GEORGIA CAREER, TECHNICAL, AND AGRICULTURAL EDUCATION

INNOVATION ROADMAP

2021

GaDOE
Georgia Department of Education

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Innovation Roadmap event planning, facilitation, documentation, and strategic guidance were provided by Greg Wilson, Rebecca McIver, Kira Crowe, David Tanner, Madelyn Cantu, Kate Thompson, Melissa Charles, and Michael Moryc of the University of Georgia's Carl Vinson Institute of Government. Editing and graphic design assistance were provided by Karen DeVivo and Jake Brower. Project management was provided by Patrick Ledford of the Georgia Department of Education.

LETTER FROM THE STATE CTAE DIRECTOR

JUNE 2021

Dear CTAE Partners,

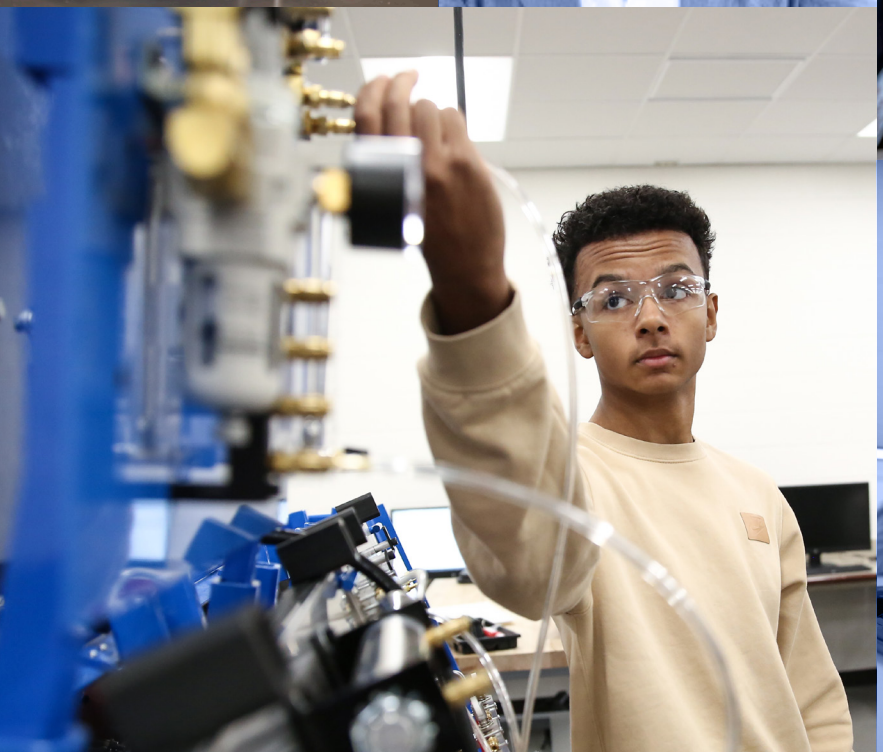
I'm excited to share the Georgia Department of Education's Career, Technical, and Agricultural Education (CTAE) Innovation Roadmap with you. This document is the culmination of the contributions, ideas, suggestions, and vision of hundreds of business partners, CTAE teachers, work-based learning coordinators, Georgia Department of Education (GaDOE) staff members, CTAE directors, and other partners. While Georgia's CTAE program has always been forward-thinking and focused on continuous improvement, the past 15 months have demonstrated just how important innovation, technology, and problem-solving are to delivering CTAE, serving students, and meeting the needs of our employer partners. Continuous innovation will ensure that CTAE continues to be a key part of Georgia's talent development ecosystem.

The successful implementation of the Innovation Roadmap will require all partners to work together—including employers, teachers, district leaders, and GaDOE staff members. I invite you to join me on this innovation journey. Strategy implementation will be shared by GaDOE staff, school districts, and employer partners. Some of the innovation action items detailed in this Roadmap are best addressed by GaDOE staff members and others must begin at the school or district level. Together, we can build a stronger CTAE system that will help students connect to meaningful careers and continue our state's position as a top place to do business.

Sincerely,

Barbara M. Wall

Barbara Wall, Ed.D.
State CTAE Director | Georgia Department of Education



THE CASE FOR INNOVATING

Innovation was a theme for 2020, with people trying to determine new ways to do just about everything, from getting food to taking care of children and even working. This "forced innovation" due to the pandemic has also revealed some silver linings and things that we may want to keep. In many ways, the COVID-19 pandemic sped up some trends that have started to bear out in the data; in other ways, it threw a wrench in the data. Either way, there is a lot of information to support the need for innovation, especially in education.

REIMAGINING EDUCATION

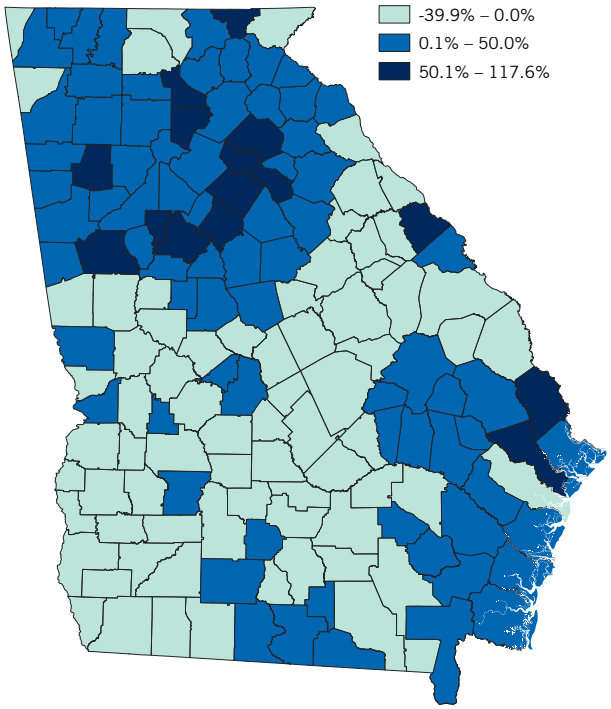
In late 2020, State School Superintendent Richard Woods launched a Roadmap to Reimagining K-12 Education.[1] The document lays out a new vision for education in Georgia that focuses on the whole child, engaging and relevant instruction, and a 21st century standard of learning. CTAE will play an important role in reimagining education for Georgia students. This CTAE Innovation Roadmap is one of the main avenues through which we will reimagine our approaches and offerings.

GEORGIA'S CHANGING ECONOMY AND POPULATION

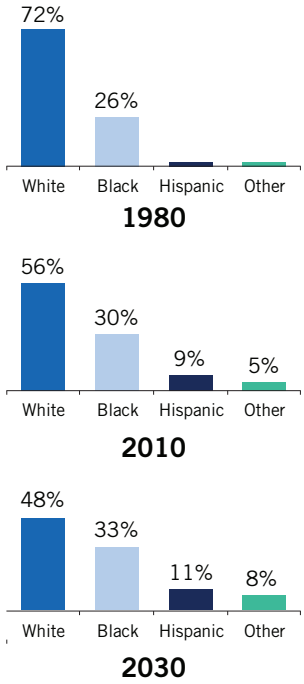
Some of the data points most salient to this Innovation Roadmap are the changing population in Georgia, dynamic economic trends with respect to industries and occupations, and a statewide increase in entrepreneurial activity.

While the state as a whole is expected to grow in coming years, the growth distribution across the state and across demographics is expected to look very different. Much of the growth is projected to take place in the state's metropolitan and hub cities. This is important to consider when we think about access for all Georgia CTAE students.

Population Change, 2020–2050



Population by Race and Ethnicity, 1980, 2010, and 2030



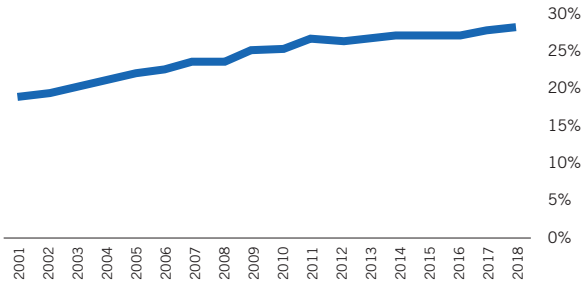
Source: US Census Bureau, Governor's Office Planning and Budget Population Projections (2020 Series)

1. Visit gadoe.org/reimagineK12 for the full plan.

GEORGIA'S CHANGING ECONOMY AND POPULATION (CONTINUED)

The economy in Georgia is also changing, with newer industries emerging like film, information technology (IT), and logistics growing faster than more traditional Georgia industries. Georgia has a strong, growing, and diverse industry base. Not only are educators having to adapt to dynamic industry changes, but they are also having to teach students skills for jobs that do not exist today. In the past 20 years, several occupations have completely disappeared. Other jobs have changed, and many new jobs have emerged, especially in the areas of alternative energy and data science.

Average Entrepreneurial Breadth in Georgia

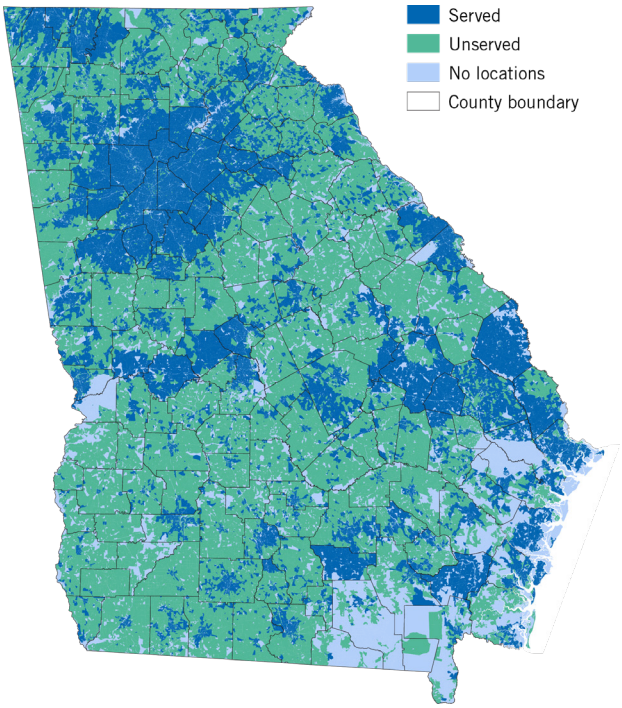


Source: Bureau of Economic Analysis Regional Economic Accounts

Finally, more and more Georgians are starting their own businesses or working for a local entrepreneur. Since 2000, the entrepreneurial breadth or percentage of entrepreneurs out of the total employment has risen to nearly 30% statewide. These dynamic economic trends mean that teachers need to innovate to keep up.

One final factor integral to the success of educational innovation efforts is access to broadband. It is widely known that access to broadband is a major issue for many of Georgia's families and students, but COVID-19 highlighted this disparity even more. According to the Georgia Broadband Deployment Initiative, 10% of Georgia is unserved, over 30% of rural Georgia is unserved, and more than 50% of the population in 26 counties has no broadband access. We need to think about how to innovate with and without technology.

Georgia Broadband Availability Map, 2021



Source: Georgia Broadband Deployment Initiative

Note: no locations means that there are no addresses or establishments to service

INNOVATION PROCESS OVERVIEW

Throughout the summer of 2020, Dr. Barbara Wall, the state CTAE director, and several partners began to explore ways to find the silver lining in the COVID-19 pandemic and encourage additional innovation in the CTAE classroom and beyond. These partners included the University of Georgia's Carl Vinson Institute of Government and the State Business and Industry Advisory Committee Chair Joseph Lillyblad. Through these conversations came the idea for the GaDOE CTAE Innovation Roadmap. This document was developed over eight months with extensive stakeholder input and is designed to serve as a guiding document for CTAE school district leaders, and business partners moving forward.

While COVID-19 showed room for innovation in many areas, the GaDOE CTAE leadership team identified that that educator and business and industry feedback was needed in the following areas: entrepreneurship, work-based learning (WBL), virtual education, credentials, and regional partnerships. Between October 2020 and April 2021, feedback was collected on these topics through three regional educator summits, six follow-up educator working groups (two in each area), two business and industry advisory council meetings, and three business partner working groups.

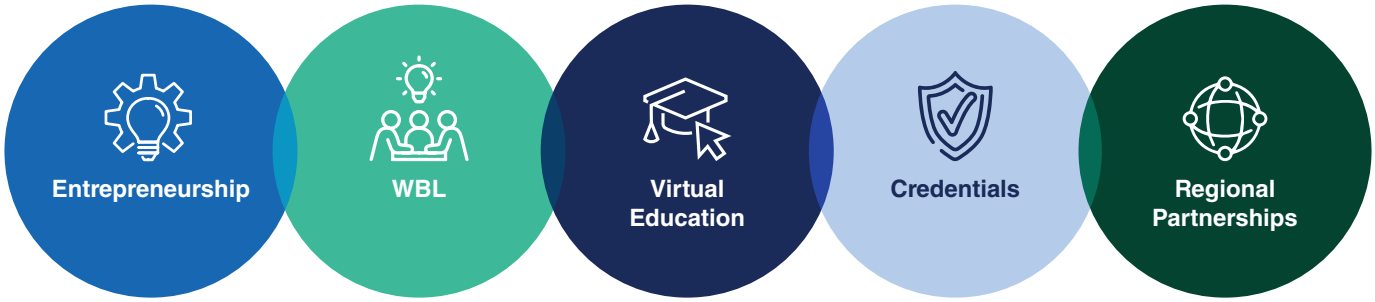
That feedback was documented and organized into the five innovation topics. The sections that follow in this Innovation Roadmap document highlight suggestions and actionable items for the GaDOE team and partners to start working on in the coming months within each of those topics.

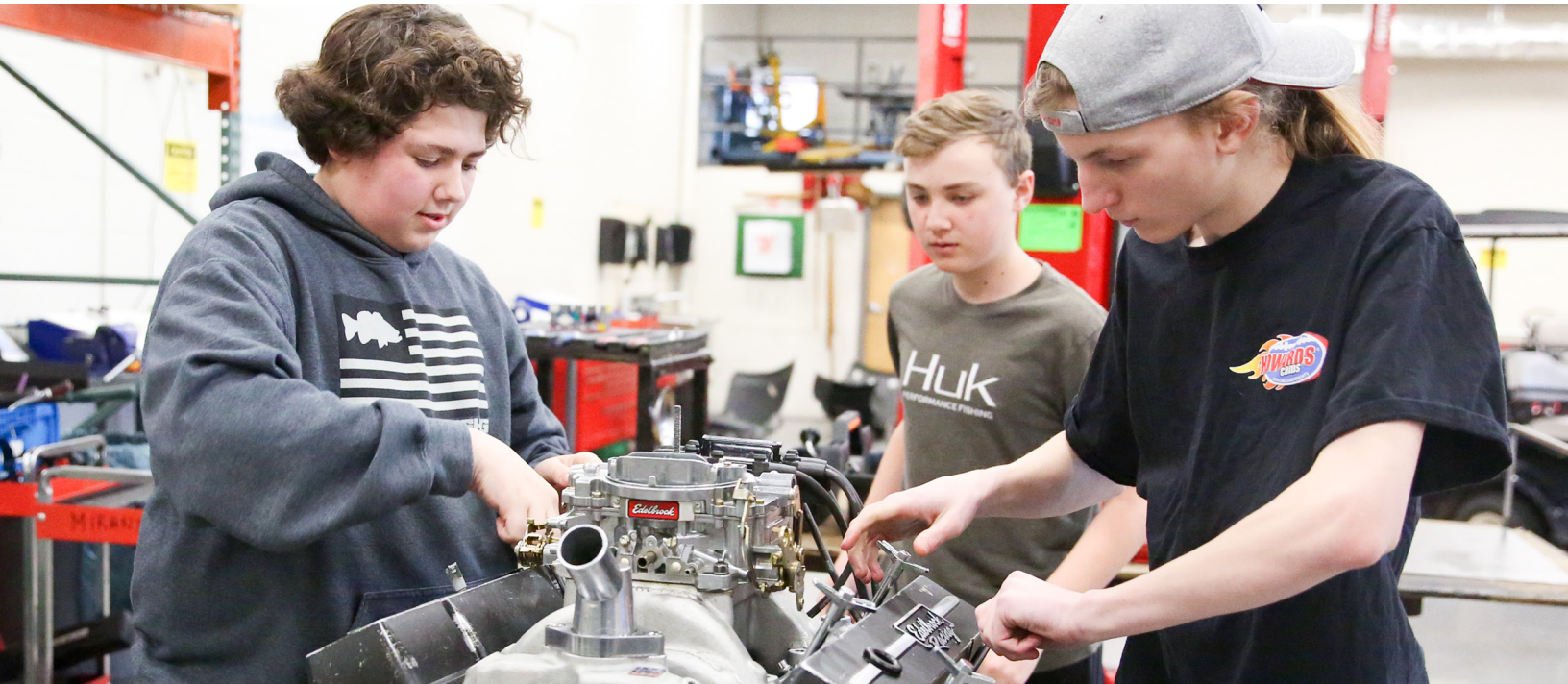
Regional Educator Innovation Summits
North (Nov. 5)
Central (Nov. 10)
South (Oct. 28)

Follow-up Educator Working Groups
Entrepreneurship
WBL
Virtual Education

Business and Industry Advisory Council and Working Groups
WBL
Credentials
Regional Partnerships

INNOVATION TOPICS





INNOVATION TOPIC 1

Entrepreneurship

Challenge: How do we expose every high school student to entrepreneurial thinking before graduation?

BACKGROUND AND BARRIERS

Entrepreneurs and small business owners play an important role in Georgia's economy. According to the University of Georgia Small Business Development Center, the state has 1.1 million small businesses that employ 1.6 million workers.[2] Small businesses fuel economic growth and exports in both rural communities and metro areas.

Georgia's CTAE program currently offers two pathways focused on entrepreneurship: the Entrepreneurship Career Pathway in the Business Management and Administration Cluster and the Marketing and Management Career Pathway in the Marketing Cluster. Ninety-five local school systems offer one or both of these pathways, with 4,438 career pathway completers in the 2018–2019 school year.

Three primary barriers to achieving this innovation challenge were identified.

- Students and parents are not fully aware of what entrepreneurship is and the potential benefits.
- Entrepreneurship spans every facet of the economy and should touch every pathway. The existing curriculum, pathways, and teachers are not equipped to infuse entrepreneurship into every course.
- Students and educators have limited access to entrepreneurs in their communities. According to many CTAE leaders, a key barrier is exposure to local and regional entrepreneurs. Some of this is due to a small number of entrepreneurs in rural areas. In other areas, CTAE leaders do not have sufficient relationships with established entrepreneurs in the community.

STRATEGIES

The Entrepreneurship Innovation Working Group developed five strategies for GaDOE and school districts to implement to work toward the innovation challenge goal.

1 Create a flexible entrepreneurship framework

Entrepreneurship spans every career cluster and pathway in Georgia's CTAE system. Achieving this goal will require entrepreneurship education to be infused into every pathway. The flexible entrepreneurship framework will provide guidance on how to merge entrepreneurship principles with existing curricula.

2 Enhance teacher support and resources

Equipping more CTAE teachers to incorporate entrepreneurship lessons and principles in their course delivery will require additional support. Specifically, GaDOE, school districts, and the CTAE Resource Network will need to offer more entrepreneurship-focused professional development and resources to CTAE teachers.

2. UGA Small Business Development Center. 2019. Small Business and Its Impact on Georgia.

3 Fully integrate entrepreneurship and Georgia's Work-Based Learning program

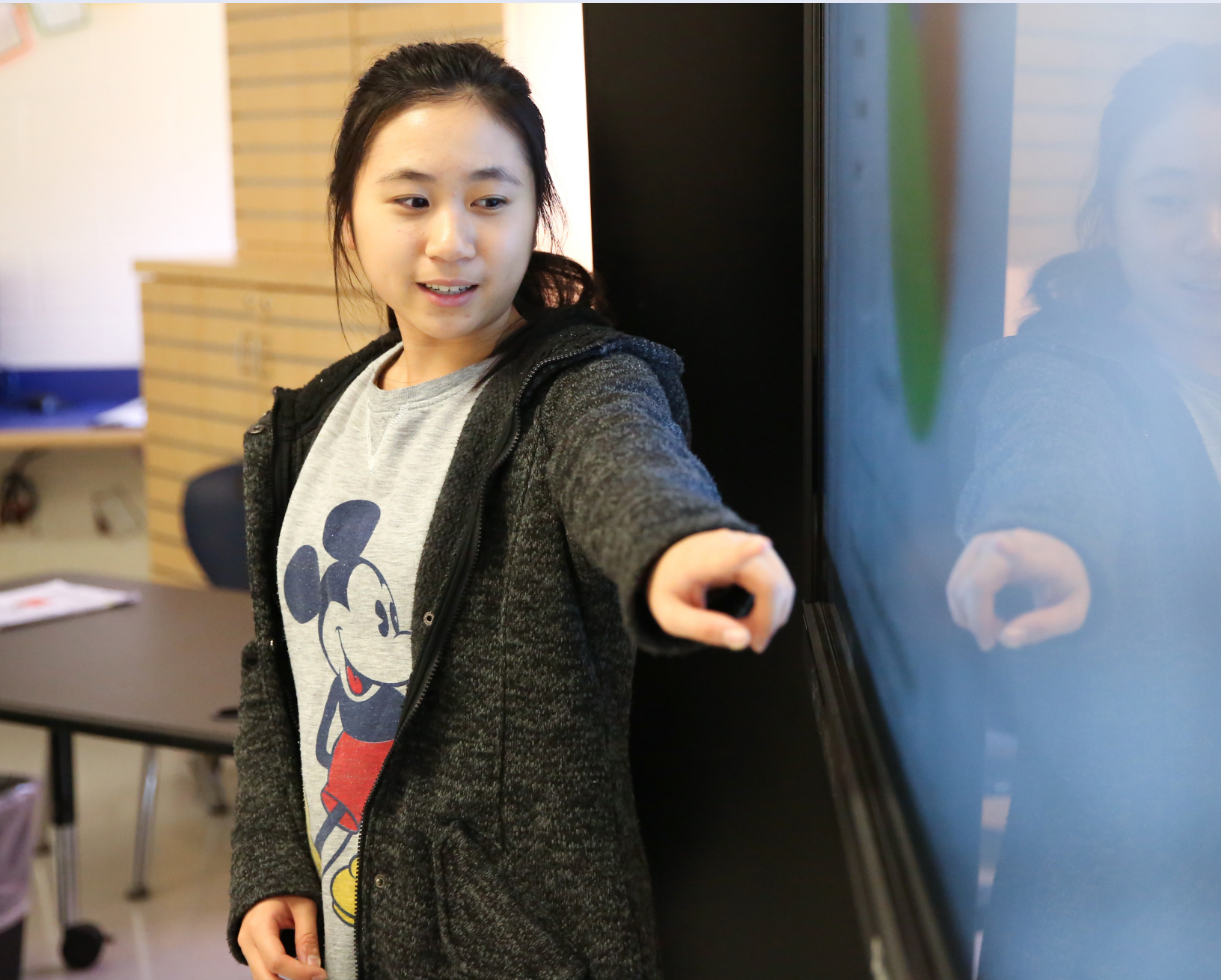
Georgia's WBL program helps prepare students for work through experiential learning and mentorship. Currently, aspiring entrepreneurs are hampered in their ability to partake in the program due to policy and process limitations. State, district, and school WBL leaders must work together to adopt new policies and processes to ensure student entrepreneurs can receive WBL credit and meet the WBL program goals.

4 Increase exposure to entrepreneurship

One of the largest barriers identified by CTAE stakeholders is that many students and their parents do not fully understand what entrepreneurship is, the benefits of entrepreneurship, and how one becomes an entrepreneur. To increase interest in entrepreneurship, districts and schools need a marketing toolkit to engage students and their parents. Starting early with middle school CTAE, Georgia students could be exposed to a variety of careers and development opportunities.

5 Create more opportunities for competition and peer learning

Another way to build interest and support student entrepreneurs is through competitions, events, and other peer-learning opportunities. This could be accomplished by leveraging existing career and technical student organization partnerships and events. Additionally, the working group saw opportunities for potential district, regional, and state entrepreneurship competitions.



INNOVATION TOPIC 2

Work-Based Learning

Challenge: How can we grow Georgia's Work-Based Learning program to 30,000 participants over the next three years?

BACKGROUND AND BARRIERS

Georgia's existing WBL program is robust, with nearly 27,000 students and approximately 9,000 employers participating, but the majority of students still do not have access to high-quality WBL placements. While COVID-19 forced some businesses to pause their WBL commitments, others were able to continue. Finding ways to be innovative in WBL placements can serve several purposes, including increasing the overall number of placements, providing more opportunities for students in rural Georgia, and increasing flexibility for employers who are looking to connect with students in the aligned pathway.

Both educators and industry representatives identified a number of barriers they would like to see innovative WBL programs address. While the innovation strategies do not address all of these issues, it is important to acknowledge the barriers students and employers may face while pursuing WBL.

- Transportation has long been one of the biggest challenges for WBL students. Not all students have cars, but providing more coordinated transportation is also challenging. With students being placed at a variety of business locations across the community at a variety of times throughout the day, running a bus with regular routes is logistically problematic and would be costly. Public transportation may work in some communities but is limited across the state, leaving many students without an option to get to work.
- Depending on the industry and the individual company, age limitations can be a major barrier. While there are policies to help combat this, many risk managers do not want to take on high school students under the age of 18.
- The best practice for WBL is for a student's placement to align with the CTAE pathway or cluster of study, but this is not always the case. Students can learn valuable skills from any sort of work experience, but connecting a student's classroom learning and job experience tends to be impactful.
- Financial barriers can be challenging at multiple levels. Students may need a job to help support their family. If they cannot find a WBL placement that will pay them or give them enough hours, then it may not be an option. At the school level, funding for WBL coordinators can be limited, which can overload a single person and result in a poor experience for a student or a business partner. Finally, businesses may need to better understand how WBL works to see how it could help them, both financially and with their workforce.

STRATEGIES

The WBL Innovation Working Group focused on three main areas that could help move the needle on WBL placements.

1 Share resources and best practices

Teachers and WBL coordinators noted that a variety of WBL materials have been developed over the past several years and numerous creative school-business partnerships already exist. They would like to see a way to identify and disseminate best practices, such as cluster-specific marketing materials that can be distributed to potential business partners with information about the course work the students have had and a list of possible job tasks.

Additionally, using CTAE students in pathways like Audio-Video Technology and Film or Marketing to develop the materials would be a win-win. Another best practice the working group would like to see more districts embrace is the use of chambers of commerce and other regional groups that can connect education to business and industry.

2 Integrate entrepreneurship options into the WBL program

As mentioned in the Entrepreneurship section of this document on page 6, integrating an entrepreneurship option into the Georgia Work-Based Learning program would not only increase the number of placements but could also allow aspiring entrepreneurs to work toward a dream in a safe way in high school. Details need to be worked out to make this a reality, such as whether the student must have a supervisor or instead could have a mentor who would sign their paperwork. Developing a model and example documents could help make entrepreneurial WBL placements a reality.

3 Increase the number of virtual WBL placements

Fully virtual or even hybrid WBL placements increase overall WBL numbers while providing increased flexibility for students and employers. The working group would like to see additional support and recommendations around things like forms, work location, and the like as well as potential assignments or topics to cover if students have a gap in their schedule. Some of this has already been developed through the state WBL program specialist, but additional resources may be helpful. Finally, the working group sees value in developing some sort of connection platform for virtual placements, especially for rural areas to have access to opportunities in urban areas.

INNOVATION TOPIC 3

Virtual Education

Challenge: How can we leverage virtual learning to expand access to CTAE in our state while replicating hands-on learning components?

BACKGROUND AND BARRIERS

COVID-19 almost overnight changed the pace of innovation for virtual education. While virtual K-12 education has been growing in the United States in recent years,[3] the switch to virtual education quickly forced CTAE to innovate and develop new delivery models. Some CTAE courses, especially those requiring less specialized equipment or fewer hands-on activities, transitioned well to online delivery, but other courses could not easily be converted to a virtual environment. In a post-COVID educational environment, some programs may lend themselves to effective virtual delivery and other programs, especially those with hands-on components, may need to continue in-person delivery.

Dr. Wall charged the Virtual Education Working Group to think about both meeting the challenges posed by COVID-19 and how virtual education can be used to innovate and expand access to CTAE long-term. Over the past year and a half, many districts took new approaches, identified new tools, and built new virtual curricula. Now, educators and leaders have a chance to learn from others and figure out what elements we want to keep, what is not appropriate for virtual delivery, and what areas require more work and investment.

The working group identified two key barriers to fully implementing virtual education in CTAE: technology and teacher preparation support.

- Technology: One key challenge facing virtual CTAE is technology. This issue is not unique to CTAE as it impacts all K-12 education. This challenge encompasses both school technology infrastructure like student devices, learning management systems, and virtual simulation as well as larger community technology issues like limited broadband access and difficulties with internet access speed. Many schools found short-term innovative ways to address these technology barriers, but a more comprehensive and long-term solution is needed to support increased virtual education going forward.
- Teacher Preparation and Support: Teachers have significantly different levels of comfort with technology and teaching online courses. Many CTAE teachers had little experience developing or operating virtual courses before the pandemic. Additionally, due to COVID-19, some teachers had to manage both in-person students and students attending virtually. Managing students attending via multiple mediums was an additional challenge.

STRATEGIES

The Virtual Education Working Group developed three primary strategies for GaDOE and school districts to implement to work toward the innovation challenge goal.

1 Create new resources to support the expansion of virtual CTAE

CTAE teachers in Georgia have learned a lot over the past year and have developed tools, resources, and techniques that can benefit all Georgia CTAE teachers. One way to help foster more effective virtual CTAE

3. Toppin, I.N., and Toppin, S.M. 2016. Virtual schools: The changing landscape of K-12 education in the US. *Education and Information Technologies* 21, 1571–1581.

courses is to gather and disseminate delivery best practices, tools, curricula, and lesson plans from various CTAE career clusters. These virtual delivery instruction resources could be housed on the CTAE Resource Network for other teachers and districts to adopt.

Another opportunity to support teachers and help promote virtual education would be to develop modules that can be loaded into a learning management system for various CTAE courses. The working group recommends an initial focus on modules that could be used in multiple courses or pathways. Examples include employability skills, OSHA-10, safety, confidentiality, and proper hand washing. Some of these modules could be created by repurposing existing content and preparing it for virtual delivery. Such modules could be used for developing new virtual courses as well as be offered in a more traditional-format course on virtual education days (i.e., a snow or weather day) or when a substitute teacher is teaching.

2 Offer professional development for quality virtual education

The shift to virtual education happened overnight for most teachers, and they did their best to make it work. Virtual education will continue to be a key part of CTAE delivery in the future. This will require enhanced professional development support for teachers and administrators. Suggested CTAE professional development courses include the basics of online teaching, navigating a learning management system, and fostering student engagement in an online environment.

3 Pilot new approaches to expanding virtual CTAE

The third approach to innovating CTAE virtual education is to build pathways and course delivery resources that districts can adopt to increase their virtual offerings. The first step would be to identify one or two pathways that could reasonably be taught online and then to seed the development of courses that could be adopted by a variety of districts. This strategy would both assist districts during the pandemic and also increase access and opportunity across Georgia post-pandemic. For example, the first course of the cybersecurity pathway could be built out for 100% virtual delivery. School districts could then identify a teacher and add the course materials to their selected learning management system.

INNOVATION TOPIC 4

Industry-Recognized Credentials

Challenge: How can we partner with employers to review proposed and existing CTAE credentials to ensure they align with the needs of employers and prepare students for workplace success?

BACKGROUND AND BARRIERS

During the 2018–2019 school year, Georgia CTAE students completed over 43,000 end-of-pathway assessments (EOPAs). Students who successfully complete a pathway and pass the EOPA can earn an industry-recognized credential like Certified Nurse Aide/Assistant, Microsoft Office Specialist, or Serve Safe. School districts in Georgia can select from a variety of approved EOPAs that are aligned with pathways in all 17 clusters. Attaining a credential in high school can enable a student to directly enter the workforce after graduation or better prepare them for postsecondary education. GaDOE manages the EOPA process and works with school districts to identify and approve new assessment options.

It is critical that Georgia's EOPA assessments are aligned with the needs of the larger labor market. This ensures that students are earning credentials of value to employers and being prepared with the skills needed for post-high school success. Labor market alignment is not without challenges, as the needs of Georgia's growing and diverse economy are constantly changing. Additionally, EOPAs must be offered to students who have completed three CTAE courses, but this time frame does not always align with credential requirements. For example, some industry-recognized credentials may require additional instruction and development time beyond the three-course sequence for Georgia high school CTAE students.

STRATEGIES

The Industry-Recognized Credentials Working Group developed three strategies for GaDOE and school districts to implement to work toward the innovation challenge goal.

1 Engage business partners in the credential approval process

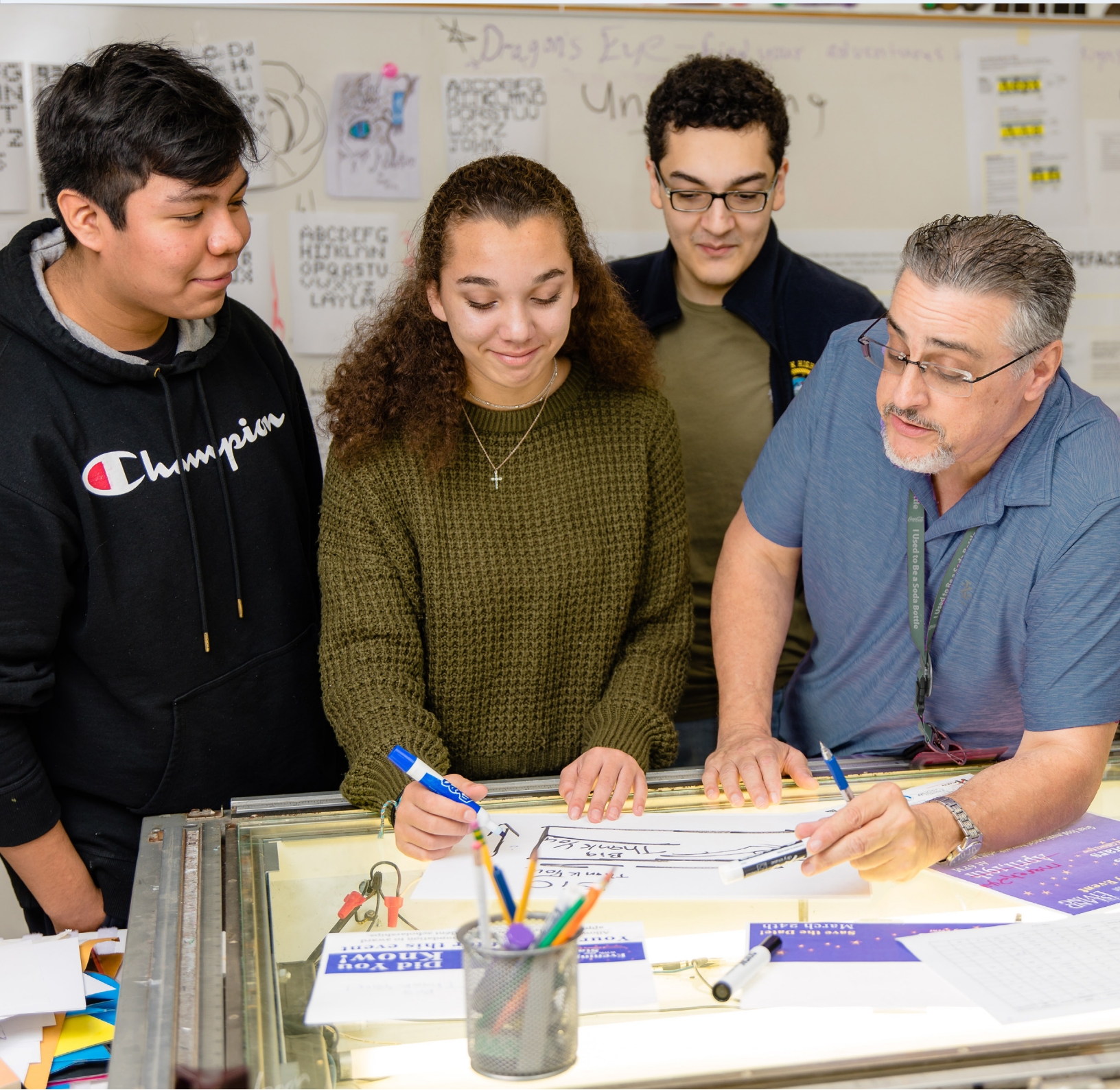
Business partners have valuable insights into credentials of value for their sector and prospective employees. GaDOE should gather feedback and suggestions from relevant employers and evaluate new credential options, either through standing committees that meet as needed or ad-hoc groups formed to evaluate a specific proposed credential.

2 Develop a formal process to review the existing credential options

The demand for and value of credentials can shift relatively quickly based on changing skills, technology, and employer needs. Currently, GaDOE has no formal process for reviewing existing credential options to determine whether they are meeting the needs of students, employers, and other stakeholders. Business partners suggested creating an ongoing process to regularly review and validate existing credential options. This process should take into account feedback from employers, former students, teachers, and other relevant stakeholders.

3 Conduct ongoing research and engagement to stay on the cutting edge of new and emerging credentials

Georgia has a growing and diverse economy that is rapidly innovating. Workforce needs, including relevant credentials, are constantly changing. GaDOE's CTAE Division and school districts seek to equip students with the relevant skills, credentials, and programs to meet the needs of employers and connect them with rewarding career opportunities. Keeping current with emerging credential, skill, and technology needs will require regular partner engagement, research, and outreach. Business partners recommended engaging with state and national trade associations for key business sectors, consulting with state advisory committees on potential needs, and gathering information on new credentials being offered in other states.



INNOVATION TOPIC 5

Regional Partnerships for In-Demand Pathways

Challenge: How can employers help CTAE implement and enhance partnerships around pathways for regionally in-demand industries?

BACKGROUND AND BARRIERS

Georgia has over 130 CTAE pathways designed to meet the talent needs of employers across the state. Some pathways have strong demand across every county in the state (e.g., healthcare, marketing, business), and other pathways are tailored to particular parts of the state where certain industries are heavily concentrated. This is particularly true of some of the newer pathways that have been added in recent years like Cybersecurity, FinTech, and Film Production.

It is always important to have industry involvement with pathway programs through outreach activities like advisory committees, teacher externships, industry certification, and guest speakers, but this can be challenging for new pathways with limited numbers of companies and potentially multiple districts interested in offering a pathway.

GaDOE continues to develop strategies, tools, and frameworks to help school districts and employers work together to support pathways for regionally in-demand industries. The goal with this innovation area is to build an ecosystem of strategies and supports for these industries. These could take the form of creating a new local pathway, adopting a previously approved pathway, providing support to an existing CTAE program that aligns with regional needs, or building out a comprehensive regional talent solution aligned to a specific pathway.

STRATEGIES

The Regional Partnership Working Group, made up of business and economic development partners from across the state, seeks to bolster the number of and support for various forms of regional partnerships focused on in-demand industries. The working group also proposed establishing a grant program to support several pilot regions as they develop or bolster regional partnerships.

This group identified six areas of importance.

1 Increase instructor support

Whether an instructor from industry is coming into the classroom for the first time and needs assistance with classroom management and pedagogy or an educator needs to be immersed in the in-demand field and taught about all aspects of the industry, instructors need ongoing support to be successful. This support may include things like innovative pay scales for industry instructors or summer externship programs.

2 Foster deep, ongoing partnerships

Regardless of the form of the regional partnership, all relevant stakeholders must be included in the partnership from the beginning and must be involved in all aspects of pathway development and ongoing support like curriculum review and project-based learning. Partners must be explicit about their expectations and commitments throughout the process.

3 Continue to educate partners on local pathways and other flexible approaches to meeting workforce needs

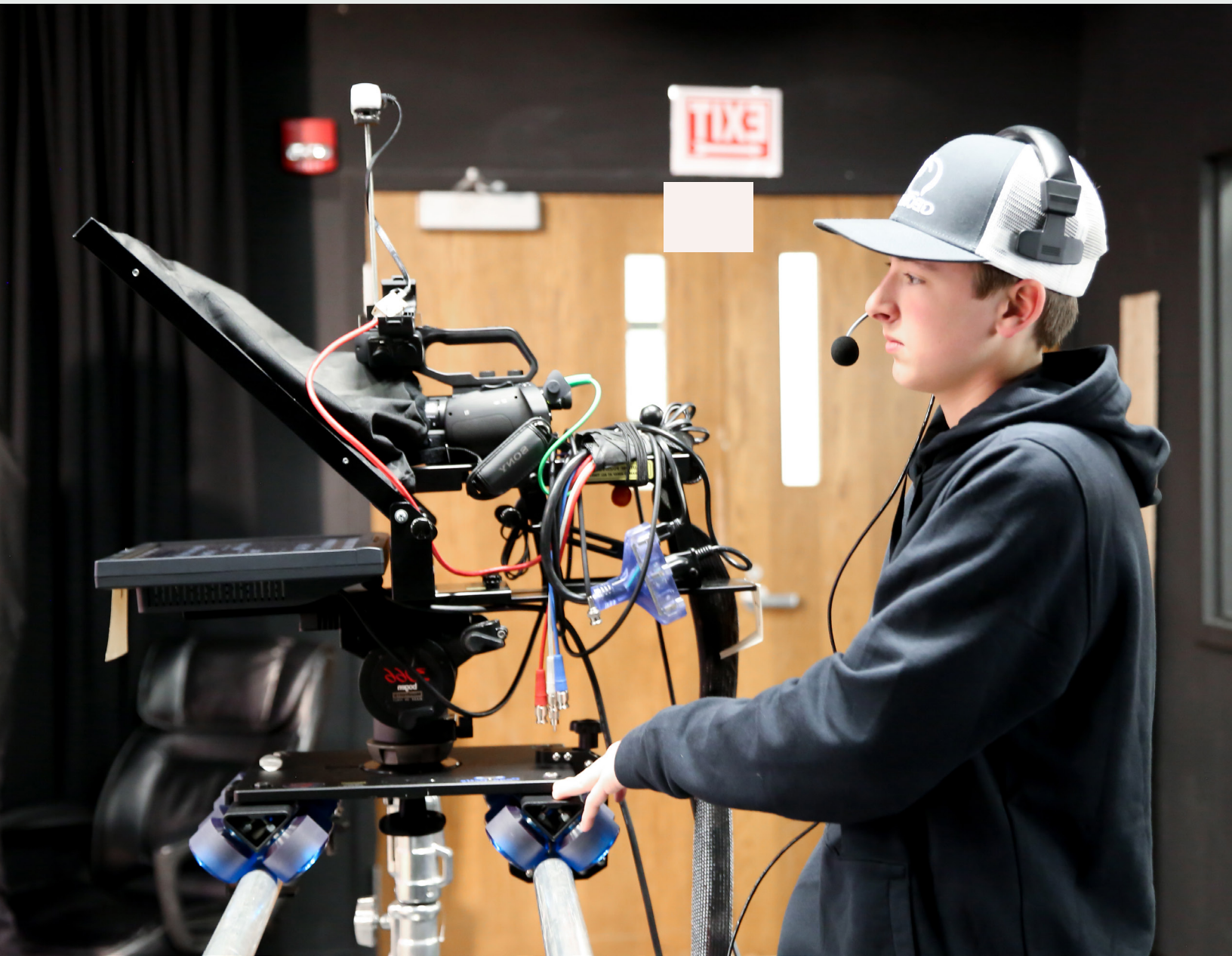
GaDOE has worked to innovate its programs and policies to provide districts and business partners with multiple ways to address rapidly emerging workforce challenges. It will be critical to continue educating all CTAE stakeholders, including business partners, district leadership, and chamber and economic development professionals, on the various models and best practices.

4 Marketing and industry awareness are key to keeping student interest in a pathway

One of the biggest hurdles to starting a new program is student interest, so ensuring that there is marketing and industry awareness is important. This is not just the case for the first year or two, but even beyond to maintain student interest and share with others about the wide variety of opportunities available in some of these fields. Each regional partnership effort should develop a marketing strategy as part of its overall work plan. Marketing tools are available from GaDOE.

5 Regional partnerships must be sustainable

Pilot programs can be a great place to start, but it is also important to consider the longevity of these partnerships and ways to support them for years to come. These partnerships are a focus because they directly align with Georgia's in-demand or high-growth industries. For those industries to continue to grow and thrive in the state, they must have a reliable, long-term pipeline of talent.



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