). Lessons of mastery learning. Education Leadership 68(2), 52–57. Retrieved from http://www.ascd.org/publications/educational-leadership/oct10/vol68/num02/Lessons-of-Mastery-Learning.aspx

[xiii] School administration also rotated the daily schedule so that students did not always have mathematics as their 4th period at the end of the day, when attention and engagement levels are generally lower than at other points throughout the day.

[xiv] Boynton, M., & Boynton, C. (2005). Educator's guide to preventing and solving discipline problems. Retrieved from http://www.ascd.org/publications/books/105124/chapters/Developing_Positive_Teacher-Student_Relations.aspx

[xv] METIS Leadership Group is a cause-focused organization of experienced psychologists and educators providing the practical wisdom to establish a Culture of Achievement in every school. That is the Group's mission. Its vision, which naturally follows, is success for every student. METIS Leadership Group achieves its mission by developing leadership and professional development programs that are easily incorporated by the staff and sustained by the school's teachers and leaders. For more information of the METIS Leadership Group, visit http://www.metisleadershipgroup.com/metis-leadership-group--about-mlg.html

[xvi] Gwinnett STEP Academy 2012 Mid-Year Report, pp. 5, 15.

[xvii] One explanation for the variation in students earning 5+ Carnegie Units across the two schools is that the STEP Academy is one year older at Sweetwater Middle School than the STEP Academy at Moore Middle School, with the teachers having one year more experience teaching the accelerated curriculum.

[xviii] Gwinnett STEP Academy 2014 End-of-Year Report.

[xix] The ALSQ, an assessment co-developed by GOSA and The Findings Group, uses a pre-post retrospective design in which students provide two answers for each item. One answer represents their opinion or understanding before participating in the program, and the other answer represents their opinion or understanding at the time of survey administration. As a result, students gauge growth on each item in one rather than two survey administrations. This design prevents their frame of reference from changing between administrations.

[xx] Gwinnett STEP Academy 2014 End-of-Year Report.

Appendix E: Tift Mechatronics References

[i] See the Tift County Mechatronics Program grant proposal, available at https://gosa.georgia.gov/sites/gosa.georgia.gov/files/IF%20Tift%20County%20Schools.pdf

[ii] At the time the grant proposal was written (July 2011), the unemployment rate reported by the Georgia Department of Labor was 12.2% in Tift County, compared with 10.4% in Georgia and 9.1% nationwide.

[iii] Coffee County High School (GA), in partnership with Southwire, started a Mechatronics program in fall 2013 at their Career Academy; City of Gainesville (GA) schools are implementing the Mechatronics program after visiting Tift County. Funding has been secured ($40,000) by the Louisiana Technical College System to develop a replication model for the state of Louisiana.

[iv] See Tift County Mechantronics Program grant proposal http://gosa.georgia.gov/sites/gosa.georgia.gov/files/IF%20Tift%20County%20Schools.pdf)

[v] The Technical College System of Georgia sets standards for testing requirements. For students to attend Moultrie Tech and receive college credit, they had to achieve a score of 70 or higher on the reading portion of the COMPASS, a 32 or higher on the writing portion, and a 26 or above on the mathematics portion.

[vi] The instructor salary is paid by the Technical College System of Georgia using income from dual enrollment credit fees.

[vii] Tift County Mechatronics Program 2013-2014 End-of-Year Report.

[viii] See Tift County Mechatronics Program grant proposal available at https://gosa.georgia.gov/sites/gosa.georgia.gov/files/IF%20Tift%20County%20Schools.pdf

[ix] The shift in curriculum from the Georgia Performance Standards to Common Core State Standards has significant implications for this measure. With the shift came a new course (Coordinate Algebra) that, in many districts, replaced Mathematics I. As a result, the state predicted dips in scores of the Mathematics I end-of-course test if districts taught Algebra rather than Mathematics I in 9th grade.

[x] The ALSQ, an assessment co-developed by GOSA and The Findings Group, uses a pre–post retrospective design in which students provide two answers for each item. One answer represents their opinion or understanding before participating in the program, and the other answer represents their opinion or understanding at the time of survey administration. As a result, students gauge growth on each item in one rather than two survey administrations. This design prevents their frame of reference from changing between administrations.

[xi] Eligible students earned college credits under the Technical College System of Georgia's (TCSG) dual credit program. Four students were ineligible for TCSG's dual enrollment program: two due to immigration status and two due to COMPASS scores that were not high enough.

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