Evaluation of ARC's Education and Workforce Development Projects Closed in 2015–2019

Case Study Reports

ICF

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ARC Case Study: Garrett College Allied Health Program Expansion

Introduction

Established in 1966, Garrett College is a public community college in the town of McHenry in Garrett County, Maryland. The college serves approximately 5,000 students per year and offers associate degree, certificate, and continuing education programs in a variety of fields. This case study features the Garrett College allied health and emergency medical services program, which received $110,000 of Appalachian Regional Commission (ARC) funding in 2015 to build simulation laboratory space and purchase a simulated patient, "SimMan."

| Site Description |

The westernmost county in Maryland, Garrett County is situated in the Allegheny Plateau, the highland zone of the Appalachian Mountains. With tall ridges and deep, narrow valleys, the county is home to several state parks, lakes, and forestland. Morgantown, West Virginia is approximately 40 minutes away and Pittsburgh, Pennsylvania, 90 minutes.

The county is home to nearly 29,000 residents, the large majority (97%) of whom identify as White.[1] The poverty rate is almost 13%, and the median household income is $54,542, compared to the national median of $64,994. Although 90% of adults 25 years of age and older have graduated from high school (compared to 89% in the nation at large), only 24% have earned a bachelor's degree (compared to a national rate of 33%). The industries employing the most people in the county are health care, construction, and education, and the highest-paying jobs are in mining and natural gas extraction.[2] Tourism is also an important component of Garrett County's economy, with skiing at the Wisp ski resort and New Germany State Park's cross-country skiing trail and swimming, boating, fishing, and camping available at Deep Creek Lake. During the COVID-19 pandemic, home prices in the county grew as new residents bought second homes or moved from cities such as Washington, DC and Baltimore.[3] Garrett County is designated as Transitional by ARC, meaning that it is transitioning between strong and weak economies.[4]

GRANT PROFILE

Grantee name: Garrett College
Grant title: Garrett College Allied Health Program Expansion
ARC project number: MD-18155
ARC funded amount: $110,000
Close date: March 2017

CASE STUDY METHODOLOGY

Garrett College participated in a case study of its allied health and emergency medical services program in July 2022 as part of a broader retrospective evaluation of education and workforce development programs funded by grants from the Appalachian Regional Commission.

This case study included:
- In-person site visit
- Review of program materials
- Discussions with:
  - 1 Dean
  - 1 Program Director
  - 2 Staff Members
  - 5 Program Graduates

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[1] https://www.census.gov/quickfacts/fact/table/garrettcountymaryland,US/PST045221

[2] See the DATA USA fact roundup for Garrett County: https://datausa.io/profile/geo/garrett-county-md

[3] Arbutus, J., & Logan, R. (May 20, 2021). https://www.baltimoresun.com/business/real-estate/bs-bz-home-sales-weakest-maryland-counties-20210520-zj2oddbe3zbdrnsli62pnyprzy-story.html

[4] https://www.arc.gov/distressed-designation-and-county-economic-status-classification-system/

| **ARC Grant Purpose and Activities** |

The purpose of Garrett College's ARC grant was to expand allied health training services at the college's Career Technology Training Center (CTTC) in Accident, Maryland. ARC funds enabled the college to make modifications to the CTTC site to add an allied health laboratory and purchase a simulated patient, SimMan. The new laboratory and SimMan were intended enable hands-on training for adults enrolled in allied health programs.

As the Dean of Continuing Education and Workforce Development explained,

> *"The program that prompted me to write the grant is our paramedic program… at the time the program was housed in an ambulance facility in Frostburg which is in Allegany County and probably geographically it would be the midpoint between the furthest point in Allegany and the furthest point west in Garrett. And so it worked well from that standpoint, it was centrally located. But they couldn't leave anything [training equipment] out. Because it was an ambulance company, at the end of class everything had to be put away. It wasn't a large space, probably the training area was as large as this room. So they did have cabinetry and things where they could [put] things away, but it just wasn't a great learning environment."*

The simulation space includes three small rooms located in an offshoot of a larger training room. Two rooms are designed to provide students with simulated clinical experiences with SimMan; one room resembles a living room to replicate the real-life environs in which students will work. The third room, situated between the two simulation rooms, houses an observation and control space for instructors, who program SimMan and video students as they "treat" the mannequin. Instructors can direct the mannequin to present an array of symptoms, providing students with opportunities to triage, assess, and perform interventions with SimMan.
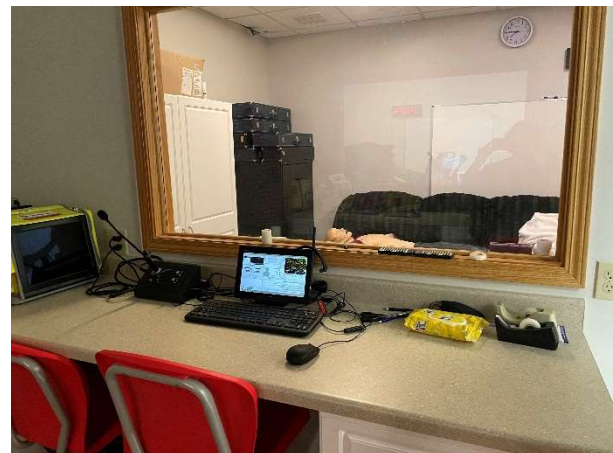
View from the simulation lab control and observation room.

The training site and SimMan allow students to experience an entire simulated paramedic call. One staff member explained, students are "*given the jump pack and stuff that we have on a regular call and they're told, 'You've been dispatched to 3rd room back there for chest pain patient.' And they literally walk in and handle that call from beginning to end. We run 20-minutes scenarios…And then afterwards we debrief.*" Another added,

> *"Basically from the dispatch and the call to the presenting the patient to the hospital, it allows that to happen. In terms of does it better prepare them to be in the field, absolutely it does. They have a process, if nothing else we've taught them the process. You do the assessments, you make the evaluation, you do the interventions. All the way down to the documentation phase."*

According to staff, simulations enable students to consolidate their skills and put them into practice. Said one staff member, "*One of the big things I think it adds, if you look at Bloom's taxonomy of learning, before it was difficult for us to get to the upward levels like synthesis and evaluation levels of that. Now SimMan gives us that ability to do that.*"

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As one staff member explained, "*It puts them into real life situations a lot easier than if we were just sitting here talking about a real-life situation.*" Ultimately, "*The more we can provide real life scenarios with SimMan and that technology, the more we set them up for success in the field with real life patients.*"

SimMan also enabled staff to evaluate students in finer detail and to program SimMan to react according to the "treatment" students give him. One program staff member described it this way:

> "*With SimMan…we can put them in that room and actually give them a situation that they have to treat. From that if they're treating it properly, we can improve SimMan's response, right, then they can see that reflected on the screen [displaying vitals]…If they're not doing the right interventions, then we can make SimMan get worse up to cardiac arrest and then they have to perform that as well. We can take there and really teach them this is what I am doing and if I don't do it well this probably what's going to happen to my patient in the field and give them that knowledge and ability to make those corrections and next time they perform better*."

According to staff and students alike, simulations with SimMan encourage automaticity. As one staff member said, "*Under times of stress you fall to the level of your training rather than rise to the level of your expectations.*" Another explained further, "*You're underneath an overturned tractor trailer when it's 30 below zero with the wind chill, you revert back to that instinct. And that allows us to begin developing the instinct that we wouldn't have had without it. We can sit here in the classroom all day long. And I can say to [a student], 'Stand up and tell me about [it]',*

SimMan on sofa in simulation lab room.

but that has nothing to do with going in there and performing the skills."

Program graduates described their first simulations as "terrifying," "creepy," and "stressful." One student reported that the first simulation in which she participated "*totally destroyed my confidence.*" But all interviewed gradates agreed that the experiences were formative, with successful simulations improving their ability to think clearly and respond appropriately. Said one graduate, "*By the end of 4th semester, we literally were doing SimMan, like, every single week. And it felt a lot more natural.*" Another reported, "*We go through so many scenarios, which is great…SimMan really gave us the option to put hands on…So it really helps going into our practicals.*" The graduate added she still hears her instructors' voices in her head encouraging her to "*put your hands on, don't verbalize it, do it.*"

The ability to offer students simulations enables the college to ameliorate a rural capacity challenge— the availability of particular clinical experiences while students are enrolled in the program. Explained one staff member, "*We're really limited here as you can well imagine. You saw [how] rural we are. The students are required to do clinical experiences but they can't always get… pediatrics is a hard one. There aren't a lot of pediatric cases. So we do have the junior simulator as well. It's not real life clinical but they at least get some experience of developing those skills.*"

Findings

| Implementation |

According to project records, the project was implemented successfully throughout the grant performance period. Staff reported few challenges to implementation. One interviewee noted that the largest challenge was "*that work was done internally, so our facilities team did the construction of the Allied Health Lab. And just because of competing priorities it took longer, as I recall, than what we expected.*"

Garrett College Career Technology Training Center housing the simulation lab and SimMan.

Program graduates cited a few implementation issues with SimMan that were technical in nature, including difficulty finding a pulse on the mannequin. Staff and graduates likewise noted that learning to use SimMan took time. Staff, for instance, required time to become comfortable with programming the mannequin. Becoming accustomed to the stress accompanying simulations with SimMan also took time, but graduates recognized that this adjustment was part of the point of simulation experiences:

Graduate 1: *"I think we all hated sim labs? They were the worst."*

Graduate 2: *"Yeah, but not for the reason that you think like as in like we hated the SIM. It was more like it actually put us under the pressure of hands on what would have been real life compared to just talking verbally like this where you know, you mess up, it's easy."*

Early implementation proved successful. Garrett College had proposed to enroll 28 students in its emergency medical services and allied health programs following simulation lab construction and SimMan purchase. In fact, the college enrolled 99 students in such programs. The Dean of Continuing Education and Workforce Development reported early concerns that students from the edges of the college's service region might not travel to the new site. Ultimately, however, she said, "*we found it didn't make that much of a difference. There were rumblings, but once the students saw their space and how nice it was. And [the] simulation mannequin that we were able to purchase and the simulation lab, they were sold.*"

| Sustainability |

Garrett College sustains the program through revenue from tuition, fees, and ongoing support from Garrett and Allegany County governments. Not only do such monies support faculty and staff time to operate the program, the funds also help with the purchase of SimMan updates and instructional supplies. SimMan maintenance is an ongoing expense, with preventative maintenance costing more than $5,000 per year for software updates and replacement of the mannequin's IV arm. Said one staff member, "*that's a pretty good chunk of change to add into your normal budget for the year. So with that being said, we don't do it every year. We kind of schedule it as we can.*"

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The long-term sustainability of the program is also supported by national accreditation. As one staff member explained, the ability to offer simulation throughout the program enabled the program to meet relevant training standards. In fact, the accreditation process contributed to Garrett College's grant plan: *"We were going through the accreditation process of the program, and we knew that having it where it was probably wasn't going to cut to the standards they were looking for. So that's been another really great asset is having a great facility. It is a nationally accredited program, so that was really the driving force of it."*

Students treating SimMan during a simulation exercise.

Staff are proud of their new most recent accreditation results. Said one such interviewee, *"We have to meet the same standards as say the University of Texas, and UT turns out over 200 paramedics a year. The last accreditation cycle we went through with absolutely no citations and no reports due. So basically we had 100% on the test, which is a big accomplishment."*

Accreditation in turn has improved the program's reputation. According to the Dean, cohorts consistently include 25 to 30 students. Many graduates work in the region, and others have gone on to more advanced work. As one staff member put it, *"I've always said the top accomplishments of our program are our students…We've had multiple students…that have become flight paramedics. The national registry organization that we keep talking about right now, the Executive Director, the guy that heads all that for the nation, came through our program."*

Another staff member noted that recruiters sought program graduates, an unusual circumstance for such a small and rural program:

> *"We had a recruiter from Arcadia Ambulance Service which is out of Baton Rouge LA and they're huge. They have multiple aircraft, both fixed wing and helicopters they put in motion for the paramedics on the oil rig on the Gulf of Mexico. She called and wanted to know if she could come present to our class. I said to her do you know where we are?!? So she flew in to talk to the class about possible jobs with Arcadia, so we have a very good reputation outside the local area as well…. Our reputation has spread, and that support is instrumental."*

Originally a non-credit program, the paramedic training program now offers students the opportunity to earn college credit. A two-year, part-time program, the college determined it to be worth 30 credits. When students complete those hours, they are then eligible to receive a certificate.

Only one staff member reported a concern about the program's sustainability: *"The one concern I have is they have to be an EMT before they can apply for… well before they start paramedic class. The pool of EMTs in this region, I feel like it's getting smaller, and smaller, and smaller."*

| **Equity** |

In general, interviewees did not think that the program took deliberate steps to ensure equity. One reported that equity was not a program focus because *"we do not have a lot of diversity in Garrett County."* Instead, this interviewee cited gender as a more relevant dimension of difference, noting that the percent of women in the program had increased over time:

> *"I can tell you when I first was in this job, most of the paramedic students were male. There were not many female students at all. I have definitely seen that shift….I can tell you we did a little graduation ceremony this year for [students]. And both speakers because of highest grade point were both female. So I think they're excelling."*

This increase in women students may not be the result of program design, however, but rather of changes in the paramedic profession itself. Although many EMTs and paramedics are engaged by communities on a volunteer basis, an increasing percent are paid positions. As one interviewee explained, *"I think the paid component has made a difference. Because it's often harder for women to volunteer because they have other responsibilities. Now it's a paid opportunity, I think that's part of here, why we're seeing that [increase in female students]."*

Another staff member reported that the schedule enabled EMTs to plan their program participation, when asked how the program promotes equity: *"That's a hard question to answer. I think there's a predictability in the schedule. So it's Tuesday/Thursday for the entire two years. So from a scheduling perspective if you are a provider already you can make sure your schedule will accommodate that."*

Two interviewees said that equity was not a program consideration in any respect. As he put it, *"It has no bearing on what we do whatsoever. We're required to treat everybody regardless of race, religion or sex. So everybody here is trained in that concept that you have to treat everybody the same. And anybody who would want to take the class is welcome to take the class. I don't think it's even a consideration to be honest with you."* The other such interviewee put it this way: *"DOT is what sets the standards to become a paramedic, that's not just here, that's everywhere obviously, so we teach to those standards. And there's nothing else that we do different except teach those standards."*

| **COVID-19 Pandemic** |

In response to the COVID-19 public health crisis, Garrett College's paramedic program pivoted to offering lectures via a virtual meeting platform. The program also transitioned to the use of Blackboard, an online learning management system that, prior to the pandemic, had not been used by programs on the non-credit side of the college.

Faculty and staff altered their curriculum schedule as well. As one interviewee explained, *"Lecture-wise we ended up switching to online when we could, but that has its limitations from the skills you had to do because you can't do skills online. So our schedule, we flip-flopped a lot of stuff. Moved a lecture up where we could do it online. Kept skills for later on when we could come back in person. We never shut down, we made it work… it was week to week."* Said one staff member, *"we were trying to keep [students] moving so that they would be ready to go to clinicals whenever the time came."*

Scheduling clinical experiences in the field was even more difficult: *"Clinicals were challenging. We wrote off some of our clinicals because we couldn't get in the hospitals and stuff to do the clinicals."*

Simulation experiences were delayed until later in the Spring 2020 semester. One staff member reported, *"We were able to still meet in person because we were training essential workers so we could still do the labs, but obviously very limited and had to have open space."* Another said, *"So [students] would divide up, come in like 5 at a time, and they'd do their skills and he had it staggered so they could all get in and get what they needed to do."*

Ultimately, these efforts paid off. Said one interviewee, *"We didn't lose anybody during that time, nobody quit."*

The team intends to continue implementing some of the changes resulting from adaptation to the COVID-19 pandemic. One staff member noted that conducting some instruction via video conference benefitted students: *"For instance with the cost of gas we can flag certain nights where the students don't have to come here, because it's a lecture that doesn't necessarily have to be in person."* In addition, because video conferencing platforms supports recording, *"we're going to continue to record our sessions and library them. So even if a student who has been through that section wants to review it next year, they can bring it up on their computer."*

Garrett County in general, according to interviewees, weathered the pandemic well. Infection rates were lower than in many places. Staff also reported that county population grew*: "We didn't see a downturn, it increased because everybody came here. They all worked from home and when they could do that they came here and stayed at their second home and made it work."*

| **Implications** |

Only one interviewee had direct engagement with ARC program officers, but she reported that *"all of the project managers that I've worked with have been wonderful, very accommodating. Especially if things don't go exactly as you had planned. So modifications or extensions or anything like that."* She offered only one recommendation, suggesting that the ARC reporting system provide users with progress notifications about what information had been entered and what information was required but not yet entered.

But all interviewees agreed that the ARC grant supporting the construction of simulation lab space and the purchase of SimMan was extremely helpful. As one put it, *"ARC funding has been transformational here, at the main campus, at that facility, in the county as a whole. I know there have been a lot of infrastructure in the towns and business parks and things that the county has leveraged. I think for rural economies or those who qualify for ARC funding, it's just transformational."* Another Garrett College team member added, "*My big thing with Garrett College is this would've never happened without that [ARC funding]. We could've tried to put it in as a capital project at some point in time. Again at the time like I told you the paramedic program, the majority of the college didn't know we existed. So I am pretty sure they weren't going to be setting aside a bunch of money for us. So just the obvious fact that we would not have this without that funding."*

ARC Case Study: Blue Mountain (MS) College: Vision 2020

Introduction

Blue Mountain College (BMC) is a private, non-profit, 4-year Baptist college in Blue Mountain, Mississippi. The college serves approximately 900 undergraduate students per year, with about half enrolled full-time. This case study highlights BMC's Vision 2020 project, which began in 2016 with ARC funding to enhance the quality of educational attainment in the region.

| Site Description |

Blue Mountain, Mississippi is a community that settled around the College, after its founding in 1873. Situated in Tippah County, on the northern Mississippi border, the town had just 954 permanent residents in 2022. The broader county of Tippah is one of 10 counties created by the Chickasaw Cession (also called the Treaty of Pontotoc Creek), which ceded 6 million acres to the United States. Tippah County comprises roughly 460 square miles and is home to around 21,000 residents (Table 1). The county has numerous industries including manufacturing, agriculture, healthcare, education, and construction, although is categorized as economically "at-risk" by ARC, meaning they are at risk of becoming economically distressed.[5] According to the state's Chamber of Commerce, there are ongoing efforts to encourage business startups in the county.

> **GRANT PROFILE**
>
> **Grantee name:** Blue Mountain College
> **Grant title:** Blue Mountain College Vision 2020
> **ARC project number:** MS-18515
> **ARC funded amount:** $240,000
> **Close date:** February 2019
>
> **CASE STUDY METHODOLOGY**
>
> BMC participated in a case study of Vision 2020 as part of a broader retrospective evaluation of education and workforce development programs funded by the Appalachian Regional Commission. This case study included:
> - In-person site visit
> - Review of program materials
> - Discussions with:
>   - 5 College Leadership staff
>   - 2 College Staff
>   - 3 current students
>   - 1 former student

In 2020, the poverty rate in the county was 6.9%, substantially lower than the 18.7% rate across the state. However, the percentage of county residents 25 years and older who graduated from high school (78.3%) and those with a bachelor's degree or higher (13.9%) were both lower than the statewide rates of 85.3% and 22.8%, respectively (Table 1).

| ARC Grant Purpose and Activities |

In 2016, BMC applied for and received $240,000 of ARC funding to help execute their comprehensive Vision 2020 strategy. This involved using grant funding to improve student learning, redesign courses, improve technology infrastructure on campus, and increase resources to the Teaching and Learning Center (TLC) on campus. Student learning goals included enhanced student learning and collaboration across all curricular areas, improved critical thinking skills, and increased success in team environments.

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[5] See how county economic levels are determined by the ARC: https://www.arc.gov/distressed-designation-and-county-economic-status-classification-system/

Similarly, there were faculty and staff goals to support the student learning goals through redesigned courses and the implementation of processes rooted in evidence-based practices.

First, faculty from BMC designed and delivered on-campus professional development workshops for 30 educators and administrators spanning preschool through 12th grade. These customized workshops helped to provide a framework and research-based strategies for building a seamless approach to student readiness for the next level of learning. In addition, leveraging grant funding, college instructors

Table 1. Regional Demographics[6]		
Indicators	**Mississippi**	**Tippah County**
Population Estimate 2020	2,949,965	21,819[7]
Per Capita Income 2016–2020	$25,444	$18,818
Median Household Income 2016–2020	$46,511	$37,894
Persons in Poverty 2022	18.7%	6.9%
Race: White	58.8%	80.8%
Race: Black	38.0%	16.8%
Households w/Computer 2016–2020	86.5%	81.4%
Households w/Broadband Internet	75.8%	65.3%
High School Graduate* 2016–2020	85.3%	78.3%
Bachelor's Degree or Higher* 2016–2020	22.8%	13.9%
Civilian Labor Force** 2016-20	26.8%	54.7%
Pop. Per Square Mile 2020	63.2	47.6
County Economic ARC Rating Status 2022 (3 – Distressed Regions)	–	At-Risk

Note. *Persons aged 25 years+; **Population age 16+

redesigned 70+ courses to engage students in the learning process through various interactive teaching strategies. In approaching course redesign, BMC implemented the Significant Learning Model.[8] By June 2020, 139 courses had been redesigned, which represented 68% of the college's total courses. During the project period, 1,957 students were served through the TLC and redesigned coursework and 284 teachers and administrators participated in professional development workshops.

ARC funds also helped support the purchase of computers and upgrades to student learning management systems utilized in the TLC. Finally, to support and increase retention rates, all students enrolled at BMC were given access to the enhanced TLC where they received soft-skills development and tutoring sessions, at no additional cost.

Findings

| **Implementation** |

Prior to receiving the grant, the campus technology deficits were significant and frequent, ranging from network accessibility

BMC Technology Learning Center (TLC).

to bandwidth and management issues. The Chief Information Officer shared, "*before the grant, the campus technology infrastructure struggled to support the number of devices being connected to their*

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[6] Data sources: Rows 1-12: https://www.census.gov/quickfacts/fact/table/PA/PST045221; Rows 13: https://data.arc.gov/data (County Economic Status Classification)

[7] https://www.census.gov/search-results.html?searchType=web&cssp=SERP&q=Tippah%20County,%20Mississippi

[8] Based on L. Dee Fink's 2013 book *Creating Significant Learning Experiences: An Integrated Approach to Designing College Courses*.

network." Students, faculty, and others often bring multiple devices to campus—which was described as a drain on the college's outdated infrastructure before the grant. The CIO explained, "*It's not uncommon to see students come in with 6–8 devices that need network access, not to mention Smart TVs, Roku, Apple TV, Apple Watches … and iPhones…Let's say we have 500 students on campus, at one time that would mean 500 devices; now that multiplies into 3,000–4,000.*"

The Vision 2020 grant funds were used to update all components of the BMC technology infrastructure, creating more dependable access for all users. During the upgrade processes, the BMC CIO and other specialists worked alongside the installation team and learned how to troubleshoot problems when they occurred in the future. Reflecting on the change, the CIO noted that call center now receives 60–65% fewer calls and described that as a conservative estimate. In his words, there was a "*drastic decline*" in support calls related to technology on campus.

Multiple faculty and staff members were interviewed, including the BMC president, provost, chief information officer, chief financial offer, director of the Teaching and Learning Center, vice president of Enrollment Services, and coordinator of Student Success and Career Services, and *all* reported significant improvements and positive experiences for themselves and students across all aspects of the Vision 2020 implementation.

In addition, all of the students interviewed had positive comments about their Vision 2020 experiences. The students and alumni interviewed had several different majors and professions: an undergraduate elementary education major, a graduate with a master's degree who is now a BMC IT employee, an integrative physiologist with the goal of working with the aging population, and a student who will work in a church ministry. Students who were on-campus prior to the Vision 2020 grant award shared their technology issues before grant funding, describing their problems and frustration with trying to use the campus internet. Some of their comments related to connection failures, slow speeds, and connection problems, "*especially in dorm rooms.*"

Reflecting on changes that resulted from the grant, students had the highest praise for the TLC and the resources it provides to all students. Several types of uses were mentioned, including that it is a good place to study, to get tutored or be a tutor, for small group meetings or study sessions, and to find a peaceful atmosphere. Other student comments described going to the TLC for tutoring and knowing students could get help without any negative associations related to poor test grades or feeling discrimination.

| **Sustainability** |

The technology upgrades enabled by the grant are still in place. With the upgrade, BMC was able to join a consortium of other universities to gain access to additional online coursework and programs of study (majors) through these partner colleges and universities. For example, BMC is now offering a computer science program and an actuarial science program through other institutions in the consortium. This consortium partnership has also enabled a local partnership to develop with Big M trucking, a business local to Blue Mountain. After learning that the company was looking to provide their employees with more knowledge about the supply chain, BMC was able to leverage a program offered through the consortium to provide local employees with needed training. One participant explained, "*[The consortium] opportunity has allowed us to connect with our community in different ways… which is all based on our having the technology to be able to do this.*"

In addition, having the foundational technology infrastructure in place has also enabled BMC to launch a nursing program and cyber security courses. One staff member explained, *"so it's all technology. All those simulators, those fake people lying down there in those hospital beds - If we had not had the infrastructure we could not have done this. So it was just an extension of what we already had."*

Use of the TLC and available tutoring supports continued to increase during the life of the grant and into sustainability. BMC staff shared data related to the use of TLC resources over a 5-year period; the number of tutor sessions in 2015–2016 was 553 and TLC attendance was at 2,270 participant visits. By 2019–2020, there were 924 tutor sessions and attendance was at 6,700. Current undergraduate students who participated in case study interviews shared that they were very satisfied with the technology on campus. The TLC and its resources were seen as an important addition to BMC, enabling structured tutoring opportunities, student research, dependable technology, and tutor resources to help them succeed.

| Equity |

When asked about the top two or three accomplishments from the Vision 2020 grant, the chief information officer responded that the top accomplishment was the quality of the "*core infrastructure of the network*" because *it impacted everyone*. Classroom technology and use would be the second "top accomplishment" from his perspective. The benefits were campus-wide and had a positive impact on everything that is "*technology-associated*."

Additionally, after the conclusion of the grant in response to the Covid-19 pandemic, BMC began efforts to provide digital access options for all adopted textbooks to help support student learning and reduce the cost of printed materials. Ultimately, out of the 169 adopted textbooks, 131 were offered in a digital format by the college and just 38 were only available in hard copy. This work was supported by a subsequent ARC grant to BMC as well as federal Covid relief funding. Having affordable learning materials was described as a game changer for many students and helped to remove a barrier to success.

| COVID-19 Pandemic |

Because the Vision 2020 grant start-up was awarded before the pandemic, supply-chain delays and elevated costs did not affect the acquisition of materials. Calling the ARC grant a "game changer," the chief information officer said it would have been a very different situation had BMC received this grant during the pandemic—the delays would have been significant, and the scope of work would have changed. After a brief closure to pivot to online instruction, BMC did not have to "stop teaching students." BMC instruction and interactions with students were delivered virtually and the semester progressed in the new format. However, one case study participant highlighted the challenge of technology access for students once they were no longer on campus noting, "*it was still interesting even though we had all the technology infrastructure, the communities around necessarily did not and so for those first semester spring of '20 I guess… we really had to work to help our students. Because they didn't have the infrastructure when we did.*"

Fortuitously, BMC already had plans in place to cut textbook costs by providing digital materials (discussed more under Equity) and providing all full-time undergraduate students with a free iPad equipped with learning support applications, a management system, and "*all course textbooks and other*

learning resources." By Fall 2020, the first full semester of the Covid-19 pandemic, 518 iPads were distributed to students. This enabled classes to continue online as needed during the 2020-2021 school year, although many classes resumed in-person instruction throughout the year.

| **Implications** |

Interviewed faculty and staff reported that BMC's enrollment is increasing. Many participants credited this in part to ARC's investment in the college. Staff members shared comments including:

> *"I cannot tell you how wonderful the ARC grants have been for us, because I dare say we have as good a technology system as any institution anywhere."*

> *"We are a small private liberal arts institution in a rural community. And I think sometimes people might come on to our campus, guests and prospective students and wonder whether what we have to offer is on par with what they would find other places. I think they come and they walk away saying absolutely. Our technology is… as good as we could possibly provide for our students. And the ARC grant has contributed mightily to that standard."*

In addition, the popularity of the TLC may soon require an increase in the amount of space and resources needed to serve more students. Throughout case study discussions, it was evident that BMC's foremost emphasis is on student support for success and that staff and faculty attributed ARC funding as contributing to that success.

ARC Case Study: North Central Workforce Development Board (PA)

Introduction

Set near the Allegheny National Forest and surrounded by Pennsylvania's Elk County, the North Central Workforce Development Board[9] (NCWDB) in Kersey, PA, operates the Business Education Connect Initiative.[10] The NCWDB focuses on five goals:

1. Enhance public-private partnerships
2. Engage in sector strategies of growth industries
3. Design innovative workforce development strategies to reach young adults
4. Identify career pathways in major industry sectors
5. Ensure customers (both employers and job seekers) remain in the center of service design[11]

|Site Description|

Located in mountainous northcentral Pennsylvania, the NCWDB serves six primarily "Transitional" economic status counties (transitioning between strong and weak economies): Cameron, Clearfield, Elk, Jefferson, McKean, and Potter.[12] The largest industries in this area include manufacturing, health care, construction, and education.[13] These rural counties are home to about 215,000 residents, the majority of whom are white. The population per square mile ranges from 12 (Cameron) to 70 (Clearfield), with poverty and unemployment rates similar to the state averages of 11% and 5%, respectively. For people 25 years old and up, nearly all are high school graduates; however, the average of those with bachelor's degree or higher across the counties (16%) is roughly half of the state total of 32%. A summary of the region's demographics is shown below by counties served, along with state demographics as a point of comparison.

GRANT PROFILE

Grantee name: North Central Pennsylvania Regional Planning and Development Commission
Grant title: North Central Business and Education Connect
ARC project number: PA-17941
ARC funded amount: $108,000
Close date: August 2017

CASE STUDY METHODOLOGY

The NCWDB participated in a case study of their Business and Education Connect Initiative in July 2022 as part of a broader retrospective evaluation of education and workforce development programs funded by grants from the Appalachian Regional Commission (ARC). The case study included:

- An in-person site visit
- Review of project materials
- Observation of student activity
- Discussions with 2 project staff, 2 partner staff, and 16 students
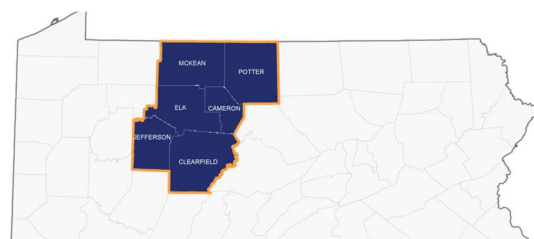
Six-county region of PA served by the NCWDB.[1]

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[9] Originally named the North Central Workforce Investment Board, this entity was renamed the North Central Workforce Development Board in July 2015. For continuity, the NCWDB nomenclature is used in this case study: https://workforcesolutionspa.com/about-us/

[10] This was known as North Central Business and Education Connect when funded by the ARC.

[11] See the NCWDB "About Us" page: https://workforcesolutionspa.com/about-us/

[12] See how county economic levels are determined by the ARC: https://www.arc.gov/distressed-designation-and-county-economic-status-classification-system/

[13] See the DATA USA fact roundup for these counties: https://datausa.io/profile/geo/clearfield-mckean-elk-potter-cameron-counties-puma-pa#about

Table 1. Regional Demographics[14]

Indicators	Pennsylvania	Cameron County	Clearfield County	Elk County	Jefferson County	McKean County	Potter County
Population Estimate, July 2021	12,964,056	4,459	80,082	30,783	44,114	39,941	16,259
Per Capita Income 2016–20	$35,518	$24,379	$25,043	$31,333	$26,890	$26,635	$26,439
Median Household Income 2016–20	$63,627	$40,342	$50,150	$54,961	$49,604	$49,240	$47,696
Persons in Poverty 2021	11%	14%	14%	8%	11%	14%	12%
Race: White	82%	97%	95%	98%	98%	95%	97%
Households w/ Computer 2016–20	90%	86%	83%	86%	84%	87%	87%
High School Graduate* 2016–20	91%	91%	88%	93%	91%	92%	89%
Bachelor Degree or Higher* 2016–20	32%	11%	17%	19%	16%	19%	15%
Civilian Labor Force** 2016–20	63%	49%	53%	63%	53%	53%	49%
Pop. per Square Mile 2020	291	12	70	38	68	41	15
3-yr Avg. Unemploy. Rate 2017–19	5%	6%	5%	5%	5%	5%	6%
County Economic Status 2022		Transitional	Transitional	Transitional	Transitional	Transitional	Transitional

Note. *Persons aged 25 years+; **Population age 16+

| ARC Grant Purpose and Activities |

The Business and Education Connect Initiative was funded by ARC in 2014–15 to work with business and industry to provide career guidance for high school students. By partnering industry representatives with schools, the program aimed to improve awareness among Pennsylvania youth about career opportunities within the region as well as the education and skills needed for those occupations. The initiative included school districts, community education centers, chambers of commerce, economic development agencies, postsecondary providers, and community agencies. The goal was to facilitate partnerships with at least 25 local businesses and 11 other organizations.

Grant funds supported the work of two career counselors in the six-county region to serve up to 100 high school seniors throughout the year. To help youth and their families identify promising careers and map out the education and training pathways needed to attain them, counselors also organized and facilitated programs such as job shadowing, educator-in-the-workplace, mock interviews, classroom presentations, company tours, and postsecondary campus visits. Students worked with the counselors to develop career plans inspired by these experiences and activities.

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[14] Data sources: Rows 1-10: https://www.census.gov/quickfacts/fact/table/PA/PST045221; Rows 11-12: https://data.arc.gov/data (County Economic Status Classification)

During the first 4 months of ARC funding in 2014, NCWDB staff met with area schools and attended meetings at which schools, businesses, and other agencies introduced the ARC grant and discussed intended goals and implementation plans. Staff began forming Business and Education Connect committees in each county and began holding kick-off events for each county. In November 2014, two career counselors were hired, and during December 2014 and January 2015, they were trained. An individualized career plan template was developed during the training process, along with other tools for use in conversations with students, such as interview questions and an interest inventory. In January 2015, career counselors began meeting with students, school personnel, employers, and staff from other community agencies and creating school schedules. In addition, high school seniors in one school district completed a survey in which they identified their career plans following graduation. Career counselors also began setting up meetings with those students who lacked a career plan or those who desired to meet with a career counselor.

During the second 4 months, career counselors continued working with Chapter 339 Advisory Councils in Clearfield and Jefferson County school districts; helped hold a Career Fair Scavenger Hunt; and worked with local colleges and employers to arrange job shadowing, college and company tours, mock interviews, assistance in completing job applications, and other relevant activities. Other project activities included the continued formation of Business and Education Connect committees in each county, renaming the North Central Workforce Investment Board as the North Central Workforce Development Board; and high school seniors in three districts completing a survey for identifying career plans.

CHAPTER 339

Pennsylvania requires all school districts to have a K-12 Guidance and Counseling Plan, as required by Chapter 339 Career and Technical Education (CTE) Standards. District Advisory Councils include representatives from multiple stakeholder groups:

- School counselors, teachers, and administrators
- Students
- Parents
- Business and community
- Postsecondary

Planning for sustainability began in the first 4-month period, with staff researching grant opportunities and submitting an application to the Pennsylvania Department of Labor and Industry for assistance in continuing and sustaining the ARC-funded program. A long-term goal focused on school districts providing funding for positions emerging upon completion of the first year of the ARC program. During the second 4-month period, the NCWDB received notice they were awarded the funding from the Pennsylvania Department of Labor and Industry to continue financing the career counselors for an additional 12 months after the ARC grant period. Further, conversations were being held with two career and technical centers to discuss the possibility of sharing costs to retain the career counselors in the future.

At the close of the first 8 months of ARC funding[15], the following outputs had been achieved: 44 businesses and 31 organizations were served (met with career counselors); and 333 high school seniors were served (met with career counselors), as well as 108 other students (in grades 8–11). In addition, the following outcomes were achieved: 5 businesses and 13 organizations were improved (had met with and been connected to students); and 93 students had improved (completed a career plan).

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[15] Project staff were unable to locate the final 4-month performance progress report, so details for that specific period are missing from this brief summary of project activities.

Findings

| Implementation |

The NCWDB—in fulfilling its role in ensuring communities, schools, parents, and students know what occupations are in demand in the region, and the education levels required—secured ARC funding to support two career counselors to work with students and help them develop career plans and facilitate associated activities, such as job shadowing, career fairs, and career education presentations. As part of those efforts, the NCWDB partnered with Community Education Centers (CECs) serving respective counties within the six-county region so that services were not duplicated. Given various levels of collaboration across the CECs, the NCWDB primarily served students from Clearfield and Jefferson counties. "*Agency priorities*" were identified as the biggest challenge to such partnerships as well as CECs often "*looking to us as a funder of projects rather than a partner*."

The career counselors worked with 10th–12th graders identified by school guidance counselors, and those identified were primarily "*non-academic*" students who had not chosen to go to college or whom guidance counselors perceived as "*lost*." Project staff said it was challenging that they were limited to serving this specific group of students, and perhaps missing some students planning to go to college but who may not have career plans. A related school-based challenge was the limited flow of communication from administration to teachers. Project staff began reaching out directly to teachers instead of solely through counselors or administrators, which had "*a better outcome*," especially when focusing on science, technology, engineering, and math (STEM) or career exploration teachers.

One interviewee, a guidance counselor at a school served by NCWDB before, during, and after the ARC grant, said, "*There's been a lot of collaboration [with NCWDB] over the last 22 years. I consider them a real positive thing for our community to have. . .We have great kids; our kids go on and do great things and I think it's because we do have these partnerships*." This individual identified three major accomplishments from the grant: (1) having an extra career counselor, "*that was a real win for our school, our students, and our community*"; (2) industry tours for students; and (3) having *"cutting-edge information on what is needed, where the jobs are, where the hiring is, and what the needs of our community are."*

Another interviewee, a labor liaison for the NCWDB, noted that an ongoing challenge, both during the ARC grant and currently, is the limited broadband connectivity in the region. *"It was a challenge then and as we evolve 'til today with even more needs, we just never could seem to get that put in place. . . . Without moving forward with that, we're going to stall—we're behind now. And we're going to be way behind. . . . We need to be squeaky wheels when it comes to this. That's a big issue in this area."* This individual noted that students cannot learn about specific careers when they don't have access to that information.

Project staff perceived that grant outcomes were met, with one noting, "*We were successful in the partnerships we built, really successful in making sure education and business were starting to talk more so that was a huge success. The career plans, they were developed, we met that expectation.*" However, one staff member reflected*, "Looking back, I wish we could see the clear outcomes of those career plans. . . . I don't know if it had that long-term effect."*
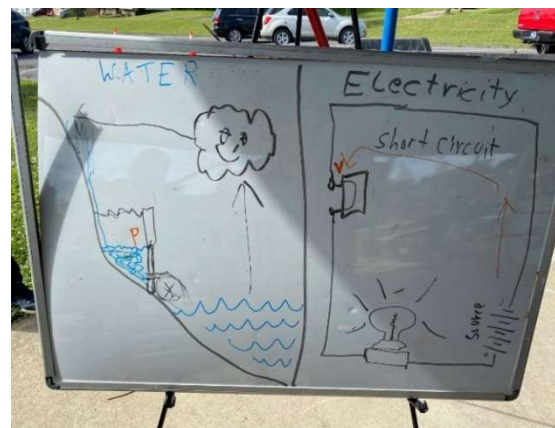
Project staff shared several examples of success stories, including a high school senior who was connected to the Clarion University Small Business Development Center and the Pennsylvania Wilds Center for Entrepreneurship and subsequently started a woodworking business immediately after high school graduation. One interviewee summed up grant outcomes by saying, *"I think our kids were more career ready. They just had more insight as to what the county had to offer them when they graduated."*

| Sustainability |

NCWDB successfully sustained the career counselors by securing other funding to cover their salaries. They have received annual Business and Education Partnership grant awards from the Pennsylvania Department of Labor and Industry since 2016 that covered those staff positions. However, the maximum award amount decreased for their last award so now only one position is covered, for the program coordinator (formerly one of the coaches).

One way the initiative has sustained programming since the ARC grant ended is by directing services to an activity-based model with groups of students, rather than one-on-one meetings with individual students, and having industry companies become more involved with schools. Other funding sources have been tapped to continue supporting initiative services at this group level. For example, another Labor and Industry initiative focuses on forming industry partnerships to discuss employment needs, and so part of the funding was allocated to some of the school activities. Further, a local company provided information about Nuts, Bolts, and Thingamajigs®[16] funding and the NCWDB received funds to help support their programming.

In the summer of 2022, the NCWDB offered three week-long camps for middle school and high school students: one on health care, one on manufacturing, and one on construction. During these camps, which served up to 20 students each, students can take tests to earn certifications that can be included as artifacts for the Chapter 339 career portfolios they are required to complete for career readiness and workplace preparation. Camp activities include content-focused instruction and hands-on activities as well as small-group projects. During the site visit, ICF staff observed a day at the "Hard Hat" construction camp. That day focused on an electricity lesson conducted by the owner of West PA Systems, an electrical construction business

Students studied electricity related to construction at camp.

based in Brockway, PA, which handles residential, commercial, and industrial work. The owner provided hands-on activities for students to wire electrical circuits to turn on lights. The week-long construction project was to build three pantry boxes, and staff from local industries volunteered their time to oversee and support the small groups of students in constructing the boxes. A local educator and representatives of ABC Keystone and the International Brotherhood of Electrical Workers provided this oversight on the day of the observation.

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[16] For more details on this charitable foundation, see www.nutsandboltsfoundation.org

During the construction camp observation, participating students were asked to share their perceptions of the experience. Although students were enthusiastic about the various activities they participated in (especially driving an excavator), they did note they were disappointed with the limited amount of time they actually spent on construction. When asked what they gained from the experience, students noted knowledge, how to use blueprints, learning about electricity, learning about measurement, how to build circuits, and making friends. One student commented*, "You learn a lot from it, and that can help you down the road."*

The project coordinator works with schools, building relationships with teachers and with employers. Project staff noted*, "We are seeing more and more employers wanting to step up and get involved."* One staff member described how industry involvement has evolved from the days of companies coming in and delivering presentations at school. Now, that outreach is called Industry Day or "Find Your Spark Day," usually for 7th–9th grades, and industry representatives from healthcare, manufacturing, social services, and construction come to the school, talk about their companies and associated careers, and then have hands-on activities for the student to complete, such as welding or Glo Germ™[17]. For high school students, there are also company tours and job-shadowing opportunities.

Project staff also described another program that has grown over time since the ARC grant—Carl the Career Bear.[18] Originally geared toward kindergarten–grade 3 youth, staff would visit classrooms with a small teddy bear that had numerous career uniforms, including nurse, police officer, firefighter, construction worker, manufacturer, and surgeon. There is also an accompanying book that describes Carl's interest in learning more about careers with the students,[19] and project staff have created a mascot uniform that they wear when visiting schools. A website was created so teachers can create virtual tours of companies. That site has been expanded to include programming tailored to more grade levels—so, there might be a virtual tour for elementary students that includes an introduction to a company and what's "cool" about working there, while a tour aimed at high school students might include specifics such as salaries for a particular career.

Carl the Career Bear has been used as a successful outreach tool with students.

Above: The Carl mascot worn to classrooms.
Left: Carl's various career ensembles.
Source: https://workforce solutionspa.com/project/carl-the-career-bear/

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[17] A tool for teaching proper handwashing, aseptic techniques, and general infection control: www.glogerm.com
[18] For more about Carl, see: www.carlthecareerbear.com
[19] *Carl the Career Bear* book: https://www.storyjumper.com/book/read/59770965/CarlThe-Career-Bear

The overall goal of this programming is still the same—helping students learn about local industry employers and high-priority occupations within those industries, and then connecting students with those employers so they can learn about the work they might engage in if employed by those agencies. Thus, filling local industry needs for workers and making students aware of careers available in their locales, with or without college degrees. One interviewee noted how *"skilled trades are in high demand"* and that the percentage of students participating in Career and Technology Center courses has jumped at one school from 10% in previous years to 50% for the current year.

| Advancing Equity |

Project staff noted that the Business and Education Connect initiative did not target specific populations and neither do current Business Education Connect services, saying, *"We want all youth to be provided the information, no matter what."* But project staff do work with PA CareerLink® staff,[20] who get referrals of disadvantaged youth through their programming and that of the CECs, so that these students can get connected to that network of assistance. "*So that's a natural partnership and we oversee it. I was hoping there would be more partnering and that's what we'll shoot for next year with the camps."* However, one interviewee described targeting *"those students [who] get lost in the school atmosphere"* to help them understand there are alternatives to college such as apprenticeship programs or hands-on learning opportunities with employers.

| COVID-19 Pandemic |

During Pennsylvania's mandatory shutdown due to the coronavirus pandemic, the NCWDB was required to work virtually. Project staff shifted to a virtual environment to continue carrying out their educator workplace programs and to work with the schools during that shutdown period.

Another project staff member noted the pandemic impact on students, *"I think a lot of them got lost in it—a lot of the social aspects—and now they're trying to figure out where they fit; how they have friendships is different."* As a result, social media posting became more prevalent, with project staff using Facebook, Instagram, and TikTok to offer interactive games to engage students in a variety of modalities—classroom or individual, in-person or virtual. Staff described construction projects, designing blueprints, healthcare scavenger hunts, and Gimkit© online games that offered opportunities for students to interact with their peers from other schools or counties and from whole-school environments.

One of the interviews described how school guidance counselors now had to focus more on students' mental health and less on career counseling, given the detrimental impact of the pandemic on student well-being. *"It was rough, it was hard on the kids, it was hard on the teachers, it was hard on the community."*

One interviewee noted the local community was heavily impacted by the pandemic: *"It put everybody flat on their butt, they couldn't go to work, they couldn't do anything."* People *"learned to do with less,"* and with state and federal funding support, "*we did okay, we came through."* But that has led to a worker shortage that is actually "*a wage shortage."* Workers are realizing their services are worth more than employers are willing to pay, and now employers have *"got to put some skin in the game."* As one

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[20] For more on PA CareerLink, visit https://www.pacareerlink.pa.gov/jponline/

worker noted, *"That's what the pandemic did to us and for us. It made workers and families and everybody else way more aware of their money but now they figured out, 'Look, I can do better because you can do better for me.' So that's the good stuff. The bad stuff was the physical stuff, people lost their lives, people did lose cars and maybe homes."*

| Implications and Lessons Learned |

When asked to identify key lessons learned, one project staff member said, *"Don't be afraid to think outside the box and run with an idea."* And then went on to describe how the idea was generated for Carl the Career Bear, which has turned into a successful programming service for youth— *"we knew it was meeting the mission of what we wanted to do."* So, there is value in having more latitude within funding constraints to be creative and to support emerging ideas that may not have been present in grant proposals.

Other interviewees suggested that using grant funds for more activity-based and group-based services, such as hosting camps for youth, is a more effective way to provide career services for students than individual support. As one noted, *"It's necessary to reach out . . . you teach by example."* Another interviewee agreed with this statement, saying *"Me being labor, I am more than willing to show them, help them, talk to them. . . let's put these camps together because they work, they truly work. . . By example is the best way to make this work."* And, that summer was an opportune time for such camps, because school years "*get packed*" with beginning-of-school-year routines and end-of-school year testing, whereas *"summer camps give us a break to allow to reach the kids and the kids see a lot . . . in a week's time. I think our summer camps are very vital."* Project staff also noted the importance of involving multiple partners, such as schools and industry, where everyone "*brings their knowledge*" to discuss and make plans for such collaborative undertakings.

Another lesson was for extending the amount and length of funding, so that staffing can be more secure and sustained, activity-based transportation costs can be covered, and long-term outcomes can be achieved and measured. And being more proactive in identifying and tapping into a variety of funding streams and sources. For example, "*The ARC mission is really lined up more with workforce than we ever realized so the partnership there was great. I wish we could grow it."* Finally, one interviewee said, *"The more we can provide kids in high school for career readiness is beneficial not only to the students, it's beneficial to our community. We want to create a workforce that can go out and be productive. If we don't do that, the world is going to fall apart."*

ARC Case Study: Mountain Empire Community College (VA)

Introduction

Home of Virginia's outdoor drama, *The Trail of the Lonesome Pine*, and the setting for Adriana Trigiani's *Big Stone Gap* book series, the town of Big Stone Gap, Virginia lies next to the Kentucky border. With its early roots in the coal industry, the area's largest industries now include health care and social assistance, retail trade, and educational services.[21] Currently celebrating its 50-year anniversary, Mountain Empire Community College (MECC) is located in Big Stone Gap in rural southwest Virginia and is one of 23 colleges within the Virginia Community College System.

| Site Description |

MECC serves residents from Dickenson, Lee, Scott, and Wise Counties, as well as the City of Norton, all of which have been categorized as primarily distressed economic status by ARC (the most economically depressed).[22] MECC has a total enrollment of approximately 3,000 as of 2020-21 and serves primarily in-state students (97%), most of whom are under 25 (69%), Caucasian (93%), female (63%), enrolled part-time (55%), and seeking non-dual enrollment credit (69%).[23]

This rural southwest area of Virginia is home to approximately 97,000 residents, the majority of whom are White. The population per square mile ranges from 43 in Scott County to 529 in Norton City, with unemployment rates slightly higher than the state average of 3%. Poverty rates are much higher than the 9% state average, ranging as high as 26% in Lee County. For persons 25 years and up, high school graduation rates across all counties served are below the statewide rate of 92% and the percent with a bachelor's degree or higher are half or less than the state's rate of 40%. Also of note, this area has the highest foster care rates across the state.[24] A summary of the region's demographics is presented at the end of this report by county and city served, along with state demographics as a point of comparison.

GRANT PROFILE

Grantee name: Mountain Empire Community College
Grant title: Mountain Empire College Access Initiative
ARC project number: VA-17824
ARC funded amount: $100,000
Close date: October 2015

CASE STUDY METHODOLOGY

MECC participated in a case study of their College Access Initiative in June 2022 as part of a broader retrospective evaluation of education and workforce development programs funded by grants from the Appalachian Regional Commission.
The case study included:
- Virtual site visit
- Review of program materials
- Discussions with:
  o 3 project staff
  o 15 program participants

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[21] https://datausa.io/profile/geo/big-stone-gap-va-31000US13720
[22] https://www.arc.gov/distressed-designation-and-county-economic-status-classification-system/
[23] https://www.mecc.edu/facts-and-figures/
[24] https://www.dss.virginia.gov/geninfo/reports/children/fc.cgi

| **ARC Grant Purpose and Activities** |

The Mountain Empire College Access Initiative was funded by ARC in 2014-15 to work with underserved populations of youth in three programs to increase their college-going access/rates and improve educational attainment in Southwest Virginia: (1) Career Coaches to work with 10 high schools throughout the MECC service region to help students identify career goals and levels of education needed to attain those goals; (2) a Great Expectations coordinator to provide coaching and support to foster care youth to help them get into and complete college; and (3) expanding MECC's Governor's School summer intensive institute for science and technology, allowing high school students to study Information Technology (IT) on campus and earn college credits while still in high school.

- *Career Coaches.* During the first performance period (August – November 2014), Career Coaches conducted outreach and career assessment activities with high school students, including administering career assessments and assisting students with developing career plans and/or revising existing plans. These activities continued during the second (December 2014 – March 2015) and third performance periods (April – August 2015).

- *Great Expectations.* During the first performance period, the Great Expectations coordinator cooperated with local social service agencies to conduct outreach and identify potential foster youth participants, which led to an increase in the number of Great Expectations participants enrolled in credit or noncredit training at MECC. These activities continued during the second and third performance periods.

https://www.mecc.edu/great-expectations

- *Governor's School.* During the first performance period, planning commenced for the summer 2015 Governor's School. A call for proposals for strands of study was issued in November, with at least five different strands typically offered based on anticipated student interest. Planning continued in the second period, and staff decided to offer ten strands instead of five. Although the College Access initiative proposal included a commitment to offer only one IT strand, two IT strands were included for summer 2015: cyber security and mobile application programming. Enrollment for these two strands began in the third period, and by the end of the period, 25 at-risk students completed the cyber security strand (15) or the mobile application programming strand (10) during a two-week period and earned six college credits each.

Planning for sustainability began in the first period with the MECC Foundation working toward a $9 million goal in the Building for the Future campaign. During the second period, a 2015-16 budget was approved that allocated $24,968 in new funds to support the Great Expectations program and $96,943 to continue the Career Coach program. During the third period, the Virginia Foundation for Community College Education matched the funds for supporting the Great Expectations program to fully fund the continuation of that program.

The ARC-funded initiative proposed serving 3,544 high school students (3,500 by Career Coaches, 32 by Great Expectations, and 12 by Governor's School). At project close, a total of 4,618 students had been served (4,559 by Career Coaches, 34 by Great Expectations, and 25 by Governor's School) with 2,600 career plans created. The increases were due to working with groups of students rather than individuals and offering two summer IT strands instead of one (cyber security and mobile application programming) for the Governor's School.

Findings

| Implementation |

MECC staff began discussing in 2013-14 how to better address needs of high-risk, lower-income high school students. According to MECC staff, "*We were having a hard time getting access to them to even talk about options for advanced education*." This led to conversations with high schools to identify ways to increase access to these youth rather than relying solely on college advisors and counselors who had access to high school youth only a few times a year, or on high school guidance counselors, who were spending more and more time on statewide testing and on advising those students "*planning to go to a 4-year school*."

Hence the proposal for and subsequent ARC award for the Mountain Empire College Access Initiative, which focused on building multiple pathways for students' career exploration and preparation. One interviewee reflected that the grant "*was more or less a proof of concept of 'Would it work?'*" and described the three strands embedded within the grant: (1) Career Coaches to provide advising and counseling support, (2) Governor's School to provide two-week summer IT courses for college credit, and (3) Great Expectations to provide focused outreach and support for foster care youth. As an example of the breadth and diversity of support provided under the Great Expectations strand, one MECC staff member described the diverse types of support offered to address students' needs, such as emergency funds, gas cards, a laptop loaner program, and housing stipends. The in-person version of the Governor's School two-week summer courses includes field trips, hands-on activities with equipment aligned to course content (such as for the popular EMS course, having ambulances and Med Flight helicopters on campus or having fire fighters use the Jaws of Life to cut open a car). Not only are these courses tuition-free, but all materials, notebooks, textbooks, transportation, and lunches are provided free as well.

A brochure for Governor's School from 2015, during grant implementation.

MECC staff perceived that grant outcomes were met for all three strands of the Mountain Empire College Access Initiative: "*All three were successful, we exceeded the goals we had set for our numbers in all three categories. . . And all three programs are still sustained*." Similarly, another interviewee commented "*that all three programs are still going full force. To me, that is the biggest accomplishment, that grant being [in] 2014 and we're in 2022, eight years later all three programs are very strong and have continued to be*."

In addition to reaching stated outcome goals, another marker of success reported by staff was that "*that many of those Great Expectations students have been able to take more credits, be full time as opposed to part time*" as a result of receiving the housing stipend, which allowed them to work only a single job

and concentrate more on schooling. The Governor's School also offers students career exploration opportunities during the two-week courses. A staff member noted the courses provide "*a really good overview of programs and careers,*" which gives students a chance to explore a career field without a substantial commitment of time or resources.

Further, one interviewee commented:

> "*Our career and technical enrollment grew . . . there was a population of students that needed something more than high school education, but they didn't really want to go to a 4-year school. They didn't know what was out there, what was available until they went through the Career Coaches program. . . Through the Career Coaches program, we were able to not only get them to campus to review some of the programs and see the machinery and put hands on the equipment to see what they could. But in many cases, they were able to visit companies and see what it was all about. And not only from a manufacturing standpoint but also from health care and business programming and entrepreneurship that they never would've thought of . . . or they might've eventually. . . .It really gave the college a boost in enrollment, both from after the students had graduated but also in dual enrollment because we were able to grow the dual enrollment program to include some of those classes to make sure they were getting the experiences they needed.*"

MECC staff noted that "*graduation rates have steadily increased*" since that time, such that they were "*well above the national and state averages on graduation rates.*" Further, "*the trend line on persistence has been steadily increasing each year.*"

But the grant was not without its challenges. One lesson learned early on during implementation was that the decision to ask different individuals to manage each separate strand of the initiative meant that there was not a program director with complete oversight and understanding of the whole project. This made administrative functions like gathering and reporting data more difficult, as well as making it more likely that key staff lacked sufficient information about other strands. "*We're more cognizant of that [now] and try to be intentional on assigning that duty to a particular person,*" reflected one interviewee.

| **Sustainability** |

According to MECC staff, the MECC Foundation (established in 1982 to support the mission of MECC) "*has been very generous in supporting all three programs*" originally covered in the Mountain Empire College Access Initiative, noting that "*our Board on the Foundation has been very supportive of all three of these particular programs. They see the benefit of it.*" One interviewee reported that the ARC grant results "*helped the stakeholders be able to see that the program was valuable, and the program was working,*" and thus provided the necessary support to expand the originally half-time Great Expectations coordinator position to full time. Other sources of financial support include donations from the statewide Great Expectations initiative and the Virginia Community College System, especially through the College Success Coach program, which while similar to Great Expectations, works with any student identified as at-risk for not being successful and not only foster care youth. In addition, the Governor's School is partially funded by the Virginia Department of Education. All staff interviewees indicated that MECC leaders strongly support these programs.

Although fully sustained, the programs have evolved over time. For example, Career Coaches are now Career Navigators, and oversight of this program has shifted from Student Services to the Dual Enrollment Office since both serve the same population, leading to greater efficiency.

The Governor's School shifted to an online format during the Covid-19 pandemic, and now an online option has become an ongoing part of programming, in addition to in-person, to continue meeting students' needs. Further, MECC has moved toward using career assessment data from the Career Coaches to identify which career areas students are most interested in and then tailor their summer courses to align with those interests to the extent possible. Typical offerings include information technology, healthcare, drama, and emergency medical service. The 2022 strands include agribusiness and entrepreneurship, engineering design, healthcare explorations, and music.

Students currently participating in the 2022 Governor's School courses offered their insights about their experiences during the site visit. All four strands include content-based instruction as well as hands-on activities:

- *Music*: field trips, design and build electric guitars, and learn how to play them
- *Engineering*: robotics, 3D modeling and printing
- *Healthcare*: field trips to hospitals and guest speakers, a simulation lab, CPR and First Aid certifications
- *Agribusiness*: field trips, talking with small businesses, making business plans

A few students identified challenges to their experience; the most common was the need for more time, which would allow students to slow down and go deeper in their learnings and activities. For example, some students suggested more time to learn music or explore software programs. Students also recognized that knowing someone who had participated earlier made it easier for them to learn about and apply for the Governor's School opportunity. One student observed that some students may be too intimidated to apply otherwise (i.e. they may "*have a bunch of self-doubt and believe it would be too difficult, just the idea of taking a college class at a young age*"). Another agreed, adding "*It's kind of scary signing up for your first college classes, especially over summer*." Students also acknowledged and appreciated the supports put in place for their participation in Governor's School, such as free tuition and materials, free lunches, and free transportation to/from school.

When asked what they were taking away from their participation (in addition to content knowledge and skills), Governor's School students noted both the physical artifacts (e.g., guitars, business plans, 3D objects) as well as a better understanding of their career goals. Several illustrative quotes follow.

- "*I'd say give[s] you an idea of what you want to do in the future and what you would want to major in…Or maybe not to do!*"
- "*Another thing regarding skills and stuff, it helps you see what kind of things [you like] to do. Give[s] you confidence to be able to do it.*"
- "*I would just say without this program, maybe somebody would have a hard time choosing what they want to major in. I think this really helps people decide and give them an idea of what they would like to pursue.*"

Great Expectations has now merged with the national Single Stop program, in that the Great Expectation coordinator also serves as MECC's Single Stop coordinator. This individual is the "go-to"

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point of contact for any student facing barriers such as homelessness or food insecurities. After students complete a benefits screener form, they receive a summary of all the various resources they may be eligible for through the Department of Social Services. Using these resources can help students persist with and complete their educational programs. One student who participated in both Governor's School and Great Expectations noted that "*The Great Expectations program really helped. It's another support system. So that's always good.*"

As these programs are sustained, the biggest challenges faced include funding and personnel. Staff described "*quite a bit of turnover*" amongst the Career Coaches, perhaps due in part to the positions being classified as part time. One tactic taken to fill those positions included hiring retired teachers "*and those work out really well until they get ready to really retire and then we lose them.*" Funding is an ongoing challenge: "*We're always seeking donations through the Foundation to support those three programs. The Foundation is committed to doing that and I don't see it being a real problem, but it's a task for the Foundation to raise [that] money.*" Another interviewee had a similar viewpoint, noting "*It wasn't a question of 'Are we going to have it but where is it coming from?'*" One staff member commented, "*It seems like every year we're crunching numbers*" as other funding streams decrease funding levels.

| Equity |

Although the MECC geographic service region includes only a small percentage of racial diversity among its residents (approximately 4%), it serves a higher percentage of racially diverse students (about 7%). According to project staff, "*We try to reach out to all populations to serve them, but there's just limited opportunity there for that.*" Regarding equity in terms of socioeconomic status is a focus for MECC, given the mix of "*those who have and those who have not*" within the area. Students from lower income homes have less access to internet, transportation, and even basic information about college. "*So equity from that standpoint, it was more of a socioeconomic problem that we were trying to fix, not so much a diversity [issue] simply because we are so low in the diverse population,*" explained one staff member.

Equitable access is given to students interested in participating in Governor's School courses. Requirements include a 3.0 GPA and to be a rising 10th, 11th, or 12th grade student (including home-school students). Applications are date- and time-stamped, with admission awarded to courses of interest on a first-come first-served basis until the slots are filled. A waitlist is created as needed if there is more student interest than availability. The program provides courses at no cost to students, transportation, and lunch, thereby reducing economic inequities that students may face when they are required to pay tuition costs or transportation expenses. One staff member commented, "*It really levels the playing field.*" A student added, "*What I've noticed about Mountain Empire, they really, really, really do care about their students. . .They're really for students trying to make sure they succeed.*"

MECC also advances equity through its practice of taking students' stated needs or risk factors "*at face value,*" meaning they do not have to provide documentation and MECC does not rely solely on Free Application for Federal Student Aid (FAFSA) data to determine qualification for services. "*So any student who mentions any types of those issues, then they're immediately added to the program,*" elaborated a staff member. Further, "*Our strategic plan for this year, which falls in line with the VCCS [Virginia Community College System], is all about equity and inclusion and diversity so yes, that is very much at the forefront of most of what we do.*" Another project staff member reported, "*When it comes to the Great Expectations program, I feel like it's very equitable. The students are afforded the same opportunities, the same resources, the same services.*"

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MECC also strives to provide equity in terms of providing educational opportunities for older populations, including those who may not have had any formal training or education. As MECC carried out its programming for under-served students, including conversations with students and sometimes their parents, "*there were situations where we would talk with the students and the guardian or parent, and that guardian or parent would end up coming to school, because they didn't know either*," said one project team member.

| Covid-19 |

"*Broadly speaking, it shut us down*" – this is how one MECC interviewee described Covid's impact on the local community. Not only did they have to "*operate online exclusively, . . . it made us have to rethink how we were serving everyone. And not just the college, I think the community as a whole had to do that. We found that we were very resourceful as a service region*." Local businesses such as stores, theaters, and restaurants came up with new ways to continue meeting community needs. In fact, "*during Covid we have had more business start-ups than we have had in years . . . and they've all been successful*." Hot spots were set up throughout the community so that students could get internet access from their cars, (e.g., parking at the local library). School systems also provided students with tablets to support their virtual schooling.

As one example of how MECC adapted during the pandemic, an interviewee noted that no graduation services were held during the first year of the pandemic, but during the second year, services were held at a local drive-in. As one interviewee described, "*We filed everybody, took pictures of students, and had their names, their degree, and any awards they received and put them on the big screen. It was really a lot of fun; we created a movie for graduation and presented it on the night of the original graduation date*."

For Governor's School, the 2020 summer offering went online, and shifted to offer students the opportunity to take six credits of courses from MECC's regular summer schedule, and then built in a "*mini advising session*" with each student. In 2021, MECC offered one in-person EMS course which ended up with four students; all other summer courses were online. The 2022 programming again offers both two-week in-person and online courses that follow MECC's regular summer schedule. Even more flexibility is offered this summer for students who want to take only one course for three credit hours, instead of a minimum requirement of two courses. Students participating in the 2022 in-person courses noted they appreciated they smaller class sizes resulting from Covid.

In addition to adaptations such as making courses available online and providing coaching through virtual modes instead of in person, MECC also purchased "*hundreds of laptops and tablets that we were able to check out to students who didn't have one otherwise*." Access labs were established so students could make appointments to visit campus for lab work. Library services expanded to include delivery and return by mail, and the bookstore "*went online*" so that students could order books online. Specific adaptations to ARC-funded program strands included online courses for the Governor's School and coaching and outreach shifting to virtual methods of communication with students (email, chat, Zoom).

However, MECC staff also recognized the negative impacts of Covid on their outcomes. For instance, MECC has observed decreasing student enrollment over the past several years, hypothesized to be in part due to student disinterest in participating solely via online courses. Declining enrollment may also be an artifact of increased employment opportunities, i.e., federal or state aid, tax credits, increased salaries. Finally, as students have acclimated to the online environment and are starting to prefer virtual

interactions with MECC, staff perceive that students may be less likely to "*reach out*" when they are struggling than they would have been if on campus; similarly, faculty members may be less likely to notice a student is struggling without in-person interactions.

| **Implications** |

In addition to quickly discovering the need for ensuring that one person is responsible for direct oversight of a grant, MECC staff also learned how important access is; "*If they can't get to you, then you go to them and that's basically what we did with the Career Coaches program*." As one team member put it, "*We always knew that everyone deserved access, but I think we had to think outside the box to come up with solutions for that last person that you might not be able to reach. Lesson learned—keep trying.*" Another pointed to the impact these services have on students' career plans "*and what their motivations are post high school.*"

Another staff member reflected on how having "*someone in place to provide support*" is a necessary prerequisite, but that "*if you don't have the tools to provide what is needed then it's not going to matter.*" Adequate support and flexibility to meet needs is critical: "*making sure we also can provide the resources to address those barriers that the students are experiencing.*" This individual also acknowledged that "*the needs of our students are bigger than what we know. We see the ones that we see, but how many more are out there that are struggling with the same things . . . that are not making through our doors or to us to be able to help?*"

In reflecting on how ARC had supported grantees, one interviewee reported, "*I don't know of anything that was needed that was not received from the ARC. . . I will have to say without the ARC funding we probably couldn't have pulled it off. It allowed us to prove the concept, sometimes you've got to go out on a limb and try something before you know if it's going to work or not. . . By being so successful during the grant, that encouraged the Foundation to continue the program. Otherwise, it would've been a hard sell to get them to support. . . ARC, we are so thankful for them.*" Another noted having the data as a result of the ARC grant "*to show that data proved—eight years later, we're still going strong.*" As one staff member put it, "*We're very grateful for the support we had with ARC because I am not sure that we would still have some of these programs today [without that support]!*" Finally, one interviewee noted, "*Any time we can get funding to help, it just means we can serve more students, which is what we aim to do. . . [ARC's] support just helps us to serve more students and help them figure out what their career path is, get credits that they can use in college. So it's certainly helpful. And the Career Navigators [Coaches], same way, having those positions really helps us to serve students in the high schools.*"

Table 1. Population and Economic Indicators for the MECC Service Area

Indicators[25]	Virginia	Dickenson County	Scott County	Lee County	Norton City	Wise County
Population Estimate, July 2021	8,642,274	13,787	21,419	21,983	3,666	35,647
Per Capita Income 2016–20	$41,255	$25,485	$23,702	$19,126	$24,808	$21,508
Median Household Income 2016–20	76,398	30,116	41.540	35,606	30,518	41,285
Persons in Poverty 2021	9%	19%	18%	26%	21%	20%
Race: White	69%	98%	98%	95%	90%	93%
Households w/ Computer 2016–20	92%	77%	77%	77%	83%	84%
High School Graduate* 2016–20	90%	78%	82%	79%	85%	77%
Bachelor Degree or Higher* 2016–20	40%	11%	15%	10%	20%	15%
Civilian Labor Force 2016–20**	64%	39%	47%	42%	53%	46%
Pop. per Square Mile 2020	219	43	40	51	493	90
3-yr Avg. Unemploy. Rate 2017–19	3%	6%	4%	5%	5%	5%
County Economic Status 2022		Distressed	Transitional	Distressed	Distressed	Distressed

Note. *Persons age 25 years+; **Population age 16+

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[25] Data sources: Rows 10: https://www.census.gov/quickfacts/fact/table/PA/PST045221; Rows 11-12: https://data.arc.gov/data (County Economic Status Classification)

ARC Case Study: Evergreen Heritage Center – Barn Restoration

Introduction

The Evergreen Heritage Center (EHC) Foundation, a 501(c)(3) public charity, was founded in 2008 to use an historic Maryland farm to provide hands-on experiential learning programs in STEM (Science, Technology, Engineering and Math), as well as summer camps, environmental arts programs, and a venue for a variety of festivals and events. Programs for area students are free for school groups and notably, all the EHC program offerings are aligned to the Maryland College and Career Ready Standards and Frameworks. To pursue their mission, the EHC Foundation and its partners have developed multiple award-winning programs for the benefit of the western Maryland community.[26]

In 2016, EHC received funding from ARC to re-purpose its 200-year-old barn on the property to provide an indoor education venue in which to better serve students and visitors through STEM and environmental education and programming. Initial funds were used to perform a structural assessment of the building, develop design and reuse concepts, make architectural plans, and prepare design documents for the Maryland Historical Trust and other potential funders to support the barn's full renovation. In 2018, renovation of the barn was still underway (supported by outside funding) when EHC received another ARC grant to construct "green" restroom facilities in proximity to the barn.

| Site Description |

The EHC property rambles across 130 acres of Federal Hill in Allegany County, Maryland. First settled in 1780, it was later purchased by neighbors in 1869, becoming one of the area's largest farms with over 1,100 acres. The property got its name when the owner planted 13 species of fledgling evergreen trees.

The farm and its owners are known for their significant role in and contribution to the successful settlement of western Allegany County in the 1700s. Although Allegany County is classified by ARC as "Transitional" (between strong and weak economies), there are

GRANT PROFILE

Grantee name: Evergreen Heritage Center Foundation, Inc.
Grant title: Evergreen Heritage Center - Renovation Phase I/Outdoor Education Facility Expansion
ARC project number: MD-18343 & MD-19144
ARC funded amount: $22,000 & $27,500
Close date: August 2016; September 2018

CASE STUDY METHODOLOGY

The EHC participated in a case study of their Evergreen Heritage Center Barn Renovation Phase I in June 2022, as part of broader retrospective evaluation of education and workforce development programs funded by the Appalachian Regional Commission (ARC). This case study included:

- In-person site visit
- Review of program materials
- Discussions with the
    - 1 foundation president
    - 2 Program Staff
    - 1 Instructional Staff
    - 2 Program Stakeholders

This map shows Appalachian counties in yellow and the location of the Evergreen Heritage Center near the Pennsylvania border.

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[26] https://evergreenheritagecenter.org/post-1398/

Table 1. Regional Demographics[27]

Indicators	Maryland	Allegany County
Population Estimate July 2020	6,177,2241	67,729
Per Capita Income 2016-2020	$43,352	$24,776
Median Household Income 2016-2020	$87,0631	$49,449
Persons in Poverty 2022	10.3%	14.7%
Race: White	57.8%	87.7%
Households w/ Computer 2016–20	93.6%	85.8%
Households w/broadband internet	88.5%	79.7%
High School Graduate* 2016–2020	90.6%	89.8%
Bachelor Degree or Higher* 2015–2020	40.9%	19.3%
Civilian Labor Force** 2018–2020	66.9%	49.5%
Pop. Per Square Mile 2020	636.1	161.3
3-Year Avg. Unemployed Rate 2017–2019	3.9%	5.5%
County Economic ARC Rating Status 2022	–	Transitional

Note. *Persons aged 25 years+; **Population age 16+

four "Distressed" regions in the county, representing the weakest economies in the country. Across the county, high school graduation rates mirror the broader state. However, only 19.3% of those 25 years and older have obtained a bachelor's degree or higher compared with 40.9% across the state (Table 1).

The current president has a true pride of place – she is the last living landowner of the Evergreen property. Reflecting on the history of this farm, she explained that, *"we did not want this place to fade away ... fall into disuse, and not perform the useful function that it had always done. It had always been a working farm and, in fact, my great-grandfather used to let people farm on the land—something like a community garden. We wanted to see if there was a way, as my great-grandfather had always done, to have the land help pay for itself, to perform a useful function [so] it would be there for future generations."*

As one approaches the farm, this history comes into focus. The paved two-lane road falls away at the turn onto Trimble Road in Mt. Savage, Maryland—along with the sounds of modern life. Trees and the soft, expectant hush of nature envelop the long, single lane that winds up the hill to the center. On the day of the site visit, the property was bustling: an instructor was holding class with a group of students in the pavilion while staff members worked on construction and property upkeep. The facilities on the property are extensive and everywhere remind visitors of the rich history of this farm. A walking tour that occurred during the site visit included:

- Miners' Coal Museum
- House Museum
- Living Off the Land Barn Museum
- Learning Center
- 3 Pavilions
  - Outdoor Kitchen Pavilion
  - STEM Pavilion
  - Gateway Pavilion
- Gardens
- Deck Overlook
- Pond
- Orchard
- Coal Mine (one of five)
- Miners' Living Quarters
- 100-year Soil Profile (used by college students)
- The Green (Composting) Restrooms

The EHC also strives to emphasize environmental education in every event and activity. During the walking tour, the program director pointed out repurposed materials across the property and

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[27] Data sources: Rows 1-10: https://www.census.gov/quickfacts/fact/table/PA/PST045221; Rows 11-12: https://data.arc.gov/data

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highlighted how people are encouraged to shift from disposable consumables and toward reusable and sustainable goods and behaviors across the facilities.

| **ARC Grant Purpose and Activities** |

Two feasibility studies were supported by ARC. The original feasibility study (2008) helped the EHC identify the interest and availability of community collaborators to leverage the EHC property for educational purposes. The study also assessed potential sources of income for the property, identified potential partners, and recommended multiple property uses.

Evergreen Heritage Center Historic Barn.

One of the partners, Frostburg State University (FSU) is only 5 miles away. In 2008, FSU had a relatively new ethnobotany program and believed there might be interest in using its facilities for outdoor experiments and classes. After a successful pilot with a class of 26 FSU environmental planning students, the interest in and use of the property expanded rapidly.

The EHC staff quickly learned that FSU was not only interested in the EHC for STEM-type research, but also in the exploration of green business, marketing, and multiple education perspectives (a total of 108 professors expressed interest). Allegany College of Maryland and Allegany County Public Schools were also very interested. As a result of this study, the 501 (c)(3) EHC Foundation was formed.

Following a conversation between the EHC's president and an ARC regional coordinator, the EHC Foundation applied for an ARC grant to support a second feasibility study (2016-2018); this time focused on the structure needs of the EHC's historic barn to identify what was needed to restore and authentically update the barn. Upon the completion of that study, the EHC was able to leverage private and public donors to preserve and renovate this pre-Revolutionary War barn as a place for children, adults, educators, and tourists to experience hands-on learning and honor the deep history of the area.

In 2018, the EHC secured additional funding from ARC to create an accessible, sustainable, "green" restroom facility in proximity to the renovated barn. This was a collaborative project with local Allegany County Public Schools and Frostburg State University. The construction of the restrooms was handled as a hands-on learning experience for students from the public schools and the university. Through their participation, students discovered the benefits of "green," environmentally friendly, energy-conserving technology and how to effectively implement and utilize it in rural Appalachia. Having restrooms available adjacent to the barn facilities further expanded the capacity of the EHC.

With the barn renovation complete and restrooms constructed, the EHC continued to follow its multi-year plan to develop and deliver student programs for every grade level in Allegany County.

Findings

| **Implementation** |

The overarching goal of the EHC Barn Renovation Phase I grant was and is the preservation of the EHC property and its history for future generations. The structural feasibility study was successful and included a structural assessment of the barn, development of design and reuse concepts, architectural plans and sketches, and preparing design document for potential funders. The EHC was able to secure additional funding following the completion of the structural feasibility study, enabling the facility to serve thousands of students and visitors annually through existing and new EHC programs.

Here is how the director of tourism described the renovation's impact:

> *"What the Evergreen team has done … is immersive and very diverse in their offerings … they have the Native Plant Sale, which is a great way to engage the public and it's just one face of the things they do. The museum—the house is an incredible living museum. I've been through that and…it is as an exceptional experience for visitors. The Evergreen filled a very big niche when they restored the barn and [that] is where, in our office, we tend to [suggest as the] first stop for brides and wedding planning. There was a need in our community for a setting and a venue like the barn because our neighboring regions did have a venue of its kind. It's got a gorgeous setting. It's historical space with ample amenities for brides. For me, that is just one really great way we can show direct economic impact—is through the barn."*

REGIONAL AND STATEWIDE AWARDS FOR EDUCATION, CONSERVATION, AND PRESERVATION

- 2016 Allegany County Chamber of Commerce Entrepreneurial Spirit Award
- 2018 Citation from the Maryland House of Delegates for Innovation & Dedication
- 2019 Rural Impact Award for Excellence in Community Development
- 2020 Best of Maryland Award for Stewardship
- 2020 COVID Response Award from Maryland Community Development Network

Following the barn renovation, on-site programs could be delivered in a heated structure during inclement weather. In 2018, 845 students from Allegany County Public Schools and 131 students from FSU participated in the construction of "green" restrooms at the EHC. And with the construction of the new "green restroom facilities" closer to the barn entryway and located on a level surface, there is now a more convenient and easier walk, increasing accessibility of the facility.

Implementation went well and the EHC continues to improve every year. The only challenge discussed by the program director was that some individuals might have difficulty with some of the reporting paperwork. She suggested it might be a good idea to simplify some of the documents.

| **Sustainability** |

Through ARC's funding of the feasibility study, the EHC was able to identify and develop partnerships with local colleges and schools who now use the space for hands-on learning experiences.[283] The

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[3] A full list of EHC's partners can be found on their website: https://evergreenheritagecenter.org/community-partners/

continuing success of the program offerings is due in part to the deliberate alignment of all program content to Maryland educational standards. And, as is so often the case, success breeds more success and EHC has secured additional grant funding.

Through grant funding as well as increased revenue, the EHC has been able to hire and retain several instructional staff members who in turn, have been able to expand program offerings, drawing in more students and additional revenue. Instructional staff members include:

- Director of Education with a bachelor's degree in science and a master's degree in teaching
- Director of Arts with masters' degrees in art and art education, a successful working artist, and the designer of the EHC's Nature of Arts Programs
- Executive Director of the EHC and Curator of the EHC's three museums with a master's degree in historic preservation
- Other instructors with degrees in science, art, and early childhood education

One program stakeholder from the public schools shared about their partnership with the EHC and the impact that it's had on their students (Table 2):

"We've had almost 30,000 students since 2013 come in some way, shape, or form through Evergreen's programs. … They're always very good about doing a pre-test, post-test. And we've always shown gains. The goal was a 25% increase in learning and [we] many times well exceeded that from pre-test to post-test. So that benefit on the curriculum side is huge."

Table 2. Participation and STEM Literacy Growth Allegany County Public Schools Field Trips 2013-2021

Academic Year	Students Served	Increase in STEM Literacy*
2016–2017	3,174	44.10%
2017–2018	4,159	43.70%
2018–2019	3,809	62.00%
2019–2020	4,964	61.5% **
2020–2021	6,754	No testing ***

Note. *Pre/post assessments; **Fall semester only due to COVID-19; ***Due to COVID-19

In addition to hosting school-based field trips, the EHC has provided after-school programs, in-school outreach, and summer camps for area students. In addition, between 200-300 college students visit their facilities each year for field studies. Area Boys & Girls Clubs, Head Start programs, Salvation Army Youth, and Scouts have all taken advantage of programs offered through the EHC since the renovation of the Barn has been completed.

In addition, the director of the Allegany Tourism Office shared that the barn renovation has encouraged more tourism and supported the local economy with its new purpose as a venue for weddings, parties, and meetings. The EHC's goal is to be self-supporting by generating revenue that will enable continued educational programs at no cost to area students. And indeed, increasing tourism has helped to increase revenue for educational programs, another goal of the renovation that has come to fruition during program sustainability.

| **Equity** |

Allegany County's population is 88% white and, consequently, equity is more closely associated with socioeconomic characteristics among participants in this case study. The EHC barn restoration and the subsequent money that the center brings in through tourism and as an events venue allows it to provide

no- or low-cost opportunities for learners of all ages. The free or low-cost programs, events, and activities at the EHC include:

- Pollinator Picnic: Pollinators and What They Each for Lunch
- Autumn Festival with tours, Appalachian food, and fun
- Mining the Mountains of the EHC Program: Visit the historic Coal Camp exhibits along a mile-long Coal Train

- Baking Bread & Churning Butter
- Silhouettes & Song: Discovering the Birds of the EHC
- Exploring the Gardens of the EHC
- Appalachian Ragdolls: Make and Take
- Museum Tours
- Herb and Veggie Garden Kits

Summer camps for children also have needs-based scholarships available for eligible students.

| COVID-19 Pandemic |

The majority of the EHC program participants are public school students, and as such, the COVID-19 pandemic and subsequent remote learning enacted by K-12 schools in the county had a significant negative impact on the number of participants served by the experiential learning opportunities at EHC. However, program staff used the unexpected "free" time to modify program components for a virtual format. This "pandemic pivot" enabled the EHC to continue serving the area's K–12 and university students. Consequently, after a brief stop during the early pandemic, most of the programming was resumed in a virtual and then later in-person format.

Reflecting on this adjustment, staff members shared that they were grateful for the opportunity to develop online content, noting that they are now prepared to offer virtual programs moving forward. Staff reported that this would allow them to reach more students where transportation costs to EHC or scheduling constraints might limit on-site field trip opportunities.

| Implications and Lessons Learned |

The program director noted that the advice and financial support of ARC and its staff members enhanced the barn renovation project—from the structural feasibility study, to the planning phases, to the restoration itself. The feasibility study was high-quality, complete with specific guidance, budget estimates, and architectural renderings for the best outcome. During the process, some recommended restorations needed to become renovations due to cost. One specific example was the use of a non-period mortar for the barn because historically accurate mortar would have been excessively expensive.

All participants agreed that the feasibility study and subsequent restoration and renovation had enabled the ongoing success of the EHC, broadening opportunities for both educational programs and increased revenue.

ARC Case Study: Goodwill Industries

Introduction

Headquartered in West Virginia on the Ohio River where West Virginia, Ohio and Kentucky meet, Goodwill Industries of KYOWVA Area, Inc (hereafter, Goodwill) in Huntington, WV provides employment training, education, and life skills to people with disabilities and other challenging circumstances or conditions. Services at Goodwill also include life enrichment tools and resources, such as homebuyer education, debt management programs, and counseling services, to empower individuals, their families, and subsequently their communities.[29]

| Site Description |

Located in the Tri-State region, Goodwill serves economically distressed[30] Lincoln and Mingo Counties and economically at-risk Wayne and Mason counties. These counties have unemployment rates higher than the state average of 5.1%, ranging from 5.7% in Wayne County to 7.7% in Mingo County and most residents identify as White. Poverty rates in these counties, except for Wayne and Mason Counties, are higher than the state average with Mingo County reporting rates as high as 25% (Table 1).

Table 1. Population and Economic Indicators for the Goodwill Service Area

Indicators[2]	Lincoln County	Mingo County	Wayne County	Mason County	West Virginia
Population Estimate, July 2021	20,126	23,005	38,498	25,157	1,782,959
Per Capita Income (2016-2020)[a]	$22,995	$19,400	$23,973	$27,819	$27,346
Median Household Income [a]	$42,064	$35,454	$43,710	$51,820	$48,037
Poverty rate	20.6%	24.9%	17.1%	17.1%	15.8%
Population per square mile (2020)	46.8	55.7	77	59.1	74.6
High School Graduate (2016-2020)[b]	80.1%	76.6%	81.1%	86.3%	87.6%
Bachelor's Degree or Higher (2015-2019)[b]	7.8%%	10%	17.5%	17%	21.3%
In Civilian Labor Force (2016-2020)[c]	45.1%	41.1%	44.6%	48%	53.6%
3-year Avg Unemployment rate	6.7%	7.7%	5.7%	6.5%	5.1%
County Economic strength (FY 22)	Distressed	Distressed	At-risk	At-risk	---

Note. [a] In 2020 dollars; [b] Persons aged 25 years +; [c] Aged 16 years +

[29] http://www.goodwillhunting.org/who-we-are/
[30] Based on an index-based county economic classification system used by the Appalachian Regional Council
https://www.arc.gov/distressed-designation-and-county-economic-status-classification-system/.

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| **ARC Grant Purpose and Activities** |

Through their Industrial Certifications: Pathways to Self-Sufficiency program, Goodwill aimed to provide basic adult education, workforce readiness training, literacy skills, sustainable financial education, and soft-skills training to individuals residing in distressed counties in the Tri-State Area. In 2017, Goodwill Industries of KYOWVA Area, Inc was awarded a $76,845 grant towards career and technical education from the Appalachian Regional Commission (ARC). ARC grant funds supported the training of ProLiteracy-certified adult literacy tutors, job training and industrial certification programs, mobile outreach events relating to employability skills and financial education, and career fairs. In response to the performance of the first grant, they received an additional ARC grant in 2019. This career and technical education grant focused on three areas: adult literacy programming, job training and industrial certifications, and financial literacy.

Adult Literacy

Goodwill partnered with the Cabell County Public Library to provide intensive ProLiteracy Tutor Training workshops to volunteers and staff at Mingo County Library. The focus of this program was to train tutors to help adult learners improve literacy and numeracy skills. To become ProLiteracy-certified, tutors were trained on effective components of reading instruction, creating lesson plans and setting learning goals, and effective tutoring techniques. Once trained, volunteers meet with adult learners for reading, math, or writing instruction. The goal was to build capacity for adult literacy in economically distressed counties so that efforts to promote adult literacy at the county level could be sustained. Although volunteers completed certification requirements, staff at Goodwill had little insight into the impact of this effort after training. As one interviewee explained, *"Once they got the certification we saw that. So once they got certified to be a tutor, after that it was between them and the literacy council on who they tutored and the hours they turned in."*

Through the ARC grant, in partnership with the Cabell County Public Library, Goodwill helped set up Mingo County's first Literacy Council, certifying at least 18 Mingo County Library volunteers and staff through their ProLiteracy trainings. Currently, however, Goodwill focuses less on adult literacy programming at their Employment and Training Outreach Center.

Financial Education Outreach

Goodwill's Consumer Credit Counseling Service, a member of the National Foundation for Credit Counseling and only nationally certified consumer credit counseling agency in the Tri-State area, provides debt management services, pre- and post- bankruptcy counseling, homebuyer education, and assessments of financial health. ARC grant funds were used to provide Financial Education Outreach classes including a two-hour course titled, "Money in Motion", based on the textbook Money in Motion by Doug E Lachance. Participants in this course were taught the fundamentals of financial literacy, including how to create budgets, money-management skills, understanding their credit scores and credit reports, building and improving credit, how to avoid debt, specifically credit card debt. If participants reported that they had debt, they were offered instruction in how to manage it and were encouraged to make sustainable financial decisions. A total of 77 participants enrolled in and completed this course.
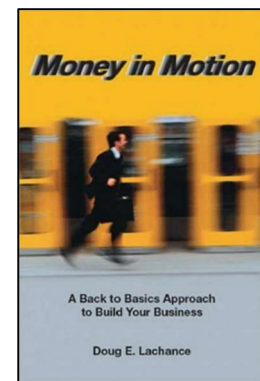
Textbook used in the ARC-funded Financial Education outreach class.

Advertisements for Goodwill's Career Expos from 2017 and 2018.

Employment and Workforce Training

This component of the program focused on providing attendees with the skills to become employable, such as job readiness skills, soft skill training, life skills, and industrial certifications. Through Goodwill's employment and training division, ARC grant funds were used to conduct job fairs, connecting job seekers and local businesses. During the grant period, Goodwill conducted two career expos, attracting more than 60 businesses and 317 job seekers.

In addition to career fairs, trainings for certifications in retail, janitorial, and digital literacy were offered through the grant period. Twenty-eight participants successfully completed industrial certifications in customer service and janitorial training. Additionally, 12 beneficiaries were placed into competitive employment. Goodwill also offered several of these certification programs through partnerships with external organizations, such as with Google to offer certification for digital literacy trainings. As noted by an interviewee, "… *we partnered with a wide array, your community colleges, your workforce investment boards. A thing called SPOKES in Mason County that's workforce development related. We met with the Boards of Education. We worked with different school systems*."

Findings

| Program Implementation |

Goodwill's Industrial Certifications: Pathways to Self-Sufficiency was centered on economic development and endeavored to offer a holistic approach to empowering people through employment and workforce training by providing opportunities for individuals to gain employment and maintain employment. Services offered through this program could be broadly classified into three categories - adult literacy, financial education outreach, and employment and workforce training.

"… we partnered with the food bank, so when we had the individuals come in we also were able to give them boxes of food to go back. Then they wouldn't be hungry, at least for a while because a lot of it was shelf stable. And then they had the basic necessities of food and clothing. And the ones in the shelter we tried to help with housing and partner with other resources and help them with job placement. So it was very holistic in what we did as well." – Project Director

Although services were open to everyone, the program primarily aided individuals considered transient and individuals with multiple needs. Goodwill partnered with external agencies and institutions to access these individuals to provide targeted assistance. For instance, their partnership with Day Reports in Mingo and Lincoln counties where participants on work release programs would receive job readiness and soft skills training along with clothing. They also partnered with Workforce Investment Boards in the area, community colleges, local chapters of Head Start programs, food banks, and local libraries. In

addition to providing targeted programming services, Goodwill partnered with external agencies to recruit participants to leverage captive audiences who were either already there through the agency or were required to utilize services offered by Goodwill. This was especially the case with the financial education programming where a staff member remarked that people tend to be in denial about their financial health and tended to reach out to Goodwill's credit counseling service when they become required to.

Even though Goodwill served communities residing in rural areas prior to receiving the ARC grant, the grant provided them with the capacity to serve these communities better. Some of the communities they worked in were grappling with the effects of closures of the coal mines and so Goodwill's employment outreach focused on providing these communities with skills to become employable. Despite being able to deliver targeted services to those with multiple needs including individuals considered transient, the very nature of transiency posed a challenge to the delivery of services. As noted by an interviewee staff member, "*With the homeless shelter, an issue would be the population is transient. So, they may start the program and they may attend one class and you may not ever see them again*." Adding to this, the staff member noted that some communities were hit hard by the opioid epidemic, "*Between dealing with active recovery, addiction and transient populations, that's [the opioid epidemic] our biggest hurdle*." The staff member noted that employment outreach may not suffice and that mental health services were necessary to better serve this population, "*To my knowledge we can't [help them] unless we were to provide some type of mental health services and we were to change someone's life totally from the inside out*..."

> *"When you're dealing with an agency and they see that your heart is in it and that you've done a fantastic job with some of their consumers, and they see change they'll call. They may give you an update on someone from time to time. Even to this day, like we talked about, I'll still run into people that I dealt with, not the consumers but the director of the program and they still talk about how well we did or thanks for doing. It's relationship building and just keeping in contact."* – Project Director

| Sustainability |

Goodwill's workforce development initiatives were sustained after the original grant period. They were able to leverage the work done through the 2017 grant to obtain additional funding in the 2019 fiscal year[31] from ARC. They sustained their financial education and employment outreach services after both grant periods through funds from other sources, but with more intention, tailoring their services to better benefit individuals with diverse needs, such as communities residing in rural areas and individuals with disabilities. Another way they were able to sustain services was through continued partnerships with external agencies. Interviewees noted that because of the relationships built and strengthened during the grant period they were able to continue offering services.

The adult literacy program has not been a key Goodwill focus in recent years, but employment and training services, and financial education outreach, have continued with some modifications. For example, Goodwill has relied on partnerships with external agencies to offer financial education services. The employment and workforce division primarily serves individuals with disabilities, although its services are available to anyone. Beneficiaries currently enrolled in employment training participate

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[31] News release from the Governor's Office: https://governor.wv.gov/News/press-releases/2018/Pages/Gov.-Justice-recommends-nine-West-Virginia-projects-for-inclusion-in-grants-from-the-Appalachian-Regional-Commission-invest.aspx

in a Basic Life Skills program in which they learn how to manage money, file taxes, and other skills that help them become independent. In addition, employment training participants complete a Work Adjustment training. This community- and facility-based program is meant to reorient individuals into a work environment who have never been employed or have been out of work for a significant period. As a part of the experience, participants work part-time in the Goodwill store or at other local businesses. Participants reported that the program had helped them gain skills with which they previously struggled. As two current program participants said:

> "*When I was in the work adjustment part of it with the life skills, they would have us to do the… they would have us practice taxes. And they would also have us count money and knowing how much money you have. They would keep doing that over and over and over, so eventually it got fun for me and easy. I love counting money now, to me counting money is just easy*."

> "*Mine was talking to customers and stuff. I am really shy and it's really hard for me to talk to people, because I have really bad anxiety and I overcome some of that. I am more talkative. That was a good outcome*."

| Advancing Equity |

Promoting diversity, equity, equality, and inclusion is at the forefront of activities and services offered by Goodwill. As a testament to this, Goodwill of KYOWVA Area is a member of the City of Huntington's "Open to All" pledge[32], a product of the Huntington Mayor's Diversity and LGBTQ advisory committees whose mission is to build community-wide relationships, to be a voice on issues of diversity and inclusion through education, communication and advocacy, and to facilitate positive change. It is with this conviction that Goodwill operates, providing services to all. Interviewees noted:

> "*We just include, we just always include everyone. We don't look at people, I don't want to say differently but we don't… include some people and exclude other people*."

> "*I feel very confident that the 99% of my staff if somebody walks in they know if we can't provide the ability to train them or provide mental health counseling or whatever the case may be they know to try to find the resources so at least they can leave with something. So nobody is treated any differently. So that is a culture here that I guarantee you if you'd ask anybody they know we… we accept and work with everybody*."

To this end, the project focused on offering services to underserved and marginalized communities, such as rural communities considered economically distressed, individuals with disabilities, homeless and transient populations, and people in work release programs. After the grant period, the organization has endeavored to further the discussion surrounding promoting diversity, equity, and inclusion in the workplace by providing trainings and workshops to staff and the organization's board of directors.

| Impact from COVID-19 |

Although COVID-19 occurred after the grant period, the pandemic impacted Goodwill's follow-on services offered through the second ARC grant. Program services were moved to online and hybrid formats, as in the case of the financial education outreach efforts. Staff members and project

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[32] Membership list from the City of Huntington Mayor's office: https://cityofhuntington.com/assets/pdf/document-center/Open_to_All_membership_list.pdf

participants noted that the pandemic merely slowed down services, rather than halting them entirely. Nonetheless, lack of a working internet connections, particularly in rural areas of Goodwill's service region, meant some clients were unable to access program services. As a result, enrollment in these services declined, which in turn reduced the services available. As one interviewee explained, "*we do not have a Director of Career Services anymore. And it's not because we don't want to. We really drove the… we used to have a medical assistant program, and a hospitality program and things. And we'd get all these people to sign up, and then the attrition rate was so crazy, if I had 15 sign up, the two years before I ended that division, you'd have 15 people sign up, I think the last we had it we had 5 people graduate the whole year*." As a result, staff members noted that presently the program focused on providing targeted services to a niche population (i.e., individuals with disabilities), although everyone can access these services:

> "*So we really now have focused the majority of our energy instead of chasing… a very tiny population down, our skill set is serving people with disabilities. I thought why don't we just amplify that times 100, and provide everything that we need to do and be the best at that. And we have. So everything we've talked about now, we do specifically with those individuals. Not that we don't help anybody else, but it's really driven for the individuals that are disabled, but we don't turn anybody down*."

| **Implications** |

When asked to recollect their experiences applying for an ARC grant, one interviewee expressed concern about the submitting the application through the ARCnet portal where they could not see all the required information ahead of time, noting: "*You really need to expose everything that you want the grantee to submit. Everybody was very nice. I think if it could be a little less strenuous*." In addition to suggesting more transparency in the application process, the interviewee noted the that the application process can be time- and resource-intensive which may discourage smaller organizations from applying for ARC grant funding. As this individual put it:

> "*… some of these smaller organizations, there's no way they're ever going to get an ARC grant. One you don't have time to do the application, it's so, so detailed. I do understand, there are some great organizations out there that probably could do some amazing work, but there's no way they could do that application*."

Interviewees also cited the importance of reporting qualitative indicators of success, to include the development of success stories highlighting less quantifiable elements of project effectiveness. One interviewee noted that tracking such indicators can be "*a little bit more difficult*," but "*sometimes people can come a long way, and maybe they didn't even get the certification. But maybe they were there every single day. And they feel so accomplished. Maybe you couldn't put that they got this certification. Or maybe they couldn't pass it but maybe they worked harder than anybody else*."

Overall, when asked to reflect on how ARC supported grantees, interviewees expressed gratitude. As one explained, ARC representatives were helpful and responsive to their questions and concerns:

> "*Everybody that we talked to like [Name and Name] super nice. Any time I ever called they were extremely helpful. Both were responsive, talking, voicemails to respond to and email*."

ARC Case Study: Anderson County QuickJobs Center

Introduction

In 2011, the Appalachian Regional Commission (ARC) awarded $500,0000 in grant funding to Tri-County Technical College to support construction efforts for the Anderson County (South Carolina) QuickJobs Training Center. Located across the street from the College's main campus, the QuickJobs Training Center is a hub for workforce development training programs that require no more than 12 weeks for students to complete. The mission of the center is to provide unemployed and underemployed county residents with short turnaround training that qualifies them for local jobs. Training programs include those for power line workers, heavy equipment operators, commercial truck drivers, and medical coders.

Table 1: County Indicators

Indicators[33]	Anderson County
Population Estimate, July 2021	206,908
Per Capita Income (2016-2020)[a]	28,931
Median Household Income	53,598
Poverty rate	14%
Population per square mile (2020)	285
High School Graduate (2016-2020)[a]	86%
Bachelor's Degree or Higher (2015-2019)[*]	24%
In Civilian Labor Force (2016-2020)[**]	60%
3-year Avg Unemployment rate	3%
County Economic strength (FY 22)	Transitional

Note. *Persons aged 25 years+; **Population age 16+

CASE STUDY METHODOLOGY

The Tri-County Technical College participated in a case study of its QuickJobs Training Center in July 2022 as part of a broader retrospective evaluation of education and workforce development programs funded by grants from ARC. This case study included:
- In-person site visit
- Review of program materials
- Class observations
- Interviews with:
  - 3 staff members
  - 2 instructors
  - 3 program graduates

| Site Description |
Anderson County is situated in northwestern South Carolina, along the state line of Georgia, in the Piedmont Plateau region. Among the county's low, rolling hills and lush vegetation is Lake Hartwell, a U.S. Army Corps of Engineers Lake with almost 1,000 miles of shoreline for recreational use.

Home to more than 205,000 residents, the county population is relatively diverse with 16% identifying as Black or African American and 4% as Hispanic or Latino/a.[34] The county poverty rate of 14% is higher than the national rate of 11%, and the median household income is $53,598, compared to the national median of $64,994 (Table 1). Eighty-six percent (86%) of adults 25 years of age and older have graduated from high school (compared to 89% in the nation at large), and only 24% have earned a bachelor's degree (compared to a national rate of 33%). The largest industries in Anderson County are manufacturing (18,712 people), healthcare, and retail, while the highest paying jobs are in management, mining and

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[33] Source for rows 1-8: https://www.census.gov/quickfacts/fact/table/andersoncountysouthcarolina,US/PST045221; source for rows 9-10: https://data.arc.gov/data [a] In 2020 dollars; [*] Persons aged 25 years +; [**] Aged 16 years +
[34] https://www.census.gov/quickfacts/fact/table/andersoncountysouthcarolina,US/PST045221

extraction, and utilities.[35] The county is growing, with the population increasing 13% between 2010 and 2020.

| **ARC Grant Purpose and Activities** |

The ARC grant to Anderson County supported construction of a 5,720 square foot training facility on the campus of Tri-County Technical College. Conceptualized as a QuickJobs Center, the new building was designed to provide space for compressed training programs, enabling participants to quickly train for local jobs. Explained one staff member, the aim of the grant was to build space for "*people who are maybe lacking a certain skill set to come in and get quickly trained in weeks or months and be more employable than they were. Not thinking years, not a diploma type process*."

Construction was completed in 2013, with a ribbon-cutting ceremony celebrating the new space in October of that year.[36] The site includes several offices and a hotel office space for staff, classrooms, a computer lab, a large conference room, restrooms, and a small kitchen. Behind the building is a large blacktop training area for commercial driving program use. Tri-County Technical College has operated and maintained the facility since 2013, and now owns the site after Anderson County deeded the property to it in 2018, per the grant plan.

Findings

| **Implementation** |

According to one staff member, the QuickJobs Training Center model had already been established in two sites in other South Carolina counties: "*We decided we wanted to pursue a QuickJobs facility here. We already had two others, one in Oconee County and one in Pickens County near our campuses there. So with that we were pursuing to build one here*." Staff reported that they learned that previously established sites were somewhat smaller than needed, so proposed to construct a larger building for the Anderson County location. As one employee put it, "*The good thing is this is our third one we did,*

Entrance to the Anderson County QuickJobs Training Center.

so we had some lessons learned. We made this one a little bit larger. We felt the other two were just a little bit too small, so we increased the size of this one which gave us another classroom and more wiggle room inside."

The building process itself was relatively straightforward. The Director of the Physical Plant explained:

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[35] https://datausa.io/profile/geo/anderson-county-sc
[36] https://www.wyff4.com/article/new-job-training-center-opens-in-anderson/6495953#

"It was normal building issues. None of them go perfect, we had some contractor head knocking. We ironed that out. For instance in our parking lot we had a big mound of dirt we had to get moved. Little logistical headache things like that. But as far as the building, you always try to do something within a timeframe and budget. They're always hard to hit… the timeframe and budget that you declare on day 1, rarely ends up a year later that you hit that mark. So I think we did pretty good …it's not a huge building so it wasn't overly complicated."

Computer laboratory and classroom at Anderson County QuickJobs Training Center.

Once complete, the QuickJobs Training Center first housed manufacturing programs. But as the local economy evolved, there was less continuous employer demand for graduates with such skills. Given this, Tri-County Technical College leaders pivoted to provide training for other high-demand jobs. The Dean of Corporate and Community Education put it this way:

"The first programs we put here were more manufacturing related…but manufacturing and other programs did not have a continuous flow to keep it occupied. So we wanted to look at something that would be continuous and helping unemployed people and that's when we moved CDL (commercial driver's license) into this unit. And eventually we put the power line program here as well as the heavy equipment. We do have some healthcare but it's more medical coding and billing and that type stuff. This was built to be an industrial, and we're trying to keep it where it's an industrial type building."

QuickJobs Training Center staff have observed a variety of outcomes resulting from their new capacity to house short-term training programs. For example, one staff member reported, "*The first accomplishment of the site was the ability to address the workforce needs in this area…so that we could end up helping people change the dynamics of their life*." Earlier in its history, Anderson County's main industry was textile production. But as mills began closing in the 1990s due to globalization and declining demand, the area's economy pivoted toward manufacturing, including automotive, plastics, and fiberglass.[37] As one QuickJobs Training Center employee explained, "*Anderson was a very vibrant textile mill town, so you needed that transition and when we brought the right programs in, it matched up with people willing to transition. We've been able to change some of the socio-economic impact*."

Another staff member similarly reported that program graduates were able to complete training quickly and make progress toward self-sufficiency: "*Unemployed, under-employed people come here and in 4-6 weeks on the CDL side get a CDL, and they go to work and able to support their family and have a career moving forward if they want it to be*."

According to one employee, other outcomes include improved student confidence and access to work in which they are interested. As he put it,

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[37] https://www.scencyclopedia.org/sce/entries/anderson-county/

"*I see a lot of people come in that are very… I guess you'd say apprehensive, very negative, very afraid of what they're going to be getting into. And I see them leaving with smiles on their face, happiness on their face…That's what I see taking place, people meeting what they feel like they want to do at the right place, at the right time and what type [of] environment they want to work in. That's what I think this building has done for people.*"

| **Sustainability** |

The QuickJobs Training Center is maintained by Tri-County Technical College. "*We do the landscaping, we do the janitorial, HVAC, the lighting, anything that goes wrong with it the folks here have our numbers and we come a running*," said the Dean of the Physical Plant. Operational costs are also an ongoing matter of sustainability, according to the Dean of Transportation Programs: "*You say, 'the average students is going to cost this, and the operational cost to do it is going to be this.' And you have the trucks we have with the hours on them. Every one of them has 500+ miles on it. That's not bad for a diesel, diesels can run on that. But the operational cost to fix those is very high.*"

The programs housed in the building are funded by various grants. Students tend to be unemployed or under-employed, with little or no capacity to pay tuition, so the QuickJobs Training Center team continues to pursue grant monies to reduce barriers for these students. The program director elaborated on this: "*As far as the revenue piece for the students, those are all grant funding. So whether it's state or federal funding, the majority of my students pay zero dollars.*" Sustainability in this context means that "*we look at the revenue that's coming in versus the operations that it takes to do it. Try to match those up and let's have a positive variant.*"

Commercial Drivers License training vehicles on Anderson County QuickJobs Training Center campus.

The programs are also sustained with funding from partners. Staff reported that the local Workforce Investment and Opportunity Act program and Goodwill were frequent partners. The ability to report return on investment figures to such funders enables the QuickJobs Training Center team to make compelling cases for additional funding. As one team member put it, "*The success stories that I've been able to experience to me, that's what ARC should hang their hat on, if you're asking me. Hey, y'all gave us the money, or wherever that money came from to do this to put this building to allow… X number of students or whatever the opportunity—it's worth every dollar that was spent.*"

A challenge to sustainability is finding qualified program instructors who do not want full-time employment and have the skills to serve in, as one staff member phrased it, "*that mentor, ambassador role.*" As he explained, "*The starting pay for us is $25/hour for these jobs in both heavy equipment and CDL training. You and I know they can go out and make a lot more money than that doing what they're doing. I call them unicorns, there's a few unicorns out there that are at the end of their careers. They want to get off the road, they're tired of it. They made a ton of money along the way and they're just wanting to train people to do it. Those are hard to find.*"

Despite this challenge, and the ongoing need to obtain grant funding for student support, the QuickJobs Training Center team members agreed that the original ARC investment and additional funding from other partners has generated longer-term benefits, both for students and the local community. Said one such employee, "*I think those [enrollment and program completion] numbers that we showed you are proof that whatever that money was that was put into building, this brick-and-mortar building, certainly covered that amount over time and there's much more to be there*." As the Dean of Corporate and Community Education summed up, "*I think we're good stewards of our money and we take that money and put it back in. And hopefully the government is getting that back through the tax basis to cover those needs*."

According to data provided by the center, programs housed in the site served 715 students between January 2021 and May 2022, with an average job placement rate of 72% among graduates and an overall local economic impact of $18,546,000 in wage gains.

| Equity |

QuickJobs Training Center staff offered several perspectives on the ways in which they understood and promoted equity. Two staff members reported that although QuickJobs programs did not target students from marginalized populations, program opportunities are open to everyone, which reduced potential inequities. As one said, "*We don't see a color, we don't see a brand, it's first come first served. So if you're willing to come here and sign up and get your requirements, you're going to be the next in line whether you're White, Black, [Brown], male or female, doesn't matter*." Another put it this way: "*Every person that comes in the halls of this building is a human being. It doesn't matter who they are. It doesn't matter where they come from. It doesn't matter how much their parents earned or what type of earnings they've had. They come here for a need and a purpose and that's to change the dynamics of their life*."

Classroom at the Anderson County QuickJobs Training Center.

But these staff also noted that they sought to provide additional support when students needed it: "*If they're struggling, it doesn't matter who they are, we're going to help them*." Examples of additional assistance included providing gas money so students could afford to drive to classes and offering accommodations to English learners. Ultimately, said one employee, "*I think the thing we classify a lot of times [as] equity… we have to meet people where they're at. And then we have to see if we can help people change the dynamics from where they come from to where they're going, so there's no inequity*."

Another QuickJobs Training Center staff member reported that, "*As far as diversification, we're working on that with the power line [program]. It's very male White oriented*." Program graduates also noted this phenomenon in the power line program, which had just graduated its first female power line trainee. Staff also noted that power line program participants tended to be White, but that commercial driving and heavy equipment operation programs attracted more racially and ethnically diverse students.

| **COVID-19** |

In response to the public health crisis associated with the COVID-19 pandemic, the Dean of Corporate and Community Programs reported that the QuickJobs Training Center "*flexed for people…put[ting] all the CDC controls in*." The Director of the Physical Plant further explained,

> "*We did across all our facilities, PPE, masks, shields, gloves, all these were available. Wipes in every room, plexiglass shields…Then we went through and had our janitorial contractor spraying all horizontal services an anti-microbial that was supposed to last 6 months, so we did it every semester…I also put in higher efficiency A/C filters to try to capture some of these airborne particles. Of course there are sanitizing stations everywhere. You couldn't look and not see one*."

The Dean of Transportation Programs described how commercial driving instruction changed because of the pandemic, decreasing the number of students observing or practicing in a truck to just three or four. In addition, instructors minimized the amount of time students spent in lectures: "*What we try to do is minimize our time inside. Get them outside as quick as we can to get through that academic phase*" and onto the practical application of what they learned in the classroom.

For at least one program graduate, COVID itself inspired enrollment in a QuickJobs training program. Her employer closed its doors, and she was left unemployed. Although she had earned her CDL several years earlier, she added heavy equipment operation to her skill set and was eventually hired by another employer.

| **Implications** |

Those staff members who were employed by Tri-County Technical College during the grant period agreed that ARC program officers were responsive, supportive, and collaborative. Asked to give advice to other grantees, one team member suggested, "*Working with ARC, just be proactive. Get to know the administrator, the person administrating the grant. We were on a first name basis, and when they asked for information provide it in a timely manner. They're your partner…work with them and if you do get in a little snag or have a question engage them and involve them because they're there to help you*."

Overall, however, QuickJobs Training Center staff appreciated ARC funding for the site and the partnership provided by ARC program officers. "*We could never have been where we're at today, we never could've arrived at where we're at today if it had not been for ARC and the non-credit division [at Tri-County Technical College]. [It's] been wonderful,*" reported one. Another added, "*The*

Students in the Anderson County QuickJobs Training Center power line program practice their skills.

number one goal for me is to get [students] employed. The majority of our students are either unemployed or under employed. I don't mean to get sappy here, but we talk about transforming lives at Tri-County. That's really what it's all about for us."

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ARC Case Study Findings: STAND'S Youth Service Learning Initiative

Introduction

Situated on the northern border of Tennessee is Scott County, hailed as the Adventure Tourism Capital of Tennessee. Flanked on the west by Big South Fork National River and Recreation Area and on the east by the North Cumberland Wildlife Management Area, there are miles of trails and rivers to explore. Just under 22,000 people live in the county and they are predominately White (98%). Approximately 79% of adults 25 years of age and older have graduated from high school (compared to 89% in the nation at large), and just 9.2% have earned a bachelor's degree (compared to a national rate of 33%).[38] The per capita income of $31,046 is lower than both the state and federal averages and the percentage of the population living in poverty (19.8%) is higher than the statewide percentage. The county is categorized as economically distressed by ARC, indicating that they are part of the 10% most economically depressed counties in the nation.[39] Like much of Appalachia, within this idyllic landscape is a population ravaged by the opioid epidemic.[40]

From this context and history, a local coalition of community organizations, businesses, and individuals dedicated to the health and well-being of youth in Scott County came together to form STAND: Schools Together Allowing No Drugs. Initially, this coalition focused nearly exclusively on performing school drug tests, sponsoring prescription drug take-back programs, and advocating for policy changes related to drugs and alcohol. But over time, coalition members saw a need to support youth more holistically.

| ARC Grant Purpose and Activities |

Coalition members and STAND leadership recognized that students leaving high school needed more support and direction and that local young people experienced feelings of resignation about their futures. STAND's director reflected on this, noting *"Some people don't hope and dream because they*

> **GRANT PROFILE**
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> **Grantee name:** Schools Together Allowing No Drugs (STAND)
> **Grant title:** Youth Service Leaning Initiative (YLSI)
> **ARC project number:** TN-18239 & -C1
> **ARC funded amount:** $126,532 (total)
> **Close date:** March 2018

> **CASE STUDY METHODOLOGY**
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> STAND participated in a case study of their Youth Service Learning Initiative in July 2022 as part of a broader retrospective evaluation of education and workforce development programs funded by grants from the Appalachian Regional Commission.
> This case study included:
> - Virtual site visit
> - Review of program materials
> - Discussions with:
>   - 2 project directors
>   - 4 community partners
>   - 3 program participants

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[38] https://www.census.gov/quickfacts/fact/table/scottcountytennessee/PST045221

[39] https://www.arc.gov/distressed-designation-and-county-economic-status-classification-system/

[40] In 2018, Scott County, Tennessee, filed a lawsuit against prescription opioid manufacturers and distributors to recover taxpayer money spent combatting the opioid epidemic: https://www.lieffcabraser.com/pdf/Scott_County_Opioids_Complaint.pdf

don't even know they can. They don't even know what's out there." Around this time, STAND learned that local schools were struggling to meet some newly developed state goals around required service-learning curriculum and community service opportunities for students. In developing the Youth Service Leadership Initiative (YSLI) program, STAND sought to design a program that could address the concerns of both industry and education. One local community partner recalled thinking, *"all we can do is band-aid the adults…their mindset is so grounded and they're going to react. Our youth can think outside the box. So when they came up with the program for YSLI, I was like, 'oh my gosh this is it.'"*

In 2015, STAND was awarded a $26,681 grant from the Appalachian Regional Commission (ARC) to begin their YSLI program. In response to their successful first year and need for additional support, ARC awarded them an additional $99,851 grant in 2016 to continue to build their program.

YSLI has three core components which together reach every student across both school systems in Scott County. The first is classroom instruction on social and emotional health. Beyond that, students can also decide to participate in YSLI's Youth Coalition, which is open to all students and typically meets monthly. Finally, students can apply and interview to join YSLI's Board of Directors, a group of 8-12 students who lead coalition committees and fine-tune the course curriculum. Each program component is described further below.

Classroom Instruction
At its inception, YSLI was a partnership between STAND and two local public school systems – Scott County School System and Oneida Special School District. STAND already worked closely with the schools, performing drug tests and sponsoring occasional assemblies or events. Through YSLI, STAND provided both county high schools with a part-time instructor who would be embedded in the schools' wellness department (e.g., physical education, driver's ed). The YLSI curriculum focuses on social and emotional health, with a particular focus on factors affecting the lives of students in Scott County such as substance misuse, domestic violence, adverse childhood experiences (ACES), and bullying, as well as career-readiness skills such as interviewing techniques.

SAMPLE COMMUNITY SERVICE PROJECTS

Shop with a Cop: Partnering with local police force to take younger students living in poverty shopping for toys or household items

Serving at the Women's Shelter: Painting the local homeless shelter or serving a meal to the guests

Salvation Army: Serving as a bell ringer at local stores during the holidays to help with fundraising

Youth Coalition
The Youth Coalition is a natural outgrowth of YSLI classroom instruction. Students primarily from 9th to 12th grade gather monthly at the Boys and Girls Club to hear from speakers, meet in topical subcommittees, and plan community service opportunities. The subcommittees have varied over time but focus on local community and coalition student challenges. Subcommittees have focused on issues including mental health awareness, anti-substance misuse, dating violence and sexual abuse awareness, inclusion and diversity, environmental affairs, and anti-bullying, among others. Each subcommittee is responsible for devising service opportunities related to their focal topic.

YSLI Board of Directors

The YSLI Board of Directors is comprised of 8-12 student leaders who have applied, interviewed, and been selected to join the board. Board members serve as a steering committee of sorts for the classroom curriculum and chair each of the youth coalition subcommittees. In addition, board members receive training related to classroom curriculum topics, equipping them to offer input and vote on topics that would most benefit freshmen students. The board also evaluates and determines what each of the youth coalition subcommittees will address each year. In

Members of the Youth Coalition paint the local Boys and Girls Club through one of YSLI's service opportunities.

describing this process, the YSLI director explained, *"We know we have a huge drug and alcohol problem. We have a problem with dating violence, we have bullying, we have all of these things that the students are really interested in. So…I've allowed them to use their voices to decide what they want those committees to be...So they really came up with those ideas, and then our board members will chair over those committees."*

Findings

| Implementation |

During the planning and early implementation phase of the YSLI program, staff were able to rely on strong relationships with local schools and communities that had been cultivated for years through the broader work of STAND. The STAND program director recounted: *"A lot of people have trouble getting into the system because it's just a burden.*

"[The YSLI director] does a wonderful job teaching the blueprints for learning course…at the high school which is a violence prevention, drug prevention curricula…She is a wonderful teacher in that she has already established positive relationships with students and they trust her, they go to her." – Staff member at local high school

That's our main success. That came from years of doing that to be expected, that consistency and always showing up, always relieving burdens. So when we come to this point [of starting YSLI], that they were readily acceptable of us." The classroom instruction components of YSLI progressed through several iterations, with curricula refined to address evolving needs and accommodate available funding. In addition to developing coursework, the YSLI director also organized several whole-school assemblies throughout the year focusing on prevention and wellness.

From the onset of the YSLI program, each component of the program has been governed by the student-led board of directors. The board began with 8 students representing both high schools who were selected to join the leadership team. One anecdote shared by the YSLI director about the early days of YSLI's time in the classroom demonstrates the buy-in students felt for this program:

"[O]ne day a young man came down the steps from high school and he said 'Miss, I get what you're trying to do and I appreciate it. This makes sense,' he said 'but you're missing the mark.' [And] he took my pen and he marked some of the things I had written on my paper and he started writing in subjects that he thought were more important to them. He was a foster child, in a county program and he really opened my eyes. I brought it back to the Board, I kept that paper, brought it and put it in our boardroom and talked to my Board. And that's when they decided that some of my curriculum was going to change that year. And I was going to focus more on the subjects that were really affecting our students…That was very beneficial."

The Board of Directors was also instrumental in developing and launching the Youth Coalition. During the early years, members of the Board spent a significant amount of time participating in trainings and learning more about their county, the challenges facing students and other residents, and prevention and wellness strategies. Much of their work during the first year of the program was to develop a logic model that articulated the various components of YSLI and how they would intersect to engage local non-profits and businesses as partners for service learning opportunities and, ultimately, disrupt cycles of poverty and abuse. During the first year of implementation, the average number of service hours across both high schools more than doubled from 6 to 13.5 hours. A former student who had been part of the Board during YSLI's inception recalled:

"At the beginning it was again really abstract. We knew there was this logic model that was the overarching issue that we were trying to solve and we knew we wanted a coalition from both high schools. So during the time that I was on it, we were trying to build up enough support in the county, among the students our age who would do service events, invite people to it, get them involved so that we could build a base…So by the time we graduated, we were moving towards the coalition itself and building what the committees would look like. But we hadn't gotten there yet, we just built the foundation of what it would be and a base for that to sort of grow."

As this student explained, the Youth Coalition remained in its infancy for the first few years of the YSLI program. Over time, the coalition would grow from just four initial non-Board attendees to nearly 100 members. The meetings have outgrown two facilities and now coalition members meet monthly at the local Boys and Girls club. At first, coalition meetings focused on disrupting cycles of poverty by increasing workforce skills and civic knowledge. But over time, broader needs surfaced and a wider range of topics have been examined during lectures, workshops, or small group discussions, covering topics such as understanding adverse childhood experiences, career readiness, peer bullying, resources for applying to and succeeding in college, preventing domestic violence, and more.

Over the years, the focus of the coalition has become more refined, although the Board continues to respond to the needs and interests of their local community through various subcommittees, chaired by Board members. Reflecting on the benefit of the service opportunities sponsored by each subcommittee, the YSLI director noted, "t*he value of that is number one nothing builds self-esteem in a child like service learning. We all talk about poverty and it's something we live with in our communities. [But] when you have to look it in the eyes and really talk to people, you see it. It's different, you see a difference…It makes a difference."*

ONGOING SUCCESS STORIES

Sara* got involved with YSLI during her sophomore year of high school. Prior to that, she had experienced a very tumultuous home life that included parental drug use during the height of the opioid epidemic, stints of homelessness, and involvement with child welfare. After hearing about YSLI from a coach, she decided to join to get service hours. She recalled that after her very first Youth Coalition meeting, she knew that "*from then [on] it would become a way for me to use every terrible thing that I had gone through and put it towards something productive.*" During her time in high school, she participated in various service projects with YSLI and by her senior year, decided that she wanted to move away and attend college, although no one in her immediate or extended family had done so. As she recalled, *"I wanted to go to a competitive school and it was something I was very unsupported in doing from everyone except for [YSLI]... I mean from the time that we joined the program they always wanted us to excel and to do whatever it was we wanted academically… to achieve what we want."* Sara explained that without YSLI, she would not have believed she could have gone to college*: "Without YSLI, I wouldn't have been confident enough to apply…[And] I don't think that I would've processed everything that I had been through quite as well without a foundation to understand it. And I don't think I would've moved out of Scott County without YSLI either which is strange to think about. It goes back to confidence. I would never have been confident enough to move away for school."*

*Names of participants have been changed

| Sustainability |

Although initially funded in 2015, the YSLI has continued to expand and adapt since its inception to meet the ongoing needs of its community. Grant staff credited this successful sustainability to three primary factors: 1) the ability to adapt, repackage, add, and expand curriculum to fit within the scope of other grant efforts to ensure ongoing funding streams; 2) sustained and expanding community partnerships and persistence in relationships; and 3) the same staff who are committed to the work of the program.

Community partners interviewed for this case study reiterated the importance of the last two factors, praising the work of both the STAND and YSLI directors for their work building community partnerships and their commitment to local youth and communities. One local principal commented, *"[YSLI is a] big huge support to the school system. It's a big deal to our school, and it's a big deal to our school environment. I would say probably our school environment is one of our biggest strengths, and some of that is due to having them here at our school and doing what they do. I can't say enough about how they've*

"Appalachia has so many programs come in and even ARC is sometimes one of them, they're one and done. They'll help, be here for a year or two and the next thing after the grant runs out…and we never see them again. That is perpetual here and that's why there's not a lot of trust. So the main thing we had to do when we started, we had to be present and consistent and we have always been that, no matter if we didn't have funding we have been present and consistent with everything we've done." – STAND director

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been great to me and help me."

Several community partners and one former student also reflected on how the need for the YSLI program has contributed to sustainability, noting: *"Back in 2015 I know that wasn't that long ago, but we're in a new world now 2022 than in 2015. And part of me thinks a lot of people weren't as vocal of the problems they were facing as they are now. Social media was still big, but even now more people are okay to come out and talk about their feelings, their past problems."*

Students participate in a Youth Coalition meeting in March 2022 at the local Boys and Girls Club.

| **Advancing Equity** |

Scott County where YSLI is situated has both persistent disparities and opportunities to advance equity. Nearly 20% of the population live below the federal poverty line and many members of the community were negatively impacted by the opioid epidemic, particularly in the 2010s, which contributed to loss of life, chronic unemployment, involvement with child welfare, and adverse childhood experiences for many families and youth.

"Because of disparities, [these students] are put in a category. And one thing we've done, we look at them as individuals. We see their potential…And when you bring all of them to the table and they hear each other's voices, they begin to see each other differently…We want those kids because those kids deserve every opportunity that every other child has." – YSLI director

YSLI staff are committed to countering disparities and narratives about individuals lacking potential. When students first arrive in a YSLI class or at a coalition meeting, staff described greeting them with welcoming, inclusive language and welcoming them into a group of other students who seek to be a safe place for all to share their experiences and perspectives. As the STAND director noted*, "We try to emphasize that nothing is too small. We can have a speaker or we can have somebody that just makes sure the drinks are there at the meeting. We make sure and say you've been consistent, thank you so much, we can't do it without you."* The entire YSLI program is framed around reducing inequity by combating cycles of poverty and addiction and providing opportunities for personal growth. Most recently, YSLI has added new efforts to support LGBTQ youth and youth with complex trauma and numerous adverse childhood experiences. One former YSLI student remembered that even from the project's launch, coalition meetings *"brought in students from every corner of the county,"* not just from one high school or one social group. A local community partner reported the same perception, noting *"[YSLI has] brought all different groups of people together, home life and social, they're all put together and they're being told you're all on the same page, you're equals. What you do from that is your choice…That is probably one of the most exciting things there is to see there's acceptance."*

A former YSLI student reflected on an event for young women where she shared about past trauma in her life and how she had gained confidence in herself through YSLI. She shared *"I think for some of those*

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girls, it was the first space in which they felt safe enough to talk through things…really heavy things." And through the YSLI service-learning projects, coalition members are able to move out into the community to make strides at reducing inequity by improving the conditions at the county's homeless shelter, for example.

| COVID-19 Pandemic |

During the beginning of the global Covid-19 pandemic, Scott County schools switched to virtual instruction, while in-person meetings, including the Youth Coalition of YSLI, were discontinued. The YSLI courses offered through participating high schools continued virtually during the end of the 2019-20 school year. Board and Youth Coalition meetings were held via Zoom, but students quickly began to suffer from Zoom fatigue. As a result, several monthly coalition meetings were cancelled, although the Board continued to meet. The program directors worked hard to reach out individually to coalition members and maintain relationships during the first six months of the pandemic.

School restarted in a hybrid format during the 2020-21 school year, and YSLI and STAND were the only non-profit allowed to continue operating in the schools, since they were instrumental in teaching classes and had long-standing, trusting relationships with the school community. Coalition meetings also resumed during the 2020-21 school year. Despite the YLSI director's fears that the team would need to rebuild the coalition, participants were able to resume their efforts quickly, with no decline in participation levels. The STAND director credited this to the project's ability to remain in the schools as well as to the strong relationships cultivated with the YSLI director through persistent outreach during the previous year.

| Lessons Learned and Implications |

Reflecting on their experience with their ARC grants, YSLI program staff noted a few limitations to ARC funding. In particular, program staff highlighted the difficulty of maintaining enough operating capital to function between 90-day filings and returns and suggested building in options to bill on a monthly basis instead. The challenges of a cap on the percentage of grant funding that can support staff salaries was also raised as a limitation, particularly for small non-profits. Staff additionally discussed the challenges of sustaining funding and, as one staff member put it*, "I would rather have less money for five years than a big bunch of money in two years."*

A few elements that contributed to YSLI's success may also have relevance for the broader community of ARC grantees. For instance, programs with trusted, local leadership with a track record of successful involvement in the community like that of YSLI may garner greater buy-in and longer staying power. Engaging key stakeholders and program beneficiaries in decision-making roles such as through the Board of Directors may also be a strategy to increase buy-in and build momentum during early program implementation.

ARC Case Study: Allegany College of Maryland

Introduction

Historically known as the Queen City (having once been the second largest city in the state), the city of Cumberland in Allegany County in western Maryland lies close to the Pennsylvania and West Virginia borders. With its early roots in industry, the area's largest industries now include construction, restaurant and food services, and general medical and surgical hospitals.[41] Founded in 1960 as Allegany Community College, Allegany College of Maryland's (ACM) main campus is located in Cumberland, along with six other locations across Maryland and Pennsylvania. ACM is one of 16 colleges within the Maryland Association of Community Colleges.

|Site Description|

ACM serves residents from western Maryland and the surrounding region in Pennsylvania and West Virginia, all of which has a primarily Transitional economic status.[42] With a total enrollment of nearly 3,000 as of academic year 2021, ACM serves a mix of in-state (55%) and out-of-state (45%) students, most of whom are Caucasian (80%), female (75%), and part-time (62%). More than 80% are first-generation college-goers and more than 90% receive financial assistance.[43]

Cumberland is home to nearly 19,000 residents, the majority of whom are White. The population per square mile ranges from 47 in nearby Bedford County to 1,897 in Cumberland, with unemployment rates in the area ranging (5-6%) just slightly higher than the state average of 4%. Poverty rates are much higher than the 9% state average, ranging as high as 21% in Cumberland. For persons 25 years and up, high school graduation rates are all close to the state average of 91% and the percent with a bachelor's degree or higher is about half or less than the statewide rate of 41%. A summary of the region's demographics is presented at the end of this report by county and city served, along with state demographics as a point of comparison.

CASE STUDY METHODOLOGY

ACM participated in a case study of their Supporting and Strengthening Business Development Through Advanced Manufacturing Training in Rural Western Maryland & Surrounding Region Training Project Initiative in August 2022 as part of a broader retrospective evaluation of education and workforce development programs funded by grants from the Appalachian Regional Commission (ARC). The case study included:
- In-person site visit
- Review of program materials
- Observation of ACM activity
- Interviews with:
  o 5 project staff
  o 2 partner staff
  o 4 program participants

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[41] See the DATA USA fact roundup for this area: https://datausa.io/profile/geo/cumberland-city-puma-md
[42] See how county economic levels are determined by the ARC: https://www.arc.gov/distressed-designation-and-county-economic-status-classification-system/
[43] See ACM at a Glance: https://www.allegany.edu/acm-at-a-glance/index.html

| ARC Grant Purpose and Activities |

The Allegany College of Maryland "*Supporting and Strengthening Business Development Through Advanced Manufacturing Training in Rural Western Maryland & Surrounding Region Training Project*" was funded by ARC in 2016 to provide training in industrial metal fabrication and American Welding Society-certified classes. Grant funds were used to purchase equipment for the classes and to obtain the necessary certifications. Specific courses offered included blueprint reading for machinists, operating manual lathes, operating manual mills, Computer-Numeric-Controlled (CNC) operations, CNC programming, geometric dimensioning and tolerancing, and welding courses leading to advanced certifications. Initial participants were employees of local companies.

Through ARC support, ACM provided workforce development training through continuing education using state-of-the-art technological tools. ARC funds helped support recruiting, training, retaining, and developing more skilled employees while also addressing certification requirements of employees in

area businesses and industries. Tuition support was provided for students through funding from the Allegany County Opportunity Scholarship Program. The Machine Tool Technology program at ACM started in fall 2014, and with ARC funding, ACM was able to purchase additional machinery, including three manual lathes, two manual mills, one CNC lathe, and one surface grinder. This additional machinery helped establish a 2:1 ratio for students working on the machines, giving students more clock hours on the machines. Purchasing the CNC lathe allowed the ACM to conduct the training onsite instead of having to send students to the Career Center to complete their lathe projects.

The welding lab and equipment at the Western Maryland Works facility.

The ARC funding helped ensure sustainable workforce development equipment and training for the Western Maryland region. During 2016, ACM was approached by a large defense contractor to offer specialized machining for up to 20 machinists in fall 2017. ACM has also received requests to offer the lab as a metal fabrication lab for local small businesses, giving them opportunities to produce prototypes or improve existing ones.

The primary focus of the ARC project was to improve the economic outlook of the local area by providing training to workers to meet existing workforce needs, helping workers retain employment and increase job retention rates, and coordinating with economic development initiatives already underway. Intended outcomes were that 20 continuing education students and 15 employers would receive direct and indirect benefits of this project every two years. By the end of December 2016, 33 students had attended the Machine Tool Technology program and earned 134 certifications; eight employers had received direct benefits.

The machining lab and equipment at the Western Maryland Works facility.

Findings

| Implementation |

ACM first offered Machining training in 2015, in response to a regional business's request for training of replacement workers to fill their projected loss of nearly 100% of their machinists over the next 5 to 10 years. One ACM staff said that Appalachian Maryland has "*pretty robust manufacturing production*" along with "*a skills gap that needed to be filled*." ACM fulfills local employment needs by offering workforce development continuing education programs; initial offerings included Level 1 Machining and Welding and a Department of Labor grant enabled the addition of an Industrial Maintenance program.

To best meet student needs, ACM secured ARC funding in 2016 to purchase additional equipment, giving students increased opportunities for more hands-on work so that they became both "*quick and accurate*" with machine operations. In conjunction with the additional equipment, ACM also increased the number of hours for Level I Machining from 600 to 720 hours of training, again striving to ensure students were sufficiently prepared in terms of content knowledge and skills. A current ACM staff member who completed the Machining program recalled how "*when I went through the program we were sharing machines . . . and now everyone has their own machine they can manufacture on*."

ACM staff note that their placement rate for students is nearly 100%. National Jet and Northrop Grumman, both regional industry employers, hire many of ACM's Machining students upon completion of their training. One staff member who completed the program said, "*I greatly recommend this program to anyone*" and that the ACM training "*really gets you to that career-ready standpoint . . . ready for the workforce*." Another staff member described as a main achievement of the ARC-funded project the "*win, win, win, win triple-header-win for everybody*," going on to explain:

> "*The training led to employment so on the student side of it, they got the necessary skills training that they needed to fulfill sustainable employment. On the partnerships that we have with our employers, they were rewarded with skilled workforce. . . . On the school side, we were able to establish a training program and continue to build off of that*."

In 2018, ACM partnered with Allegany County in a joint workforce development and makerspace venture that led to the renovation of an old industrial warehouse into the current Western Maryland Works Training Center and Makerspace site. ACM now offers Welding, Industrial Maintenance, Machine Levels I and II, Robotics, 3D Printing, and the Makerspace[44]. Additional certifications are available in OSHA, forklift, flagger, backflow prevention/cross connection, home inspector, and preparation for the Maryland Home Improvement Contractors exam.
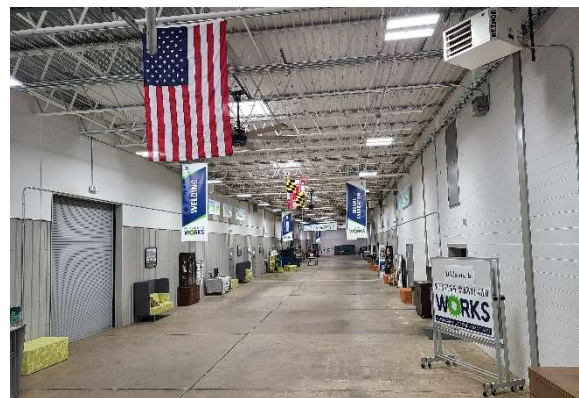
The "Main Street" at the Western Maryland Works facility.

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[44] The Makerspace houses a digital fabrication lab, 3D printing, manual and CNC machining, and a woodworking lab, all available to the public, local businesses, and entrepreneurs for daily rates and monthly memberships.

ACM will also be offering in the fall 2022 a new AAS Engineering – Automated Manufacturing Technology degree program. College students can earn up to 20 industry credentials as well as a degree through this two-year program. And, through partnership with Allegany County Public Schools, high school students can take a CTE program during their junior and senior years, enabling them to graduate high school with 39 college credits, a CTE Completer certification in Manufacturing Engineering Technology, and earn up to 20 industry credentials—all free of charge.

As these renovations were underway, an economic disaster hit the region in 2019, when Verso, a long-time paper mill, closed its doors unexpectedly and left hundreds of dislocated workers without employment. ACM was part of the rapid response team formed to address the employment emergency, and as a result, about 70 Verso workers used Trade Adjustment Assistance (TAA) funds to pursue Machining, Welding, or Industrial Maintenance certification. Workers began their training at the ACM campus but then in January 2020 the equipment and training was relocated to the current Western Maryland Works facility. ACM has been working over the past several years to train additional Verso workers; fall 2022 will be the first time that the programs are open to the public again.

> ## Trade Adjustment Assistance (TAA) Program
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> The federal TAA program "seeks to provide adversely affected workers with opportunities to obtain the skills, credentials, resources, and support necessary to (re)build skills for future jobs. Any member of a worker group certified by the Department [of Labor] may be eligible to receive the following benefits and services at a local American Job Center:
> - Training
> - Employment and case management services
> - Job search allowances
> - Relocation allowances
> - Income support in the form of Trade Readjustment Allowances (TRA)."
> https://www.dol.gov/agencies/eta/tradeact/about

Several individuals who completed the ACM Machining courses, including several dislocated workers from Verso, shared their perceptions of the experience. One recalled how, when Verso closed unexpectedly and state and local entities hosted a job fair soon thereafter, ACM really "*stepped up to the plate and said 'Hey, we're going to help these people out, this is our local community, we're going to help them out what we can . . . they need to be retrained and get back out into the workforce'*." One recalled an ACM-hosted field trip to visit an industry employer based in Winchester, Virginia and how that employer was so impressed with the ACM training that he offered to hire any of the students when they completed their training for $20 an hour. This participant also identified extra benefits resulting from being in the initial

3D printing equipment at the Western Maryland Works facility.

cohort of 10 Verso workers who experienced the shift from the ACM campus to the Western Maryland Works facility, noting "*I am not just a person who can run [equipment], I've actually set one up which was a good learning experience*."

Another program participant, a former Verso worker who participated in the ACM training starting in January 2020, described the experience as having "*peace of mind knowing we had somewhere to go and a future. . . just the idea that there was a light at the end of the tunnel after 23 years [at Verso] and [then] the mill shutting down*." Although this individual chose to enter a different career after completing the training, they are using their industrial maintenance skills to renovate an outreach facility in the community. Moreover, this program participant hopes to someday "*start my own machine shop*." Another participant reported job offers from several

Robotics equipment at the Western Maryland Works facility.

regional employers, and when he left one company to accept a better position with another, was reassured that he would be rehired in the future if desired.

Participants noted the training program benefitted them in other ways beyond skills for future employment. One said, "*It's encouraging to know that at 54 years old, I know I can still learn, I can still be taught. I can still continue to grow. I am encouraged, I am not afraid of anything*." Another reflected, "*I feel like it's gave me a good toolset . . . with just having the resume itself of all the things that I've actually completed in this class*."

In reflecting on challenges encountered, one individual noted the "*humongous amount of paperwork*" to satisfy state and federal recordkeeping requirements of the TAA program—and how ACM again provided needed support by offering use of their equipment to scan and email the paperwork. This individual reflected, "*I can't praise everybody enough from the college who stepped up to help us out in this program. In our dire time of need, when the mill shut down, they really did look out for the community.*" Other participants also cited the paperwork requirements and described how ACM staff helped them get the initial paperwork processed quickly so they did not miss TAA deadlines. One participant noted the support provided specifically by one ACM staff member, commenting that "*If they paid him by the hours that he put in, no one could afford him! He'll live here if that's what it takes to help somebody out.*"

| Sustainability |

ACM staff were quick to point out the importance of partnering to carry out these workforce services in their service region and confirmed "*We have great partners.*" One staff member added, "*We have to reach out and partner, because we're too small to try to do it alone.*" In addition to ARC, partners include Allegany County, Allegany County Public Schools, higher education institutions in the surrounding area, and industry employers, among others. "*Without agencies like ARC . . . that offer up the opportunities for us to implement these training programs, we just wouldn't be able to do it. So it's a wonderful partnership to have with these agencies that help with that.*" As a former Allegany County government worker noted, "*I love ACM's ability to focus on in-demand occupations, and that was my own stipulation*

for them as an education partner—bring over whatever trainings you want, but they've got to be in-demand jobs."

On August 18, 2022, ACM hosted a dedication and ribbon-cutting ceremony for the new facility. There was also an agreement signing with Eastern West Virginia Technical and Community College for a partnership enabling Eastern students to take Industrial Maintenance training courses at Western Maryland Works. The service included welcoming remarks by ACM President Cynthia Bambara, followed by Senator George Edwards, ACM staff, industry employers, Allegany County staff, and closing comments and a summary of future plans by ACM Director of Career and Employer Solutions Rebecca Ruppert.

In 2022, ARC federal co-chair Gayle Manchin toured the Western Maryland Works facility as part of ARC's first Appalachian Envisioned roadshow site. Staff have high hopes and high expectations for the ongoing success and continued growth of their workforce development training program. Local industries are reaching out to ACM "*almost weekly*" to discuss worker training needs. "*So we're just starting to explore all those options. . . I see Machining and the growth into AAS as keeping that one program running for all. . . Welding has run for years so I really think Welding and Machining will be around for a long, long time,*" and, one staff member noted ACM's interest in further expansion, "*We'd like to move into Tool Die and Gauge Maker which is the next level up*" (after Machining Levels I and II).

Program participants held similar views. One reported "*This is a program; this is a career that is going to be around. It's something people are going to need, ma*chinist and CNC, it's not going away, . . . it's an in-demand profession.*"

The exterior of the Western Maryland Works facility.

Another commented, "*This building is not going to reduce the amount of students that want to go to college for a 4 or 6 year degree. . . [But] for kids that don't want to do that, here's an opportunity to make a good living in a field that's growing, that's not going away*." According to one participant, "*For me, it was a little bit scary, but after I was here, I would recommend this program to any kid and any adult that wanted to go to school.*"

Another interviewee discussed how having such workforce development opportunities in the community was critical for the economic growth of the region:

> "*Our focus now on the county level has been how do we bring in the high-tech industries into the area. That's where the future is. This helps us to get ahead of the curve instead of . . . in Appalachia, we're always feeling like we're fighting to catch up. And it seemed like we're always spending money just to maintain what we have. This enabled us to kind of skip ahead and get ahead of the curve. So now this is a drawing card for economic development.*"

| Equity |

ACM serves an area with a high percentage of lower-income residents and accordingly the majority of students are financially disadvantaged. With a high cost of nearly $10,000 for completing Level I Machining, ACM provides financial support to students through a variety of scholarship programs, including Workforce Innovation and Opportunity Act (WIOA) funds, Allegany County Opportunity Scholarships, and the Maryland Workforce Development Sequence Scholarship. Staff note they try to encourage more females to participate in these male-dominated training areas and one staff member commented that they see "*a surprising amount of females*" in the Welding program. Further, in collaboration with Allegany County Public Schools and the CTE programs, AMC conducts outreach to special populations.

One former Allegany County government employee reflected on the loss of numerous industry employers in the region over the past several decades and how that led to youth moving out of the region to find employment elsewhere. "*I am almost feeling our youth in this community is that marginalized population because they were told there's nothing else*."

| COVID-19 |

Staff described how the COVID-19 pandemic was "*bad for the entire community*," noting some local businesses "*that just never will recover*" from the mandatory shutdown. For the just-up-and-running Western Maryland Works facility, the pandemic hit shortly after the site was opened in January 2020. ACM closed their campus and the Western Maryland Works site in March, but former Verso workers had to continue their training or lose their TAA benefits. For a six-week period, ACM purchased online training to cover some of the content knowledge for students, but then requested and received permission from ACM leadership to re-open the Western Maryland Works facility, following all federal and state health requirements, first for Machining and then also for Industrial Maintenance. To accommodate the restricted student/instructor ratio for social distancing, ACM offered three sessions daily so that all students could participate in the hands-on training. As one staff recalled, "*It was a nightmare, but we did it, we kept them all going. Because they would've lost everything, they would've lost not just the training, they would've lost their benefits*." Another reflected, "*We had to fight tooth and nail to come up with a way to get our students back in school*."

One staff member recalled a phone call from NIMS (National Institute for Metalworking Skills credentialing agency) during that time, when trainings were once again being held in-person, informing them that they were "*#1 in the country right now for credentialing*" due to all the other colleges and training centers still being shut down. "*So that was our little thing, #1 in the country*." ACM had two more 3-week shut-downs due to the pandemic: one during the summer and another between Thanksgiving and Christmas. Staff noted that these experiences have helped them develop a hybrid model combining online and in-person experiences that could be adapted and used in the future.

| Implications and Lessons Learned |

When asked to identify key lessons learned, ACM staff offered insights related to grant funding. Both acknowledged they were more aware now of associated costs that are supplemental to the actual price of equipment. For example, if they use grant funding to purchase equipment, they need also to consider funds required for transporting the equipment and having it installed, as well as any supplemental

electrical requirements such as a transformer or air conditioning. As one noted, "*Make sure you look at all the costs because there's just a lot more to it than just the piece of equipment*." Staff also tied this lesson to recommendations for future ARC funding, suggesting that ARC provide more latitude in covering capital expenses and offering more flexibility for amendments and modifications. One individual noted that with high-end equipment comes the need for high-end supplies and materials, and that ongoing maintenance of and warranties for such machinery is expensive.

One ACM staff member also suggested that ARC might consider decreasing the matching requirement for future grants:

> "*I think the hardest part is coming up with the match, because they're so generous with us, but sometimes especially in something like this—the equipment is so expensive—a $750,000 metal printer. I would love to have that printer. I've got an engineer that could run that printer. We have employers asking us to get that printer. But there is no way that we have a match for that printer*."

Program participants were very supportive of how ARC funding had been used to support ACM's workforce development offerings. One of these individuals stated, "*I think this is one of the better examples of 'Yes, your money works, it worked good to help people'*."

Other interviewees held similar views. One commented that "*There are some government agencies that don't quite live up to their strategic plan or to their core goal, right? ARC is absolutely one that does.*" This individual then added that the fall 2022 ARC annual conference is being co-hosted by the State of Maryland, and that the Western Maryland Works facility will be one of the site visits offered as part of that conference. "*People are going to come here and see this space and hear their messages.*" Another individual perceived that "*None of this in our area could happen without ARC. It really could not*."

ACM staff were also in agreement about the critical support provided by the ARC. "*We have just had an amazing relationship with ARC. . . . We are very grateful to ARC. Like none of our staff could have happened without the assistance of ARC. Almost this entire building was reoutfitted with ARC funds.*" (Allegany County received ARC funding in 2019 and 2020 to support the Western Maryland Works facility renovation.) Other staff members voiced similar comments, "*I am grateful that these agencies and organizations support these kinds of programs . . . recognizing the value of workforce development . . . and supporting that is wonderful.*" "*You go back there [in the facility], we got a banner hanging up thanking ARC for all their support. There's a reason because ARC has been very supportive of everything that we're trying to achieve around here. So kudos to you guys!*"

ARC signage at the Western Works Maryland facility.

Table 1. Regional Demographics[45]

Indicators	Maryland	Cumberland City MD	Allegany County MD	Bedford County PA	Somerset County PA	Mineral County WV
Population Estimate, July 2021	6,165,129	18,736	67,729	47,461	73,627	26,857
Per Capita Income 2016–20	43,352	25,956	24,776	26,950	27,323	26,363
Median Household Income 2016–20	87,063	40,888	49,449	51,531	51,255	51,723
Persons in Poverty 2021	9%	21%	15%	11%	12%	14%
Race: White	58%	90%	88%	98%	95%	94%
Households w/ Computer 2016–20	94%	83%	86%	82%	82%	89%
High School Graduate* 2016–20	91%	91%	90%	89%	89%	92%
Bachelor Degree or Higher* 2016–20	41%	21%	19%	16%	17%	18%
Civilian Labor Force 2016–20**	67%	52%	50%	58%	56%	56%
Pop. per Square Mile 2020	636	1,897	161	47	69	82
3-yr Avg. Unemploy. Rate 2017–19	4%	--	6%	5%	6%	6%
County Economic Status 2022	--	--	Transitional	Transitional	Transitional	Transitional

Note. *Persons aged 25 years+; **Population age 16+

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[45] Data sources: Rows 1-10: https://www.census.gov/quickfacts/fact/table/PA/PST045221;
Rows 11-12: https://data.arc.gov/data (County Economic Status Classification)

ARC Case Study: Hartselle (AL) City Schools

Introduction

Hartselle City School District in the City of Hartselle, Alabama includes three elementary schools serving students in grades K-4, an intermediate school serving grades 5-6, one junior high school serving grades 7-8, and one high school serving students in grades 9-12. The district was recently ranked number 8 on the list of "Best K–12 Schools in the State of Alabama" by Niche.[46] This case study features the school district's "3D Math Increases Job Opportunities" project, funded by a grant from the Appalachian Regional Commission (ARC) in 2016.

Table 1. Regional Demographics

Indicators	Alabama	Morgan County
Population Estimate (2020)	5,024,279	123,421
Per Capita Income (2015–2019)	$28,830	$28,474
Median Household Income (2016–2020)	$50,536	$52,923
Persons in Poverty (2019)	15.5%	14.4%
Race: White	68.9%	82.4%
Households w/Computer (2016–2020)	87.9%	86.8%
Households w/Broadband Internet (2016–2020)	79.9%	77.3%
High School Graduate* (2016–2017)	86.9%	84.0%
Bachelor's Degree or Higher* 2013–2017	24.5%	21.3%
Civilian Labor Force (2022)**	2,293,627	60,821
Pop. Per Square Mile (2010)	99.2	212.9
County Economic ARC Rating Status (2022)	–	Transitional

Note. *Persons aged 25 years+; **Population age 16+

CASE STUDY METHODOLOGY

Hartselle City Schools participated in a case study of its 3D Math Increases Job Opportunities program, part of a broader retrospective evaluation of education and workforce development programs funded by the Appalachian Regional Commission (ARC). This case study included:
- In-person site visit
- Review of program materials
- Interviews with:
  - 4 district staff members
  - 2 students

| Site Description |

Founded in 1870, the City of Hartselle, AL, owes its existence to the construction of the South and North Alabama Railroad, which began construction through the area in 1869 in an effort to connect the mineral-rich areas in the southern part of the state with major shipping areas in north Alabama. Originally a mile north of the depot's current location, Hartselle once consisted of a general store and a saloon for workers. Today, Hartselle is the second-largest community in Morgan County with a population of 14,421. Across the county, education trends are similar to those of the whole state; 84% of people aged 25 or older have graduated from high school compared with 87% statewide and 21% have a bachelor's degree compared with 24% statewide. The

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[46] Niche is an organization that provides in-depth profiles of every school and college in America and has 140 million reviews and ratings of educational institutions: https://www.niche.com/about/

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county is designated as Transitional by ARC, meaning that it is transitioning between strong and weak economies.[47]

The county draws tourists—and ducks—to its many waterways. One such site is Wheeler National Wildlife Refuge[48] located along the Tennessee River, which is made up of 35,000 acres of wildlife habitat and is home to Alabama's largest wintering duck population. Additionally, Hartselle is just a 30-minute drive to Huntsville, AL, the state's most populous city, making for an easy commute to businesses and attractions.

The two largest employers in Morgan County are Fortune 500 corporations Cerrowire and Sonoco Reels & Spools (formerly Sonoco Reels & Plugs). Both companies have strong reciprocal partnerships with the Hartselle City Schools system.

| ARC Grant Purpose and Activities |

Prior to applying for ARC funding, district staff recognized a growing need for STEM [science, technology, engineering, and math] classes and a corresponding disinterest among students in the district. The current superintendent reflected, *"Our students were not interested in the STEM classes and in science and in math. This was supposed to excite them to gain interest in math. And so that's why we wanted to place the 3D printers in the elementary classes all the way to the high school…Some things are so abstract, this would give them something concrete to hold on to… when they're looking especially with geometric figures or even algebraic equations, trying to see all that and help solve some of the problems with that. And they would understand the application of those math problems and then going in and designing it on the 3D printer."*

The purpose of the ARC grant was to advance and enhance student technology skills as well as improve mathematics achievement, which Hartselle schools dubbed 3D Math Increases Job Opportunities. The grant award was $50,000 and together with $50,000 of matching funds, Hartselle City Schools used the money to purchase their first 3D printers for use in STEM education courses, especially in the area of mathematics (geometry and algebra). The grant also supported professional development for teachers on how to use the printers. A district teacher recalled, *"It was still… it was unusual to have 3D printers in the schools. And talking with other teachers they were very impressed that we had them when we first started."* All interviewees also noted that students were excited about using the new technology as part of their school day.

Findings

| Implementation |

Although Hartselle City Schools does not have a grant writer on staff, they were able to overcome this challenge to apply and secure ARC funding. District staff reported that ARC program managers were accessible, helpful, and encouraging during the application process and that ARC's Alabama state program manager checked in frequently throughout implementation. However, the district

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[47] https://www.arc.gov/distressed-designation-and-county-economic-status-classification-system/
[48] http://encyclopediaofalabama.org/article/h-2399

superintendent reflected that ARC's financial paperwork during implementation was "*confusing and, at times, problematic.*"

Through grant funds, the district was able to purchase fifteen 3D printers to be placed in secondary mathematics classes across intermediate school, the junior high school, and the high school. Although this 3D Math project was planned to benefit all students in 5th-12th grade, additional 3D printers were also placed in the libraries of district elementary schools:

> "*We had librarians that created maker spacers as a result of this and they had this as a piece for their students. At one point I was an instructional partner at the elementary school when we first received them. I did little lessons with my robotics and engineering club, and the students were doing a book project in their classroom. So they created an item that was 3D printed that correlated with their book they read.*"

3 D Printers in the Hartselle CTE Center.

STUDENT EXPERIENCES

Matthew* was a senior at Hartselle High School who had benefitted from the 3D printers throughout his high school career. Through his coursework, he had become certified in CAD, explaining that, "*the 3D printers help me not just make it in the computer but also I can easily download or convert the file into the maker box, just so I can make anything I really would want and I can scale it pretty easily too. That's really helped me a lot too.*" This skill enabled him to create "passion projects" as well as complete his assignments. "*For me the best part is to be able...to make things for people specifically and to be able to design and make an actual object and give it to them, it really helps me out. Because I can just grab my CAD skills, my 3D design skills on the 3D printers and I can make, like, a name template for a teacher that I liked a lot, any other teacher I can make a cool little measuring tape. I would say the best thing for me would be designing something and giving it to a teacher.*" Reflecting on the long-term benefit of his experiences with this technology, Matthew said, "*almost every manufacturing industry uses 3D printers in a certain way for their products. Almost every single one of them. So I would say just using little 3D printers like these that make little designs and infusing some kind of 3D softwares and converting them to different sizes and factoring and those things, just having experience with that gives them a bigger target on you yourself in getting different jobs in different places.*"

*Names of participants have been changed

Prior to fully integrating the printers into coursework, all relevant teachers were offered professional development on how to use the machines. The career technology teacher reflected on the challenges of developing specialized professional development training on the technology, as resources related to 3D printers were not yet widely available:

"I found my own, and I used the maker bot, we purchased the maker bot 3D printers so I used the maker bot educator manual and taught myself and watched videos and trouble-shooted myself. Our tech department, we were going at this at the same time, simultaneously and we put together a PD for the teachers…[We offered] it initially as a summer PD so they [teachers] could earn a flex day and we had those with our school district, so that counted as one of their flex days."

As part of the process of integrating the 3D printers into coursework and curriculum, the school's instructional content was adjusted to be more coherent and sequential to help students make explicit connections between what they were learning in school and the needs of the local business and industry workforce. Those STEM connections are made using explicit instruction—and application—with the 3D printers and mathematics content from 5th grade through 12th grade. According to the superintendent of schools, this ARC grant and the related adjustment of curriculum was instrumental in aligning coursework and programs to meet the area's workforce needs for the two largest employers in their area (Cerrowire and Sonoco). Content area educators are now working with the career and technical education programs, and STEM courses are integrated and aligned with multiple opportunities for students and educators.

| Sustainability |

The ARC grant support initially helped the school system increase its focus on STEM education. School administrators shared that the original STEM funding inspired changes across schools, courses, and programs in Hartselle City Schools. Through the technology-enhanced programs at Hartselle City Schools, district staff reported that there is more student growth and more students are meeting the mathematics benchmarks.

"It's definitely helped increase an interest in the math and science and I think our robotics and STEM competitions and STEM interest with our students and even some Cyber security things as well." – District Superintendent

The school district has also built upon the success of their 3D Math project, leveraging state technology funds and securing subsequent grant funding to purchase additional 3D printers, laser cutters, a SPARK Lab (adapted from the Smithsonian model)[49], as well as upgrades to software and technology. The following are new additions that evolved from the original grant intent:

- A manufacturing academy
- Increased enrollment in engineering courses
- Dedicated STEM electives for grades 5–12
- A dedicated STEM teacher at all three secondary schools
- A new full-time position dedicated to STEM and robotics at the intermediate and junior high schools
- Vertical alignment for STEM programming
- Two STEM-certified elementary schools
- One elementary school is implementing a STEM program called Project Lead the Way Launch[50]

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[49] https://invention.si.edu/try/sparklab
[50] https://www.pltw.org/our-programs/pltw-launch

Interviewed students shared that they have a better understanding of mathematics because of the 3D printers and components that have been developed around them. Two high school seniors said that they can now apply the mathematics in 2D formulas (on paper) to design 3D objects representing those formulas. Both students noted they are proficient in turning plans into products using ratios, scale, design, engineering, technology, and manufacturing skills. Both said they are also capable of troubleshooting the technology, including assembling and disassembling the equipment. The students indicated their new skills can apply to many other processes, such as the use of the plasma cutter, computer-aided design (CAD) software, and 3D design. In one example of these layered skills, the superintendent shared that the students, "*3D printed components to a Christmas village. They laser cut some things and 3D printed some things. And see we would've never felt confident enough to go to the laser cutting and engraving piece without that foundational piece of those 3D printers. The design piece is the same, they download to a different format.*"

3D printed snowman used for holiday displays.

Both seniors are now working with scientists and engineers from the University of Alabama in Huntsville (UAH) and NASA to design and create an "object" that will be sent on a future spaceflight to Europa, one of the smaller moons of Jupiter. According to the students, the work they are doing now is preparing them for their future education and the world of work. Instead of working on mathematics in a 2D mode (on paper), they are able to visualize and create 3D versions. And, because of their work with UAH and NASA they have learned to apply what they learn, work as a team, interact with employees and employers, and engage in professional conversations. Both said they find it enjoyable to create and complete something they have designed and will apply their 21st Century "Essential Skills" including communication skills as well as enhanced math and science knowledge. As one student said, the experience gave him the "*confidence to be the best engineer I can be*." He added, "*It has changed me—I want to build more complex designs*."

In addition to partnership with local universities, Hartselle School District has also been able to expand workforce partnerships because of the direct skills students have gained through the 3D Math project. In 2018, Hartselle High School launched a workforce development program to leverage their growing STEM programs and more explicitly prepare students for careers in the local areas. Dubbed Tiger Launch because the Tiger is the school district mascot and Hartselle was "launching" a new initiative, the program connects students to internships with regional businesses. Students are paid for their work and develop new skills that will serve them after graduation while meeting the workforce needs of nearby businesses in the short-term (internships) and potentially in the long-term (post-graduation careers).

The district superintendent discussed how the 3D Math project supported by ARC helped pave the way for this new initiative:

> "*I even think the 3D printers helped to send kids to the Tiger Launch program. So we have two industries here in Hartselle that are huge. One makes wiring and the other company makes the*

spools that the wiring goes on. They weren't even talking until we got involved. We have our students, we built our own apprenticeship program with both of these companies. So…they're growing their own employees…[and] students had to learn how to program those 3D printers to go do all that. So that spills over to the programming that helps out with Cerrowire but then even to run the machines at Sonoco even conveyor belts with all the spools on them, put them together, wrap them, shrink wrap…

All those kinds of things… As well as quality control, when they're making those eggs. Did it meet our specifications. Did it meet our quality. They can apply all those manufacturing principles to those simple projects…There were so many components of having that. You didn't know what impact it was going to make. It has made a difference."

The plant manager at Sonoco explained, "*committing to your first job anywhere can be scary. This program introduces young people to the workplace side-by-side with their peers. That experience goes a long way in building the skills, knowledge, and confidence needed to move forward in that job, with another company, or on to higher training and education opportunities*."

The Sonoco Vice President and General Manager also highlighted the benefits of their partnership with Hartselle schools, saying "*having the Tiger Launch program kickoff at the same time provided us with another good resource for potential new staff*." He also praised the school for the way they mentor its participants in workplace safety, coworker courtesy, industry practices, and decorum. The Cerrowire President also noted, "*at Cerrowire, our culture is centered on build, energize, inspire…Being able to inspire students through the Tiger Launch program is one way our company is able to give back to our community.*" Sonoco expects to have 26 students working with them in the fall of 2022 and eight more have committed to work full-time at Cerrowire after graduation.

| **Advancing Equity** |

> ## ENTHUSIASM AS SUSTAINABILITY
>
> In 2018, Hartselle City Schools hosted a large "Planning Our Future" event to increase partnerships and support the goal of expanding a path to local industry for students. With increased interest in STEM and other technology opportunities, the schools provided a parent night to ensure that parents were aware of all the students' options - students were also encouraged to attend.
>
> The workforce development night focused on grades 5–12. The Chamber of Commerce provided door prizes and event planners were expecting about 1,500 people—but 3,000 people showed up; 20% of the city's population. During the event, students served as hosts and created items on the 3D printer as giveaways while high school students and educators conducted tours.
>
> Staff reported that following this successful event, younger students became more excited about the math, science and robotics programs and Hartselle City Schools staff think of their work more as part of a comprehensive program that is having a great impact.

When asked if the grant prioritized the engagement of disproportionately affected groups that have been economically or socially marginalized, the superintendent said that the ARC grant was written to address just that. The superintendent also noted the grant funding for this project is intended to

encourage *all* students to embrace and apply math while supporting the needs of regional workforce development. And the superintendent reported that all students benefitted in some way from the grant. For example, students in special education derived tangible, needs-based benefits from the 3D program when they received a putt-putt (miniature golf) game with modified equipment and putters to accommodate the student's individual physical needs:

"By having access at all grade levels and all students, manufacturing to engineering, those can be a wide range of abilities. And so there was not any group that was limited or not allowed to use these. And by putting them in every math class meant every student had access, every student." – District teacher

"The Advanced Manufacturing [class] made a putt putt golf course using the 3D printer for what

we call the Riley Center which is over at the Junior High campus. That's for our special needs students, so they can putt putt with that and the different sized clubs and everything. Some of their obstacles that are in their themed golf course were 3D printed. Some were laser cut…so they designed them and built them."

Student designed and created Putt-Putt field and putters which were built using 3D concepts and a laser cutter.

| COVID-19 Pandemic |

Similar to virtually all school districts across the county, Hartselle School District shifted to online instruction during the early months of the Covid-19 pandemic. During this time, the 3D printers were not well utilized. However, once students returned to the classroom, integration into the curriculum resumed as normal. School staff reported that there were no issues with or concerns about supply chain problems related to materials needed to operate the 3D printers. However, the district has suffered from staffing shortages related to career shifts, retirement, and relocation, as the superintendent explained: "*We had 10 retire this year, but we had several husband or spouse was transferred so they had to leave, move whatever. The knowledge that walks out the door is very hard to replace.*"

| Implications and Lessons Learned |

District staff who participated in the case study all shared consistently positive impressions about this ARC grant and the ways in which it has allowed for expanded curriculum and increased capacity in STEM education. One exchange between a district staff member and the superintendent captured these feelings well:

"I feel [the grant] was way more than what we intended. I mean it was better!"

"Like a snowball effect, it just keeps getting bigger and bigger. It was really foundational too, all of these pieces."

"I think back to how much this grant was, think about that, the investment. It was a small investment on both parts and I think about all the changes we've made….So that was huge, it has been impactful."

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"It has been impactful, to every student."

The two students likewise shared how impactful this program has been for them and shared that they wish more students would get involved in this work, indicating that other students might be afraid of the math and science knowledge required. They suggested that additional marketing for the courses might encourage greater participation.

In conversation with school system leaders, they shared about ongoing needs and ways that they might have adjusted their original grant. These included:

- **Increased professional learning for educators**: Developing and conducting professional learning opportunities for educators is necessary to increase participation and buy-in. Hartselle Schools created what was called a Cyber Sofa for professional development around the 3D printers. It was indeed a sofa in a room, where educators could watch teaching and learning tips on the functionality and use of 3D Printers. It was a one-way delivery system which was a good beginning for some educators, however, more professional learning was needed to support participation by more educators.
- **Continued collaboration**: Collaboration across stakeholders and sectors was enhanced by the emphasis on a ready workforce in the Hartselle City Schools, strengthened by the programming built up around the 3D printers. Support from parents was enhanced by learning more about workforce needs and the benefits of preparing their students for the world of work. The two largest employers in the community benefitted from the collaboration that grew out of Tiger Launch and the prospect of having a motivated, well-educated workforce.
- **Sustaining through partnerships**: Hartselle City Schools have been able to successfully build on ARC's investment through available state resources as well as additional grant support and are actively exploring additional funding opportunities to upgrade and maintain their technology. The school system has developed a strong foundation for sustaining this work thanks to community and industry involvement and outreach. They are receiving Alabama Advancement and Technology Funds to upgrade to 5G, the newest and fastest wireless network technology, and to purchase more 3D printers.
- **Career awareness expanded**: The grant has created strong career opportunity awareness for students and their parents. Students were excited about what they were learning and the excitement continues as students are encouraged to apply their mathematics and science content knowledge to create tangible products and see meaningful connections to employment in their community.