

Digital Learning Strategies for Rural America

A scan of policy and practice in K-12 education





About Future of School

As the first-ever public charity focused on access to quality education, Future of School is dedicated to mobilizing change in American K-12 education from a one-size-fits-all system to one that ensures all students reach their unbounded potential.

Our Student Scholarship Program rewards students for their courage to forge new learning pathways, giving them greater financial means to continue their education in whatever post-secondary school they choose.

Through the Innovative Educator Prize, we empower pioneering educators with grant funding that enables them to bring programs and tools into the classroom to transform the learning experience.

By amplifying technology's impact on students and educators, we inform, inspire and spearhead much needed change.

Future of School is an organization of the people, by the people and for the people that calls on students, parents, educators, and employers to band together to embrace and inspire the future of our society and prepare the workforce of tomorrow. Join the movement at futureof.school.



About Evergreen Education Group

The Evergreen Education Group provides a range of advisory, research, and analysis services to non-profit organizations, government agencies, and companies that are leading digital educational innovation. Our policy and market research has helped lay the groundwork for the growth of digital learning and informs legislators and other policymakers about the latest developments in the field.

Suggested citation

Future of School. 2018. *Digital Learning Strategies for Rural America: A scan of policy and practice in K-12 education*. Future of School and Evergreen Education Group. 2018.

Research and writing by:

Butch Gemin, Barbara Smith, Lauren Vashaw, John Watson
EVERGREEN EDUCATION GROUP

Chris Harrington, Elizabeth S. LeBlanc
INSTITUTE FOR TEACHING & LEADING

Foreword

For many, discussions of rural America can summon images of rolling farmland, two-lane roads stretching on for miles, community picnics, and baseball. This nostalgia runs in stark contrast to the contemporary phenomenon of “rural America as political football” playing out on television screens each night—unemployment, addiction, hopelessness.

Whether you subscribe to the Mayberry or the Beattyville concept of rural life, there is a common trait shared between them—that a high-quality education can open a world of opportunities to their children.

Just as Canada responded to the educational needs of remote students throughout its Provinces—first through correspondence courses, today through online courses—the United States, too, has begun to level the playing field of quality curricula and educational opportunities for students across the country via digital learning.

State-led initiatives to bring broadband access to schools regardless of location, the creation of high-quality open educational resources, and greater awareness of innovative course access programs have all contributed to the academic achievement and future prosperity of today’s rural students.

This report explores the many ways rural states and schools are integrating digital learning into their portfolio of educational opportunities to secure a better future for their children and communities.

Amy Valentine

Executive Director

The Foundation for Blended and Online Learning

INTRODUCTION AND HOW TO READ THIS REPORT

RURAL AMERICA HAS ALWAYS HELD AN OUTSIZED INFLUENCE ON HOW WE SEE OUR COUNTRY,

from the earliest days of the country, with its founders' focus on farmers, to the influential role of the western frontier in the country's development. In recent years, the common narrative around rural America has shifted from being largely positive and even mythical, to a greater emphasis on the challenges of rural regions of the country, including the lack of economic opportunity for rural residents. The shifting economy's ever-decreasing reliance on physical labor is a current topic, as rural regions are bearing the brunt of economic forces beyond their control. With the economic shift in rural areas towards jobs that require greater levels of learning, education is increasingly seen as part of the problem, and a necessary part of the solution, to increasing economic and social opportunities in rural regions.

Among advocates for rural people and regions, technology is often seen as a driving factor that is shifting economic activity and power from the rural heartland to urban and coastal areas. Perhaps this is a reason that the power of technology to address rural education challenges has been too often overlooked by many rural advocates. Technology in the form of online and blended learning has been helping students and schools in many ways. Although many educators understand this, the role of technology has not been front and center in discussions about how to improve rural education, and how to advance the college and career prospects for students attending rural schools. Many reports on rural education give little attention to digital learning. At most, they tend to note either infrastructure needs or the potential of remote course access, with little focus on instruction, outcomes, or exemplars.¹

This report intends to begin correcting that imbalance by connecting the dots between rural regions, rural education, and digital learning. In the introductory sections, we explore what "rural" means, and how to characterize rural education. Although most people have a gut-level understanding of the term rural, most find it is actually quite hard to define. In subsequent sections, we explore rural education issues, the ways in which rural schools and students are challenged by issues related to being remote, and then the ways in which online and blended learning can help address these challenges. Finally, we profile 15 states and programs to demonstrate policies, districts, and schools that are using digital learning to meet rural education needs. The profiles are each written as stand-alone case studies, and can be read independently of one another based on the interests of each reader.

Throughout the report, we use the terms online learning, blended learning, digital learning, and educational technology. These terms are defined and characterized in the text box on the next page. We stress, however, that the successful, scalable use of technology in schools always uses teachers, mentors, and other caring adults in critical roles. The technology extends the ability of teachers to reach students in new ways, and sometimes across long distances, but it does not replace teachers. Even in these schools using online learning, teachers still matter more than technology. Relationships matter more than digital tools and resources. However, in areas where schools and students are scattered and challenged by a lack of teachers and resources, technology can be a game-changer because of its ability to bring people together across remote areas.

¹ See, for example, the "Section 5005 Report on Rural Education, Preliminary Report, December 2017, by the U.S. Department of Education. Retrieved from <https://blog.ed.gov/files/2017/12/Preliminary-Report-on-Rural-Education.pdf>, and Leveling the Playing Field for Rural Students, November 2017, by The School Superintendents Association and the Rural School and Community Trust. Retrieved from http://www.aasa.org/uploadedFiles/Policy_and_Advocacy/Resources/AASA_Rural_Equity_Report_FINAL.pdf.

Definitions and characterizations of key terms

Online Learning

Online learning is instruction and content delivered primarily over the Internet, sometimes accompanied by some additional communication and/or assistance by phone. A single course or an entire school may be online. Virtual learning, cyber learning, and eLearning are synonyms.

Blended learning

Blended learning is defined by the Clayton Christensen Institute as a formal education program in which a student learns at least in part through online learning, with some element of student control over time, place, path, and/or pace; at least in part in a supervised brick-and-mortar location away from home; and the modalities along each student's learning path within a course or subject are connected to provide an integrated learning experience.

Education technology

We use the term education technology to encompass the use of computers, online tools and resources, and other types of technology including video, including classroom-based uses of technology that do not fit the definitions of online learning or blended learning.

Digital learning

Digital learning encompasses instructional practices that use digital technology to strengthen or augment a student's learning experience. Our use of the term is broad and not limited to online and blended, but instead includes instructional content, interactions, data and assessment systems, learning platforms, online courses, adaptive software, personal learning enabling technologies, and student data management systems.

Methods

The report researchers' expertise is primarily in online and blended learning. To better understand rural regions and rural education issues, we tapped into resources (people and documents) from the National Rural Education Association, Rural School and Community Trust, Battelle for Kids, and regional rural organizations. We also conducted extensive web searches. Our research found that while much has been written about rural education challenges, and much had been written about online and blended learning, but no comprehensive report had attempted to connect the two.

Many people were generous in sharing their time and expertise with us, and we thank them for their generosity with us and for their work on behalf of students.

Robert Currie – Executive Director, *Montana Digital Academy*

Sam Brooks – Personal Learning Supervisor, *VITAL Program*, Putnam County, Tennessee

Debi Crawford – Virtual High School Administrator, *SUPERNet*

Patrick Crawford – Director, *Pennsylvania Leadership Development Center*

Jaraun Dennis – Technology Coordinator, *Uinta County School District #1*, Wyoming

Sandra Eggers – Virtual Education, *Florida Department of Education*

Adan Estrada – Superintendent, *Cimarron Municipal School District*, New Mexico

Traci Filiss – Founder and Director, *Taos Academy Charter School*, New Mexico

Florida Virtual School

Joe Freidhoff – Vice President, *Michigan Virtual*

Scott Graham – Superintendent of Schools, *Northern Potter School District*, Pennsylvania

Canyon Leigh Hardesty – Director, *Project ECHO for Education*, University of Wyoming

Karen Jez – Superintendent of Schools, *Titusville Area School District*, Pennsylvania

Gary Lilly – Director, *Bristol Tennessee City Schools*

Kristie Littlefield – Executive Director, *Western Maine Educational Collaborative*

Malynda Maurer – Chief Administrator, *Central Pennsylvania Digital Learning Foundation*

Bradley Mitchell – Director, *VirtualSC*

Jason Neiffer – Assistant Director/Curriculum Director, *Montana Digital Academy*

Evan Patrick – *Team Digital*, Arkansas

Allen Pratt – Executive Director, *National Rural Education Association*

Sarah Rotureau – Student Services Manager, *VirtualSC*

Lisa Russell – *Team Digital*, Arkansas

Rachel Smith – Curriculum Coordinator/Federal Programs, *Piedmont City Schools*, Alabama

Barry Sommer – Director of Advancement, *Lindsay Unified School District*, California

Mark Sorensen – Founder and CEO, *STAR School*, Arizona

Brett Turner – Executive Director, *Blended Learning Bureau*, New Mexico Public Education Department

Joseph Vagt – PBS Blended Learning Specialist Teacher, *Lindsay Unified School District*, California

Dan Webb – Superintendent of Schools, *Everett Area School District*, Pennsylvania

Sarah Young – Digital Teaching and Learning Coordinator, *Utah State Office of Education*

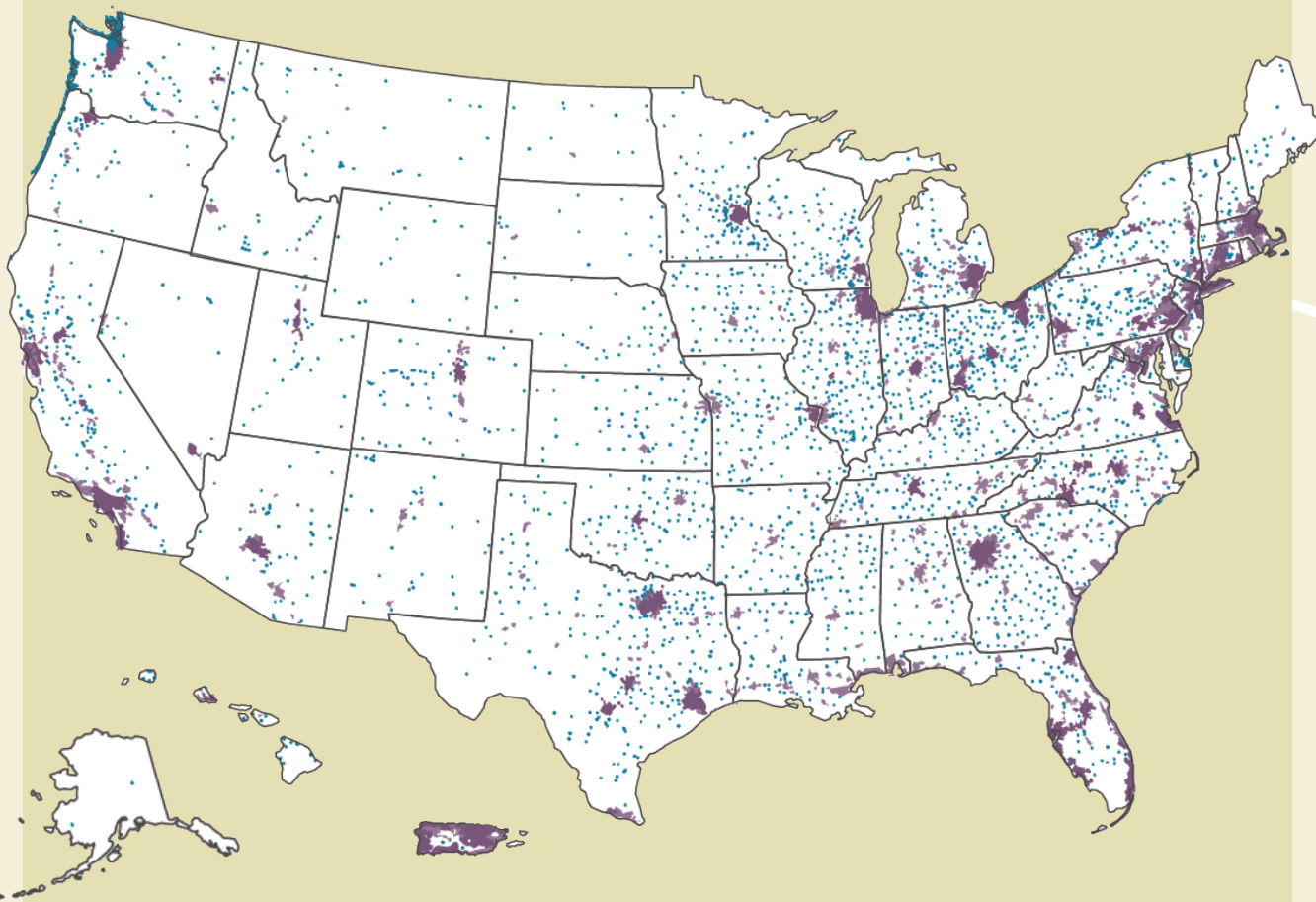
Alert readers will note that we have not included Alaska and Hawaii in our maps and profiles. Although the findings of the report are applicable to these states, many of our sources are focused on the lower 48 states. We hope to address rural education issues in Hawaii and Alaska in future studies.

What is rural?

MOST PEOPLE HAVE A SENSE FOR THE CHARACTERISTICS OF “RURAL” AREAS, but if asked to define the term rural, they might be challenged to do so in a precise way. This is especially true when trying to distinguish between exurban areas, individual small or tiny towns, and regions with very few people living widely apart. To understand rural education, we must first understand the definition of rural and what characterizes rural regions. When we consider rural from the perspective of where people live, the best single source of information is the US Census Bureau.²

19%

Urbanized areas and urban clusters: 2010



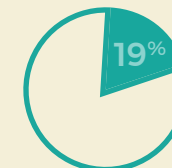
“For the average American, rural is an abstract concept of rolling hills and farmland rather than a concrete definition. Thus, it can be a difficult task trying to define the term “rural” and an even harder task trying to explain it.” (U.S. Census Bureau)



The Census defines rural as any population, housing, or territory *not* in any of the:

- 486 Urban Areas (50,000+ ppl) or
- 3,087 Urban Clusters (2,500–50,000 ppl).

By this definition, all of the white area on the map shows rural parts of the United States.



As of the 2010 census, 19% of the population (about 60 million ppl) lived in rural areas.

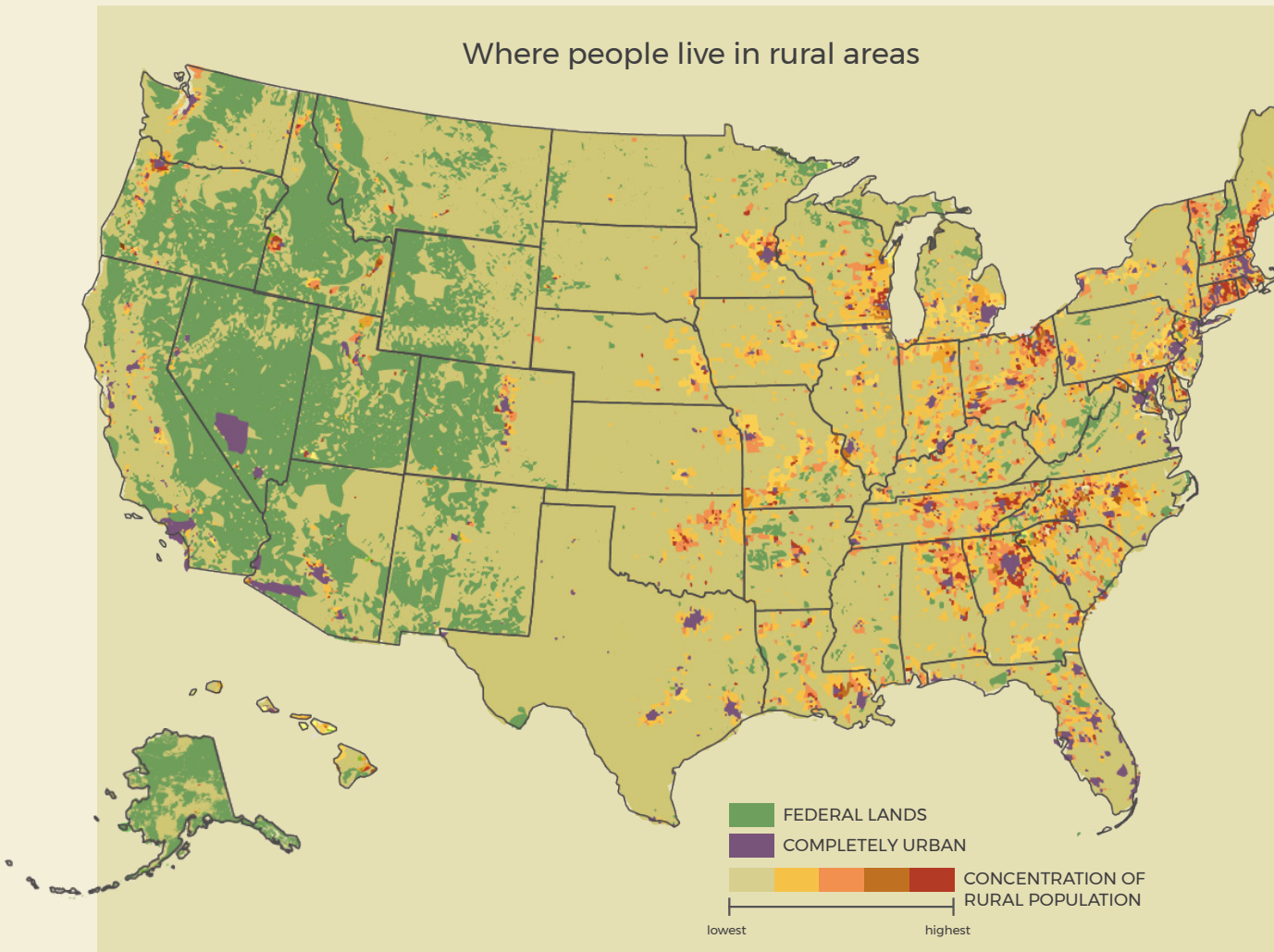
3

² Unless otherwise noted all quotes, statistics and maps in this section are from <https://storymaps.geo.census.gov/arcgis/apps/MapSeries/index.html?appid=9e459da9327b4c7e9a1248cb65ad942a&cid=160104>.

³ Map from https://www.census.gov/content/dam/Census/newsroom/blogs/2012/04/how-do-we-measure-urban-areas/UA2010_UAs_and_UCs_Map2.jpg.

What is rural? (cont.)

However, the vast white areas on the map reveal rural territory, and don't show where most rural people actually live. Although we tend to think of the rural land areas in the mountains and deserts of the western US, and the expansive plains of the mid-west, most rural populations are outside the fringes of cities. The map below shows that most rural people live in the south and/or east, few people live in the rural regions of the Midwestern plains, and almost nobody lives within the green areas of federal land.

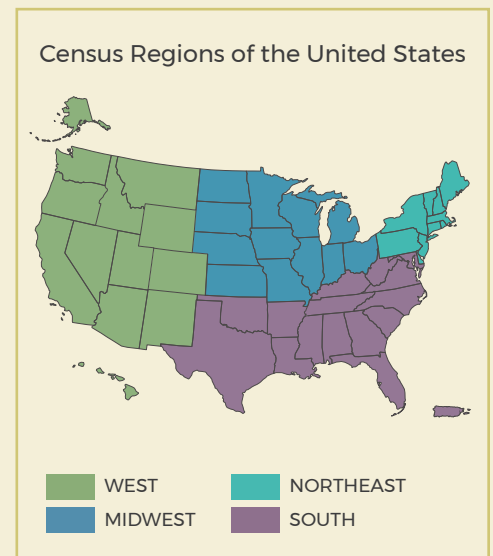


A few counter-intuitive facts:

64% of rural Americans live east of the Mississippi River.

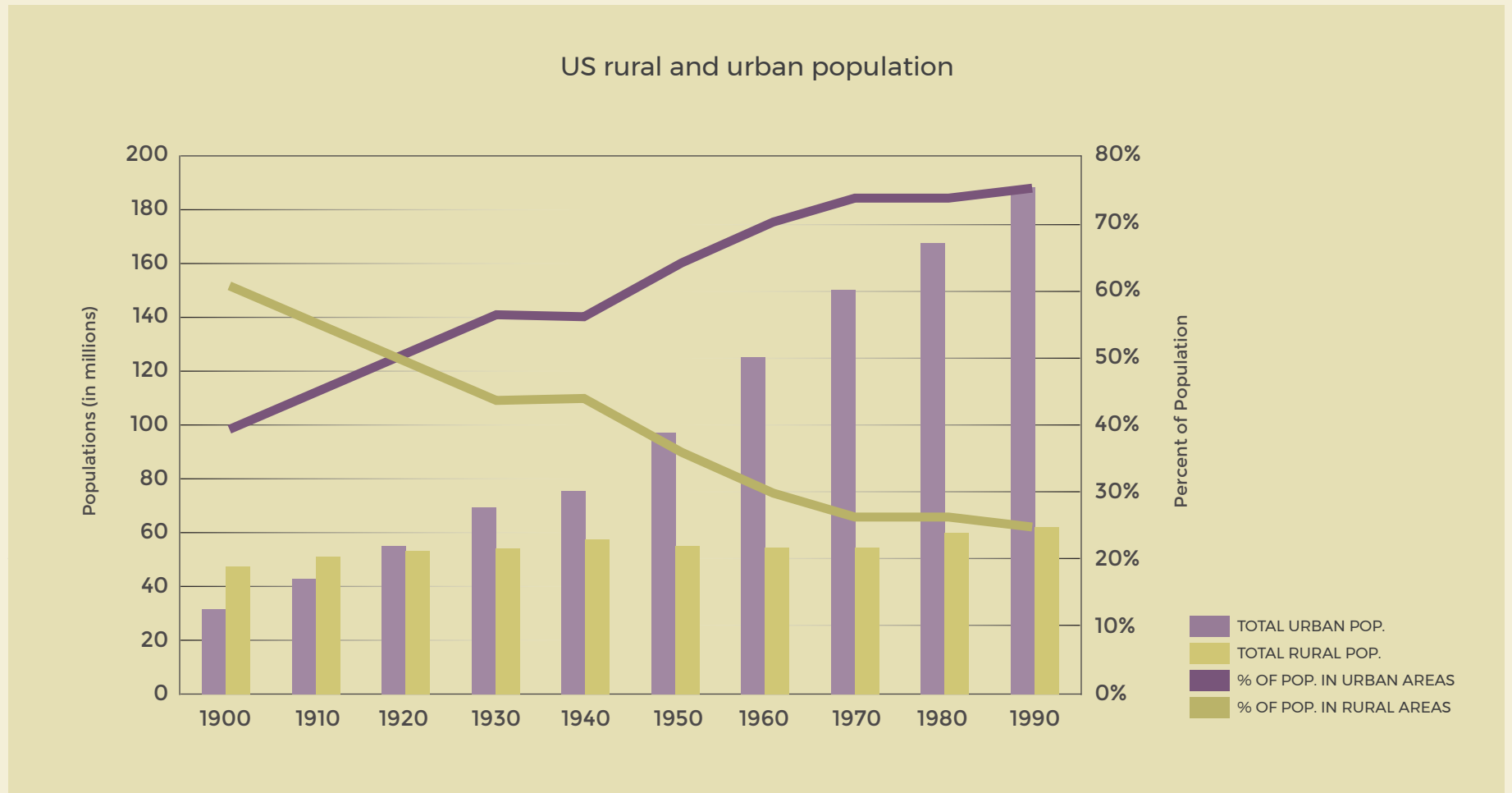
90% of the total population of the West lives in urban areas.

47% of all Americans living in rural areas are in the South region.



What is rural? (cont.)

The population, of course, is not static as people move between urban and rural areas. Over the last century almost all the population growth in the United States has been in urban areas, and the rural population as a percent of the total population has dropped from above 60% to about 20%, while remaining about the same in total numbers.



⁴ National Assessment Synthesis Team, Climate Change Impacts on the United States: The Potential Consequences of Climate Variability and Change, US Global Change Research Program, Washington DC, 2000. Retrieved from <https://data.globalchange.gov/assets/9a/aa/ec5b4bb3b895bc8369be2ddac377/nca-2000-report-overview.pdf>.

Rural education

THE NATIONAL CENTER FOR EDUCATION STATISTICS (NCES)

builds on the Census Bureau’s methods and numbers to create a classification of all schools based on “locale categories.”

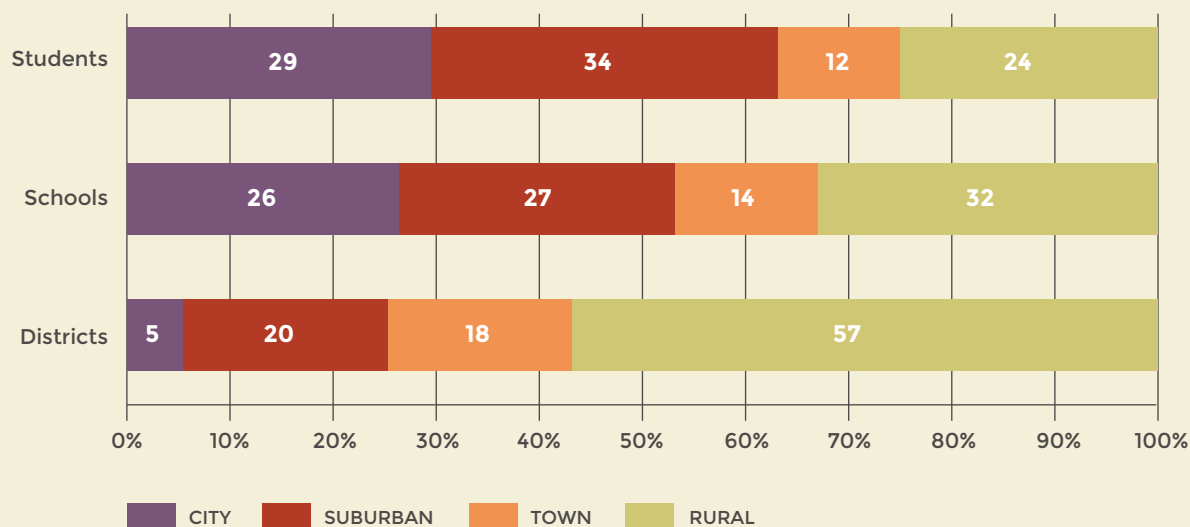
NCES assigns every school in the country a locale code, indicating in which category the school exists. The percentage of rural districts, schools, and students is similar to the overall US population in this sense: the US rural territory is far larger than urban territory, but holds far fewer people. Similarly, almost six in ten districts (57%) are rural, but only 24% of students are considered rural. In contrast, 5% of the largest city school districts educate 29% of all students.

In sum, more than half of all districts, a third of all schools, and a quarter of all students are rural. Within the rural categories, about 60% of rural students are fringe, 30% are distant, and 10% are remote.

CITY
Large
Midsize
Small
SUBURB
Large
Midsize
Small
TOWN
Fringe
Distant
Remote
RURAL
Fringe Census-defined rural territory that is less than or equal to 5 miles from an urbanized area, as well as rural territory that is less than or equal to 2.5 miles from an urban cluster
Distant Census-defined rural territory that is more than 5 miles but less than or equal to 25 miles from an urbanized area, as well as rural territory that is more than 2.5 miles but less than or equal to 10 miles from an urban cluster
Remote Census-defined rural territory that is more than 25 miles from an urbanized area and is also more than 10 miles from an urban cluster

⁵ <https://nces.ed.gov/surveys/ruraled/definitions.asp>.

FIGURE 1: Percentage distribution of public elementary and secondary students, schools, and districts, by locale: School year 2010-11



5

As referenced in Figure 2, the overall percentage of rural students tends to:⁶

- Be more white than the national average (73% rural compared to 50% national average)⁷
- Be less Hispanic (12% to 25%), and Black (9% compared to 16%), and Asian (1% to 5%)⁸
- Be equal to the national average in terms of percentage of students with Individual Education Programs (12%)⁹
- Have much lower rates of students with limited-English proficiency (5% to 9%)¹⁰
- Be slightly less likely to be living in poverty (17% to 20%)¹¹
- Spending per rural students is \$9,625, which is 7% lower than the national average of \$10,329.¹²

⁶ https://nces.ed.gov/programs/coe/indicator_tla.asp.

⁷ <https://nces.ed.gov/surveys/ruraled/tables/B.1.b.-1.asp>.

⁸ Ibid.

⁹ <https://nces.ed.gov/surveys/ruraled/tables/B.1.c.-1.asp>.

¹⁰ <https://nces.ed.gov/surveys/ruraled/tables/B.1.d.-1.asp>.

¹¹ <https://nces.ed.gov/surveys/ruraled/tables/a.1.a.-6.asp>.

¹² <https://nces.ed.gov/surveys/ruraled/tables/E.1.a.-2.asp>.

Student attainment in rural schools matches city, suburb, and towns in some ways, but not in others.¹³ Figure 2 demonstrates measures of attainment as measured by the National Assessment of Educational Progress (NAEP), rural students performed as well or better than national averages on reading and math exams.¹⁴ Similarly, among the general population of people age 25 and older, about the same percentage of people in rural areas have completed a high school diploma or equivalent compared to national averages.

The number of rural residents who complete a four year college degree, however, is about seven percentage points lower than the national average. A similar number is found in younger people as well: the national average percentage of people age 18-24 enrolled in a post-secondary institution is 42%, while the rural average is 29%.



¹³ <https://nces.ed.gov/surveys/ruraled/tables/b.3.c.-1.asp>.

¹⁴ The Rural School and Community Trust. 2017. *Why Rural Matters 2015-2016*. Retrieved from http://www.ruraledu.org/user_uploads/file/WRM-2015-16.pdf.

Rural schools and students face unique challenges

“Many children and their families in rural America need better and more equitable educational opportunities.”

– *Why Rural Matters 2015–2016*, A Report of the Rural School and Community Trust, June 2017¹⁵

AS DISCUSSED PREVIOUSLY, RURAL STUDENTS MATCH NATIONAL AVERAGES IN SOME MEASURES of attainment, but not in others, particularly around post-secondary education. Whether this discrepancy is due to differences in rural schools, or because of rational choices by students in the face of challenging economic conditions, is unclear. But undoubtedly, rural schools face a number of challenges that are different than the challenges of their urban, suburban, and town counterparts. These constraints include:

- Declining enrollments
- High socioeconomically disadvantaged populations
- High transportation costs
- Lack of computer and internet access in homes
- Low teacher pay
- High teacher turnover
- Fewer teachers, especially in high level courses
- Fewer courses available to students.¹⁶

Many schools lack advanced courses in math and science, challenging electives, and world language courses. According to the U.S. Department of Education, only 50% of high schools offer calculus, 63% offer physics, and 81% offer Algebra II. The situation is worse for minority students, as only 74% of high schools with “the highest percentage of black / Latino students enrollment offer Algebra II.”¹⁷

¹⁵ The Rural School and Community Trust. 2017. *Why Rural Matters 2015–2016*. Retrieved from http://www.ruraledu.org/user_uploads/file/WRM-2015-16.pdf.

¹⁶ This section is based in part on a blog post by Dawn Nordine, Executive Director, Wisconsin Virtual School, titled *Online Learning a Lifeline for Rural Schools*, December 15, 2014. Retrieved from <http://www.virtuallearningalliance.org/online-learning-lifeline-rural-schools/>.

¹⁷ U.S. Department of Education Office for Civil Rights. *Civil Rights Data Collection: Data Snapshot (College and Career Readiness)*. March 21, 2014. Retrieved from <http://ocrdata.ed.gov/Downloads/CRDC-College-and-Career-Readiness-Snapshot.pdf>.

Not only are fewer courses available to students, but the courses that are lacking are most commonly Advanced Placement, honors, world languages, and advanced STEM classes—precisely the types of classes that would appear to correlate with college success.

For example, Figure 3 shows discrepancies between Advanced Placement access in rural districts compared to other regions. Nearly half of rural districts have no students in AP courses, compared with only 5% of suburban districts with no students taking such courses, for example.¹⁸ In addition, within rural districts, the smaller and more remote districts have lower levels of AP course access compared to larger rural districts and those closer to urban areas. (Figure 4)

FIGURE 3

47.2% Nearly one half (47.2%) of rural districts have no secondary students enrolled in Advanced Placement (AP) courses, compared with only 20.1% of town, 5.4% of suburban, and 2.6% of urban districts.

-10X Remote rural districts with small populations are nearly 10 times less likely to offer access to AP courses than are larger rural districts on the fringe of urbanized areas.



AP success rates are highest in suburban districts; success is higher than in town and rural districts even when affluence is accounted for.

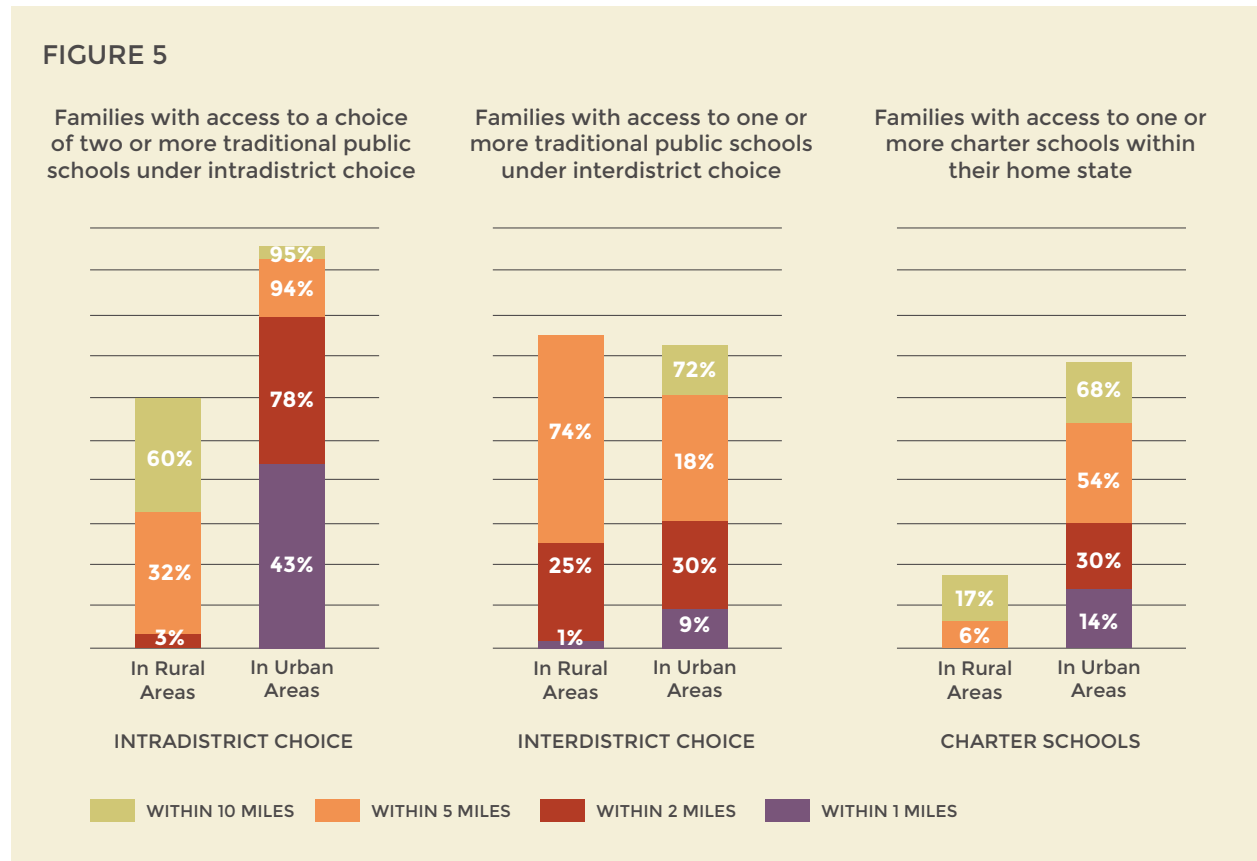
FIGURE 4: Access to AP Courses in Rural Districts, by Remoteness and Secondary Student Population¹⁹

	FRINGE*		DISTANT		REMOTE	
	LARGER POPULATIONS	SMALLER POPULATIONS	LARGER POPULATIONS	SMALLER POPULATIONS	LARGER POPULATIONS	SMALLER POPULATIONS
Average Student Population	1556	276	985	192	715	123
Number of Districts	888	503	548	2160	106	1018
Percent of Districts Without AP Access	7.9	37.6	16.2	57.0	33.0	69.7

¹⁸ Limited Access to AP Courses for Students in Smaller and More Isolated Rural School Districts, Douglas Gagnon and Marybeth J. Mattingly Carsey Research. National Issue Brief #80 Winter 2015. Retrieved from <http://scholars.unh.edu/cgi/viewcontent.cgi?article=1234&context=carsey>.

¹⁹ Ibid.

Many education reform advocates believe that providing students and families a selection of schools to choose from, including charter schools, helps address inequities in education. But, as shown below in Figure 5 rural students, particularly those in remote and distant regions, often have only a single physical school available to them. Smaller student populations often limit the justification for new schools being opened, which inherently limit the availability of school choice in rural areas.²⁰



²⁰ Who could benefit from school choice? Mapping access to public and private schools. Kristin Blagg and Matthew M. Chingos. March 30, 2017. Evidence Speaks Reports, Volume 2, #12. Brookings. Retrieved from <https://www.brookings.edu/research/who-could-benefit-from-school-choice-mapping-access-to-public-and-private-schools/.4>.

Digital learning can address some rural school challenges

“Rural areas have been slow to benefit-in-full from the technological advancements and many lack access to sufficient bandwidth to support whole- school online access simultaneously. Technology offers promise, but cannot be assumed as a solution for all rural schools in the short-term.”

– National Rural Education Association Research Agenda – 2016–2021²¹

DIGITAL LEARNING, DRIVEN BY STATE PROGRAMS OR DISTRICT/SCHOOL INITIATIVES, can help address some of the rural education issues identified in this report to this point. This section explores four broad categories of online and blended learning options helping rural schools and students.

- State virtual schools providing supplemental online courses and other services
- Course access programs
- Fully online schools
- Consortium and regional service agencies

State virtual schools²²

State virtual schools are programs created, facilitated, and/or funded by a state to provide online learning opportunities across the state. Such programs have the capacity to offer supplemental online courses to students throughout the state, but provide secondary benefits such as large-scale professional development for teachers and other educational programs. State virtual schools are usually created by legislation or by a state-level agency, and receive state appropriation or grant funding. They also may charge course fees to help cover the costs of administering online programming and courses. The programs may be administered by a state education agency, but could also be 501(c)(3) nonprofits, charter schools, or organizations contracted to operate the state virtual school by the state education agency. For example:

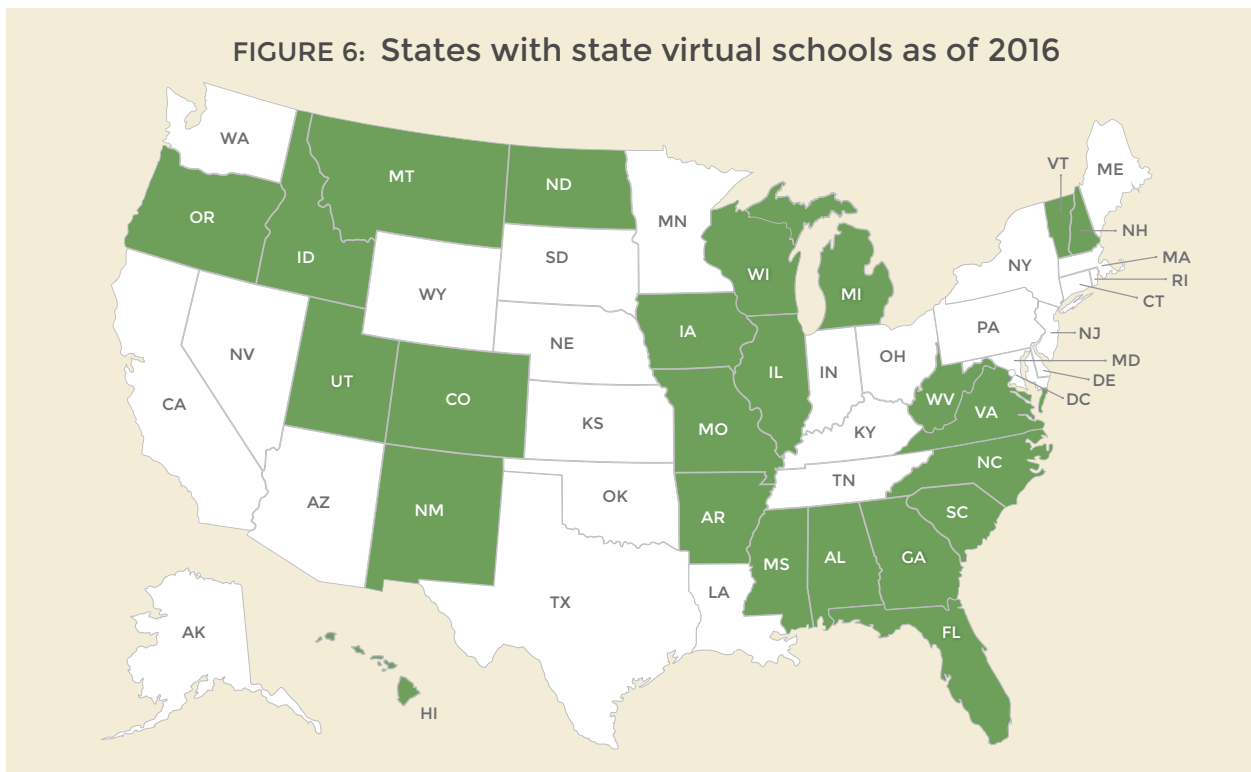
- Georgia Virtual School, Virtual Virginia, and some other state virtual schools are part of their state departments of education.
- Idaho Digital Learning (IDL) is not part of the state department of education, but rather a separate governmental entity created by legislation with a Board of Directors responsible for oversight.

²¹ https://drive.google.com/file/d/OB6jy-_ymJ6lPcEhIbmXPZU5XLTg/view.

²² Discussions of state virtual schools, course access programs, fully online schools, regional service agencies, and consortium programs are adapted from the annual *Keeping Pace with K-12 Digital Learning* reports published by the Evergreen Education Group and available at <https://www.evergreenedgroup.com/keeping-pace-reports/>.

- Montana Digital Academy is administered by the state university system.
- Michigan Virtual School receives legislative funding, but is a 501(c)3 nonprofit organization with a Board of Directors providing oversight.
- Illinois Virtual School is administered through the Peoria County Regional Office of Education, which was awarded the Illinois State Board of Education contract to manage and operate the state virtual school.
- New Hampshire's state virtual school, Virtual Learning Academy Charter School, was created through the state's school chartering process.

With only a few exceptions, state virtual schools do not grant diplomas and are not responsible for many of the functions performed by schools (e.g., administration of state assessments, state and federal reporting, counseling, etc.). Rather, the schools provide students with courses and content to which they may not otherwise have access. Students are usually enrolled with district approval, and the student's local school usually plays an integral role in counseling, mentoring, and providing other support for the online course.



Although state virtual schools don't typically have a mandate to work primarily with rural students, in practice they often enroll a disproportionate percentage of rural students because of the needs of rural students and schools. In particular, the course offerings of state virtual schools can bolster the relatively small course catalogs available in small rural schools.

For example, the Montana Digital Academy (MTDA) conducted an analysis of the courses available in two different types of high schools across the state, and how much their course catalogs would be augmented by the availability of online courses from MTDA.

As shown in Figure 7, class A schools—which are quite small, with between 340 and 825 students—are able to offer an additional 38 course titles to their students by using online courses from the state virtual school. These courses are across all subjects, especially in world languages and social studies.

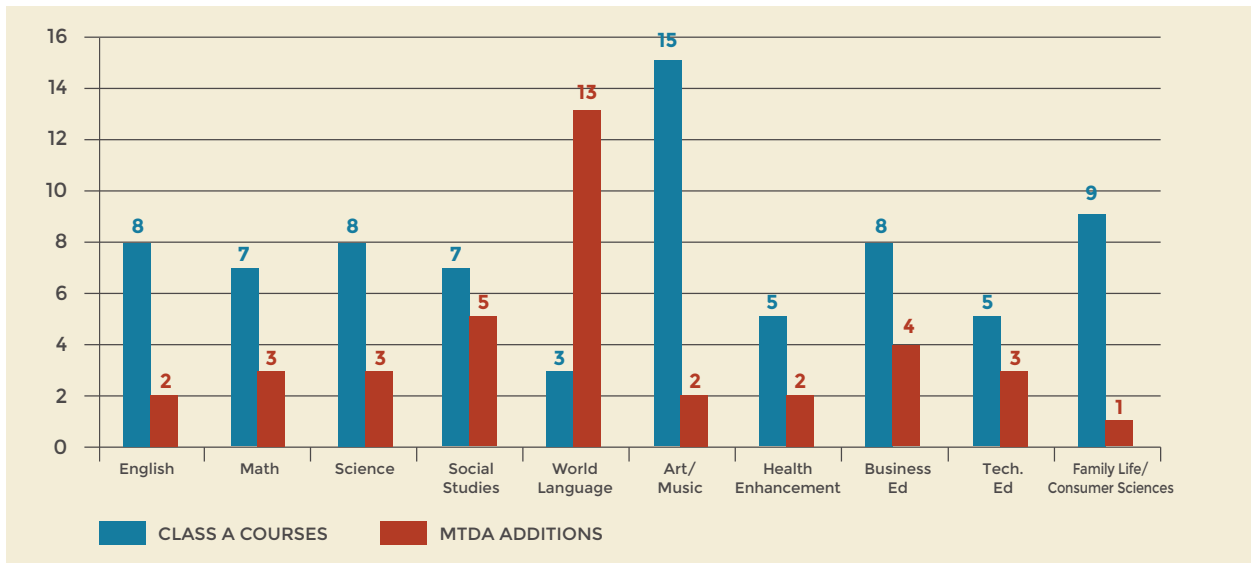


FIGURE 7: Online courses (red) add to the availability of traditional face-to-face courses (blue) in Class A Montana high schools, which have student enrollments of between 340 and 825 students.

The additional courses available are even more impactful for a smaller, Class C school which enrolls between one and 119 students, and augments its traditional classes (Figure 8).

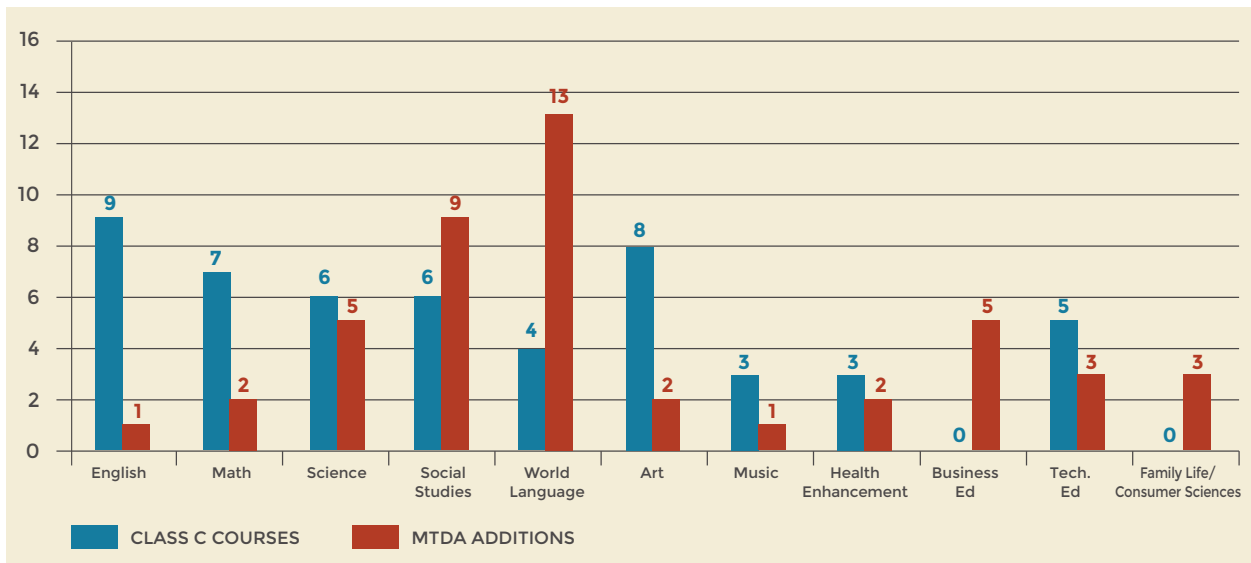


FIGURE 8: Online courses (red) add to the availability of traditional face-to-face courses (blue) in Class C Montana high schools, which have student enrollments of between 1 and 119 students.

In addition to supplemental online courses, state virtual schools also provide professional development to teachers and support for blended learning, to schools across their states. Anecdotal evidence suggests that these services are often used by rural districts that do not have the same level of expertise and resources for professional learning as the larger urban and suburban districts.

Course access programs and policies

Course choice programs and policies allow students to choose one or more online courses²³ from a provider other than the student's district of enrollment. This permits part of the per pupil funding to flow to the provider. Doing so allows more flexibility in course choice for students.

As discussed above, in the early days of online learning more than two dozen states created state virtual schools to provide online courses to students in their states. In most cases, state virtual schools are funded based on state appropriations, often augmented by course fees that the state virtual school charges to the student or the student's enrolling school district.

Two problems exist with this funding approach that has been used for state virtual schools:

- If the state virtual school is going to meet all student demand for online courses without charging fees, the state appropriation will become very large over time. In these cases, state legislators may feel that they are funding students twice—because many students generate a full amount of funding from the state via their district of enrollment, and then in addition take an online course that the state is subsidizing, entirely or in part, via an appropriation to the state virtual school.
- If the state virtual school is going to meet demand by charging fees, it either falls to the district or the student to pay. If the district pays, then the district usually retains the choice of whether or not to allow the student to take the online course. If the student must pay, then the online course is no longer publicly funded.

Course choice policies and programs address these shortcomings by allowing students to choose an online course and have some portion of their funding be used to pay the online course provider. The key elements of course choice are the following:

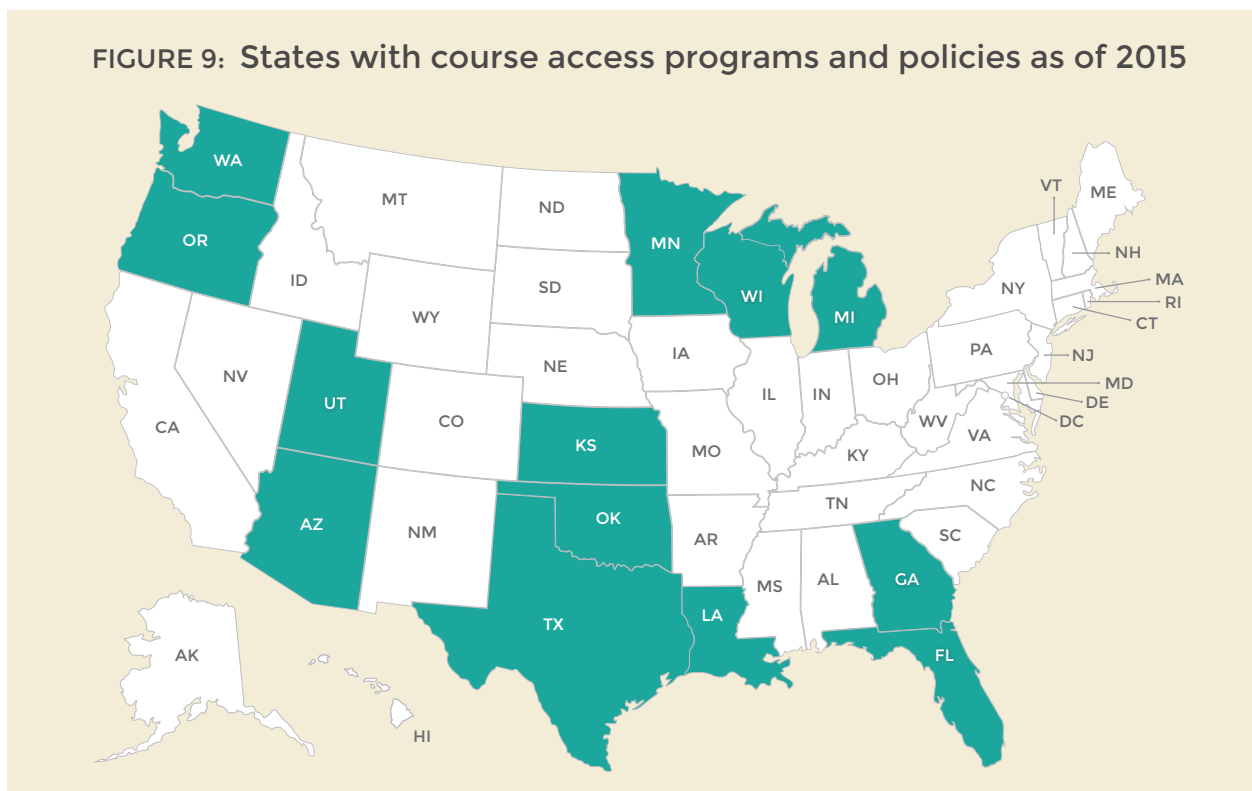
- The student chooses online courses from one or more providers.
- The student retains control over the choice. In much the same way that open enrollment laws allow students to choose schools other than those in their districts of residence, course choice allows students to choose one or more academically appropriate course(s) from outside their districts of enrollment.
- A significant portion of the student's public education funding flows to the provider of the online course.

²³ Some course choice programs, such as in Louisiana, are not limited to online courses. For simplicity, we are discussing course choice as referring to online courses even when some programs also include face-to-face and blended courses.

Key characteristics of specific course choice policies and programs that vary by state include:

- Whether students choose courses through a statewide source such as a common online course catalog and registration system, or alternatively have to go through their district of enrollment.
- The reasons that a district can deny a student's choice, ranging from situations where the district has many options for denying the student's choice, to those where few reasons for denial are permitted.
- The recourse that a student has if the district denies the online course, such as appealing to a state organization.
- Whether students can choose from a single provider or from multiple providers.
- The ways in which course providers are vetted by the state prior to offering courses.
- How the cost of the course is determined, and whether the state sets a cost per course, or the cost is set by the provider.
- The funding process, including whether funding is completion-based.
- The tracking and reporting that the state does of providers, online course enrollments, and outcomes.

FIGURE 9: States with course access programs and policies as of 2015



Although course access policies and programs hold promise for enhancing student opportunities, in most states course access has reached a relatively small number of students at most (Figure 9). No state has yet achieved course access enrollment numbers that are similar in size to the larger state virtual schools in states such as Florida and North Carolina.

Fully online schools

Fully online schools, also called cyberschools, work with students who are enrolled primarily in the online school. Cyberschools typically are responsible for ensuring their students take state assessments, and are responsible for their students' scores on those assessments. Many fully online schools are charter schools. Although there are a growing number of fully online district schools that serve students within specific district boundaries, most of these online schools are located in urban or suburban districts. While the physical offices of online schools are often located in urban or suburban cities, that doesn't prevent students from any geographic location inside of a state from enrolling in those schools. Fully online schools serving rural students usually attract students from across an entire state per open enrollment laws.

Most grade levels are offered in online schools collectively, although individual schools may choose to serve a subset of grade levels. The instructional model for younger students uses adult mentors (often, but not always, parents), who work with the students at home. The schools often send physical materials to students, including paper workbooks and science materials, to complement online offerings. Full-time online programs employ teachers who provide direct instruction to students at all grade levels, and that the teacher is fundamentally responsible for the academic progress of the student. Additionally, these schools have administrators who provide oversight, counselors who provide social-emotional/post-secondary readiness support, staff who deliver special education services and other educational specialists that ensure that the school has all of the functionalities of their brick-and-mortar counterparts.

Because these are full-time schools, they are accountable for students' academic achievement in the same ways as all other public schools and/or charter schools in the states in which they operate. They are responsible for facilitating state assessments for all students, regardless of geographic location.

Online schools are particularly important for rural students because the promise of school opportunities and choice is limited, or non-existent, for students in many rural areas who have only a single physical school within a reasonable distance. For example, Figure 10 shows the geographic locations of Colorado and Michigan students attending all charter schools (red) and online schools (other colors). In Colorado, the students attending all charter schools tend to be based along the populated front range cities, whereas the students attending online schools are also from the rural eastern and western portions of the state. In Michigan, the students attending all charter schools are mostly from the Detroit area, and to a lesser extent the populated areas of southwestern Michigan. Students enrolled in online schools are also from the northern regions and the state's upper peninsula, which have few physical charter schools.

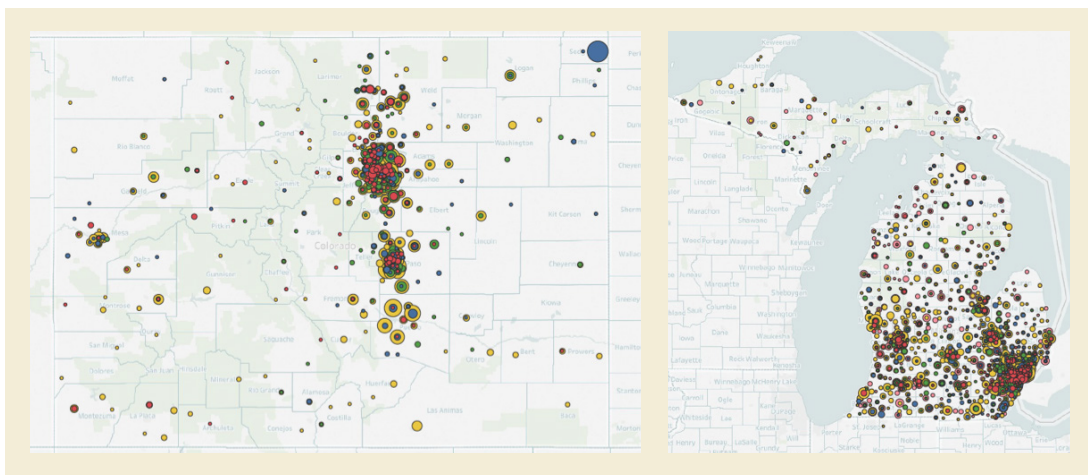


FIGURE 10: Circles show students in all charter schools (red) and in online charter schools (other colors) in Colorado (right) and Michigan (left). In Colorado, many students in charter schools are from urban areas along the front range, while online students are from a wider variety of locations—many of them rural. Similarly, in Michigan online students are often from the northern regions of the state, which have few or no physical charter schools. The size of the circles corresponds with the number of students from each zip code.

Regional service agencies and consortium programs

Small rural school districts often lack the human capital and resources available to larger districts, and therefore are more likely than their suburban and urban counterparts to work with regional services agencies, and to form consortium programs to pool resources to bring digital learning benefits to their students.

Forty-five states have some level of education agency between the district and state level, and often these service agencies play a critical role for small rural school districts. These regional service agencies go by many names: intermediate school districts, Boards of Cooperative Educational Services (BOCES), intermediate units, educational service centers, Cooperative Education Service Agencies (CESA), county offices and others. Many offer services related to digital learning ranging from online courses and professional development to technology tools and course development.

Regional service agencies (RSA) are particularly active in online learning in states that do not have state virtual schools. In New York state, for example, BOCES work closely with school districts to help deliver online courses and services. The Wayne Finger Lakes BOCES' AccelerateU provides online courses for New York students, as well as professional development for online teachers. The Wayne Finger Lakes BOCES' is one of more than two dozen BOCES that make up the New York Distance Learning Consortium (NYDLC). The Cattaraugus Allegany BOCES is another NYDLC member that provides online courses to districts within the RSA, including dual enrollment and AP. Districts and schools can choose to use their own online teachers of record or can contract with these entities to purchase courses and corresponding teacher support from the GST BOCES or vendor teachers.

The Capital Area Online Learning Association (CAOLA) not only works with many districts in Pennsylvania, the RSA also works with detention centers, day treatment facilities and alternative and special education programs to help students who are struggling to continue their education. Each district has the opportunity to create and/or customize their own courses using CAOLA vendor content. Member districts also have the choice to use their own teachers for the online courses or vendor teachers, and some use a combination of both.

Instead of directly providing online learning services some regional service agencies provide coordination and administrative services for schools and districts, assisting in online program planning and advising, contacting and vetting providers, and negotiating agreements for online courses, services and technology.

An online learning consortium is an association of two or more schools, districts, or even regional service agencies pooling resources to expand or improve delivery of online learning options for students. It is a concept that is seeing rapid adoption across the country as districts join to create cooperative online and digital learning programs to gain economies of scale and talent in hopes of providing a superior program to member schools than they could accomplish individually.

Consortia operate statewide and regionally—some even nationally. The Virtual High School (VHS), one of the largest consortia, includes members in many states and foreign countries. SUPERNet, a consortium of 17 largely rural school districts in East Texas, has a regional focus. Other consortia have members statewide and some consist strictly of neighboring districts. eLo (Expanding Learning Opportunities), for example, is a partnership among three suburban Chicago school districts. Consortia can be large, with annual course enrollments over 20,000, or as small as several hundred course enrollments, and vary in terms of the scope of what they supply their members.

What about broadband?

THIS REPORT DOES NOT DELVE DEEPLY INTO THE ISSUES of broadband access in rural regions, for a couple of reasons.

First, Education Superhighway has focused completely on the issue of getting broadband into schools across the United States. The evidence suggests that while significant gaps remain in broadband access, good progress is being made in bringing broadband to the large majority of schools and students. As the organization's 2017 State of the States report notes, "In 2017, the progress made possible by E-rate modernization continued, reducing the number of students without high-speed Internet access by 5.1 million and the number of schools without 21st-century broadband infrastructure by 45%, thereby setting the stage for the nation to deliver on our promise of digital equity by 2020."²⁴

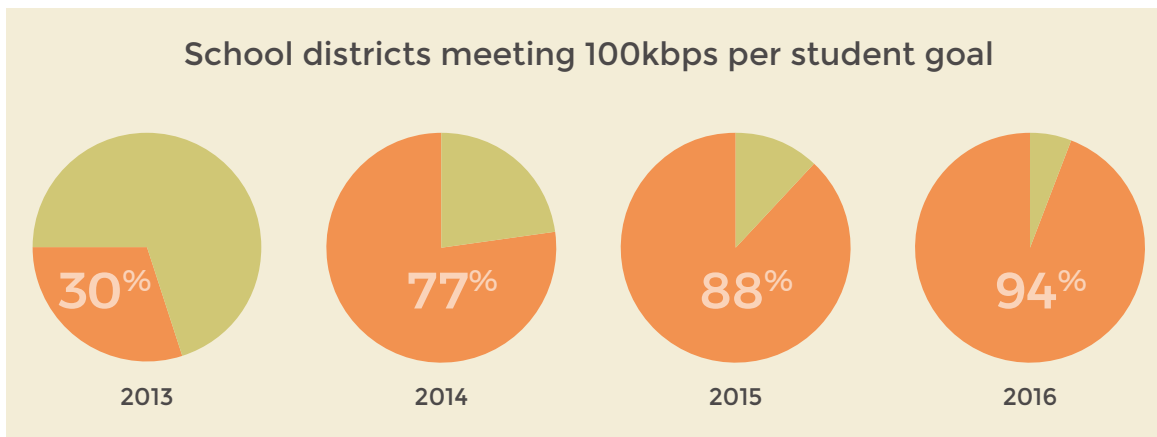


FIGURE 11: 94% of school districts are now ready for digital learning, according to Education Superhighway. (Graphic is adapted from Education Superhighway.)

²⁴ Education Superhighway, 2017 STATE OF THE STATES. Fulfilling Our Promise to America's Students. September 2017. Retrieved from https://s3-us-west-1.amazonaws.com/esh-sots-pdfs/educationsuperhighway_2017_state_of_the_states.pdf.

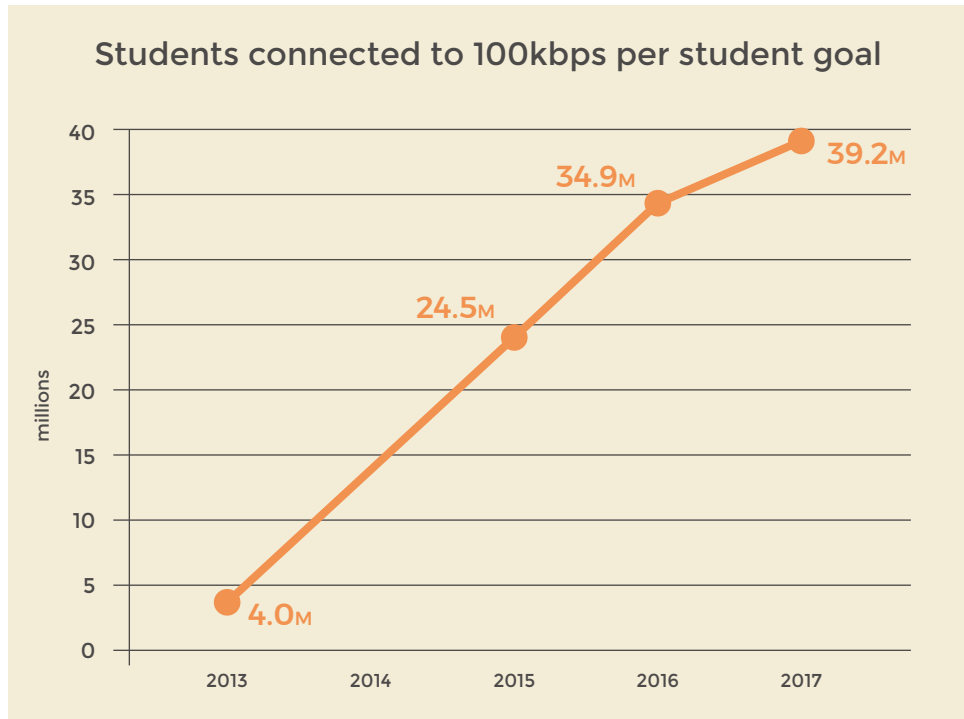


FIGURE 12: An additional 35.2 million students gained access to the broadband they need for digital learning in the last four years, according to Education Superhighway. (Graphic is adapted from Education Superhighway.)

This report, therefore, focuses on the ways that schools and students can improve opportunities and outcomes using digital instructional strategies. Although we recognize that some schools still lack the broadband speeds that are necessary to implement digital learning, the evidence suggests that some schools in rural areas have opportunities to use the Internet access that they have to better serve students.

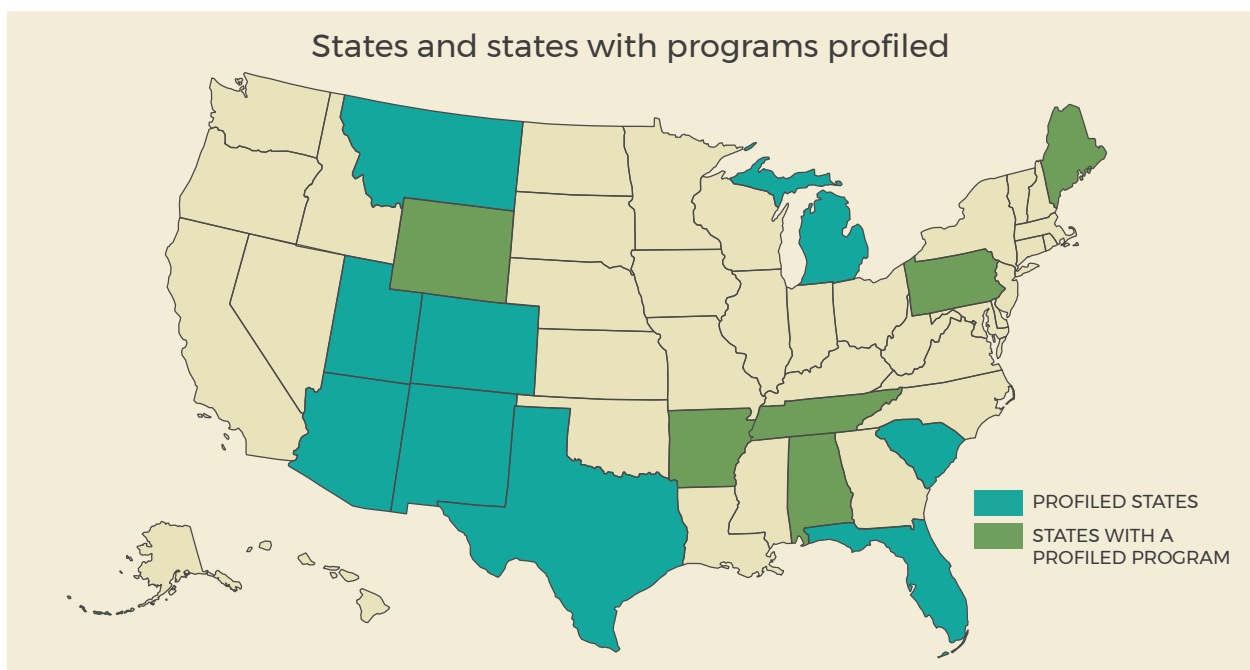
State, program, and policy profiles

THE FOLLOWING PROFILES CAPTURE A SCAN OF DIGITAL RURAL ACTIVITY in two categories. First, we profile nine states, providing an overview of state-level policies and programs that support rural students and schools in a diverse set of states. We also look at how these policies or programs impact specific schools and districts. These states are highlighted in the map below in teal. Each state profile offers a different lens through which to view rural education and explores how digital teaching and learning is being leveraged to support needs in this area. A state like Florida, for example, shows the benefit of a strong state virtual school that has expanded its impact well beyond the state it originated in. Colorado shows us how rural areas can benefit from and connect with more suburban areas to increase access and opportunities. Arizona offers a view into supporting Native American populations and a look at schools in Texas shows different ways that districts are using technology to build avenues for Career and Technical Education pathways.

Second, we look at specific regional programs that are addressing rural education needs in a unique way. By highlighting a range of successful solutions from across the country, we hope to focus on key areas of activity. Although these profiles are not comprehensive, they all provide insights into the ways in which educators and policy leaders are using digital learning to address rural needs.

Some of the state policies and programs that we profile do not serve rural students and schools exclusively, but we include them if they are reaching a substantial number of rural areas. Examples include course access policies, state virtual schools, and professional development programs. Although we have characterized rural regions, populations, and schools based on the U.S. Census Bureau and National Center for Education Statistics in the preceding sections, in the profiles that follow we often use state-specific characterizations of rural regions and schools. We highlight some districts that NCES designates as remote towns, for example. All of these examples either self-identify as rural, or are considered by the state to be rural, in part or entirely.

Finally, the profiles are meant to stand alone and may be read independently of one another. As such, they reiterate some general findings made in the beginning of this report, and in other profiles.



SUMMARY

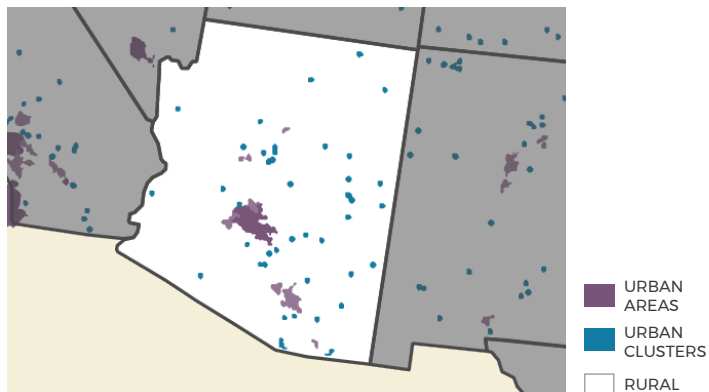
Arizona's land and population are heavily rural outside of the urban areas of Phoenix and Tucson.

Tribal lands comprise almost a quarter of the state, and a significant portion of the rural student population is Native American.

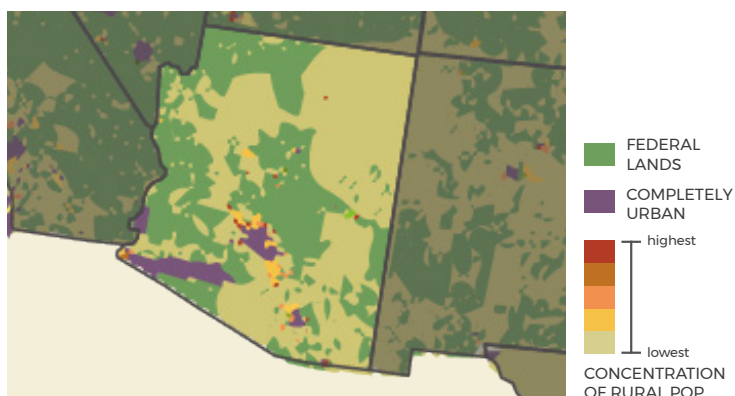
Over half of the state's 223 school districts are classified as rural based on their distance from urban centers and levels of student enrollment.

Arizona has a relatively high percentage of charter schools; the STAR Charter School on the Navajo Reservation is demonstrating how digital learning can support culturally relevant education in a rural region of tribal lands.

RURAL LAND



RURAL PEOPLE



ARIZONA IS THE 6TH LARGEST STATE IN THE COUNTRY, covering 113,990 square miles of Sonoran Desert, red rocks, and mountains. The state is home to 27 federally recognized Native American tribes, including the Navajo, Havasupai, Hopi, and Zuni; tribal lands make up nearly one-quarter of the state.²⁵ Over half of its 223 school districts are classified as rural based on their distance from urban centers and levels of student enrollment.²⁶ Arizona's rural schools educate 35% of the state's students—significantly higher than the national average—and also serve a disproportionate percentage of minority students, including Hispanic and Native American populations, and a large number of English Language Learners.²⁷

While the status of rural education in Arizona has been an area of concern for officials at the Department of Education, a new sense of urgency has recently arisen around the issue. The recent publication of the biennial report *Why Rural Matters 2015–2016* ranked Arizona's rural schools as the second highest-need state in the nation across several indicators, including spending per pupil, graduation rate, and college

²⁵ Arizona Department of Education, Arizona Tribal Consultation Guide. May 2017. Retrieved from http://www.azed.gov/oie/files/2017/07/Arizona-Tribal-Consultation-Guide_Final_ADA.pdf.

²⁶ Arizona Rural Schools Association. Retrieved from <http://www.azruralschools.org/>.

²⁷ Ibid.

readiness participation. The report found that Arizona's spending on instruction per pupil is nearly \$1,500 less than the national average.²⁸ As the report states, "Arizona is among the nation's 10 lowest for its rural graduation rate, rural graduation rate among non-White students, and rural ACT/SAT participation." Arizona also has the nation's 5th highest student-mobility rate for rural areas.

While many of the challenges faced by rural schools in Arizona are similar to those faced by rural schools elsewhere in the country, Arizona offers a unique opportunity to examine the ways in which educational entities in the state are working to address the geophysical isolation of reservation communities, the long track record of low student achievement in Bureau of Indian Education schools, and the historical role that educational institutions in the state have played in the assimilation and underservice of native communities. Another development that is renewing the focus not only on rural education in the state but on supporting educational growth in Native American populations specifically are a series of new federal guidelines. Under the Every Student Succeeds Act local educational agencies (LEAs) are required to consult with officials or approved organization representing tribes located in the area served by the school or district. Improving academic achievement among its Native American students is one of the ESSA focus areas put forth by the Arizona Department of Education; its strategies call for "collaborative efforts to design and implement programs supported by the Every Student Succeeds Act" to achieve this goal.²⁹

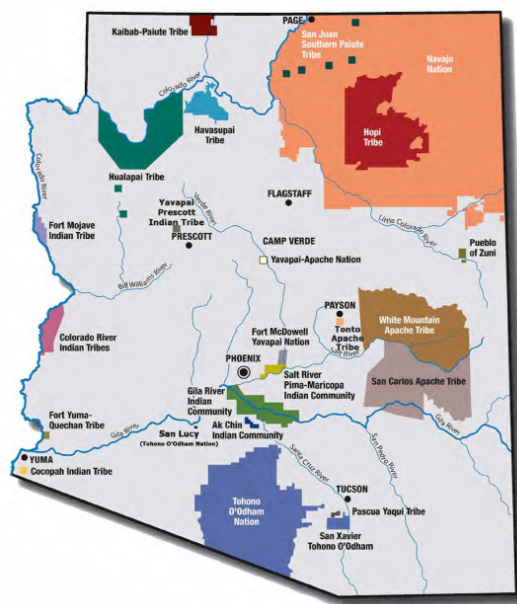


FIGURE 13: Tribal lands in Arizona³⁰

²⁸ Rural School and Community Trust, *Why Rural Matters 2015–2016*. 2017. p. 107.

²⁹ Arizona Department of Education, *Arizona Tribal Consultation Guide*. May 2017. Retrieved from http://www.azed.gov/oie/files/2017/07/Arizona-Tribal-Consultation-Guide_Final_ADA.pdf.

³⁰ Ibid.

The role of charter schools

Charter schools in the state served roughly 17% of Arizona’s public school students in the 2016–2017 school year.³¹ In Arizona charter schools are funded by the state and are free to all Arizona students, often operating by a lottery system for enrollment. Arizona’s 556 charter schools enroll more students than any other state.³² While some schools focus on academic achievement or a specific content area such as STEM or Visual Arts, many also seek to provide alternatives for students who are at-risk or in minority groups that have been underserved by traditional education settings. The Arizona Charter School Association states that “the educational landscape for Native American students has changed dramatically within the last few decades, as tribes have sought to take ownership of an education system that previously disconnected them from their culture.”³³

The state differentiates between “high-density schools” (in which 25% of the student population is made up of Native Americans) and “low-density schools” (where Native American students make up less than 25% of the total student population). High density schools generally exhibit lower achievement scores across student achievement measures such as NAEP ELA and Math scores and graduation rates, but score higher on indicators of culturally relevant education as per the 2015 National Indian Education Study (NIES) Survey Results.³⁴

STAR School: Service to all relations

STAR Charter School is one example of how a school is creating culturally relevant curriculum and improving educational outcomes for its students through a thoughtful interweaving of 21st century learning technologies and traditional Navajo values. STAR, which stands for “Service To All Relations”, is a PreK–8 charter school on the Navajo Reservation northeast of Flagstaff. The school serves students who live in a large rural area including the communities of Leupp and Tolani Lake. The STAR School’s vision is “to create a joyful learning community in which members develop the character, skills and attitudes for understanding themselves, living in balance, and serving all our relations.”

The vast majority of the school’s population (94%) identifies as Native American with the remaining 5% identifying as Hispanic and 1% Pacific Islander; in comparison, Native Americans typically make up between 4–5% of the overall student population in Arizona schools.³⁵ The school is a Title I school, and serves a high level of economically disadvantaged students. Poverty affects the Navajo Nation to a larger degree than the rest of the state, with nearly 4 out of 10 people living in poverty across the Navajo Nation Region. Half of all children in the area are determined to be living in poverty, nearly double the statewide average of 27%. However, this number is comparable to the child poverty rate across all Arizona Reservations (53%).³⁶

³¹ Arizona Rural Schools Association. *Our Impact*. Retrieved from <http://www.azruralschools.org/>.

³² Chingos, M. and West, M. *The Uneven Performance of Arizona’s Charter Schools*. November 2014. Retrieved from https://sites.hks.harvard.edu/pepg/PDF/Papers/PEPG14_04_Chingos_West.pdf.

³³ Ibid.

³⁴ Arizona Department of Education – Research & Evaluation Division in collaboration with the Office of Indian Education. *Arizona 2016 Indian Education Annual Report*. March 2017. Retrieved from http://www.azed.gov/oie/files/2017/03/arizona_2016_indian_education_annual_report_final_3-23-17.pdf.

³⁵ Arizona Department of Education. *AZ Report Cards*. 2015. Retrieved from <https://www.azreportcards.com>.

³⁶ Navajo Nation Regional Partnership Council. *First Things First: 2014 Needs and Assets Report*.

Dr. Mark Sorensen, the co-founder and CEO of STAR School, says there have been plenty of challenges along the way. However, he and his team remain committed to the vision of STAR School: “We agree with the evidence that small community schools can deliver a superior education. We have set out to be a model of how that can be done even in a community with few jobs, no public utilities, and high drop-out rates.” Sorensen says that STAR students routinely enter kindergarten already a year or two behind; home literacy environment (an indicator of early academic readiness and language acquisition) is also generally low, he says. “There are only two public libraries on the entire reservation, and very few families have even ten books, let alone one hundred,” Sorensen states, referring to research that correlates the number of books in a student’s home with early literacy outcomes.

Yet despite these challenges, test scores suggest that STAR School is serving its Native American students well compared to the statewide averages for high-density schools. The 2015 AzMerit English Language Arts scores showed 11% of STAR School students gaining a passing score of 3 or 4 on the test, versus a statewide average for high-density schools of only 9%. As a point of comparison, the statewide average of students showing proficiency on the AzMERIT ELA test is 35%.³⁷ In Math, STAR School shows 23% of its students earning a 3 or 4 on the AzMERIT against a 13% average statewide for high-density schools.³⁸ STAR’s AzMERIT Math average is 12% lower than the overall state of 35%. While these scores indicate there is still much work to be done at STAR School, they also demonstrate that the school’s innovative model is moving the achievement needle for its 100-student population. The school has also tracked its students to high school and beyond to assess the long term impact of its programming. Roughly 80% of STAR students go on to graduate from high school in four years, higher than both the Arizona state average of 77% across all public schools and the average graduation rate for high density schools, which is 74%.³⁹ In addition, within a year of high school graduation, 70% of former STAR students continue on to college.

STAR School pulled its AZ School Report Card grade up to a C last year, due primarily to academic gains of its students and demonstrating growth in its lowest quartile of achievement. Dr. Sorensen credits this growth to two instructional shifts at the school over the past several years. The first is the purchase and implementation of an adaptive diagnostic assessment tool that allows STAR’s instructionalists to closely monitor student progress in both ELA and Math. This readily available student data also lets teachers group students more effectively for reinforcing key concepts. The program also prescribes individualized learning pathways based on students’ areas of strength and challenge so that teachers can

“Technology in the service of something meaningful has staying power. These are the projects and learning that stays with the students even after they’ve moved away from the community.”

– Dr. Mark Sorensen,
Co-founder and
CEO, STAR School

³⁷ Arizona Department of Education. *AZ Report Cards*. 2015. Retrieved from <https://www.azreportcards.com>.

³⁸ Arizona Department of Education – Research & Evaluation Division in collaboration with the Office of Indian Education. *Arizona 2016 Indian Education Annual Report*. March 2017. Retrieved from http://www.azed.gov/oie/files/2017/03/arizona_2016_indian_education_annual_report_final_3-23-17.pdf.

³⁹ Ibid.

blend instruction using station rotation or flex grouping blended learning models. In addition, a new grant has allowed the school to purchase a literature-based reading program using digital e-readers loaded with leveled books. This is great for advanced students, says Sorensen, while providing incentive for ones who are still working towards proficiency.

In the area of math STAR School has created and piloted its own innovative “3 to 3rd” mathematics program. Based on the use of Montessori manipulatives and non-digital technologies until students have mastered the concrete concepts, the program helps students starting at age three acquire the academic vocabulary needed to succeed in math by 3rd grade. The program emphasizes hands-on learning embedded with instruction in the home language, an important consideration as 71.6% of the reservation populations speaks a language other than English, while students build skills.⁴⁰

Dr. Sorensen discusses some of the differences he sees in leveraging digital learning technologies with his students; “I’ve seen low success rates overall with programs based only on using technology with Native American students and what we’ve found at STAR is that technology cannot be the entire answer.” He cites some of the early STAR initiatives that didn’t work as expected. For example, an early 1:1 laptop take-home program was not a success. “What we found was that when the computer went home, the whole family wanted to use it, but the student got squeezed out. Also there were only a few families with reliable access so most students could only do preloaded content.” While technology can be playful and enriching in wealthier settings, in schools that serve Native American students, Dr. Sorensen says the same technology can have the opposite effect. Schools’ use and implementation of digital learning in any context must be in alignment with the values of the community that it serves.

Technology to support place-based learning

STAR School’s commitment to using technology to support instruction in ways that support the cultural values of the surrounding area is evident outside of the classroom as well. STAR School is completely off the grid; the school generates its own electricity via solar and wind power. The school’s WiFi comes from satellite signal and the school staff teaches students how to grow their own vegetables. “This can be a significant skill for children who live among a population with a high rate of diabetes, and in an area with a lack of supermarkets and other options for healthy food” says Sorensen. The school earned the U.S. Department of Education’s Green Ribbon Award for its environmental practices, which the founder connects directly to the beliefs of the Navajo community the school primarily serves.

The integration of digital tools in service of community is evident in the school’s Media Arts and STEM/Service Learning programs. STAR School’s Media Arts program is an interdisciplinary curriculum that combines place-based learning, ELA, and media literacy standards; they also learn modern technology skills needed to shoot, edit, and produce high quality video work. Students collaborate with teachers and graduate students from Northern Arizona University’s Communications department to share their unique experiences with a state, national, and sometimes even global audience. STAR students’ work has been screened at prestigious events such as the Venice Film Festival, opening doors that few might have access to otherwise.

⁴⁰ Navajo Nation Regional Partnership Council. *First Things First: 2014 Needs and Assets Report*. p.12.

The projects also give the students a chance to reconnect to their culture, retelling and reinterpreting stories learned through their partnership with Voices Native Literature program.

The school's STEM program has long been an integral part of the school. As of 2012, all STAR students are required to complete a service learning project as requirement before 8th grade graduation. Per Dr. Sorensen the projects must demonstrate at least one core STEM standard, support environmentally sustainable practices, and must address a real need in the community. The students' latest class project is the transformation of one of the school's decommissioned school buses into a solar-powered water filtration unit. The project, a collaboration between the school, University of Arizona Department of Engineering and Apex Applied Technologies, sees the students using the digital tools within the bus to test the Ph levels and total dissolved solids parameters of water from community wells and comparing results before and after filtration. The Navajo Nation as a whole receives approximately 12 inches of rain annually, so wells are vital for many communities on the reservation. However the once-thriving mining industry has led to the contamination of many aquifers. The solar-powered unit can remove both salt and uranium as well as other impurities from the communities' drinking water. Once the prototype is completed and tested, the students will test wells, present their findings to Navajo Nation communities, and offer their services to help build, monitor, and maintain future units. "Technology in the service of something meaningful has staying power," says Dr. Sorensen. "These are the projects and learning that stays with the students even after they've moved away from the community."

For Dr. Sorensen much of the school's success comes from the buy-in and support they have built with the Navajo community. "The school is built on the 4 R's of the Navajo culture—Respect, Relationship, Responsibility, and Reasoning. A school has to have a vision and it has to relate directly to the values from the community for it to be successful."

SUMMARY

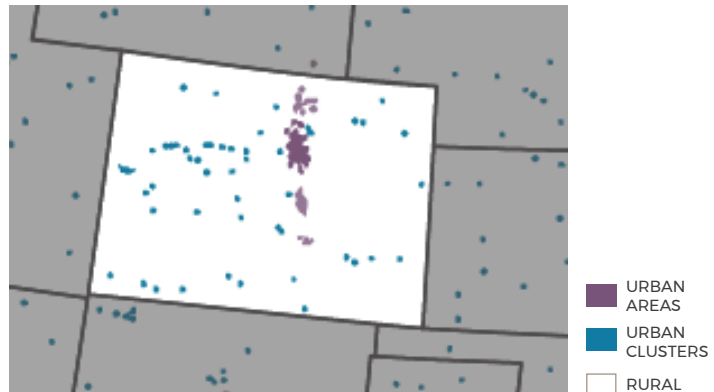
Colorado's urban areas are mostly along a north-south line east of the mountains, stretching from Fort Collins in the north to Pueblo in the south, including Denver and Boulder in between. The only other significant urban area is Grand Junction, near the western state line.

Much of the rest of the state is rural, with the eastern portion dominated by agriculture-dominated plains, and the western part characterized by mountains, mesas, and river valleys.

The state has focused on rural education issues and has an active Rural Education Collaborative.

State efforts focused on digital education for rural students and schools include Colorado Empowered Learning (CEL), a state-funded initiative that works to accelerate blended learning adoption across the state in collaboration with the iLearn Collaborative and Colorado Digital Learning Solutions

RURAL LAND



RURAL PEOPLE



ACCORDING TO THE COLORADO RURAL EDUCATION COLLABORATIVE fully 80% of Colorado's 178 districts are located in rural areas.⁴¹ However, the growing cultural, demographic, and educational divide between urban and rural concerns in this state has led to the sense that increasingly there are "two Colorados."⁴² Urban areas of Colorado cluster around the Denver Metro Area and the Front Range corridor running south through Fort Collins to Pueblo; the rural areas include agricultural regions, small mountain communities, and old mining and railroad towns on the state's eastern plains and western slope. Colorado is exceptional in the discrepancy between its student achievement and student outcomes. Its rural students' NAEP scores are higher in both ELA and Math than rural populations in nearly all other states. However, Colorado's graduation rates for rural public school students—and in particular for minority and economically disadvantaged students—remain lower than the national rural averages. The Colorado graduation rate for its economically disadvantaged rural students in 2015 was 68.7%, significantly below the national average for the

⁴¹ Colorado Rural Education Collaborative. Retrieved from <http://www.coruraledcollab.org/>.

⁴² Simpson, K. and Brown, J. "Colorado Divide." The Denver Post. Retrieved from <http://www.denverpost.com/2017/07/21/colorado-divide-rural-urban-chasm/>.

same population of 80.9%.⁴³ Other college readiness indicators, such as AP and ACT/SAT participation, are also relatively low, with only one in five rural students taking an AP course during their high school career; this is 8 percentage points under the national average of 28%.⁴⁴ In terms of its rural student population Colorado has one of the highest mobility rates for rural families, ranking in the top five at 13.8% against a national average of 10.5%. Colorado is also home to a larger than average percentage of rural English Language Learners (6.4%).⁴⁵

Digital learning goals for the state

The 2012 report *Blended Learning in Rural Colorado* noted that rural districts lag behind their urban counterparts in their adoption of online and blended learning instruction. “Blended learning can—and in some places already is—replacing seat time with competency-based learning, extending learning beyond the school building and the school day, allowing students to take charge of their education, and demonstrating improved student outcomes. The important next steps are to extend these opportunities to more students across all of Colorado, so that options for Colorado students in rural areas match those of the urban and suburban areas of our state.”⁴⁶

In July of 2017 Colorado unveiled its vision for leveraging digital technologies statewide to achieve this aim in the Colorado Blended Learning Roadmap. This report, commissioned by the Colorado General Assembly under House Bill 16-2222, details the priorities and objectives needed for a successful statewide blended learning strategy. The document particularly noted the need for addressing the following three focus areas:

1. **Human Capital:** Programs and systems to support teachers, community members, school leaders and other stakeholders in the skills needed to design, implement, evaluate and sustain high quality blended learning programming
2. **Policy and Funding:** Ensuring that state and district level policies and funding initiatives are in alignment with blended learning objectives
3. **Technology and Digital Resources:** Helping schools and districts obtain the infrastructure, hardware, and high quality instructional resources to ensure equity of access⁴⁷

However, the roadmap does not address the specific goals of blended learning at the state level or set any targets for its impact on student achievement statewide or for rural students.

⁴³ Rural School and Community Trust, *Why Rural Matters 2015–2016*. 2017. p. 110.

⁴⁴ Ibid.

⁴⁵ Ibid, p. 5.

⁴⁶ Evergreen Education Group. *Blended Learning in Rural Colorado*. July 2012. Retrieved from https://www.cde.state.co.us/sites/default/files/documents/onlinelearning/download/ruralblendedlearning_evergreen.pdf.

⁴⁷ Colorado Empowered Learning with Keystone Policy Center. *Colorado Blended Learning Roadmap*. July 2017. Retrieved from <https://www.colorado.gov/pacific/cel/news/colorados-blended-learning-roadmap>.

Colorado Empowered Learning

The development of the roadmap was led by Colorado Empowered Learning (CEL), a state-funded initiative that works in collaboration with the iLearn Collaborative and Colorado Digital Learning Solutions (CDLS). The programs administered through the CEL Initiative grant strive to pull together expertise and support for schools and districts working to implement blended learning programs. CDLS is the statewide supplemental course provider; the three programs collaborate to offer consulting services, professional development for teachers and leaders, and expanded course access to participating districts. Because much of the initiative is state funded services are either offered to districts for free or at a reduced rate; thus, the playing field is leveled between urban and rural districts where resources can be much tighter. These initiatives are meant to serve districts across the entire state, including urban, suburban, and rural; half of the districts served by CEL in its first year were in rural areas of Colorado. These districts received support for their teachers in blended learning best practices. In addition, supplemental courses in grades 6–12 expanded rural access to classes such as Advanced Placement and Career and Tech Education, which are typically more difficult to staff in rural areas of the state.

Lyons High School

Some regions along Colorado's front range exemplify the ways in which rural populations are often geographically close to towns or suburbs wherein rural students can in some cases benefit from this proximity.

In this particular case, St. Vrain is a suburban district, but several of its schools serve distinctly rural populations. Here the innovations and blended learning initiatives within the district are expanding opportunities for more rural students, such as Lyons Middle/Senior High School in Boulder County. The town of Lyons has roughly 2000 residents and is located only 20 miles east of Rocky Mountain National Park. The town itself sits beneath Longs Peak and brings antique-lovers and history buffs alike to the area for its Western flavor and history. Lyons Middle/Senior High School is a fringe rural school as defined by the National Center for Education Statistics, but its proximity to Longmont and the district headquarters means that its students and teachers are not as isolated as other rural areas of the state.

Lyons Middle/Senior High School is a highly-ranked school which serves close to 400 students in grades 6–12.^{48,49} Students attending Lyons can apply for admittance to any of the other programs and academies offered at other St. Vrain schools, dramatically increasing the options that might normally be available in this small town. In addition, Lyons high school students can register for St. Vrain's Career Technical Education (CTE) classes at both the Career Development Center and the Innovation Center. Courses at both campuses are open to all district students and transportation is provided from the students' home high school. These programs support students' postsecondary college and career readiness by providing infrastructure, resources and authentic opportunities for students to learn from industry experts. The program further allows Lyons students to engage in professional work experiences and to develop their own ideas and entrepreneurial ventures.

⁴⁸ Colorado Department of Education. *District and School Dashboard*. 2017. Retrieved from <http://www2.cde.state.co.us/schoolview/dish/schooldashboard.asp>.

⁴⁹ US News and World Report. *Best High Schools*. 2017. Retrieved from <https://www.usnews.com/education/best-high-schools/colorado/districts/st-vrain-valley-school-district-no-re1j/lyons-middle-senior-high-school-4259/student-body>.

At the same time Lyons benefits from maintaining its small-school size. The school has the highest state testing scores in the St. Vrain school district and is currently ranked within the top 10 of all public high schools in the state.⁵⁰ The area is relatively affluent and the school has a 17.3% free and reduced lunch eligibility rate; mobility in the Lyons Middle/Senior High School is in line with the national average for rural students at roughly 10%, but below the state average of 13.6%.⁵¹ In addition to its high student achievement, the school has a Fine Arts Academy. Nearly 85% of Lyons Middle/Senior High School students participate in the schools' widely recognized band, choir, and drama programs as well as its strong athletics department.⁵²

Students at the small rural Lyons Middle/Senior High School have the opportunity to take Advanced Placement coursework and exams; as of the 15–16 school year, AP participation rate at Lyons Middle/Senior High School was 53%.⁵³ Of those students taking an AP final exam 75% passed it with a 4 or 5.⁵⁴ While Lyons' graduation rate has traditionally been high, last year the school reached a new milestone with a 100% graduation rate for its students.⁵⁵ The graduates of Lyons also boast a high matriculation rate of 75% with 14% of students enrolling in a CTE or 2 year degree and just over 60% enrolling in 4 year institutions of higher learning.

Lyons has been an active participant in the district's digital learning initiatives, with teachers learning about blended learning models and best practices through online courses offered by the state. The district's move to blended learning over the past several years has corresponded with Lyons' increased student achievement and position as a top high school three years running.⁵⁶ Lyons' students participate in the district's Learning Technology Plan, using mobile devices in support of their learning as a matter of course. Lyons provides each student with an iPad for their designated use as well as maintaining over 200 computers on campus.⁵⁷ This increased access to mobile learning devices such as tablets and other technology resources gives teachers and students opportunities that can expand beyond the classroom walls; for example, Lyons Senior High School students can also complete online coursework offered through Colorado State University. Students meet with their course facilitator regularly on campus to supplement their digital coursework and can earn both high school and college credits for these dual enrollment classes.⁵⁸ Lyons Middle School also offers a STEM Explorers program, a hands-on experience in which students design and create projects ranging from robots to wind generators.

Blended learning in Weldon Valley

In contrast to the town of Lyons and the benefits of its proximity to a suburban center Weldon is an unincorporated community in Morgan County, a little over an hour and worlds away from Denver. The area is part of the High Plains region of the state and is considered a distant rural area by NCES.

⁵⁰ Lyons Middle/Senior High School. 2017. Retrieved from <http://lms.hs.svvsd.org/>.

⁵¹ Rural School and Community Trust, *Why Rural Matters 2015–2016*. 2017. p. 110.

⁵² Ibid.

⁵³ US News and World Report. *Best High Schools*. 2017. Retrieved from <https://www.usnews.com/education/best-high-schools/colorado/districts/st-vrain-valley-school-district-no-re1j/lyons-middle-senior-high-school-4259/student-body>.

⁵⁴ Ibid.

⁵⁵ Colorado Department of Education. *District and School Dashboard*. 2017. Retrieved from <http://www2.cde.state.co.us/schoolview/dish/schooldashboard.asp>.

⁵⁶ Ibid.

⁵⁷ Lyons Middle/Senior High School. 2015. Retrieved from <https://issuu.com/svvsd/docs/2015-lyons-draft>.

⁵⁸ Ibid.

Weldon Valley High is in the northeastern corner of the state and serves just under 100 students, a five-year high for the school.⁵⁹ The school has a relatively low rural mobility rate of 8% and 41% of students are eligible for free/reduced lunch. The school is 82% Caucasian with an 18% minority enrollment; this number is increasing for Morgan County schools as workers from other countries join the community, attracted by industry jobs.

Weldon Valley is another district that has engaged with Colorado Empowered Learning, taking advantage of the grant-supported professional development for its teachers and adding supplemental digital curriculum to help them personalize instruction. Teachers have been working to blend their classes, often using a station rotation model. Selected technology tools allow students to work at their own levels on individualized learning pathways across Math and English Language Arts.

Weldon Valley's technology initiative sees student devices as an integral part of a learner's instructional materials in the 21st century. In 7th through 12th grades the school does not require the usual laundry list of school supplies ranging from dry erase markers to reams of paper; instead, they are requesting that parents send their students equipped with their own laptop learning device on the first day of school. Weldon Valley has partnered with an IT company to provide a device to student's families at a discounted price. The school also has an app that students and parents can install on mobile devices as well for quick access to district information, updates, communication with teachers, and links to supplemental digital curriculum.

Weldon cites their work with the Colorado Empowered Learning grant in helping them leverage technology to improve teaching and learning, as well as creating the vision for what this transformative use of technology could and should look like for Weldon learners. According to one source from Weldon, "When we began, we did not have a clear vision, plan or the coordination to implement it. Already, midway through the process, we are firming up these plans."⁶⁰ Engaging with the grant opportunity connected Weldon Valley to a wide range of other schools, districts, and Colorado leaders involved in the same work, allowing the district to increase its own capacity around innovative uses of digital learning. The blended learning initiative is also helping shift instruction within the school from a traditional model with some use of technology to a more student-centered approach with technology used as a tool that allows for increased work in 21st Century modalities (Creativity, Collaboration, Critical Thinking, and Communication). As students collaborate more, teachers note, they learn more from one another; "After reading another student's feedback, one student yelled out in class, 'Oh, now I get it!'"⁶¹

Weldon Valley boasts a 91% graduation rate with 74% matriculation. Their students are more likely than others to enter into a CTE program post-graduation (37%). Of these students, 11% continue on to 2 year programs and 26% entered a 4 year postsecondary program.⁶²

⁵⁹ Colorado Department of Education. *District and School Dashboard*. 2017. Retrieved from <http://www2.cde.state.co.us/schoolview/dish/schooldashboard.asp>.

⁶⁰ Colorado Empowered Learning. Report on Blended and Supplemental Learning. March 2017. Retrieved from <https://www.colorado.gov/pacific/sites/default/files/atoms/files/CEL%20Report%20March%202017.pdf>.

⁶¹ Ibid.

⁶² Ibid.

SUMMARY

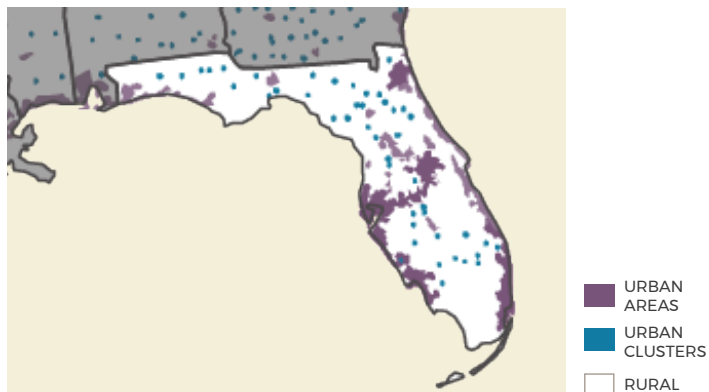
Although many visitors characterize Florida based on the coastal cities and Orlando, the state has large rural regions across its interior and in the western panhandle.

Florida has been the most active state in terms of K–12 online learning, with state policy supporting the country's largest state virtual school, fully online schools, and district-level activity.

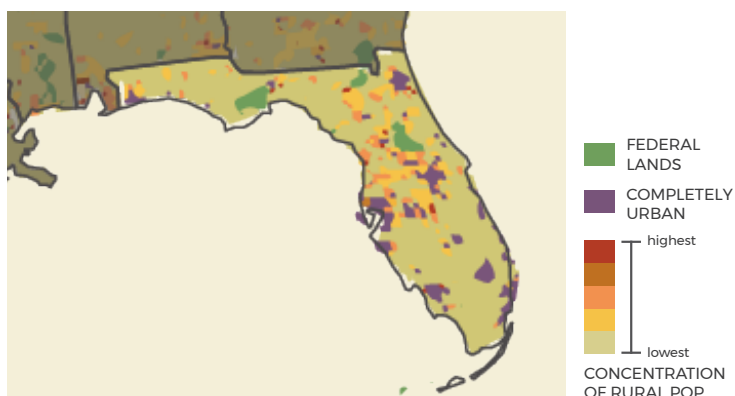
In 2000, state legislation founded Florida Virtual School. FLVS was the country's first statewide, online public high school.

Three rural consortia provide online learning to districts through the FLVS franchise model. This franchise model approach is supported by state policy, allowing funding to remain in these rural districts.

RURAL LAND



RURAL PEOPLE



FLORIDA'S RURAL STUDENT POPULATION IS MODEST compared to the state's total enrollment; rural students make up only 4% of the state's overall student population.⁶³ However, over 50% of the state's 74 districts are considered rural.⁶⁴ Moreover, this rural student population is highly diverse. More than half of Florida's rural students are from low-income families, and almost 40% are minorities. The state's mobility rate among rural students is higher than in all but seven states with 12.9% compared to the national average of 10.6%. Florida has the nation's second-lowest graduation rate among rural students at 74.3% compared to the national average of 87.3%. The graduation rate for rural minority students is even lower at 64.2%. Finally, spending on salaries per instructional FTE in rural districts is 82% of the national average.⁶⁵

Florida has an active state education agency that has been responsible for implementing a long history of legislation supporting online learning. The Florida Department of Education (FL DOE) provides technical assistance and support related to state policy and legislation for district and state virtual education options.

⁶³ Rural School and Community Trust, *Why Rural Matters 2015–2016*. 2017. p. 113.

⁶⁴ Florida Jobs. Rural Country Definition. Retrieved from <http://www.floridajobs.org/business-growth-and-partnerships/rural-and-economic-development-initiative/rural-definition>.

⁶⁵ Rural School and Community Trust, *Why Rural Matters 2015–2016*. 2017.

Specifically, it is responsible for various areas of oversight and/or support services, including:

- Development and management of the approval process of Virtual Instruction Program (VIP) providers for district programs and virtual charter schools since 2009. The DOE developed a renewal process for currently approved providers beginning with the SY 2015–16.
- Development of the Florida Approved Courses and Tests (FACT) initiative and a new approval process for online course providers to expand student choice and online course options, fully online courses, and blended courses.
- Managing the Florida Online Course Catalog, which launched in July 2014. The catalog includes courses offered by district virtual schools, Florida Virtual School (FLVS), and providers approved by the DOE. The catalog provides a full official course description as well as a description of unique course features by the district or provider, and a method for students to provide evaluative feedback. As of March 2017, the catalog included over 20,000 online courses.

The FL DOE is making a direct effort to better inform districts about online learning, including a series of “meet and greet” interviews with district administrators in 2017.

Florida has been a national leader in promoting online learning through a series of legislative actions spanning almost 20 years. The state boasts the nation’s largest state virtual school, Florida Virtual School, and is the first and only state in the country to mandate that all K–12 public school students have full- and part-time online learning options. As such, funding follows each student down to the course level. This applies to all districts, large and small, urban, suburban and rural alike.

Florida Virtual School (FLVS) was established by legislation in 2000 and is the main supplemental online course supplier in the state, with more than 470,000 course completions in the 2015–16 fiscal year. Legislation enacted in 2002 and 2003 granted parental rights for public school choice, listed FLVS as an option, and defined full-time equivalent (FTE) students for FLVS based on “course completion and performance” rather than on seat time, making online learning accessible to any student with a computer and an Internet connection. Florida students retain the right to choose FLVS courses to satisfy their educational goals per Section 1002.37, Florida Statute. Florida also requires that a student complete an online course in order to graduate.⁶⁶

“The administrators supporting online learning, especially in rural districts, wear many hats, and the responsibility for managing online options often is transferred to a new person from year to year, so there is often a lack of experience and understanding of the value of online learning at the district level.”

– Sandra Eggers,
Director of Virtual
Education, Florida
Department of
Education

⁶⁶ Florida statute 1003.4282; Requirements for a standard high school diploma; http://www.leg.state.fl.us/Statutes/index.cfm?App_mode=Display_Statute&Search_String=&URL=1000-1099/1003/Sections/1003.4282.html.

In addition to Florida Virtual School (FLVS), the state has virtual charter schools enrolling full-time online students statewide. For many students in rural areas, the only school choice option is an online school. Figure 14 marks the locations of students in one online school, the Florida Cyber Charter Academy, and demonstrates that many students live in rural areas with few or no school options other than their local school

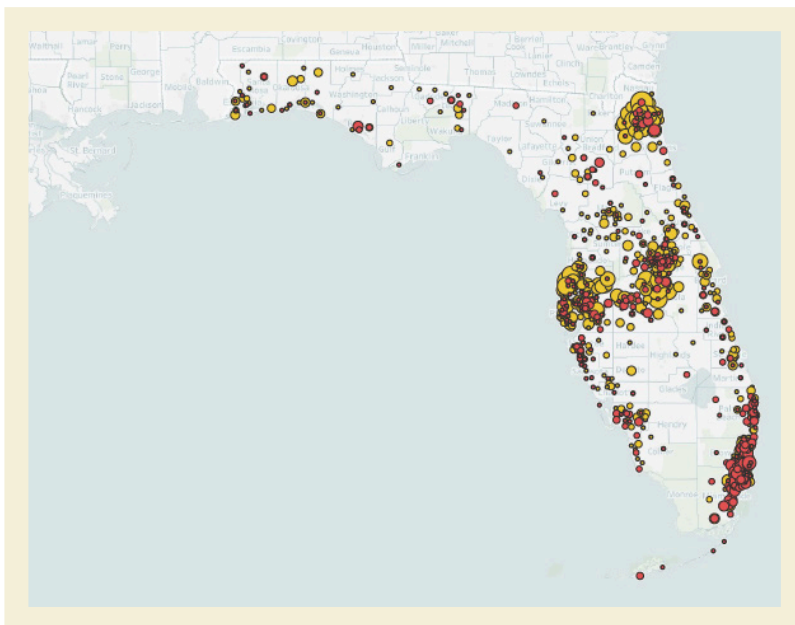


FIGURE 14: Circles show students in all charter schools (red) and in one online charter school (yellow). Many students in charter schools are from urban areas along the coasts and around Orlando, while online students are from a wider variety of locations—many of them rural. The size of the circles corresponds with the number of students from each zip code.

Another growing option for Florida students, both rural and urban, are district franchises. District franchises of Florida Virtual School allow districts to use both the FLVS courses and LMS while using their own teachers to offer online courses to students who reside within the district. FLVS provides professional development and mentoring for district teachers and administrators as well as numerous learning resources and tools. The franchise option has proven critical to rural districts striving to meet the legislative requirement to offer all public school students full- and part-time virtual options. A district enrolling a student in online courses through the district or regional consortium franchise retains per pupil funding, paying FLVS a set amount per student per course.⁶⁷ If a student enrolls directly with provider outside the district, such as FLVS, the funding for that course follows the student to that provider.⁶⁸

⁶⁷ Florida Virtual School, County Virtual Schools, <https://www.flvs.net/florida-school-solutions/county-virtual-schools>.

⁶⁸ SB1514 (2013) changed the funding structure for all schools, traditional and virtual, including FLVS. Previously, districts received full funding for up to six courses for each student, and FLVS received funding for all courses completed by students, whether that was a student's sixth course or courses beyond one FTE. With the passage of SB1514, students can no longer generate more than one FTE; instead, a student's FTE is distributed proportionally by the department of education (DOE) to each district (FLVS is considered a district) for as many courses as a student takes. This created an incentive for districts to encourage students to take in-district courses (traditional or virtual) as the district loses money if students take an out-of-district course. <https://www.flsenate.gov/Session/Bill/2013/1514>.

Through the Virtual Instruction Program (VIP), all Florida school districts must offer part- and full-time virtual instruction programs for students in grades K–12. School districts are required to offer one to three virtual options, depending on district size. Many smaller districts are sharing resources and collaborating with regional education consortia to provide their required virtual options.

During the 2015–16 school year, 21,284 rural students took virtual courses through the variety of options available in Florida. Of those, 16,690 students successfully completed the courses with a D or better, for a 78.4% pass rate. Of those successfully completed courses 80 were Advanced Placement and 1,033 students took classes for Career and Technical Education.

Regional consortia support rural districts

Florida has three regional consortia of rural school districts that provide members with a range of services from the delivery of online courses and instruction, to professional and leadership development, to shared purchasing power and technology assistance.

The Panhandle Area Educational Consortium (PAEC) consists of 14 rural districts and recently celebrated its 50th anniversary. The consortium started to support districts in areas of mutual interest, such as shared media centers, testing programs, special education, joint purchasing of services and data records and other support services. Online and blended learning has become an increasingly important service as PAEC works to help rural districts meet legislative requirements. Since 2013 online course completions have grown from about 100 to approximately 3,000 completions annually.

PAEC is one of a number of FLVS franchise partners across the state. FLVS provides PAEC with online curriculum, a learning management system, student information system, student support, and training and mentoring for district teachers and administrators. PAEC hires its own online teachers and pays FLVS for the franchise services per course completion at \$50 per half-credit course for most courses.

Franchisees are expected to adhere to the same standards and instructional guidelines employed by FLVS. These include norms such as online teacher response to student emails within 24 hours, grading papers and posting grades within 48 hours, and the use of collaboration tools for synchronous interaction.

The franchise model has been critical to rural districts for funding reasons as well as helping them meet the state requirement for student access to online courses at the district level. Florida course choice legislation allows a student to select online courses without district approval, with funding following the student to the provider, including direct enrollment with FLVS. The district franchise model allows funding to remain in district rather than going to a different provider.

“It would be difficult for many of our districts to manage their own franchise because of limited instructional staff, administrative staff wearing so many hats and the complexity of implementing and reporting online learning. The turnover of school based virtual leaders (guidance counselors and lab monitors) makes communication on online learning difficult. Our completion rates by district range from 40% to 90%, and that reflects the district’s commitment to online learning.”

– Bonnie Wertenberger, Manager of My Virtual Classroom at PAEC

Washington County School District – PAEC member

Jorge Bauzo is a secondary teacher at Vernon High School in the Washington County School District in the Florida panhandle about 100 miles west of Tallahassee and 16 miles from the Florida-Alabama state line. Mr. Bauzo is also an online instructor for the PAEC. Jorge works with on-campus students in all levels of Spanish courses as well as being certified in Social Studies and Advanced Placement.

A natural disaster in the Caribbean motivated Jorge to expand his online work, volunteering to teach online courses for Puerto Rican students suffering from the effects of Hurricane Maria. Mr. Bauzo became an online teacher for FLVS, as it addresses the pressing educational needs of Puerto Rican students in the wake of storm.

Florida Governor Rick Scott opened the doors of FLVS to Puerto Rican students by making 20,000 course enrollments available. FLVS classes are free to Florida students, but others typically pay tuition through FLVS' Global School. Puerto Rican students will be able to take the courses free of charge.

"I wish I had more time to help more students," said Bauzo. "How do you say no to a student that walks two miles just to find wifi signal to ask a question about an assignment? Two months after Maria, only about 50% of schools were open and just for a few hours a day, most with no power, no water, and students with no idea if they are going to be able to graduate."

About 65% of Mr. Bauzo's students reside in Puerto Rico, where services are still very limited. Parents drop students off at the public library, or take them to work with them where they might have Internet access. Some of Bauzo's Puerto Rican students have moved to the U.S.. Some go to school at a physical location, but feel out of place and are looking for another option. Bauzo teaches Spanish for Spanish speakers; Puerto Rican students must have two semesters of Spanish language in order to go to college, and Puerto Rico requires one foreign language course for high school graduation.

Back on campus at Vernon High School students work in a computer lab dedicated to online learning with a teacher in the room to provide support. The school offers elective courses, Advanced Placement, credit recovery, Driver's Education, and Physical Education online as well as dual enrollment courses through a local college. Vernon High School has about 20 students in online courses, working both in the lab and at home.

"In theory, I'm helping these students learn Spanish, but in reality, it's about helping with everything related to their education. Parents call with questions about online learning. Will this course count toward my child's graduation? Does my child need to go to a school? What about transcripts if I return to Puerto Rico? Many don't trust the validity of online courses. Students have questions how to get organized to handle four, five, six online courses at a time. They've never had experience with online learning."

– Jorge Bauzo,
Teacher, Vernon
High School,
Washington County
School District

Blountstown High School, Calhoun County School District – PAEC member

Lindy Dickey is an online teacher working for PAEC. She teaches online students at Blountstown High School (BHS). Blountstown is a small city of 2,515 and the county seat of Calhoun County, about an hour's drive west of Tallahassee and an hour from Panama City on the Gulf. Mrs. Dickey is currently teaching a group of Chemistry I students at BHS through PAEC's FLVS franchise, although she has taught online students from practically every county in the PAEC.

BHS had a number of students interested in taking Chemistry, but did not have a qualified Chemistry teacher among its science staff, and there were not enough students to justify hiring a certified Chemistry teacher. The school turned to PAEC to provide an online Chemistry teacher to make the course available to its students.

"My role as an online instructor at BHS gives the students the opportunity to take Chemistry, particularly the college bound students," said Lindy Dickey. "My hope is to provide them with a base in Chemistry that will better prepare them for science courses at the next level. An unintentional benefit is the experience these students gain from taking a rigorous course online, something they are likely to encounter in college." One BHS student hopes to go to medical school and wants to take a lot of science courses to prepare for that experience. Online is the way for her to get Chemistry at high school.

BHS and PAEC have worked together to create a blended learning approach that combines the online teacher with a dedicated period each day to attend a Chemistry lab on campus, staffed by a certified science teacher. Lindy Dickey is online during this period to interact with the students in real time, and the BHS on-site teacher is there to help with hands-on techniques, technology and any other issues that arise. Mrs. Dickey communicates with the lab teacher regularly. The two work together to help students that are falling behind, and they collaborate on course content as needed as well.

Lindy Dickey's instructor role is an example of the flexibility that online learning gives teachers as well as students. Dickey is a military wife and lives in El Paso, Texas, far away from her Calhoun County roots in the town of Chipley, just 45 miles from BHS. In addition to her work with students at BHS she works online with several Honors students at Vernon High School where she once taught in the classroom.

Dickey keeps rigorous 8 a.m. to 8 p.m. "office hours" so she can send a text or email whenever students need help. "With the FLVS curriculum, I am more of a support, and facilitate their learning," said Dickey. "I check-in with the student several times a week. We meet in Zoom [video web conferencing tool] a lot, and I work with them on discussion-based assessments."

"The past two school years I have worked with Calhoun County [Blountstown High School] as their online chemistry teacher because they have been unable to hire a certified chemistry teacher," said Dickey. "The principal at BHS has determined this is a necessity because many of their students move on to take Chemistry courses at the college level, and have been unprepared or not performed as well as students from other schools that were able to take chemistry at the high school level."

SUMMARY

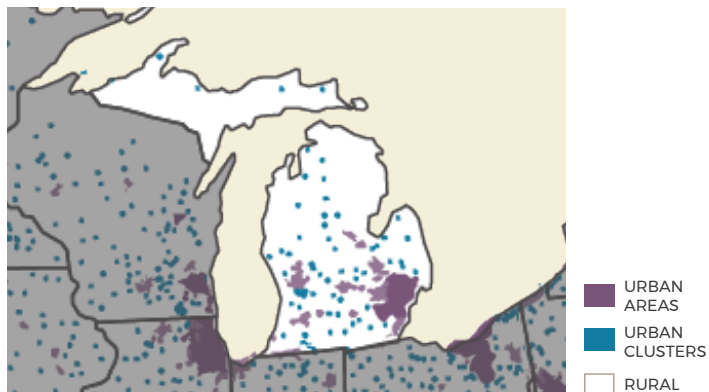
Michigan has extremely remote rural areas in its upper peninsula. Most of its rural population lives in the lower part of the state around the major urban areas of Detroit and some smaller western cities.

More than 235,000 students attend rural schools in Michigan, which is the 10th largest rural student population in the U.S.^{69,70}

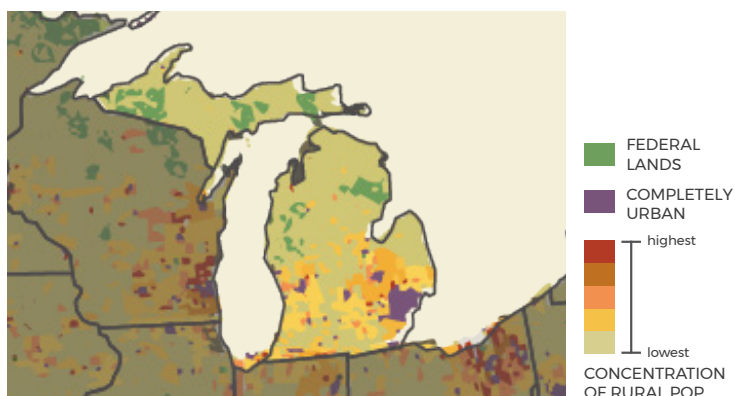
MI has been a leader in creating legislation to create greater access to online learning. It was the first state to require an online learning experience to graduate from high school, create a waiver from seat-time accounting rules, allow online charter schools, and pass course access legislation.

In 2015–16, rural schools represented about 36% of Michigan's virtual enrollments.⁷¹

RURAL LAND



RURAL PEOPLE



MICHIGAN HAS EXTENSIVE ONLINE LEARNING ACTIVITY, including a relatively large state virtual school, a large multi-district consortium, at least one Independent School Districts (ISD) program, single-district programs and full-time online schools operating statewide. This array of modalities expands options for digital learning for the 414 of Michigan's 568 school districts that are considered rural.⁷² Other state-level policies further support the development of digital learning. For example, Michigan was the first state in the U.S. to require an online learning experience to gain a high school diploma.⁷³ Moreover, in

⁶⁹ *Why Rural Matters*, Rural School and Community Trust, 2017; <http://www.ruraledu.org/articles.php?id=3297>.

⁷⁰ Michigan classifies district in only two categories; rural and urban; http://www.michigan.gov/documents/mde/Urban_and_Rural_Districts_453461_7.pdf.

⁷¹ Michigan's K–12 Virtual Learning Effectiveness Report, 2018, Michigan Virtual Learning Research Institute, <https://mvlri.org/research/publications/michigans-k-12-virtual-learning-effectiveness-report-2015-16/>. Findings in this report are based on data reported to the state by Michigan public schools. This self-reported data is known to contain reporting errors, but represents the most comprehensive data collected on virtual learning in Michigan. Online courses (defined as including a teacher in the virtual environment) produced 79% of the virtual enrollments.

⁷² *Why Rural Matters*, Rural School and Community Trust, 2017.

⁷³ Public Acts 123 and 124. Retrieved from http://www.michigan.gov/documents/PA_123_and_124_159920_7.pdf.

2013, it implemented a process that allows school districts to seek a waiver of the state's pupil accounting rules in order to allow students to take all of their coursework online.⁷⁴ In the same year, Michigan passed course access legislation, Public Act 60 (School Aid Act)⁷⁵, expanding student choice by giving students the opportunity to take two fully-funded online courses. Usually referred to as '21f' after the applicable section of the School Aid Act, the legislation allows students in grades 6–12, with parental consent, to take up to two online courses per academic term without district approval, with funding following the student.

Michigan Virtual (MV) is one of the larger state virtual schools, with 24,397 course enrollments in FY 2015–16. MV stands out among state virtual schools in that it is incorporated as a 501(c)(3) non-profit corporation rather than as a Michigan school or as part of a state education agency. MV provides supplemental online courses for K–12 students, and also provides professional development to school staff on supporting online students. Michigan Virtual works to expand schools' capacity in creating their own online learning courses as well moving toward increased levels of blended learning in the classroom. Twenty-six percent of Michigan Virtual's course enrollments were from rural districts during SY 2013–14.

MV has become a nationally-recognized expert in K–12 online learning and a highly valued provider of services and counsel to Michigan's educational community. The organization has worked with the Michigan Department of Education (MDE) to create and implement the Michigan Online Course Catalog that supports the course access legislation. Additionally MV supported the MDE in refining course access legislation over the past three years. The nonprofit was also instrumental in developing the 'Toolkit' to help district leaders better understand the legislation and MDE rules related to course access.⁷⁶

GenNET Online Learning is a statewide consortium operated by the Genesee Intermediate School District. They offer districts access to online courses from approved online course providers through its Online Learning Portal. GenNET is authorized by the Michigan Department of Education to extend its seat-time waiver to partner districts across the state; this allows districts to have the state's pupil accounting rules waived so that eligible students may take coursework online. In SY 2013–14, GenNET had over 400 districts participating and generated approximately 18,000 course enrollments through multiple providers.

Sandusky Junior-Senior High School – Sandusky Community Schools

Sandusky is a town of 2,679 residents, as of the 2010 census, and the county seat of Sanilac County, 85 miles north of Detroit and about 20 miles from the shore of Lake Huron. The area's economy has long relied on the agricultural industry as an economic base, but Sandusky is losing families as small farms are slowly sold out to larger companies. Small auto industry manufacturers are some of the largest employers in the region, and other economic opportunities come from some professional positions are associated with the county seat.

⁷⁴ Governor Snyder's Special Message on Education Reform, April 27, 2011. Retrieved from http://www.michigan.gov/documents/snyder/SpecialMessageonEducationReform_351586_7.pdf.

⁷⁵ Michigan, Public Act 60; [http://www.legislature.mi.gov/\(S\(omrqb55qqzgf3qhsvpfu45\)\)/mileg.aspx?page=GetObject&objectName=2013-HB-4228](http://www.legislature.mi.gov/(S(omrqb55qqzgf3qhsvpfu45))/mileg.aspx?page=GetObject&objectName=2013-HB-4228).

⁷⁶ Michigan's Online Course Catalog, Section 21f Toolkit, https://micourses.org/resources/21f_Tool_Kit.html.

Sandusky Junior-Senior High School serves grades 7–12 with about 450 students in the 2017–18 academic year. In SY 2006–07 the district opened an alternative high school using online software for credit recovery. Even after the alternative school closed the district remained committed to keeping the most effective components of the program, including online credit recovery. When the district consolidated to two schools it took the opportunity to move credit recovery to a much larger room with desktop stations; this space became the district's virtual learning lab. In addition to supporting online credit recovery the virtual learning lab functions as the study hall where students go for directed study in all kinds of coursework, including a growing dual enrollment program.

Steve Carlson, Principal of Sandusky Junior-Senior High School, explains that “No matter which direction you go, we are at least 45 miles away from the nearest college or university, so most of our student dual enrollment opportunities are online. Especially for my senior class, there was a lack of diverse offerings,” noted Carlson. “We stopped looking at the [course access] rule as an albatross and looked at it for opportunities. There were more seats in the virtual learning lab than were being used, so we started to counsel students that were possibly taking an art class they did not really have an interest in, or taking two physical education classes to fill their schedules, and had them look at the Michigan Virtual's course offerings.” The room in which students take online courses now has about 35 students every hour, split between credit recovery, directed study, and students taking an elective online course. The room is staffed by a teacher and two para-professionals who support students in their online coursework.

Digital learning at Sandusky extends beyond just the virtual learning lab walls. Most Sandusky teachers have 32-station Chromebook labs in their classroom. Students do not take the Chromebooks home, but almost every classroom is equipped with devices. “The Chromebook deployment has introduced a certain level of blended learning,” pointed out Principal Carlson. “Probably 60% of the teachers are utilizing Google Classroom, and about a third of our teachers are Google Level I Certified. All of our students are spending 3-4 hours a day online in class ... posting assignments and sharing documents, doing research projects, accessing content posted by teachers.” The school's evolving blended learning model supplements the online learning occurring in the virtual learning lab and provides valuable 21st Century skills and experiences to Sandusky students.

“No matter which direction you go, we are at least 45 miles away from the nearest college or university, so most of our student dual enrollment opportunities are online.”

– Steve Carlson,
Principal, Sandusky
Junior-Senior High
School

Fulton High School – Fulton Schools

Fulton High School is located in Middleton, Michigan; Fulton Township is located about 40 miles north of Lansing. Fulton Schools serves about 800 K–12 students largely from the three communities of Middleton, Perrinton and Maple Rapids in this middle-class agricultural area. Fulton High School serves roughly 200 students in grades 9–12; online learning is currently limited to high school students, and about 40 students took online courses during SY 2016–17.

Fulton first started using online content on campus more than eight years ago to help students recover lost credits, mostly during the summer months. When Michigan passed course access legislation that allowed students to choose whether to take a course online, the education landscape changed for Fulton High School. For the first time students expressed interest in more flexible learning options and began requesting enrichment courses online, particularly Advanced Placement courses. At that point, Fulton HS began working with Michigan Virtual to meet the requests for online courses. Over time, the program has grown to include core courses as well. Students appreciate the flexible, self-paced format of online courses; the program also helps the school alleviate scheduling conflicts, accelerate students' course progression, and support credit recovery.

“The change in legislation was a game changer for us,” noted Paul Hungerford, Fulton High School Principal and Fulton Schools Superintendent. “The first few years only a few students and parents requested Advanced Placement courses online. Over the past two or three years we’ve used more Michigan Virtual for core classes. That was a change for us ... Over time we’re learning how to restructure Fulton course offerings to provide appropriate schedules for our teachers and adequate section sizes.”

“Online has been really positive and yet it presents challenges at the same time,” said Hungerford. “Time management is an area of concern ... Some students flourish in it. They work ahead, complete classes before the end of the semester so they can earn credits in a quicker fashion. The downside is if the student is not ready for the responsibility of online learning and fails the course, the family has to reimburse the school, and the student may find it very difficult to fit that course into a schedule to graduate. Communication between the student and teacher is a lot different with an online instructor. Our students are used to walking down the hall and getting instantaneous feedback. Online, a student may need to wait an hour or a day for an answer, so it’s an adjustment for some. At the same time, it teaches better communications skills in the technology-driven environment that are so common in today’s professional world.”

“Students like the independence and self-pacing of an online course. We’ve had a student that wanted to build his resume to apply to an Ivy League school and enriched his educational experience by taking courses offered through Michigan Virtual that we were not able to offer here. It does help us prepare students for a blended or online course experience at the post-secondary level.”

SUMMARY

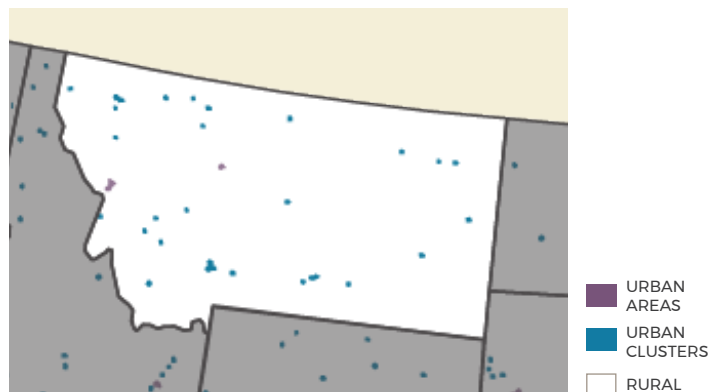
Montana is by most measures an extremely rural state, with 75% of schools classified as rural.

The state virtual school—the Montana Digital Academy (MTDA)—is the main state-level effort to provide all Montana students, including rural students, with supplemental online courses.

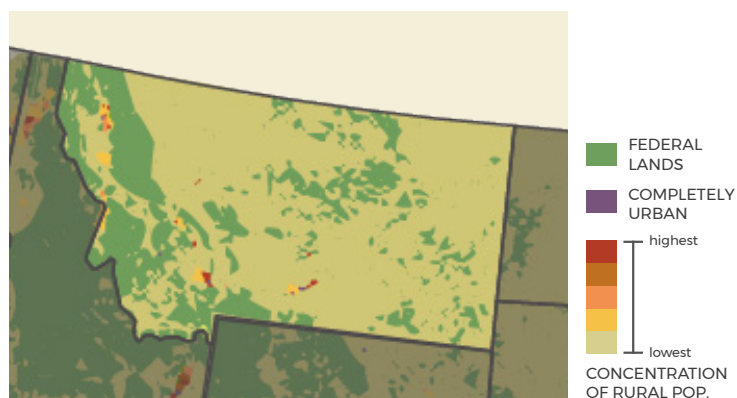
The Montana Rural Education Association maintains a strong relationship with MTDA, helping to focus MTDA's attention on rural needs.

Montana has no full-time online schools, so rural students who do not have nearby physical school do not have the option of a fully online school.

RURAL LAND



RURAL PEOPLE



MONTANA HAS ONE OF THE MORE EXTREME RURAL EDUCATION LANDSCAPES in the United States. Nearly 75% of all Montana schools are classified as rural by the annual *Why Rural Matters* report published by the Rural School and Community Trust.⁷⁷ This is in contrast to the national average of 28.5%. A third (32.3%) of the state's approximately 147,000 students are considered rural. The report also ranks Montana as fourth in the nation overall in terms of the importance in addressing rural education issues; first in importance based on the sheer volume [percentage] of rural schools and districts in the state. Over 90% of rural districts in Montana have fewer than 485 students, and the state leads the nation in the number of schoolhouse programs; schools with only one–two rooms, usually isolated by geography and weather.⁷⁸ Some schools in the state have as few as four students.

The only statewide online program in Montana is the state virtual school, Montana Digital Academy (MTDA). As is the case with most state virtual schools, MTDA receives a state funding appropriation that allows MTDA

⁷⁷ *Why Rural Matters*, Rural School and Community Trust, 2017; <http://www.ruraledu.org/articles.php?id=3297>.

⁷⁸ The National Rural Education Association refers to rural schools with only one or two rooms as schoolhouses.

to provide online courses at no cost to public school districts and students; MTDA allows rural schools to offer students a more complete course catalog than they can provide with traditional courses alone. Montana also does not have any statewide full-time online schools. There are some small single-district online programs and at least one blended school. School districts can only provide online learning to students who are residents of the district, preventing districts from offering larger programs or leveraging their online courses beyond the boundaries of their own district.⁷⁹

MTDA is hosted by the University of Montana's College of Education and Human Sciences, and served 6,946 course enrollments in SY 2015–16. Forty-two percent of all MTDA course enrollments and 41% of all MTDA students were in a rural setting.⁸⁰ “Small rural schools turn to online learning to address teacher shortages and provide curriculum equity and opportunity to their students,” notes Bob Currie, Executive Director of MTDA. “In many cases the addition of online courses can more than double a high school's offerings, addressing the lack of instructors in specific subject areas like World Language or Advanced Placement or helping to give struggling students another opportunity to recover credits in a cost-effective, flexible environment.”

One of the dilemmas facing rural districts, particularly in a small schoolhouse setting as described above, is the limited course catalog they can offer their students. Rural schools focus first and foremost on providing courses required for graduation, often finding it impossible to offer enrichment courses that students want and that help prepare them for life after graduation. Statewide online learning programs like MTDA allow small schools to greatly expand the course catalog that students can choose from.

MTDA works closely with state agencies and associations, including the Montana Rural Education Association (MREA), to ensure that it is meeting the needs of rural students as well as those in suburban and urban areas. MREA provides leadership in working with the state legislature by testifying numerous times on behalf of online learning and MTDA at committee hearings in support of funding the program. The Association also acts as an informational conduit for MTDA to regularly inform rural schools of the most current information on funding as well as new courses and programs. “Online learning plays a critical role in providing equity in access for rural schools across Montana,” according to Dennis Parman, Executive Director of the MREA. “It should come as no surprise to anyone that the smallest of high schools are not able to provide onsite opportunities for their students much beyond the core content areas. Online learning through the Digital Academy and other providers allows these schools to offer a variety of courses that now rival the largest of high schools in Big Sky Country.”

“Small rural schools turn to online learning to address teacher shortages and provide curriculum equity and opportunity to their students.”

– Bob Currie,
Executive Director,
Montana Digital
Academy

⁷⁹ Montana Code 20-7-118. Retrieved from <http://leg.mt.gov/bills/mca/20/7/20-7-118.htm>.

⁸⁰ Rural enrollments are determined using the National Center for Educational Statistics locale codes defining what constitutes a rural district.

While some rural districts use vendor online curriculum for credit recovery students, Montana Digital Academy is a leading provider of self-paced credit recovery courses across the state. An online MTDA Academic Coach, a licensed Montana teacher who serves as the teacher of record, is paired with local rural school district personnel to support students online and on-campus. Students may move at an accelerated pace, but the on-site support requirement provides the additional structure that MTDA believes gives online credit recovery students the best opportunity for successful completion. The MTDA credit recovery model is a flexible, mastery learning-based approach where students are able to work at their own pace, taking up to a semester to complete a course. Most students enroll in one course and when they complete it move to the next.

The program was redesigned in SY 2015–16 to focus on creating a more personalized learning path within the students' courses. In the new version all credit recovery courses embed an advanced notification system that fosters communication between the MTDA academic coach (teacher), local school support and administrative staff, parents and the student with information regarding the student's progress and areas on which they need to focus. Using an adaptive release model students are presented the course content in a linear manner designed to keep them focused on their learning path with one task needing to be completed, demonstrating mastery of the first concept before the next task appears. This redesign has resulted in enhanced communication to all stakeholders and a clear, focused pathway to meaningful recovery of credit for students.

In 2014 MTDA launched EdReady Montana, an online college and career readiness program that assesses student skills in mathematics and provides personalized intervention assistance. EdReady Montana is available for all Montana secondary and postsecondary students, teachers, districts, and colleges and is widely used by rural districts to supplement math classes and provide targeted tutorial opportunities.

Charlo School District

Charlo is a town of approximately 400 in Lake County, located within the boundaries of the Flathead Indian Reservation. Agriculture and ranching drive the local economy, and a significant number of residents commute to work in other towns, some as far away as Missoula, 50 miles to the south. The Charlo School District has about 264 students in three schools; Charlo Elementary, Charlo Middle School and Charlo High School. Although located on the Reservation, Charlo has only a few Native American students and is predominantly white.

The bulk of online activity in the district occurs in Charlo High School, where roughly a quarter of the 94 secondary students are taking an online course. Bonnie Perry, the K–12 Principal, employs online learning specifically to address teacher availability issues in foreign language courses. "We offer all of our Foreign Language courses to any high school student seeking a foreign language credit online through the Digital Academy. We do not have the means to hire full-time language teachers so this fills a very critical need for our students," said Perry. "We have had students complete German, French, Spanish, and Latin all online."

Students work in either a computer lab or in a dedicated classroom on Chromebooks with a teacher in classroom providing supervision. Learners make a recording of language readings and pronunciation once per week. Using the technology poses one of the more significant challenges as students develop necessary technical skills to take full advantage of digital learning opportunities.

Charlo made an online Middle School Language Sampler course available to sixth graders in Fall 2017. “We learned a lot from this first year. It gave the students a chance to get to know the basics of French, how to navigate the Montana Digital Academy online environment, and how to communicate with their teachers online,” reports Shane Bartshi, Counselor. “Our sixth graders have previously taken tests online, but learning to use online curriculum is very different. It was great for the students to learn new skills.” Both students and teachers felt comfortable and successful by the end of the 10-week course. “Our teachers thought this was beneficial on many levels: academic rigor, organization, persistence, academic stamina,” noted Principal Perry.

Online learning addresses several equity and instructional challenges faced by small districts, but it is not without its challenges outside of school. Many Charlo students have limited access to computers and Internet at home. Charlo provides online students with a flexible schedule, computer access and supervision to complete their online coursework during the school day on campus. “We have to have a place for students to access their courses—sometimes in a computer lab or on Chromebooks in a standard classroom—and since this is on campus, the students must be supervised,” noted Bonnie Perry. “I am thankful for flexible teachers willing to go the extra mile and take on [online] students.”

Administrators and teachers have both recognized higher achievement in students that work on their online courses at home as well as on campus. “Achievement depends on the student. Some put in a lot of time at home—as much as 10 hours a week—and some just work on the courses while at school. We have noticed that those working online outside of school have better outcomes.” Most online courses taken at Charlo are specifically for credit recovery in core course areas. English credit recovery is conducted in the traditional classroom, but other subject areas such as math are addressed using online learning.

Charlo uses online learning in other ways as well, including credit recovery, dual enrollment for college credit and in their Personal Finance course which is taught in a blended model. “Without online learning available to our students we would have a tough time meeting accreditation standards and course offerings would be limited for our rural students,” noted Principal Perry. “Our dropout rate would increase as making up credits would be very grueling with our onsite course offerings.”

“Our challenge is that most credit recovery students are not self-motivated. The learning environment is challenging for some of the kids and they need to be paired with a mentor-teacher,” said Mr. Bartshi.

Dual credit opportunities are available for seniors at Charlo in face-to-face classes and online in partnership with Great Falls College. One current online dual-credit student will have two college courses, including Psychology, under their belt when graduating Charlo.

Lone Peak High School – Big Sky School District

The town of Gallatin Gateway sits at the entrance to Big Sky Resort, a ski community. Tourism drives the economy, with a year-round population of about 3,000 expanding to upward of 10,000 during ski season. The school system consists of a single campus with 370 K–12 students. There is extreme economic diversity, ranging from the high-end resort community to a low-income service and construction sector, with small businesses and retail falling in between. The construction and service industries result in a significant transient population.

Lone Peak High School enrolls roughly 110 students in grades 9–12 grade with 38 students taking at least one online course during the 2017–18 school year. There are not enough students to offer multiple sections of some courses and there are few electives. “Offering [online] classes gives students a chance to break away from English 12 to try creative writing or mythology,” said Alex Ide, Lone Peak Principal. “Many students are interested in psychology or criminology, typically social studies credits, but we are unable to provide much outside of Montana and American history. Online courses give our students options.”

A staff duty period during the day is used to supervise students in their online work in designated areas using their own devices. The counselor checks in with online students on a regular basis and MTDA flags students that fall behind. Lone Peak has reached a point where seniors are given the option to complete coursework off-campus; they can do it at home or at school as needed. The bulk of online courses have focused on Advanced Placement, but it is also used for credit recovery. The Big Sky School Board has authorized use of online courses from university providers to supplement courses from the state virtual school, including agreements with BYU Independent Study, John Hopkins Center for Talented Youth, University of Nebraska, and Colorado College. The additional costs for these courses are passed on to students and parents unless there is financial hardship. The district must ensure the college or university courses meet or exceed state standards for high school.

“Our teachers are in charge of curriculum for multiple grades (6–12). If a student fails, we cannot offer the student a chance to sit in on the course twice because the student is typically engaged in another core class,” said Arica Avila, counselor for the middle and high schools. “The online service is invaluable. Our students need a resource to excel their learning when there is only one student interested in taking an AP Microeconomics course or to recover a credit.”

The Big Sky District went to a 1:1 student device strategy four years ago with different technology models at each grade level. For students in grades six through nine Chromebooks on carts are available to teachers use when needed and deemed to be instructionally appropriate. Initially computers were checked to students, but breakage and “computers left at home” drove the school to this new model. Teachers also have more control over the content and instruction, using the Google Classroom platform for assignments and requiring online research.

The Big Sky School District recognized the importance of integrating technology relatively early on. “We’re blessed by having resources and a solid tax base, and a very supportive Board and community,” noted Principal Ide. Computers were originally purchased through grants, but have now been built into the district budget to ensure sustainability.

SUMMARY

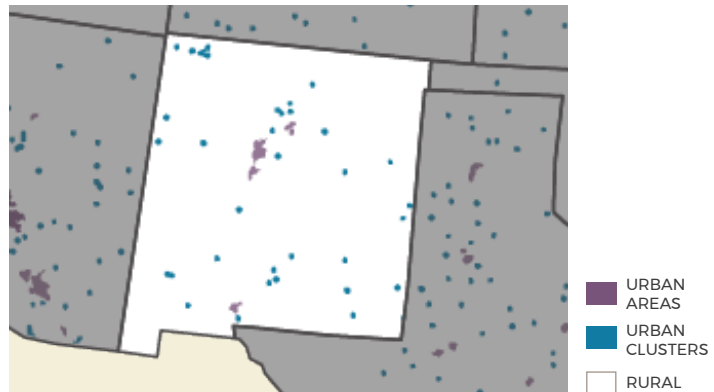
New Mexico's largest districts are overwhelming urban, including the areas around Albuquerque, Gallup, Farmington, and Santa Fe.

The state has a high percentage of small rural districts, 69.1% as compared to a national average of 48.8%.⁸¹

Over 60,000 students attend rural schools in New Mexico.⁸² The low population density of the state means that meeting the needs of learners in isolated settings may be even more difficult than in other areas that are considered rural.

The state also ranks 49th in the nation in terms of poverty. Its 2015 poverty rate was 19.8%, nearly one-third higher than the national average.⁸³ Children are disproportionately affected by these numbers; the child poverty rate in the state is over 30%.⁸⁴

RURAL LAND



RURAL PEOPLE



NEW MEXICO IS A STATE RICH IN NATURAL BEAUTY, stunning landscapes, and cultural diversity. The Zia symbol on the state flag represents the vision of perfect friendship among united cultures. However, “The Land of Enchantment,” as the state is known, often lands at the bottom of the list in terms of educational achievement. As the recent report *Why Rural Matters 2015–2016* points out, the profile of rural education in New Mexico sees the state’s rural schools entrusted with many of the state’s most vulnerable learners: “New Mexico has the highest rate of rural students of color (85.6%), rural English-language learner students (24.4%), and rural students from low- income families (more than 80%).”⁸⁵ For comparison, on the national level only 25.2% of rural school populations report as students of color and only twelve states have rural ELL

⁸¹ Rural School and Community Trust, *Why Rural Matters 2015–2016*. 2017. p. 135.

⁸² Ibid.

⁸³ U.S. Census Bureau, *Income and Poverty in the United States: 2015*. Retrieved from <https://www.census.gov/library/publications/2016/demo/p60-256.html>.

⁸⁴ Ibid.

⁸⁵ Rural School and Community Trust, *Why Rural Matters 2015–2016*. 2017. p. 5.

rates above 4%.⁸⁶ In terms of student achievement, New Mexico ranks lowest nationally in grades four and eight reading, and second and third lowest for NAEP math scores in fourth and eighth grades respectively.⁸⁷

Blended learning at the state level

The NM Public Education Department is working to leverage the potential of digital learning programs to help improve access, equity, and outcomes for rural learners. “Being fifth lowest state in population density, New Mexico needs to use technology effectively in order to meet the needs of students in its small, rural schools.”⁸⁸ This focus is supported by a number of initiatives at the state level to help schools and districts design, implement, and sustain effective learning programs.

Access to the Internet, both at school and home is an ongoing issue for New Mexico’s schools with small, rural schools in highly remote areas struggling the most. “Rural New Mexico has some of the most scenic landscape in the U.S. It also presents some of the most difficult challenges in getting its widely-dispersed population connected with high quality connectivity,” says Lisa Gonzalez of the Community Broadband Network and the Institute for Local Self-Reliance.⁸⁹ The state’s Broadband for All (BB4A) initiative aims to give all New Mexico school districts and charter schools access to high-speed broadband by the end of 2018. The program, which began in 2015, strives to build intra-agency collaboration at the state level in order to drive down costs and improve transparency in the bidding and pricing process. During the first year of the BB4A initiative the state reissued a statewide request for proposal for E-rate Category Two broadband and connection services, creating a review system that allows NM districts to compare the quotes of all vendors responding to bids within the state.⁹⁰ In this way the BB4A initiative is providing access to equipment at the best price available in the state and is working to lower the cost of internet access for New Mexico schools. The initiative has seen marked results, says Secretary-Designate of Education Christopher Ruskowski: “Our state has come together and leveraged partnerships to ensure that 99% of our schools are connected to broadband all while reducing costs by more than 60%. Our kids are competing in the 21st century and they deserve to have the tools they need to be successful.”⁹¹

The initiative also supports schools in planning for connectivity and future-proofing their infrastructure. For example, Deming Public Schools serves approximately 5,200 students in the southwestern part of the state; the district is located 33 miles from the Mexican border. School leaders in Deming leveraged the BB4A program to ensure that the construction plans for their new high school campus allowed for wireless connectivity and access from all classrooms. Similarly, in the northern part of the state McCurdy Charter

⁸⁶ Ibid.

⁸⁷ Rural School and Community Trust, *Why Rural Matters 2015–2016*. 2017. p. 135.

⁸⁸ New Mexico Public Education Department. *New Mexico Rising: New Mexico’s State Plan for the Every Student Succeeds Act*. 2017. Retrieved from <https://www2.ed.gov/admins/lead/account/stateplan17/nmcsa2017.pdf>.

⁸⁹ ILSR: Community Networks. *Community Broadband Bits Podcast Episode 277*. Retrieved from <https://muninetworks.org/tags/tags/new-mexico>.

⁹⁰ State Educational Technology Directors Association. Excerpt from: *State Wi-Fi Leadership for Fostering Digital Learning Ready K–12 Schools: Extending the Broadband Imperative II*. September 2017. Retrieved from http://www.setda.org/master/wp-content/uploads/2017/09/New_Mexico.pdf.

⁹¹ Governor’s Broadband for Education Initiative, Governor’s Office and New Mexico Public Education Department. 2017. Retrieved from <http://www.broadband4education.nm.gov/>.

School in Espanola, New Mexico underwent a major renovation and is now completely wireless and is working to roll out a 1:1 initiative.⁹²

The NMPED also acknowledges the importance of professional development and outreach for school leaders and for teachers related to the use of blended learning: "It is important to note that in order for technology to provide historically disadvantaged students with increased digital literacy and greater access to distance learning opportunities, educators must have the knowledge and skills to help students take full advantage of that technology."⁹³ The PED will focus on creating a core group of educators who can serve as the state's digital learning champions. Additionally, the PED works with schools and districts to analyze student achievement data to ensure that blended learning initiatives are using technology to effectively serve the state's low growth and low achieving students, English learners, and students with disabilities in particular.

The NMPED's virtual access program, IDEAL-NM (Innovative Digital Education and Learning in New Mexico), offers online courses across the state for enrichment, acceleration, and credit recovery through the Blended Learning Bureau. The program also offers opportunities for students to increase their college readiness by offering AP courses in subjects ranging from Computer Science, Calculus, and Statistics to Macroeconomics to Spanish Language and Literature. The classes are free of charge to schools and districts whose free and reduced lunch rates are 80% or higher; one goal of the Blended Learning Bureau is to expand that access to students from lower socio-economic backgrounds. The blended learning model used to administer the state's online classes combines technology-based and face-to-face instruction so students in remote, rural schools can take AP and advanced STEM courses even when the local LEA does not have the onsite resources to provide these. In IDEAL's blended learning model the state online instructor partners with onsite teachers across the state. A site coordinator at each school oversees all student progress and communicates with students and families while the live instructor supports the rigorous digital content provided by IDEAL-NM.

The NM Public Education Department⁹² is also working to support schools and districts in implementing their own blended learning programs that fit their students and needs. As of spring of 2018 schools in New Mexico will have access to a statewide learning management system participating schools and teachers will be able to post digital content, track grades and progress, communicate with parents and even create entire online courses at no cost.

Taos Academy: Blended learning at high altitude

Taos Academy (TA) is an example of one school that is using blended learning to improve outcomes for students across achievement measures such as test scores, career and college readiness, and graduation rate while serving a high-needs population. TA serves grades 5–12 in rural northern New Mexico. The high alpine desert town is surrounded by the Sangre de Cristo mountains and is the ancestral home of the Taos Pueblo tribe whose community includes one of the oldest continuously inhabited structures in the United States. TA's student population is 68% economically disadvantaged and is made up of a majority of historically underserved populations: 51% Hispanic, 41% Caucasian, 3.5% Native American, 3% African-American, 2.5% Asian. Nearly

⁹² State Educational Technology Directors Association. Excerpt from: *State Wi-Fi Leadership for Fostering Digital Learning Ready K–12 Schools: Extending the Broadband Imperative II*. September 2017. Retrieved from http://www.setda.org/master/wp-content/uploads/2017/09/New_Mexico.pdf.

⁹³ New Mexico Public Education Department. *New Mexico Rising: New Mexico's State Plan for the Every Student Succeeds Act*. 2017. Retrieved from <https://www2.ed.gov/admins/lead/account/stateplan17/nmcsa2017.pdf>.

one in five students participate in the school's Special Education program. The surrounding community is a high-poverty, at-risk area; recent reports show 16% of Taos County teens ages 16-19 as neither attending school nor participating in the workforce. This is twice the national average and 6% higher than the NM state average.⁹⁴ Teens in Taos County are also more likely than their more urban counterparts to live in single-parent households and to engage in risky behaviors. Taos Academy is a state-chartered school, which operates as its own LEA; it serves students from as far away as the towns of Questa and Red River. Students commute up to an hour by public bus in order to attend TA.

The school's use of community resources and its unique learning model has made inroads in closing the achievement gap for students in Taos compared to their more urban peers. Its use of digital learning has provided a higher quality education to the rural students that it serves than is otherwise available in the high alpine desert north of Santa Fe; student achievement scores routinely place the school in the top ranks of New Mexico LEAs and its PARCC scores outperform the national average.⁹⁵ When asked why he chose to come to Taos Academy, one high school senior cites the school's high academic standards, the fact that it has received an "A" grade from the state for five years running, and that it is a smaller school where he feels close to his teachers and fellow students.

An important part of making a difference in terms of engagement and academic achievement for NM students is the school's innovative blended learning model. The school strives to combine the flexibility, independence, and personalization of digital instruction with the best practices of live learning. Core academic classes in Math, English, Social Studies and Science contain elements of online learning such as well as direct, face-to-face instructional components. Supplemental adaptive curriculum is also leveraged to personalize instruction. Digital coursework is overseen by an academic adviser who assists with goal-setting, progress tracking, and developing individualized learning pathways that reflect students' passions and interests. "We strive to individualize student options across the curriculum," says Traci Filiss, Founder and Director of the school. "Every decision at Taos Academy is made with the question in mind of how this will affect our students in the classroom."

The school operates on a flexible schedule that can vary greatly depending on student and family needs. Taos Academy students are required to be on campus two days a week at a minimum; middle schoolers attend on Monday and Wednesday, while high school days are Tuesdays and Thursdays. During their on-campus days, students attend Academic Advisory, 21st Century Learning classes including SmartLab, Global Studies, Leadership, Career Pathways, and Service Learning. The majority of students choose to attend school on their off-days as well, taking advantage of the open Student Success Lab, MidSchool Plus Enrichment program, and STEAM Institute classes taught by community experts partnering with TA teachers. These dynamic elective classes range from Radio Broadcasting and Journalism to Robo-Band, Kinetic Sculpture, Green Architecture, and Culinary Arts.

Students at Taos Academy can begin accruing high school credits as early as 8th grade; this positions them for the school's Early College option later on. While most high schoolers take their core curricular classes in a blended format in grades 9 and 10, qualified students can also take elective courses at the nearby University

⁹⁴ New Mexico Voice for Children: NMVC: 2016 Data Book. Retrieved from <http://www.nmvoices.org/wp-content/uploads/2017/01/NMVC-DataBook2016-Web.pdf>.

⁹⁵ Taos Academy Charter School. NMPED School/District Report Card. Retrieved from http://taosacademy.org/what_s_new/district_report_card.

of New Mexico. Once in 11th grade students with a 3.0 GPA or higher can also begin taking Dual Enrollment classes at UNM-Taos through TA's College Link program; these courses allow students to replace a traditional high school credit class with one from the college level, allowing them to receive both high school and college credit simultaneously. Several students from Taos Academy have received both a high school diploma and an Associate's degree on Graduation Day and in SY 2017–18, TA students logged nearly 300 college credit hours in the fall semester. The school's graduation rate is consistently higher than the state and surrounding district average over the eight years of the school's existence.

Taos Academy has been approached by the New Mexico Public Education Department to discuss possible replication of their model in other struggling areas in the state and most recently partnered with the state's Blended Learning Bureau to find ways to offer students in the state virtual program more structure and support. Looking ahead Taos Academy hopes to expand to offer a student-run technology center to support local businesses and provide on-the-job training for students, staff, and community alike. Director Traci Filiss emphasizes the importance of out-of-the-box thinking to address rural and at-risk student needs, "Innovative models such as Taos Academy's demonstrate that high quality blended learning programs can truly improve outcomes in our state."

Cimarron Schools: Giving students voice and choice in the High Plains Region

Covering over 1,400 square miles of mountains and high plains in northern New Mexico, Cimarron Municipal School District is a highly rural district serving a population of approximately 450 students. Two elementary schools, Eagle Nest and Cimarron Elementary, feed into two middle schools (Eagle Nest and Cimarron Middle Schools). Both middle schools are feeder schools for Cimarron High School and Moreno Valley Charter High School; some students travel from as far away as 80 miles to attend school. Roughly 52% of Cimarron student population is considered economically disadvantaged; the student demographics are 51% Caucasian, 47% Hispanic, 2% African-American, and less than 1% respectively American Indian and Asian. The communities served by Cimarron Municipal School District also face a dwindling population with loss of jobs and industry in the area, a higher-than-state-average teen pregnancy rate, and a relatively high rate of households lacking secure employment.

Cimarron began its Digital Learning Pilot Program in the Fall of 2016 with several stakeholder consultations and site visits to other schools to observe their digital learning programs. The district also invested heavily in devices and infrastructure to build a foundation that would support their move to blended learning. Cimarron provides 1:1 Chromebooks for all district students; students at the high-school level participate in the school's take-home tech program. Instructionally, the program is focused on the goals of increasing Math proficiency for all Cimarron students, providing a more rigorous academic curriculum, and increasing literacy across the 4 C's of 21st Century learning: Communication, Collaboration, Critical Thinking, and Creativity. Initially the program relied upon courses from IDEAL-New Mexico, the state-supported virtual learning platform to provide additional resources and enhanced course access for its high school students; the school's offerings have since expanded. At the beginning of SY 2017–18 the district also adopted adaptive diagnostic curriculum to support more targeted ELA and Math instruction in grades K-8. The school uses Google Classroom to blend its live-taught classes as well, fostering increased collaboration between students and expanding access to high-quality instructional materials.

Student choice is a hallmark of the program's personalized model; Cimarron students who want to take a fully online course from IDEAL-New Mexico may do so, but students may also choose a more teacher-supported blended model of the same course through another vendor. Students who are not ready for the challenge of digital learning or who prefer a more traditional style of teaching may opt for a technology enriched option, with live classroom teaching, and instead complete projects and activities posted in Google Classroom.

Cimarron's rural setting creates a wide array of challenges for the small district, some of which they are looking to digital learning to help solve. Staffing is difficult, for example, as teacher shortages affect rural areas to a larger degree than more suburban settings.⁹⁶ Like many other rural schools Cimarron sometimes struggles to attract highly qualified teachers, especially for advanced math, science, and world language classes. Cimarron uses online options to offer or supplement instruction in Algebra, Geometry, Algebra II, Trigonometry, PreCalculus, and Personal Finance. Courses in Spanish, German, and French are offered as well, while science class is enriched with an array of virtual labs. Students seeking the challenge of an AP class can attend the live-taught class with their peers and then engage with the additional AP content on their own schedule. Health class, a NM graduation requirement, is also delivered online. In addition, students can take advantage of career-aligned courses in fields such as agriculture and healthcare through the district's partnership with community colleges and universities both in New Mexico and Colorado.

Student attendance is an issue, with many students struggling to physically make it into school during inclement weather. Icy mountain roads, high winds, and accumulating snow often take a toll on instructional time; in addition, many students have family responsibilities, or part time jobs in a local business. The district recently moved to a four-day school week to help support their families and to conserve resources; blended learning supports these efforts to extend the learning day beyond the classroom so that unexpected delays or closures are less detrimental to instructional time.

Superintendent Adán Estrada sees digital learning as a way of future-proofing his small community: "What we are doing now is filling needs that may exist in three to five years." If the initiative succeeds, he says, his district will be less hard-hit by challenges such as increased staffing challenges, maintaining academic rigor, and preparing students for postsecondary experiences, all of which he anticipates becoming increasingly difficult in this small community.

"Students are totally different than when we learned. They no longer need to be given a basic course of study that looks the same for all."

– Adán Estrada,
Superintendent,
Cimarron Municipal
School District

⁹⁶ Education Commission of the States. *Report: Teacher Shortages—What We Know*. May 2016. Retrieved from <https://www.ecs.org/ec-content/uploads/Teacher-Shortages-What-We-Know.pdf>.

Early gains

The program is new, Mr. Estrada admits, and as the school passes its one-year mark there is still work to do. The district's graduation rate is low, at 66% for SY 2016–17, and student achievement has fallen for several years in a row.⁹⁷ Some of the goals that Mr. Estrada hopes will be realized over time from the pilot program will be an improved course of study, higher levels of teacher performance, and increased rigor as the program moves from pilot into implementation. He also sees a chance to leverage the close social relationships that arise in small towns to support academic achievement; technology can help provide more authentic opportunities for teachers and students to build learning relationships as they problem-solve together.

Mr. Estrada foresees especial benefit to Cimarron's special education students, who often struggle in face-to-face classrooms or have trouble navigating social situations; the district saw growth in performance for these students in the area of math in the program's first year.⁹⁸ Blended and online learning options gives these students a chance to interact directly with the content without other distractions. Mr. Estrada also reports early gains for accelerated students who can move at their own pace instead of waiting for classmates and teachers, particularly in the area of English Language Arts as measured by 2017 PARCC scores.⁹⁹

The road to this point has not been easy. The learning curve is high for everyone, from administration to principals, teachers, and students. The devices, curriculum, and infrastructure are all new. Some students struggle with a lack of Internet access at home, while others work to adapt to the increased rigor of the digital learning platform. The district as a whole, says Mr. Estrada, is “having to relearn how we identify success; by our previous model, an A meant you were successful, but there was no good, clear explanation of what it took to make an A.”

The communities of Cimarron and Eagle Nest also took some convincing that this shift to blended learning was good for their children. “But,” says Mr. Estrada, “there were some kids who were just shining even from the beginning and those parents became huge proponents of the blended learning classroom. They were our best ambassadors.”

Students have been involved in the project from the start; Mr. Estrada says having students help develop and be part of the design of their own learning progress is one of the most important parts of the process for Cimarron Schools. “They came on our first site visits a year ago,” he says. The district is working to address at-home access issues to support their program; Cimarron recently applied for state funding to help them install a wireless SmartBus option on the district's athletic bus in order to help students who are traveling long distances for tournaments or games recover instructional time and stay on top of their coursework. Another initiative would see prepaid WiFi hotspots available for students to check out and take home.

⁹⁷ New Mexico Public Education Department. School Grading. Retrieved from <http://ped.state.nm.us/ped/index.html>.

⁹⁸ Ibid.

⁹⁹ New Mexico Public Education Department. School Grading. Retrieved from <http://ped.state.nm.us/ped/index.html>.

SUMMARY

Although South Carolina is not commonly recognized as a rural state, it has large rural regions in the eastern part of the state and in the western mountain area.

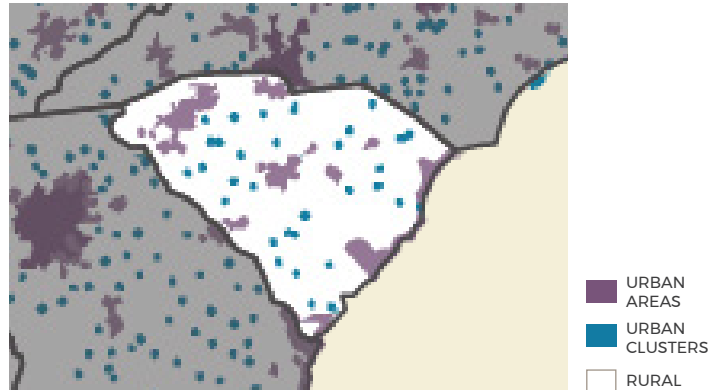
Enrollments in two of the state's online charter schools include many students who live in rural regions of the state.

The state virtual school, Virtual South Carolina, serves a substantial number of rural course enrollments.

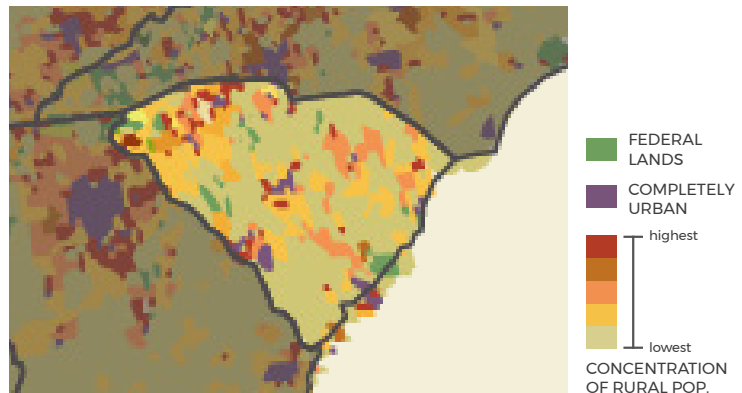
A decades-long lawsuit alleging lack of equity in educational opportunities was decided in favor of the plaintiffs in 2014. The state's response included expanding access to online and blended courses to increase equity and educational opportunity.

Odyssey Education Center and JCAP are examples of alternative schools that have had success transforming from a traditional approach to classroom learning to a blended learning environment through the VirtualSC franchise model.

RURAL LAND



RURAL PEOPLE



WHILE SOUTH CAROLINA MAY BE PRIMARILY KNOWN FOR ITS BEACHES AND BARBECUE, the state has historically struggled to serve its rural students. Like many states, rural education in SC is made up primarily of small, remote schools and all of the challenges inherent in serving these communities. In fact, South Carolina was recently cited as one of the ten states most in need of improving rural education by the Rural School and Community Trust's, *Why Rural Matters* report (2017). The report notes:

- Approximately 116,000 students reside in rural school districts (about 15.5% of state total enrollments during SY 2013–14).
- Two out of every five schools are classified as rural.
- Nearly half of all rural students are minorities, and 68.5% are from low-income families, which is the fourth highest rate in the nation.
- Spending on instruction is low and rural educator pay is below the national average. Per-student spending in rural areas is the 12th lowest rate in the U.S.

- Achievement and graduation rates for rural students are among the lowest in the nation. Only 80.6% of all rural students and 72.2% students of color graduated in 2014, compared to the national averages of 87.3% and 77.4%, respectively.
- Rural students in South Carolina have the sixth-lowest rate in the U.S. of taking Advanced Placement classes.

Online and blended learning is playing an important role in helping rural districts address some of these issues and to achieve more equitable access to education for rural students. Digital learning has become an integral part of the education landscape in South Carolina, offering students a broad range of online learning options. The state virtual school, VirtualSC, has seen significant growth, going from 16,818 supplemental online course enrollments in 2012–13 to over 41,666 course enrollments across most districts in the state during the 2016–17 fiscal year. Twenty-nine percent of all VirtualSC course enrollments in FY 2015–16 were from rural schools. One factor in the growth of VirtualSC is the funding model; districts pay nothing for an online course enrollment as the state virtual school is funded by legislative line item.

In addition to the state program, there are also five virtual charter schools in South Carolina enrolling approximately 10,000 full-time online students. This is a dramatic increase from about 2,000 when the state's first virtual charter opened in 2008. For many students in rural areas, their only school option other than their traditional local school is an online school. Figure 15 marks the locations of students in two online schools, the South Carolina Virtual Charter School and Cyber Academy of South Carolina, and demonstrates that many students live in rural areas with few or no school options other than their local boundary school.

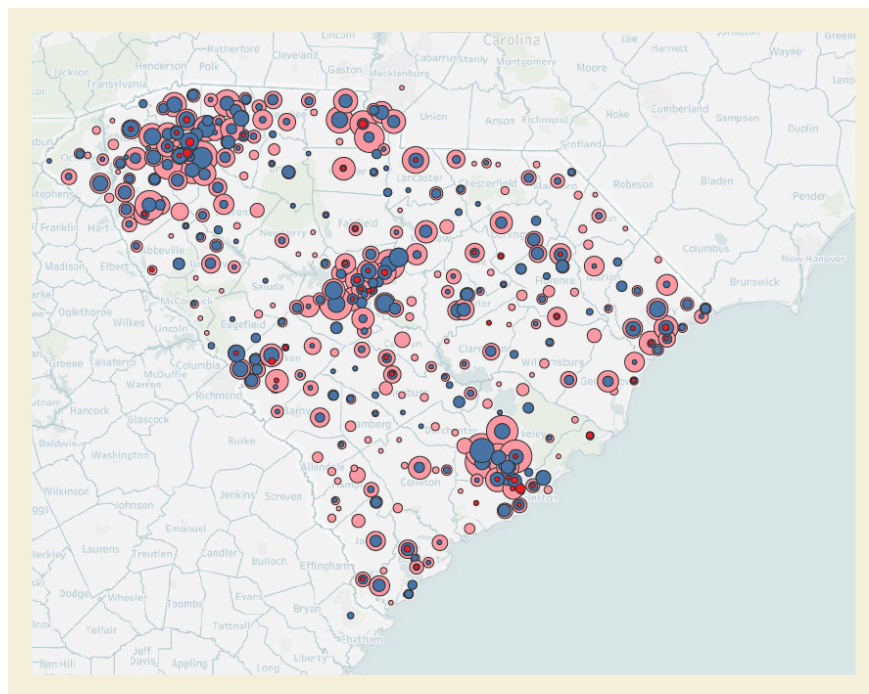


FIGURE 15: Circles show students in all charter schools (red) and in two online charter schools (blue and pink). Note the cluster of online enrollments in the upper western part of the state, which is quite rural. The size of the circles corresponds with the number of students from each zip code.

There is additional online and blended learning activity occurring within the state. For example, Horry County Schools started its supplemental online program in 2009, and launched an effort to integrate blended learning across the district in 2013. Greenville County Schools offers its students supplemental online courses in partnership with VirtualSC, but also uses online curriculum on campus in a blended learning approach for credit recovery. Spartanburg, Charleston, and several other districts also have online and/or blended learning programs.

VirtualSC provides virtual learning labs (VLL) and a franchise model, benefitting rural and non-rural districts alike. Similar to the model first introduced by Florida Virtual School, the VirtualSC Franchise¹⁰⁰ program is designed to help schools and districts offer online course curriculum to their students while using their own teachers in a supplemental online course format or offer blended learning in the classroom. VirtualSC provides the technology, online curriculum, training for teachers, technology staff and administrators, and ongoing support to help even small rural districts start their own online program.

Equitable education – Abbeville County School District v. State of South Carolina

Digital learning came to the fore in South Carolina as part of the state's response plan to the landmark case *Abbeville County School District v. State of South Carolina*. In 1993, 39 school districts joined the Abbeville County School District in filing suit against the State of South Carolina seeking equity in education funding and opportunities. After 21 years of legislative and courtroom debate over the state's responsibility to provide equal opportunity to all students the state Supreme Court found in favor of the plaintiff districts (2014).¹⁰¹

VirtualSC is seen as one of the state solutions in addressing the inequities cited by the state Supreme Court decision. The state virtual school testified to the state legislature regarding how it provides equitable access opportunities to participating districts at no cost. The VirtualSC courses, services, and course enrollments provided to the plaintiff districts are referenced in the South Carolina Department of Education's *Abbeville Equity Districts Reports (2017)*.¹⁰² The Department of Education also points to increases in the VirtualSC budget and increased staff¹⁰³ since the Supreme Court decision as part of the larger, statewide strategy to improve equitable access across the state's school districts.

¹⁰⁰ VirtualSC Franchise Program description, November 6, 2017; <https://virtualsc.org/franchise-program/>.

¹⁰¹ South Carolina State Supreme Court decision, *Abbeville County School District v. State of South Carolina*; <http://www.sccourts.org/opinions/HTMLFiles/SC/27466.pdf>.

¹⁰² South Carolina Department of Education, *Abbeville Equity Districts Reports* (page 6); <https://ed.sc.gov/data/reports/finance/cfo-reports/other-finance-reports/abbeville-equity-district-reports/>.

¹⁰³ SC Education Oversight Committee Legislative Summary; https://dc.statelibrary.sc.gov/bitstream/handle/10827/22238/EOC_Legislative_Summary_2016.pdf?sequence=1&isAllowed=y.

Odyssey Educational Center Jenkins Hill Campus – Dorchester County School District 4

Odyssey Educational Center Jenkins Hill is located in Harleyville, a small town of 677 residents according to the 2010 Census. Harleyville is located in northern Dorchester County and is part of Dorchester County School District 4. Dorchester County has 136,000 residents and borders the suburbs of Charleston; not a county one would normally consider rural based on size and urban proximity. But as with many other schools across the state and country, rural areas are often part of geographically large counties. Odyssey Educational Center is an alternative school serving a predominantly low-income minority student population in grades 6–12. There are 51 students enrolled at Odyssey for the 2016–17 school year.

In 2015, the Odyssey Educational Center began a transformation from a traditional brick and mortar alternative school setting to one employing technology and a blended learning model. “We utilize the VirtualSC Franchise program that ... allows our students to take their academic courses online under the supervision of a certified content area teacher,” said Catherine Yates, Odyssey Educational Center Principal. “Students earn initial as well as recovery credits so that they are able to transition into an appropriate grade level as well as graduate from high school with a diploma.”

Before going to the online curriculum and blended learning model students were assigned 90-minute block periods with a teacher. When the school went to the blended learning model, those periods were cut to about 55 minutes each, and time was built into student schedules for an enrichment block one day a week to focus on a specific subject. Students have time to work on their own or in small groups. “We decided to go with the [VirtualSC online] franchise because now teachers will serve as facilitators whereas before one teacher was responsible for teaching three or four subjects in the same classroom.”

Alternative schools often carry the reputation as the place where the toughest students are sent for behavioral issues, truancy or severe academic deficiencies, but Odyssey enrolls a range of students. Odyssey offers struggling students smaller class sizes with a ratio of 1:15, and an alternative learning environment. Students come to Odyssey based on parent requests for an alternative to the traditional classroom, as an expulsion alternative, or those that are simply behind on academic credits and need to catch up. There are also off-campus options for homebound students, or those “expelled with services.” Students expelled from the alternative school are still allowed to access their online courses away from the Center and stay active and working to complete credits. Odyssey also offers middle school students a “two plus one” program that allows them to work on additional classes for a semester and accelerate to another grade level.

“Online learning gives our students an opportunity to work independently, in small group settings and at their own pace with a certified teacher in the classroom.”

– Catherine Yates,
Principal, Odyssey
Educational Center

“Some [students] come to Odyssey, catch up on credits and return to the traditional campus,” noted Principal Yates. “Some want to stay because of class size, flexibility and our personalized approach.”

“Bringing the franchise to Dorchester School District Four alternative program has helped change the mindset of the students,” said Elixzina Goodwin, Director of Technology at the Odyssey Center. “They don’t think of the alternative school as someplace where bad kids go or someplace where their kids who can’t learn go. They see it as an opportunity to catch up on their schoolwork and to move on and excel so they can graduate.”

It has also changed the mindset of the teachers. “When the idea was first brought to us by Superintendent Ravenell, we were skeptical,” said Yates. “Students coming to the alternative school already have challenges. We wondered how an online program ... would keep their interest and keep them focused and on track. But as we worked with the program, we found out that this something the students could pull off.”

“In the online classes, they help you because it’s a small class. It was helpful because they didn’t leave you by yourself when you were struggling. I like learning online because it’s better than paperwork. You can lose paperwork. Online everything is right there.”

– Jaumaurie Simmons,
Recent graduate
from Odyssey
Educational Center

Jasper County Alternative Program – VirtualSC Franchise

Jasper County is the southernmost county in South Carolina, located west of the resort communities of Hilton Head and Beaufort and stretching south to the Savannah, Georgia suburbs. Jasper County Alternative Program (JCAP) is part of the Jasper County School District located in Ridgeland, a town of 4,000 that is the county seat.

Jasper County Alternative Program (JCAP) has used online curriculum from a variety of vendors for a number of years, and just finished its second year as a VirtualSC franchise partner. JCAP enrolled just over 30 students in fall 2017, most in grades nine through twelve, with a few eighth graders taking advanced classes at the middle school.

“The majority of our students are assigned to us via a disciplinary ‘due process’ hearing with a Hearing Officer appointed by the Jasper County School Board,” noted Tillmon M. Ancrum, Director of the Jasper County Alternative Program and the Jasper County Virtual Program. “Because we are a state supported Alternative program we are required to offer ‘direct instruction’ for part of the school day. Our VirtualSC franchise and the blended learning approach allows us to use JCAP teachers to meet the needs of our students while meeting state requirements. The ability to offer any course has been a great benefit to our students, especially upperclassmen. Specialized courses were traditionally very difficult for us to offer, because so few students needed them, making them hard to staff. The franchise model allows JCAP to meet the class needs of practically any student that is assigned from our feeder school, Ridgeland-Hardeeville High School (RHHS).”

JCAP uses a class schedule that mirrors that of RHHS. The alternative school counselor and director match up the students' high school class schedule with that of the alternative school to ensure a smooth transition. Students are grouped by course for direct instruction. For example, the JCAP math teacher brings students together in the classroom first period for face-to-face instruction using Promethean Boards. Then the same group of students goes to the computer lab to work independently in their online courses. Teachers in core subject areas are organized in two-person teams and rotate from the classroom through the lab to provide supervision.

Ridgeland-Hardeeville High School is a 1:1 school, and students bring their school-issued devices with them to JCAP. Students are encouraged to work at home when connectivity is available, and parents are made aware that the online curriculum is available 24/7.

"Having the online curriculum through the franchise gives us the ability to offer South Carolina standards-based online courses that are challenging and that motivate students to take advantage of the self-paced learning opportunity," said Ancrum. "Our caseload changes regularly. Now we can enroll students as needed and accelerate students who ... need to 'catch up' with their peers."

"Virtual learning is not for every student, but most thrive in this environment and make great gains," said Director Tillmon. "My teachers are able to get our students to buy into learning in the online environment. They have fewer distractions. They don't have to move from one class to another, and are able to get in the lab and lock in. We've had students complete their courses before their assigned time with alternative school is up. Our counselor has been able to work with [RHHS] to accelerate children and get an extra course or even two completed before they head back to their high school."

SUMMARY

Texas is mostly rural outside of the main cities of Houston, Dallas, San Antonio, and Austin—all of which are in a relatively small region in the eastern part of the state. The west and south are heavily rural.

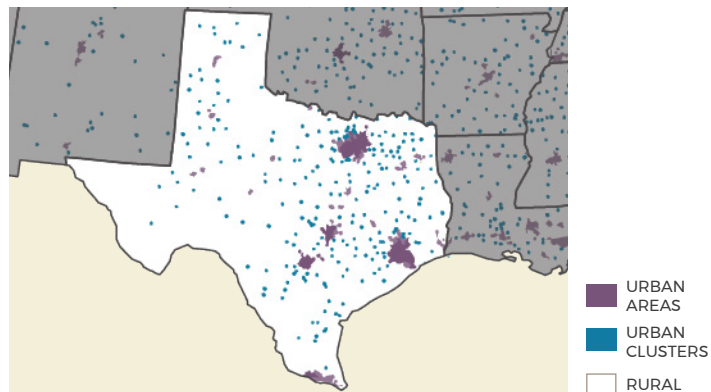
The state supports online and blended learning through the Texas Virtual School Network (TXVSN), which is part of the Texas Education Agency (TEA). TEA has provided grants to TXVSN specifically to increase rural enrollments in online courses.

Findings from the Texas Rural Schools Task Force noted online learning as among its recommendations to improve rural education.

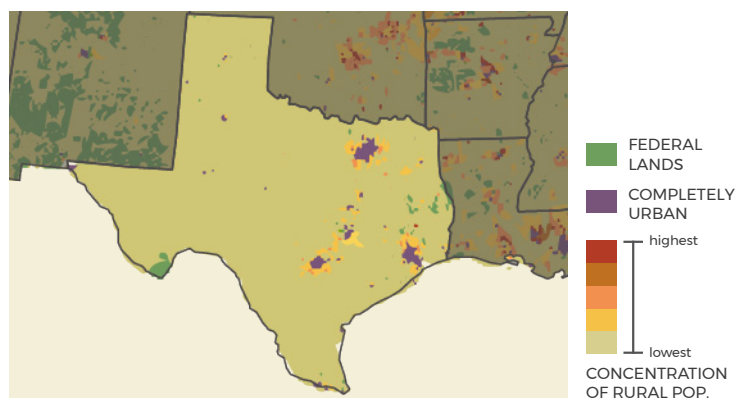
SUPERNet is a consortium of 17 rural districts collaborating to share bandwidth to reduce costs, working together to address complex E-rate applications and sharing online courses.

Amarillo ISD has developed a blended learning program with 11 rural district partners to deliver health care education in remote areas.

RURAL LAND



RURAL PEOPLE



TEXAS HAS 5.3 MILLION K-12 STUDENTS ENROLLED IN 993 DISTRICTS, which is the second largest K-12 student population in the country; only California has a higher K-12 population. Fifty-one percent of the state's public school students are educated in only four percent of its school districts predominantly in the major metropolitan areas of Houston, Dallas, San Antonio, and Austin. The other 49% of students are in a mix of suburban and rural areas, and 459 districts are classified as rural. Texas defines a rural district by default as not fitting into urban and suburban categories, and with a small student population demonstrating slow or no growth.¹⁰⁴

Texas has a variety of online and blended learning options for students both at the district and state level, but the majority of these options are available to students in urban or suburban districts such as Houston and Plano. The Texas Virtual School Network (TXVSN) which is available to students in all geographic areas, manages much of the state's online learning activity. TXVSN provides course access options to students through two programs: a supplemental statewide course catalog of high school courses (including Advanced

¹⁰⁴ Texas Education Agency website; <https://tea.texas.gov/acctres/analyze/1516/level.html>; the number of districts does not include 183 charter schools.

Placement and dual credit) and the full-time TXVSN Online Schools (OLS) program for grades 3–12. In FY 2016–17 the TXVSN catalog served 6,076 supplemental course enrollments and the full-time TXVSN online schools served 13,766 students.

Texas passed course access legislation effective in SY 2013–14 that gave students the option to take up to three year-long supplemental online courses through the TXVSN each year. These courses are funded by their district or charter school as part of the student’s normal course load. Districts and open-enrollment charter schools may deny a student’s enrollment request if the district or school offers a “substantially similar” course, and have discretion to select the course provider for the course a student requests.

Rural Schools Task Force

Education leaders in Texas have recognized the need to address rural issues. In March of 2017, following almost a year of work across the state, the Texas Rural Schools Task Force released a report¹⁰⁵ to identify current challenges and best practices for rural school districts statewide. The report highlights a dozen recommendations specific to rural schools in the areas of teacher recruitment, teacher retention, resource allocation, use of technology, and parent and community engagement. The report specifically addresses online learning in rural areas and encourages the state to “increase the quality and accessibility of online learning, including the Texas Virtual School Network (TXVSN), by addressing misconceptions, facilitating aggressive marketing and outreach, removing financial disincentives, supporting greater bandwidth, implementing a longer grant cycle, and improving the teacher selection, training, and support model.” TEA is mobilizing resources to incorporate the recommendations into the agency’s strategic operations and strengthen support provided to rural schools.

TXVSN grants

In an attempt to include more rural schools in the course access program, the Texas Education Agency awarded TXVSN grants to distribute to public rural schools and open-enrollment charter schools in 2017. The grant award provides funding to pay statewide course catalog enrollment costs for rural schools, to provide supplemental pay for personnel to serve as mentors for students taking statewide catalog course, and/or to provide access to technology. To be eligible a campus had to have NCES designation as one of the three rural campus locale codes and serve students in grades 7–12. The TEA provided \$3,441,200 in grant funding to 101 campuses; more than \$11,000,000 in grant funding has been requested from 260 eligible rural districts. Schools may use funds to pay TXVSN catalog course costs for fall and spring courses for the 2017–2018 school year and for summer 2018. The campuses awarded the grant funds are experiencing staffing shortages or wish to expand course offerings for the campus in the areas of Advanced Placement® (AP) and dual credit.

¹⁰⁵ Texas Rural Schools Task Force, Texas Rural Schools Task Force: Elevating Support for Texas Rural and Small Schools; March 2017.

SUPERNet rural consortium

The SUPERNet Consortium is a collaborative of rural public school districts in East Texas established in 1996. Its original focus was to provide affordable Internet access and technical expertise to member districts, but has evolved to support member districts in supplemental online courses, curriculum development, E-rate filing and ongoing professional development.

SUPERNet has a history of leveraging federal and state grant funding to expand and sustain operations, but expansion has been limited by reduced technology grant funding opportunities in recent years. Members now pay an annual fee of \$7,000 that provides access to 50 online course seats per semester, as well as shared bandwidth and other technological support.

The SUPERNet professional-learning community among member districts includes teachers, administrators, technology directors, partners and higher education and community members. In 2002 SUPERNet began the pilot for its Virtual High School by offering online courses to consortium member districts, and in 2009 became one of the original course access providers for the statewide TXVSN catalog. Over 7,700 rural students have benefitted from Virtual High School courses.

“Our SUPERNet consortium membership allows us to share teachers and expand schedules, things small rural schools simply cannot do on their own,” said Joy Rousseau, Technology Director at Arp Independent School District, an original member of the Consortium.

SUPERNet has an advisory board of superintendents from participating rural districts that oversee its activities and resources. A district selected by the advisory board acts as fiscal agent for the consortium’s activities, greatly expanding the online learning services and infrastructure far beyond what any of these small districts might have done independently. Two SUPERNet member districts focus extensively on coordinating E-rate activities for the consortium. Since E-rate typically means managing three different funding years, each with critical deadlines, considerable attention is needed in order to leverage this source of technology funding, and many rural districts face retention issues in these administrative roles.

“SUPERNet provides members with intangible benefits as well, just having a connection to someone who is doing what you’re doing, facing the same rural issues that you’re facing. These connections go beyond online and blended learning courses, E-rate savings and bandwidth availability; superintendents are connected, tech staff are connected, teachers are connected. These connections are important for isolated rural schools.”

– Debi Crawford,
Principal, SUPERNet
Virtual High School

Arp Independent School District

Arp is a town of 1,000 located in the piney woods of East Texas about 120 miles east-southeast of Dallas. The area economy has historically relied on oil and gas development and has tracked the ups and downs of the industry, and in an attempt to break that cycle is trying to prepare students for new careers. The Arp ISD enrolls about 850 students across grades K–12, and 57% of all students are designated as economically disadvantaged.

The district is an original member of the SUPERNet Consortium and demonstrates how a small school district without a large tax base can provide sophisticated online and blended learning programs.

The district has been 1:1 for all grades for nine years, with every student having access to a computer while in school. The district has created “study islands” in many classrooms that mix device types in addition to the traditional classroom organization. Students can check computers out for home use, but most all usage happens at school because like many rural areas, many students have limited Internet access at home. To address the lack of home Internet access, Arp ISD provides wireless connection at various locations around the school, including the press box at the sports field and playground after 3:30 p.m. each weekday and during weekends. The wifi is open for public use, and the school typically tracks about 500 uses by students and others each month.

“Online learning has particularly helped us deal with transient students,” notes Joy Rousseau, Technology Director at Arp ISD. “We have a number of kids that have come to live with grandparents to get away from some negative influences in cities. Most are not on pace to graduate when they arrive. Online learning allows us to guide them to SUPERNet or TXVSN courses, and our credit recovery courses, to help them catch up.”

Most online and blended learning in Arp ISD is focused on credit recovery. Students work on laptops in the counselor office where they receive constant mentoring, or in a large CTE classroom; half the students in the classroom are working on online credit recovery courses, while the other half are in CTE classes. The district does not use online learning for Advanced Placement as do many rural districts, but instead has a growing dual-credit program in partnership with the University of Texas-Tyler and Tyler Community College.

Arp ISD is also implementing technology across district classrooms. The technology department follows the ISTE-NETS competencies for best practices in educational technology, and maintains a website for teachers to document and share how to provide students with content and instruction. All teachers at Arp ISD have an opportunity to build their own website with guidance and instructions from the technology staff. Most Arp ISD teachers have progressed to providing students with assignments, curriculum calendars, and instructional content. The Tech Department provides PD online, weekly security updates through email, small group instruction to every employee in the district, QuickStarts via videos and online screenshots, and individualized professional development (one-on-one). The Technology team trains students to help maintain computers and support teachers. These rural students develop their individual competency in computer skills, and therefore receive technology credit.

“Online learning has particularly helped us deal with transient students. We have a number of kids that have come to live with grandparents to get away from some negative influences in cities. Most are not on pace to graduate when they arrive. Online learning allows us to guide them to SUPERNet or TXVSN courses, and our credit recovery courses, to help them catch up

*– Joy Rousseau,
Technology Director,
Arp ISD*

Amarillo Independent School District supporting rural districts

With over 32,000 students, the Amarillo Independent School District (AISD) is not a rural district, but instead they offer an innovative healthcare program administered through AISD's Amarillo Area Center for Advanced Learning (AACAL). This program provides rural students with unique opportunities through blended learning. The Gateway to Health Careers Project has established health science programs in partnership with eleven rural districts and communities in the Texas panhandle. It is designed to increase the healthcare workforce through a combination of online learning and clinic experience. Online curriculum and instruction is provided by Amarillo Area Center for Advanced Learning, where students gain hands-on experience in SimCentral's Mobile Simulation Lab and through patient interactions provided by their community hospitals, long term care facilities, or EMS services. Students can graduate high school with an endorsement in Public Service through the Texas Foundation High School Program.¹⁰⁶

The Gateway to Health Careers Project currently serves 352 students from the rural partner districts.¹⁰⁷ Partner schools provide a classroom, Internet connection, computer teaching station connected to a projector to display the online and/or live lessons, student computers, a classroom facilitator to monitor students, and a partnership with a clinical site. Classes are streamed or recorded in Amarillo and viewed synchronously by students in a classroom in their local districts. A local facilitator provided by the rural school is in the classroom to help students during class, and monitor their work and progress throughout the year. Senior students from the rural districts go to Amarillo for face-to-face instruction that provides an opportunity to create a cohort across all 11 partner districts.

"Students love it," says Heather Sawyer, the Canadian ISD online facilitator. "The four that did Certified Medical Assistant are all going into nursing school, and hopefully, they will be able to work in the health profession as they go through school."

In addition to the simulation lab out of Amarillo Gateway teachers and administrators travel to the districts to train students in the basic skills that health care workers need, creating a deeper connection between the students and instructors. The program is offered through open enrollment, but most students work through counselor screening and recommendations.

"I personally think [Gateway] is amazing! It gave me a chance to get more experience in the healthcare profession before I even graduated from high school," says Isaac Pacheco, who graduated from Tulia High School in 2017. "I've known that I wanted to be a Registered Nurse. Taking this course has never made me surer of what I wanted to do in my life." Isaac graduated as a Certified Clinical Medical Assistant and is currently employed at Swisher Memorial Hospital and attending Amarillo College.

The Gateway program started, as many similar schools do, as the result of an innovative project designed to help students. "This program was literally hatched over lunch and sketched out on the back of a napkin,"

¹⁰⁶ The endorsement in Public Service is a partnership between Amarillo ISD Area Center for Advanced Learning, Coalition of Health Services, Incorporated; SimCentral; Amarillo College; Texas Tech University Health Sciences at Amarillo; West Texas A&M University; and, the Texas Panhandle Coalition for Nursing.

¹⁰⁷ Partner districts include Highland Park ISD, Sanford-Fritch ISD, Dimmitt ISD, Borger ISD, Bovina ISD, Spearman ISD, Canadian ISD, Wellington ISD, Tulia ISD, Happy ISD, and Gruver ISD, all classified as rural per NCES locale codes.

noted Jay Barrett, Principal of AACAL. “The goal from the beginning has been to get more workers in the health care field not only in Amarillo but in rural areas.”

Start-up funding of \$700,000 was raised through efforts by a coalition of community members who wanted to create a true pipeline of healthcare workers in the region. “We knocked on lots of doors,” Barrett said of their efforts. To sustain the program, districts are sharing part of the student funding. The Gateway program requests \$500 of each hour of CTE ADA funding to support the program, significantly less than the school would pay for on-campus instruction, even after the costs of the online facilitator and technology needed for each school.

Bloomburg Independent School District

Bloomburg is a town in northeast Texas with a population of 398 people. Bloomburg ISD has an elementary (K-5) and high school (6-12) totaling 283 students with a 64% economically disadvantaged rate.

Bloomburg ISD has taken advantage of state legislation to have more local control in certain areas, including the use of online learning. HB 1842 (2015) allows a traditional public school to have some of the same local flexibility that public charter schools have always been allowed. Becoming a District of Innovation allowed Bloomburg to tailor its plans based on student and community needs. In particular, the designation can allow BISD teachers to teach outside their certification area if necessary and to adjust teacher contract requirements.

Bloomburg has a 1:1 student to Chromebook ratio at grades 4-12 and students may take devices home. This very rural area is unique in having near-ubiquitous Internet access due to an Obama-era grant to the utility company serving the area. The elementary school uses iPads for instructional activities. The district has begun using Google Classroom and online tools for both writing support and credit recovery.

Students take dual credit course online through Texarkana Community College (TCC) and University of Texas at the Permian Basin. The district’s Promise Scholarship Program pays dual credit course costs for students as long as they successfully complete their courses.

Bloomburg ISD received \$66,000 from the TXVSN Grants to Rural Schools which is funding online Spanish and some fine arts classes for its high school students. Prior to the grant, BISD used the TXVSN statewide catalog for Spanish only. The superintendent reports that receiving these grant funds allowed the district to redirect local funds to meet other instructional and maintenance needs.

Bloomburg ISD’s biggest challenge to implementing blended learning is maintaining a technology literate staff as teachers and staff are at various levels of technology adoption and knowledge. Bloomburg ISD encourages teachers to use technology by providing a new Chromebook each year for designated teacher use both on and off-campus. The superintendent feels this assists with teacher retention as staff feels trusted and empowered.

SUMMARY

The vast majority of Utah is rural. Most of the state's population lives, works, and attends school along the Wasatch Front, centered around Salt Lake City and stretching through Provo to the south and Ogden to the north.

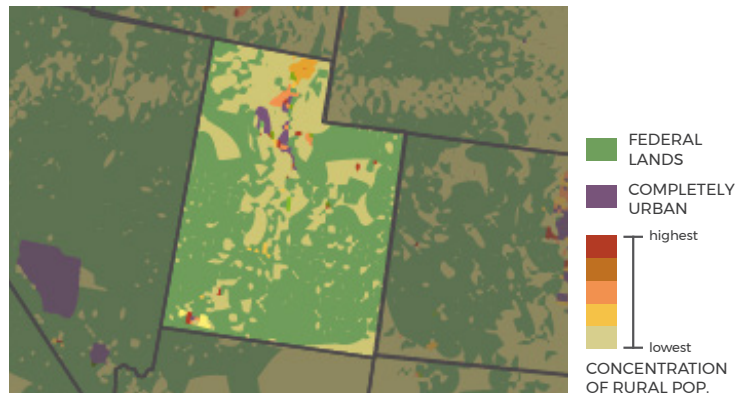
According to the Utah Rural Schools Association, rural schools, which are scattered over the rest of the large and geologically diverse state, serve roughly 97,500, or 15%, of Utah's 650,000 total student population.¹⁰⁸

In these areas the local economy is centered on a handful of industries, including tourism, mining, ranching and agriculture.

RURAL LAND



RURAL PEOPLE



RURAL SCHOOLS IN UTAH, AS IN OTHER AREAS OF THE NATION, struggle to offer the catalog of advanced courses that non-rural schools offer, such as AP courses, high-level STEM classes, and foreign languages. These districts have greater difficulties than non-rural schools in hiring and retaining qualified teachers, as well as attracting specialty-area teachers or teachers who teach multiple subjects. Utah's rural schools serve a relatively larger number of English Language Learners than their urban counterparts in the state, and over half of Utah's rural student population are eligible for free and reduced lunches.¹⁰⁹ These schools and districts also see higher mobility rates, which is associated with lower levels of student achievement. As a result Utah's rural districts are falling behind the nation in several key indicators of student postsecondary success. For example, only half of Utah's rural students take a standardized college entrance exam like the ACT or SAT and only 13% of rural 11th and 12th graders in the state take an AP course as opposed to a 26% rural AP enrollment rate nationwide.¹¹⁰

¹⁰⁸ Utah Rural School Association (URSA). 2017. Retrieved from <http://www.ursa.k12.ut.us/>.

¹⁰⁹ Rural Community and Land Trust. *Why Rural Matters 2015-2016*. 2017. p. 148.

¹¹⁰ *Ibid.*

Utah supports rural schools

To address these issues Utah has several programs to support rural schools and students in the areas of course access, operational funding, and leveraging digital technologies to improve student outcomes. In addition to supporting online schools that provide a public school option for all students in the state Utah offers publicly funded online courses in a variety of content areas to eligible high school students through Utah's Statewide Online Education Program (SOEP). This program, established by the 2011 Utah Legislature, guarantees that the Statewide Online Education Program is an option for all Utah students in grades 9–12, even if their primary school or district of enrollment has existing online programs.¹¹¹ Beginning in the fall of 2016 Utah students can earn up to six online course credits via SOEP, replacing up to six traditional, brick-and-mortar course credits; in some instances the State Board of Education may allow a student to enroll in more than six online course credits if it can be demonstrated that this flexibility and course access better meets the student's academic goals and needs.¹¹²

Utah's Board of Education also supports some rural schools and their districts through the Necessarily Existent Small Schools program (called NESS). The NESS program provides additional funding to fill staffing and other operational gaps created by low student numbers in schools that are classified as "Necessarily Existent Small Schools."¹¹³ Roughly 25 of Utah's 41 districts receive this financial support, allowing them to continue operating schools in remote areas of the state where funding per student would not be sufficient to cover operational costs or to offer a quality education to students in these areas.¹¹⁴ The additional funds are allocated through Weighted Pupil Units that allow for the higher costs involved with keeping schools operating in remote, low population areas of the state. This state-run program originated in the 1970's with the creation of the Minimum Schools Program. The resulting funding formula and its increased weighting per pupil for these isolated schools is seen as an integral part of the mission of Utah's public education system. One of the fundamental goals of the Utah board of Education is to ensure that "all children of the state are entitled to reasonably equal educational opportunities regardless of their place of residence in the State and of the economic situation of their respective school districts."¹¹⁵ A school meets the standards to be classified as "necessarily existent" if bus travel from the school to the nearest next school requires more than 45 minutes of travel for grades K-6 or over 75 minutes from grades 7–12. The requirements also take into account school populations, targeting schools without enough students to fund their operations.

NESS example in Box Elder County

Box Elder County forms the northwestern corner of Utah and is one of the most rural areas of the state. The county seat is Brigham City. However, the tiny ranching community of Park Valley is 100 miles away from the district headquarters there. Park Valley Elementary and Secondary School serves 38 students, ranging in ages from kindergarten through 10th grade. After 10th grade students head to the town of Garland, 75 miles away,

¹¹¹ Utah State Board of Education. *Statewide Online Education Program: FAQs*. Retrieved from <https://www.schools.utah.gov/edonline>.

¹¹² Ibid.

¹¹³ B. Wood. Salt Lake City Tribune. "Tiny Box Elder school blends technology with ranching life, all ages under one roof." Sept. 5, 2017. Retrieved from <http://www.sltrib.com/news/education/2017/09/05/tiny-box-elder-school-blends-technology-with-ranching-life-all-ages-under-one-roof/>.

¹¹⁴ Ibid.

¹¹⁵ Utah State Legislature: Legislative Fiscal Analyst. *Issue Brief—Minimum School Program: Necessarily Existent Small School*. 2014. Retrieved from <http://le.utah.gov/interim/2014/pdf/00005182.pdf>.

to complete high school; they often stay with friends or extended family during the school week, returning home to help on the ranch on weekends. Park Valley recently transitioned to a four-day school week in order to cut down on lost instructional time due to students balancing ranching chores and schoolwork, and to support families who have to drive long distances for basic tasks such as groceries and equipment repair.¹¹⁶

Schools like Park Valley School rely on a range of modern learning techniques to help their two full time teachers serve their students. Due to size and staffing, the school cannot offer the wide range of courses or extracurricular activities available in more urban areas. However, the teachers address the very diverse needs of their students through a variety of digital learning methods. For example, students at the middle and high school levels may participate in synchronous IVC courses broadcast from other area schools via videoconferencing.¹¹⁷ Park Valley high schoolers can also take advantage of online course via the state SOEP program. Teachers may also use supplemental instructional technologies to build skills in ELA or Math or to enhance instruction in a station rotation-type model; this helps the school maximize its small staff, many of whom also pitch in as paraprofessional educators as students rotate through a schedule of age-appropriate course subjects and lessons. For example, one of Park Valley's two bus drivers also serves as the school librarian and a classroom aide.¹¹⁸

While Park Valley is an excellent example of a community school that is serving its students in creative ways, it is not the only one of its kind. Box Elder School District received \$751,860 in NESS funding for school year 2017–2018; the district has several other NESS schools, including Snowville where two teachers guide 25 students in grades K-5 and Grouse Creek School, which serves seven students in grades K-10.¹¹⁹

Building digital teaching and learning in rural communities

Sarah Young, Digital Teaching and Learning Coordinator for the Utah State Office of Education, oversees one of the state's most important efforts to address the issues that plague rural districts. Ms. Young runs Utah's Digital Teaching and Learning Qualifying Grant Program. The program, which launched in the summer of 2016, is open to all LEAs in the state. The grant requires that LEAs complete a comprehensive self-assessment, such as Future Ready Schools' Digital Learning Framework. To qualify for grant funding districts then submit a three-year proposal for their digital learning plan, including what instructional goals they will be targeting and plans for professional development for their staff. This plan must be approved by the Utah State Board of Education. The two-tiered grant review process also includes a rubric and a mandatory digital learning "bootcamp" for district leadership. In its first year, the program awarded 66 grants to a total of 40 school districts, 25 charter schools or charter school systems, and one award to the Utah Schools for the Deaf and Blind.¹²⁰ Grant funding, which runs for three years, starts with a base of about \$21,000 per district; this number is then adjusted based on October 1st enrollment from the previous school year. For example, Alpine School District, which served 77,343 students last year, received \$1,064,688; Beaver District, with an

¹¹⁶ Wood, B. *Tiny Box Elder school blends technology with ranching life, all ages under one roof*. Salt Lake Tribune, September 2017. Retrieved from <http://www.sltrib.com/news/education/2017/09/05/tiny-box-elder-school-blends-technology-with-ranching-life-all-ages-under-one-roof/>.

¹¹⁷ Ibid.

¹¹⁸ Ibid.

¹¹⁹ Ibid.

¹²⁰ UETN and Utah Digital Teaching and Learning Grant Program. James M. Marshall Consulting. 2017 Grant Application Analysis. July 2017 Findings. Retrieved from <http://www.uen.org/digital-learning/downloads/2017GrantApplicationAnalysis.pdf>.

enrollment of 1,519 students, was allocated \$41,454.¹²¹ Due to targeted outreach on the part of the State Board and a close working relationship with the regional educational cooperatives every one of Utah's rural districts qualified under the first cycle of funding.

Utah per student spending is consistently at or near the lowest in the country, and the low funding often impacts rural schools and districts to a higher degree than their more urban counterparts. Ms. Young cites this issue as one of the primary impetus for the DTLG project at the state level: "Resources are tough in Utah and per person spending is low; we are serving an increasing student population and districts often struggle with just keeping basic infrastructure." The impact of such strict funding affects rural areas disproportionately, says Ms. Young. Because their resources are already stretched so thin, they struggle to absorb the changes that more urban districts can bounce back from. Some of rural schools' basic costs are higher simply due to their location and student body; as one example, rural districts tend to incur higher transportation costs. With this focus on the basics, often times rural districts lack human and financial resources to innovate. The state sees the Digital Teaching and Learning Grant as a way to provide start-up funding for positive, supported change in the education of Utah's students.

The Digital Teaching and Learning Grant Program is part of a long-term focus in Utah to leverage digital learning in the support of student achievement and growth. A state fund for technology in 1990's helped school acquire initial devices and improve infrastructure. The state also funded software licenses for products that would normally have been out of reach for schools and districts, such as a math program for grades K–12 and a K–3 literacy program. Several legislative reports on the underuse of these free resources led the Utah State Board of Education to the conclusion that there was a deep need to create opportunities for digital teaching and learning in a thoughtful, accountable way. This led to the development of the State's vision for future learning, centered on the Utah Master Plan and the Digital Teaching and Learning Grant.

Meeting instructional goals using digital tools

Ms. Young notes several elements that have contributed to the quality of schools' digital learning program implementation under the grant. The USSA (Utah School Superintendents Association) is a highly collaborative superintendents' group that leverage their shared relationships to find shared solutions to problems statewide. Another selling point of the program is that LEAs were allowed to set their own instructional goals; in fact, this process became, in Ms. Young's view, a pivotal moment of the program as districts undertook a root cause analysis of their student achievement via the state Data Gateway. "There is a tendency to think, 'Let's put tech where we see early successes' instead of where it is needed to boost student achievement. We really asked everyone to think, 'Where do the kids need this?'" This is the first step, she says, in starting to shift use of digital tools from the substitution level to deeply transform teaching and learning across the state.

Finally, the grant provides LEAs with greater opportunities to work with their regional service centers who have been integral partners in the project from the start. The regional centers work closely with and know their LEAs very well and are uniquely positioned to support them in program design and implementation. Partly thanks to this involvement, all rural districts completed their plans in Year 1 and are now in full-implementation across the board.

¹²¹ Utah State Board of Education. *Digital Teaching and Learning Grant Program Qualifying Grant Funding Projections FY 2018*. Retrieved from http://www.uen.org/digital-learning/downloads/Digital_Teaching_and_Learning_ProjectionsFY18.pdf.

Grant application analysis: Targets and proposed outcomes

Of the 66 successful grant applications for SY 2017–18, all were required to undergo an assessment of their readiness to implement digital teaching and learning. Of the applicants, 60% used Future Ready’s assessment along seven measures of readiness, while 39% employed the North Carolina Digital Learning Progress Rubric.¹²² Several districts proposed making these assessments part of the yardstick by which they would measure their district’s ongoing progress throughout the three years of the grant. Schools and districts set instructional goals as well, which were revisited during the Digital Learning Bootcamp; several schools and districts opted to rewrite or to adjust their metrics after undertaking a root-cause analysis with their team. In general, schools were fairly evenly distributed in their focus across the elementary, middle and secondary grade levels; some applications, primarily within small charter school settings, proposed to address multiple grade levels for the grant project. In terms of content areas, 70% of projects outlined in the grant applications targeted Mathematics, while 71% focused on moving the needle in the area of English Language Arts and/or Reading.¹²³

Qualifying schools and districts also had to determine how they would measure program success at three levels: direct outcomes, intermediate outcomes, and long term outcomes. Approximately 25% of applicants proposed measuring their most immediate or direct outcomes by using locally designed assessments, SAGE (Utah’s computer-based, adaptive Student Assessment of Growth and Excellence) and/or the Future Ready Assessment.¹²⁴ However, nearly three-quarters of the applications (70%) proposed SAGE as their intermediate outcome measure. A substantial number of districts also chose to measure their digital learning program’s success based on students’ ACT performance. These percentages held steady as schools and districts looked ahead to long-term outcomes as well, with applicants planning to build upon their initial progress in both areas.

The Digital Learning and Teaching Grant also required districts to outline the supports that would be provided for personnel. The vast majority of professional learning activities, over 74%, outlined in grant applications targeted instructional staff such as teachers and paraprofessionals; only 22% included administration in their professional learning plans around digital learning implementation.¹²⁵ Most schools plan to use trainings offered by the Utah Education and Telehealth Network to achieve this professional learning goal. Schools also proposed developing an internal network of teacher leaders to guide the work, a mentorship program to build teacher capacity around digital learning, and use of instructional coaches as well as vendor-offered trainings. Over half of the applicants, 60%, included at least one infrastructure upgrade in their proposal as integral to their ability to support a digital learning program to meet their specific aims over the three-year time frame.¹²⁶ A final required component of the grant was a plan for including Digital Citizenship curriculum in the pilot project. Most often, schools indicated their intention to use either NetSmartz (42%) or NetSafe Utah, an initiative of the UETN (38%).¹²⁷

¹²² UETN and Utah Digital Teaching and Learning Grant Program. James M. Marshall Consulting. 2017 Grant Application Analysis. July 2017 Findings. Retrieved from <http://www.uen.org/digital-learning/downloads/2017GrantApplicationAnalysis.pdf>.

¹²³ Ibid.

¹²⁴ Ibid.

¹²⁵ Ibid.

¹²⁶ Ibid.

¹²⁷ Ibid.

Challenges and successes

Ms. Young acknowledges that the project has not been without its challenges. For example, Young states that personnel turnover in rural areas impacts the adoption of the technologies that could help transform their teaching and learning more heavily than the urban districts because in small, rural areas, one person is much more likely to wear many hats. “When one person is the linchpin in the process, they leave behind gaps that are harder for a small district to absorb.” Utah’s teacher turnover rate far exceeds the national average; research found that 56% of Utah’s educators who entered the profession in 2008 had left it by 2016.¹²⁸ However, according to the National Center for Education Statistics, this issue hits rural schools the hardest. Teacher turnover was significantly lower in suburban schools. The issue affects school leadership as well. Ms. Young cites one district that is starting SY 2017 with a new superintendent, a new assistant superintendent, and a brand-new tech director. The progress made under initiatives funded by the Digital Teaching and Learning Grant is more difficult to maintain in rural areas.

However, the successes of the program, now entering its second year, cannot be discounted. One point Ms. Young makes is that previous to the grant-planning, school employees or individuals in the edtech space had not always been included in the higher-level discussions about student learning and technology selection; the Digital Learning and Teaching Grant is now pulling them into closer partnership with school leadership. There is a higher degree of collaboration and communication between technologists and administration as they work together to fulfill the goals they have jointly set out to achieve. “We have seen this sustained shift in our rural schools as well as in other settings,” says Young, where people in the technology department are now part of strategic planning and have seat at the table in these conversations.”

Another early success of the statewide Digital Teaching and Learning Qualified Grant has been the implementation of a network of state-facilitated Professional Learning Communities. After grant applications have been accepted, the State Board of Education then identified 10 categories from the plans from which to create learning communities; these focus areas ranged from content areas (such as ELA and math) to implementation strategies such as the use of teacher leaders or instructional coaches. Some focused on the specific blended learning model being used. Another platform-based group centered on innovating inside Canvas LMS. After initial meetings, the groups have begun a series of site visits. The structure of the program helps address the relative isolation of rural settings and connects teachers and leaders in these schools to their peers across the state around specific areas of commonality. In addition, rural districts are taking advantage of the free

“There is a tendency to think, ‘Let’s put tech where we see early successes’ instead of where it is needed to boost student achievement. We really asked everyone to think, ‘Where do the kids need this?’”

– Sarah Young,
Digital Teaching
and Learning
Coordinator, Utah
State Office of
Education

¹²⁸ M. Cortez. Why are Utah teachers leaving their jobs at such a rate? Deseret News. March 13, 2017. Retrieved from <https://www.deseretnews.com/article/865675536/Teacher-turnover-in-Utah-exceeded-55-percent-over-8-years-Turnover-for-young-teachers-73.html>.

online professional development and gaining edtech credentials and endorsements via the Utah Education and Telehealth Network (UETN).

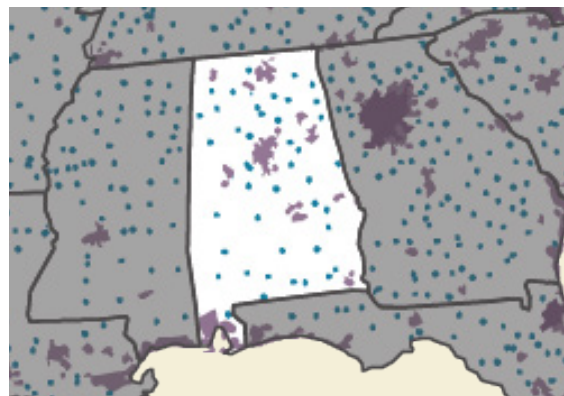
Future roadmap

One effect of the Digital Teaching and Learning Grant that has been common across the state, in urban as well as rural districts, is district leaders hearing from their stakeholders that they want more. The enthusiasm and demand for faster scale already outpaces the resources that can be provided across K–12. The grant has been focused on “planting the seed” and targeting areas of academic need. Thus far, it has encouraged a narrow scope in the use of the resources that it provides, urging districts to be strategic in choosing a grade level focus or content area focus in which to “move the needle.” However unintentionally, this creates an expectation with students, families, teachers, and larger communities that digital learning will be a part of their educational experience. This puts pressure on local leaders: how can they continue innovating and improving on the foundation that is built through the grant?

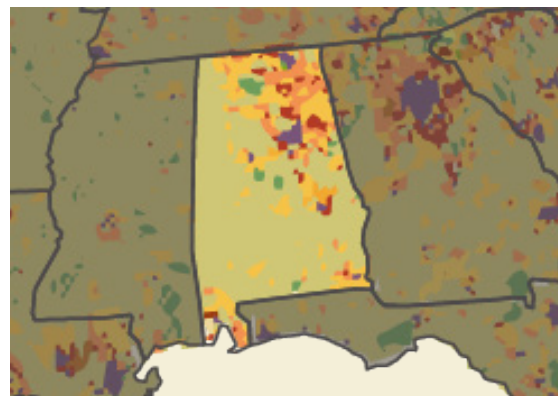
One district’s story

Among several emerging success stories for rural districts, Millard School District in western Utah has been in “the right place at the right time.” The school has helped kickoff a unique partnership between the Consortium for School Networking (CoSN), Team4Tech and VMware as the three organizations join forces to create better support systems for rural schools. The influx of expertise and attention has meant increased resources for Millard and immediate benefit to its students and staff in terms of its ability to implement their digital learning plan and then to scale that plan beyond their initial expectations.

Millard has seen their networks upgraded and dramatically improved, have received help in finding funding sources to increase the quantity and quality of their hardware, and been supported in planning for how to sustain this change and innovation over time. The initiative will also equip each of Millard School District’s 3,000 students with a Google Chromebook. The vision, however, goes beyond wiring and devices. There is a drive to build internal capacity for change so that the initiative grows and thrives after this initial injection of human and financial capital. A cohort of 27 teacher leaders, called ‘teacher initiators,’ is receiving professional development directly with Team4Tech and VMware. These teachers, who are creating digital lesson plans and researching best practices across the state to bring back to Millard, will then provide training to the rest of the Millard faculty.

RURAL LAND

URBAN AREAS
 URBAN CLUSTERS
 RURAL

RURAL PEOPLE

FEDERAL LANDS
 COMPLETELY URBAN

CONCENTRATION OF RURAL POP.

lowest highest

ALABAMA IS THE 6TH POOREST STATE IN THE NATION and the economic disparity between urban and rural counties is striking. While poverty rates are in the teens in counties surrounding the cities of Mobile, Montgomery, Birmingham and Huntsville, it climbs dramatically for more rural areas.¹²⁹ Counties like Calhoun and Cherokee on the eastern side of the state have poverty rates into the twenties. Counties such as Lowndes and Macon, in the agricultural region known as the “Black Belt,” are approaching 35% poverty.¹³⁰ A recent article painting a picture of rural education in Lowndes County, described Calhoun High School as follows: “98% of students are eligible for free or reduced lunch. Test scores are low, there’s little diversity, teachers struggle to get parents involved, and there are few after-school programs because it’s difficult for students to get transportation.”¹³¹

Calhoun High is not unique in the state; across Alabama’s rural areas, roughly one in six students lives in a low-income setting.¹³² Alabama’s student achievement scores for rural students as measured by NAEP is the lowest in the nation for both 4th and 8th grade math. The state’s performance on college and career readiness indicators such as AP course participation for rural students is 11.2% versus the national average for of 28%.¹³³ Even within a state facing many educational challenges linked to socio-economic factors and rural regions, however, promising practices exist.

¹²⁹ Alabama Possible. Poverty Data Sheet. 2017. Retrieved from <https://alabamapossible.org/programs/povertydatasheet/>.

¹³⁰ Ibid.

¹³¹ Montgomery Adviser. *Alabama’s rural schools: An education out of reach?* May 2014. <http://www.montgomeryadvertiser.com/story/news/education/2014/05/25/alabamas-rural-schools-education-reach/9562449/>.

¹³² Rural School and Community Trust, *Why Rural Matters 2015–2016*. 2017. p. 105.

¹³³ Ibid.

“Not a technology initiative”

Piedmont, Alabama was once a thriving rural town. It was founded at the crossing of two stagecoach routes and functioned as a hub of the cotton textile industry for many years.¹³⁴ Piedmont City School District is classified by NCES as a fringe rural district. The district has one elementary school, a middle school, and a high school enrolling approximately 1,240 students total. The city of Piedmont is located in the northeastern corner of Calhoun County, about 25 miles away from the county seat of Anniston. Calhoun County ranks in the middle of Alabama counties in terms of residents living in poverty. However, in recent years, the town has taken several economic hits as two major employers moved or shut down. During the resulting downturn many local businesses suffered as well, with many closing their doors. The impact on families has been severe; currently nearly one in every five Piedmont residents lives in public housing.¹³⁵ The district as a whole has a 68% free and reduced lunch eligibility rate.¹³⁶ The region’s struggles in terms of lack of both employment and future opportunities make it more difficult to offer the students of Piedmont models for college and career success. However, despite the economic decline and challenges Piedmont residents are deeply rooted in the area and the community, often going back for generations.

This is why the mPower Piedmont Initiative, while based on using digital learning, is not primarily about the technology. From the start former superintendent Matt Akin saw mPower as nothing short of a community transformation initiative—not just a way to support student learning in the Piedmont schools, but also to boost the self-esteem and self-efficacy of the entire community. The mPower Piedmont movement began in 2009 with a pilot program which provided 150 laptops to students at Piedmont High; this plan was expanded the following year to include grades 4–12. In 2012 a check-out program for laptop computers was implemented for grades K–3. Today Piedmont City School District is fully 1:1 with a device for every student in district. Early elementary students use a variety of mobile devices appropriate to their grade level, while students from grade 4–12 are issued a laptop for their own designated use.

At the same time, Piedmont Schools implemented a series of strategies to ensure that students reaped the full learning benefits of the school-issued laptops. While devices were a starting point, the school district’s leadership realized quickly that they needed to address Internet access and connectivity disparities within the community. Many students in the district live in rural areas where Internet connection is unavailable; for other students, a broadband connection

“This initiative—both the connectivity and the devices—is a game-changer, not just for our students, but their families. We hear stories of parents who completed a GED or college classes on the school-issued devices after the kids were in bed.”

– Rachel Smith,
Curriculum
Coordinator and
Administrator for
Federal Programs,
Piedmont City
School District

¹³⁴ Montgomery Adviser. *Alabama’s rural schools: An education out of reach?* May 2014. <http://www.montgomeryadvertiser.com/story/news/education/2014/05/25/alabamas-rural-schools-education-reach/9562449/>.

¹³⁵ Digital Promise. *Changing a Rural Community’s Expectations Through 24/7 Learning*. 2014. <http://digitalpromise.org/2014/08/27/a-model-for-21st-century-rural-education-at-piedmont-city-school-district/>.

¹³⁶ Ibid.

may be available but the expense puts it out of their family's reach. Rachel Smith, Piedmont's Curriculum Coordinator and Administrator for Federal Programs, says that because of the lack of home Internet access, "We would drive by the school in the evenings and realized that students were sitting outside on the lawn with their laptops to get their homework done" by connecting to the school's wifi. Initially, the school district partnered with a virtual service company to expand broadband access across Piedmont. Later funding allowed Piedmont City Schools to build a citywide wireless network, providing every student 24/7 access to anywhere, anytime learning. When the grant supporting this infrastructure ran out, the district had to figure out different ways to get access. At-home access, says Ms. Smith, "is just as important as access at school. It can give the entire family a boost." Today the schools use MiFi boxes or Verizon cards to support at-home access for students and families. The district also partnered with local entities to create a support network; some local businesses and restaurants offered free wifi to Piedmont students while several area churches provided both wifi connection and supervision for students to work online. "This initiative—both the connectivity and the devices—is a game-changer, not just for our students, but their families. We hear stories of parents who completed a GED or college classes on the school-issued devices after the kids were in bed."

Home Internet access issue is not specific to Piedmont; studies have found that affordable access lags for low-income communities nationwide, with the gap increasing still more for rural areas. Rachel Smith calls the combination of access and hardware "Piedmont's window to the outside world—many of these students have never been out of state."

After the success of the original mPowerPiedmont, the district has continued to innovate and improve. Piedmont has launched a comprehensive redesign of its middle school learning program. It builds on previous investments in infrastructure, devices, and digital content to create a blended, mastery-based learning approach. Piedmont City School District also offers a Summer Virtual Academy, a program which allows both high school and middle students to earn high school credits through online classes and coursework. The Virtual Academy also helps the district address summer learning loss by keeping students engaged.

The learning model that Piedmont has developed strives to blend individualized supplemental curriculum along with mastery-based education to ensure that Piedmont students are meeting and exceeding standards as well as getting targeted remediation or acceleration as needed. The district conducts short-cycle assessments three times a year (Fall, Winter, and Spring). The data from these assessments is then used to create an individual learning pathway (ILP) for each student. Adaptive digital content is then assigned to help address student's academic strengths and weaknesses. The content used varies depending on grade level and subject area. Also, the school strives to integrate appropriate tech-based tools that best support the individual's instructional goals. Starting in 4th grade through high school, teachers also create mastery folders for each standard in the district's Learning Management System. Students work at a minimum, but still individualized pace to complete the items assigned to each standard and then test in Mastery Connect when they are ready.

Piedmont still uses a numerical grading scale and a more-or-less traditional bell schedule. Students receive Digital Content Grades for completing work on their standard folder and for working on their ILP in their lowest-scoring area. Students have built-in periods during the school day called "My Time". At these times, students are working on areas where they feel they need support in their ILPs or can work on their digital standards-mastery folders. In the upper grade levels, Piedmont explicitly builds in instruction to help students explore how education connected to their future career and goals, to research colleges and careers, and

to build relationships with professionals in the Piedmont area. The district also implemented Student-Led Conferences; “We weren’t sure that conversations about the future were happening at home for all students,” says Ms. Smith, “so we made sure to make that part of our curriculum.”

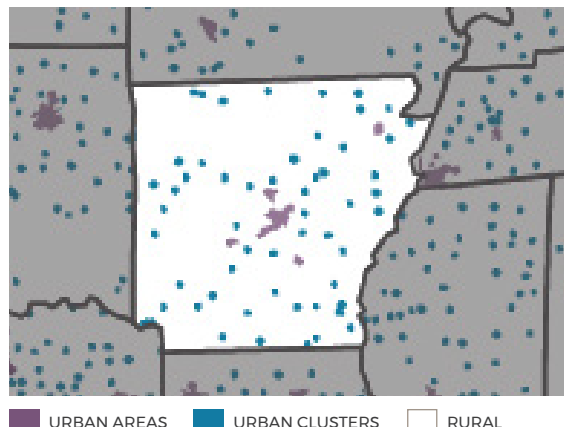
Ms. Smith is quick to point out that Piedmont isn’t perfect; “We don’t have it all figured out. We are still working on using technology to transform our face-to-face teaching. Our teachers are all learning, but we all tend to revert to what we know when things are difficult or complex.” To support instructional change and continued growth, Ms. Smith says, Piedmont has implemented a walkthrough tool aligned to Piedmont’s mission and vision of Advanced Mastery, Relevance, and Student Ownership. It includes look-fors such as small group instruction, student ownership of both learning and standards, and evidence of differentiation at all levels, both low and high. Classroom observations highlight an increase in student engagement and students have more input and ownership of what and how they learn.

As a district, Piedmont’s student achievement is strong, providing data to demonstrate that their blended learning model is working. NWEA MAP scores have increased across grade levels and content areas, and longitudinal data collected by the state also validates the claim that Piedmont is growing its students academically. The 2015–16 District Report Card puts Piedmont’s Learner Growth at 97.5% in Reading and 100% in Math.¹³⁷ SY 2015–16 Aspire ACT scores for grades 4–8 show the district’s students performing at or above the state level; in the area of Math, 72% of students from Piedmont scored at or above proficiency levels, 9 percentage points higher than the state average.¹³⁸

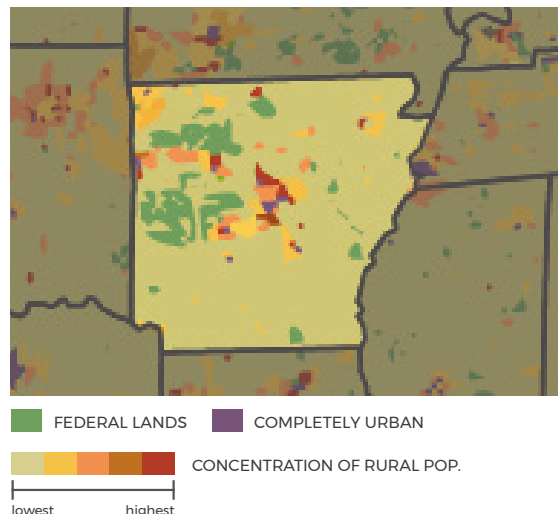
Ms. Smith credits a strong growth mindset as being part of Piedmont’s success as well. “We always say—and teach our students to say, ‘I don’t know how to do this YET.’” Piedmont City School District is one of ten districts who are charter members of the League of Innovative Schools. Created by the US Congress in 2008 and officially launched in 2011, member schools are recognized for their efforts to transform teaching and learning through the innovative use of technology throughout America’s public schools.

¹³⁷ Alabama State Department of Education. A-F Report Cards: Alabama Accountability System Dashboard. 2017. Retrieved from <https://ap.alsde.edu/accountability/atof>.

¹³⁸ Ibid.

RURAL LAND

URBAN AREAS URBAN CLUSTERS RURAL

RURAL PEOPLE

FEDERAL LANDS COMPLETELY URBAN
 CONCENTRATION OF RURAL POP.
 lowest highest

THE RURAL STUDENT POVERTY RATE IN ARKANSAS IS SEVENTH HIGHEST IN THE U.S. Mobility in the rural student population is higher than the national average, 12.9% versus 10.6%, meaning that more than one in every ten students has moved in the past year. Arkansas' rural student outcome measures are low, especially at the eighth grade level; however, following a pattern that has been noted elsewhere in this report, the state has a high rural graduation rate of over 90%.¹³⁹

Arkansas' percentage of rural juniors and seniors taking at least one AP course is ten points greater than the national average for this population, 37% versus 28%, and with good reason. One reason for this advancement has been Arkansas' early adoption of digital learning providers providing AP courses; the state vets and publishes a yearly list of approved third-party vendors who courses align with the Arkansas Learning Standards and Curriculum Frameworks. Over ten years ago, the state prioritized making AP courses available and accessible to all Arkansas students. In 2004, the state set a goal of having every high school offering at least one AP course in each of the core content areas (English, Math, Social Studies, and Science) by the 2008–2009 school year.¹⁴⁰ In addition, Arkansas mandated Pre-AP courses to prepare students for the core AP courses within the same time frame. The state has also incentivized AP Computer Science by pledging to award \$1,000 per student and \$250 for the school for a score of five on AP exam; those award levels decrease for scores of 4 or 3. The state-level emphasis on computer science goes beyond AP and all high schools are required to offer at least one computer science course. Finally, beginning in the 2014–2015 school year all public school districts and charter schools were required to provide at least one digital learning course to their students, either as a primary or supplemental method of instruction.¹⁴¹

¹³⁹ Rural School and Community Trust, *Why Rural Matters 2015–2016*. 2017. p. 108.

¹⁴⁰ Education Commission of the State. Advance Placement Policies – All State Profiles. Retrieved from <http://ecs.force.com/mbdata/mbprofgroupall?Rep=APA>.

¹⁴¹ Arkansas Department of Education. Rules Governing the Digital Learning Act of 2013. June 2014. Retrieved from http://www.arkansased.gov/public/userfiles/rules/Current/Digital_Learning_Rules_-_FINAL.pdf.

Arkansas' Team Digital

The Education Service Cooperatives (ESCs) in Arkansas play a crucial role in the educational ecosystem, particularly in the implementation of state-level initiatives. There are fifteen ESCs located throughout the state as well as four operating agencies dedicated to supporting migrant education. To meet the growing need of schools and districts striving to leverage digital learning technologies to support the state's goal of student-focused education, the Arkansas Department of Education (ADE) in collaboration with its Education Service Cooperative system, created Team Digital. This group of digital learning experts and educators provides ongoing support to schools and districts at all stages of their programming. Team Digital employees are part of the Education Services Cooperatives and the program is funded through ADE.

Team Digital's structure mirrors that of the ESCs, with each Team Digital member assigned to two or three Cooperatives. Team Digital members are the primary point of contact for digital learning expertise within their geographical region. Even with this approach, distance and rurality can become an issue; the drive can be up to an hour or more for the Co-op's furthest schools. The Team frequently works remotely with one another in planning and program design and often provides school support in the same way. Team Digital supports the visioning, planning, implementation, and evaluation of digital learning tools, blended learning environments, and online courses for schools across the state of Arkansas. Their experts conduct professional development sessions, either onsite or at the ESC offices. Team Digital works with schools individually, or at the district, regional, and state levels to help design effective programming. The group also provides the expertise in the use of online teaching and learning practices that allow for active learning, effective content authoring, and personalized lesson design.

In short, says Ms. Lisa Russell, a core member of the group who works primarily in the Arch Ford and Guy Fenster ESC Areas, Team Digital disseminates and supports best practices in helping educators transform system-centered learning into student-focused educational experiences. The Team is seeing more emphasis from its partnering schools and districts on thoughtful design and the use of technology to achieve specific, data-driven instructional outcomes with more emphasis on instructional goals. This, says Ms. Russell, is partly due to the state's new ESSA plan. As part of Arkansas' vision for the future, it has set as a goal to "lead the nation in student-focused education so that every student graduates ready for college, career, and community engagement."¹⁴² The plan also prioritizes technology activities to support this overarching vision, including professional development for staff and teachers in the instructional use of technology, support for increased technology infrastructure, and the use of both blended and project-based learning often in conjunction with one another. It specifically cites a need for providing students in rural communities with resources for digital learning. As more and more schools look to achieve these new goals digital learning will become even more important in the state. Moreover, the role of Team Digital will increase in value and importance as well.

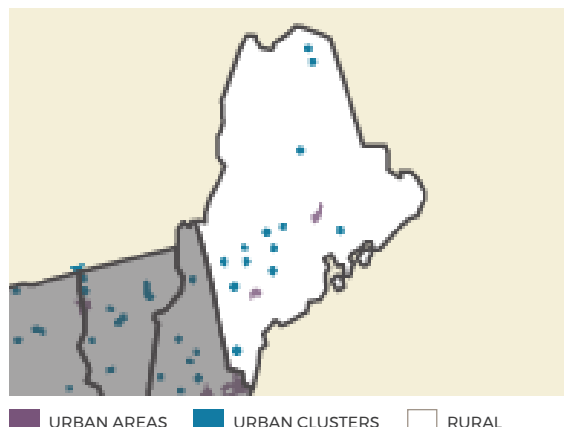
Ms. Russell is very clear that just as there is no "one size fits all" for students, there is no one solution for every school. "No school is the same, the students at every school are not the same. Each has unique challenges and needs." The Team conducts initial envisioning meetings with school leadership to help develop plans to move forward; they then confer internally, leveraging the expertise of the group to develop

¹⁴² Arkansas Department of Education. Every Student Succeeds Act – Arkansas State Plan. Retrieved from http://www.arkansased.gov/public/userfiles/Public_School_Accountability/Arkansas%20ESSA%20Plan%20Draft%20Three%20August%201,%202017%20rv.pdf.

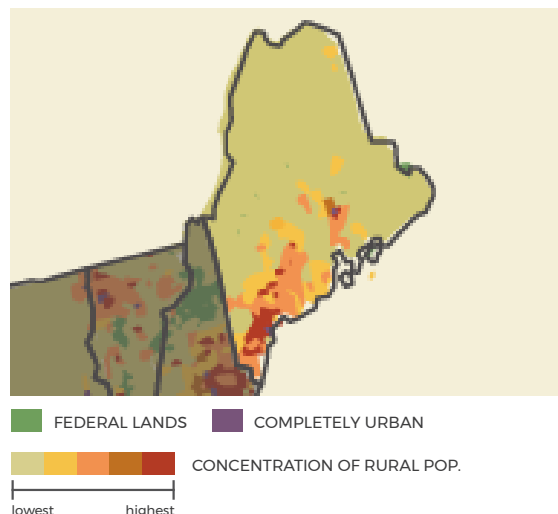
tools or strategies to support the school in its implementation. Team Digital Specialist Evan Patrick, who works primarily in the southern part of the state, explains that “We try to help them develop their best strategic vision and approach.”

There are plenty of challenges involved with reaching out to schools and districts in more remote areas. Team Digital members note the ongoing struggles with limited at-home connectivity, a problem that still affects some districts particularly in more mountainous regions of the state. However, the schools and districts work with the Department of Information Systems has helped with broadband issues, increasing speed and access. Other solutions include the use of third-party deals for qualifying families and installing Internet on buses with longer routes.

There are also evolving perspectives noted by the team in simply understanding the potential of blended and online learning strategies. A school can have invested in computers to the point of having one computer per person, and still not be incorporating blended learning. “It’s not the same thing as tech integration,” says Ms. Russell. When done correctly blended and online learning can move schools from a technology rich environment to creating more entry points for learners into their own personalized learning pathways. These models often make more effective use of teacher time. When they are not trying to deliver content to the same group in the same way, teacher time is freed up so that they can find time to reach the students that needs them most, ones who are really struggling or are hesitant to ask for help. “Digital learning provides a way to reach underserved kids,” says Ms. Russell.

RURAL LAND

URBAN AREAS URBAN CLUSTERS RURAL

RURAL PEOPLE

FEDERAL LANDS COMPLETELY URBAN
 CONCENTRATION OF RURAL POP.
 lowest highest

MAINE IS KNOWN FOR ITS PICTURESQUE LIGHTHOUSES, ROCKY SHORELINES, AND LOBSTER.

However, Maine also ranks highest in the nation for the importance of rural education to the state learning landscape, as more than 50% of its students live and attend school in rural communities and seven out of every ten schools report as rural.¹⁴³ In fall of 2002, Maine became the first state to launch a statewide 1:1 laptop program; today, the Maine Learning Technology Initiative (MLTI) is still the largest statewide 1:1 program in the country.¹⁴⁴ The program currently deploys learning devices to over 80,000 teachers and students. In addition to the devices, MLTI provides four full years of technical support, as well as supports such as software and training for school leaders and teachers.

Mainers have a reputation for being independent and also for pulling together around common causes. Perhaps it is no surprise to find regional efforts such as the unifying work two very different learning collaboratives supporting excellence in education for rural students in the state.

Regional program: Western Maine Education Collaborative

Western Maine Education Collaborative (WMEC) demonstrates one way that disparate schools and districts—all with their own challenges and strengths—are working together to empower rural students in the state. The WMEC serves an area of approximately 7,200 square miles,¹⁴⁵ a region about the size of New Jersey, and consists of 15 public school districts throughout five counties and 50 communities within the region

¹⁴³ Rural School and Community Trust, *Why Rural Matters 2015–2016*. 2017. p. 123.

¹⁴⁴ Maine Department of Education. Center for Best Practice: Regional Possibilities. 2015. Retrieved from <http://www.maine.gov/doe/cbp/case-studies/westernmaine/index.html>.

¹⁴⁵ Maine Department of Education. Center for Best Practice: Case Study – WMEC. 2015. Retrieved from <https://maine.gov/doe/cbp/case-studies/westernmaine/wmec-casestudy.doc>.

serving over 14,000 students.¹⁴⁶ Executive Director Kristie Littlefield describes her organization as one that was born of necessity. The nonprofit group works with educational entities and collaborative members to improve student growth and achievement. WMEC strives to help member districts use human, technology, and monetary resources effectively to have the greater possible impact on student learning.

“We serve a variety of rural schools, everyone from a K–6 school with 80 students to a PreK–12 district of over 2000 students—and everything in between,” says Ms. Littlefield. Not only do the districts vary by size, they differ in terms of rurality; some are highly isolated geographically while others have more proximity to larger towns in the area. Since its initial founding in 2005 WMEC gradually began to take a lead in the direction and vision of education in the region.

WMEC’s role has evolved from exploring ways to help these rural districts leverage their shared buying power on everything from bulk purchases of heating oil and diesel fuel to software purchasing. The WMEC has facilitated initiatives that the more isolated and remote districts of the region would find difficult to provide such as:

1. **Human Resource Sharing:** Helping schools combine their needs to share a few cross-district positions instead of several part time ones, spreading the cost and bringing in more highly qualified candidates.
2. **Technology Purchases:** WMEC buys online course seats in bulk and manages their distribution to member districts. This allows districts the chance to provide access to courses that they cannot typically offer, such as AP courses, lab resources, and advanced language classes as well as elective and course recovery options. The Collaborative also coordinated the purchase of digital learning curriculum across multiple schools for alternative, supplemental/blended and adult education.
3. **Professional Development:** Coordinating shared professional development opportunities to support regional needs and learning objectives is another area where WMEC serves its member districts.

In 2012 the Collaborative made a formal shift in its focus to support the transition to proficiency-based learning, emphasizing student-centered learning models to leverage technology to help track student progress towards standards mastery, and to individualize curriculum and supplemental tools to meet students where they are. WMEC is also a founding member of the Rural Collaborative Network, a national network of 14 rural education collaboratives focused on innovative approaches to the needs and challenges unique to rural education.

School profile: Outer Islands Teaching and Learning Collaborative

The Outer Islands Teaching and Learning Collaborative (also known as Outer Islands TLC) demonstrates how digital teaching and learning can support remote schools and districts across geophysical barriers. Outer Islands TLC is a program of Maine’s Island Institute. This committed group of educators is working together to create an inter-island education network across the one- and two-room school communities of the Outer Islands, using digital learning tools to connect both teachers and learners. The Collaborative serves the areas of Cliff, the Cranberry Islands, Frenchboro, Isle au Haut, Matinicus, and Monhegan. The islands are unbridged; for example, Frenchboro is a fishing village on Outer Long Island accessible only by water; Great Cranberry Island is served by a year-round mail boat.

¹⁴⁶ Western Maine Education Collaborative. 2017. Retrieved from <https://www.westernmaineec.org/about.html>.

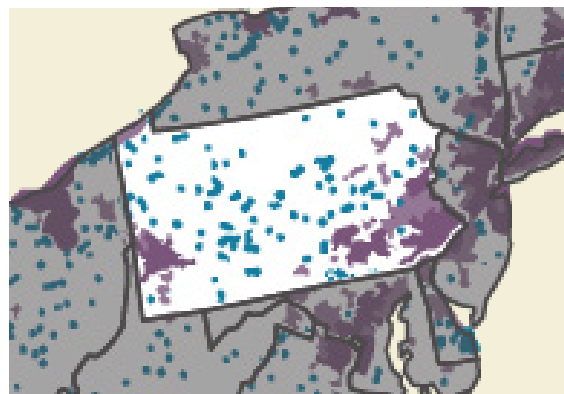
The Outer Islands TLC was formed based on the recognition that teaching in the tiny classrooms on the outer islands was both isolated and isolating compared to teaching on the mainland, and that the challenges of meeting a vast range of needs and grade levels with limited resources faced by teachers in this unique educational context. What began in 2008 as a Critical Friends Group, an avenue for island teachers to connect with one another and to deepen their teaching practice, became an educational collaborative when one of the schools found themselves facing possible closure. The closure of any small community school can be devastating, but perhaps especially so for an island school. These communities know that the closure of their school can eventually mean the end of year-round sustainability for their families and children. For many of the island schools this very real possibility could be realized with the relocation of just one or two island families to the mainland. Therefore, the creation of the Outer Islands TLC provides a lifeline of social interaction and academic support that helps sustain Maine's small island schools.

Inter-island collaboration is key to the Collaborative's success so far. Teachers co-create curricular units and activities. Alignment in the areas of Social Studies and Science provides students at different locations the opportunity to study the same themes at the same time. In Language Arts, students participate in virtual inter-island book groups that meet once a week via teleconferencing. They also use a collaborative platform to work together and to post their writing, responses, and to co-create projects. The social component of the group is also important; the TLC Student Council meets monthly to plan virtual parties, end of semester celebrations, and other social events for the group throughout the year. The schools all get together three times a year, usually starting each school year with a kick-off in September at the annual Inter-Island Event. Other field trips throughout the year are tied to areas of study for the students.

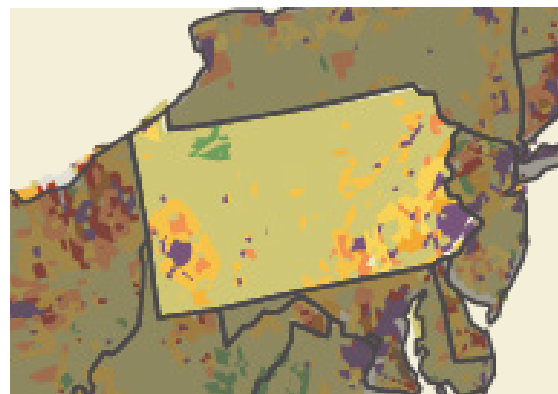
Outer Islands TLC has received support from the parents and families that they serve as well as the school boards, administrators and communities of participating islands. Other support has come from the Island Institute, the Maine Seacoast Mission, the Maine Community Foundation, and the Stephen and Tabitha King Foundation to make this continued digital collaborative possible.

“The incorporation of blended modalities in rural schools in Maine and throughout the nation is essential to sustainability and growth. ... Blended modalities ensure access to any number of educational materials... and allow for varied learning spaces to ensure quality education is not lost for the rural population. Along with this, blended modalities also allow underserved and marginalized youth to have access to the educational tools needed so they can positively change their future.”

– Peter Servidio,
WorkReady and Hi-Set Teacher, Maine
Correctional Center

RURAL LAND

URBAN AREAS
 URBAN CLUSTERS
 RURAL

RURAL PEOPLE

FEDERAL LANDS
 COMPLETELY URBAN

CONCENTRATION OF RURAL POP.

lowest highest

THE CONCEPT OF MASS CUSTOMIZED LEARNING WAS FIRST INTRODUCED IN 2012 by Charles Schwahn and Beatrice McGarvey¹⁴⁷ in their book, *Inevitable: Mass Customized Learning: Learning in the Age of Empowerment*. Schwahn and McGarvey contend that “education cannot sit in this customized world as an island, embracing the Industrial Age, and expect to survive.”¹⁴⁸ Change and innovation are imperative. Mass customization models work to leverage digital technologies in order to individualize (or “customize”) at scale.

Sixty-four school districts in the United States, from Maine to Pennsylvania to California, have formed the Mass Customized Learning National Alliance, a consortium dedicated to supporting schools in the design, implementation, and sustainability of mass customized learning.¹⁴⁹ Twenty-five of these school districts belong to a subgroup called the Mass Customized Learning Mid-Atlantic Consortium, which receives strong support from the Appalachia Intermediate Unit 8 and the Pennsylvania Leadership Development Center (PLDC). Dr. Patrick Crawford, director of PLDC and the Consortium, confirmed that the availability of educational technology has served as a catalyst for many consortium schools seeking to customize learning for students across grade levels. Four rural Pennsylvania schools that are members of the Mass Customized Learning Mid-Atlantic Consortium have implemented their own mass customization models that align to each one’s mission, vision, and educational context.

The leadership and staff of the Central Pennsylvania Digital Learning Foundation (CPDLF), a fully online cyber charter school located approximately 90 miles east of Pittsburgh, Pennsylvania, believe that “each child is different and learns in different ways.” The school is free and open to all Pennsylvania students and is based in

¹⁴⁷ *Inevitable: Mass Customized Learning: Learning in the Age of Empowerment*. ISBN-13: 978-1470059057.

¹⁴⁸ *Ibid.*

¹⁴⁹ <https://www.mclalliance.org/who-we-are/>.

the town of Duncansville in rural Blair County.¹⁵⁰ To support this philosophy of meeting diverse learner needs the school has implemented an in-depth student advising program designed to help nurture relationships with both students and their families with the ultimate goal of developing a personalized curriculum for each student. Each child's course curriculum is fully online in an asynchronous environment with face-to-face onsite tutoring sessions available to students and families.

CPDLF faces challenges as they strive to implement and sustain online learning modalities to mass customize learning, according to CPDLF chief administrator Dr. Malynda Maurer. With many students living in high-poverty areas of rural Pennsylvania, access to technology and high-speed internet has proven a challenge for the implementation of digital learning. The school ensures access to computing devices by providing a district-issued device to each child. Student access to the Internet remains a challenge as local cable Internet providers do not serve all rural areas of Pennsylvania, and cellular service is not always adequate for students engaging in media-rich online course work. CPDLF has also taken steps to shift the mindsets of staff members away from traditional instructional models to a more personalized model of education. Through the development and implementation of an internally-developed and proprietary "ConnectsU" guidebook the leadership team and the staff continuously stay focused on the personalization of education for their students.

The Titusville Area School District is a small district serving families and communities across three different counties. Allegheny Township, Cherrytree Township, and Pleasantville Borough are all located in rural Venango County; Hydetown Borough, Centerville Borough, Rome Township and Titusville City are situated in Crawford County, while Warren County is home to Southwest Township; Venango, Crawford and Warren counties are all considered rural by The Center for Rural Pennsylvania.¹⁵¹

Hydetown Elementary School students in grades 1–5 in the Titusville Area School District are immersed in mass customized learning that is heavily dependent on the blended learning modality. Superintendent of Schools Ms. Karen Jez explains that despite being a 1:1 school learning activities occur primarily in the school building through variations of the rotation model in the classroom. Teachers utilize a commercially-provided learning management platform and age-appropriate web-based reading and math software within the rotation of students in the classroom. The formative assessments built within the software provide teachers with real-time student performance data, allowing them to effectively group students and provide individualized instruction for students needing extra support or enrichment. Students within this mastery-based, technology-rich learning environment are thriving, Ms. Jez added, and "students and parents are thrilled with the customized format." This was a shift in mindset for most families who have experienced generational poverty for years in this rural area. Finally, similar to the Central Pennsylvania Digital Learning Foundation, the lack of broadband Internet availability and cellular service to students' homes in this rural area approximately 50 mile southeast of Erie, Pennsylvania also presented significant challenges. This lack of Internet access is the primary reason why students do not take school-owned devices home.

The Everett Area School District (EASD), located in the Appalachian Mountains approximately 120 miles southeast of Pittsburgh, utilizes technology in both blended and fully online modalities to customize education for students. EASD serves students in grades K–12 in rural Bedford County, Pennsylvania. Strategic financing

¹⁵⁰ The Center for Rural Pennsylvania. Demographics>County Profiles. Updated 2015. Retrieved from http://www.rural.palegislature.us/rural_urban.html.

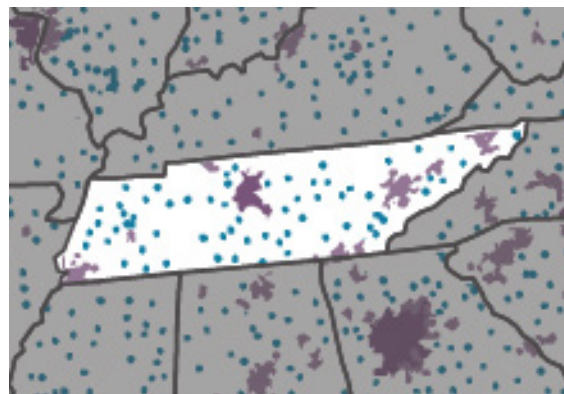
¹⁵¹ Ibid.

from a variety of sources, including a funding award through the Pennsylvania Personalized Learning Grant, a PA Rural Small Schools grant and a generous donation from the Clair Vernon Chaney Foundation. Together these funding sources allowed the district to overcome significant financial challenges to provide iPads and Chromebooks to all students, grades K–12. EASD teachers use a learning management system to create online instructional units and some fully online courses for students. Providing course content in this manner allows EASD students greater levels of flexibility in scheduling, which can be especially difficult in small schools due to limited course offerings and smaller staff sizes. Superintendent of Schools Dr. Dan Webb stated that staffing can be an issue; it is sometimes difficult to recruit teachers in a rural setting and that the looming teacher shortage in Pennsylvania “will make it more difficult to attract and hire good teachers in the future.” EASD has made progress in overcoming the challenge of offering a wide variety of courses by partnering with the neighboring Meyersdale Area School District (MASD), another rural school district located approximately 55 miles away. Within this partnership EASD students are permitted to enroll in MASD online courses taught by MASD teachers, and MASD students are permitted to enroll in EASD online courses taught by EASD teachers. This arrangement allows students the opportunity to take some courses that would not otherwise be available to them in their own district due to staffing constraints.

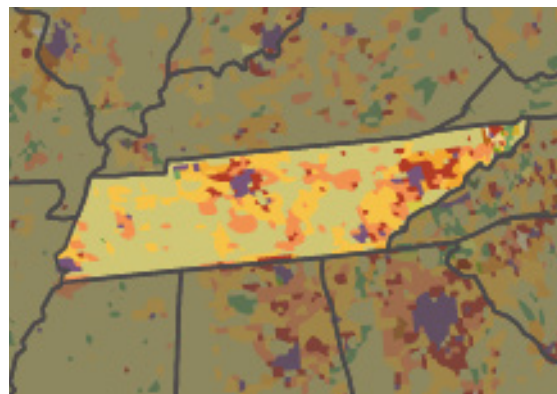
Northern Potter School District (NPSD) is another consortium school located in extreme upstate Pennsylvania approximately 165 miles north of Harrisburg. The K–12 school and the community in general faces significant financial constraints due to the rural setting when serving its 574 students.¹⁵² The community’s poverty level is approximately 28%; close to 60% of NPSD students participate in the free and reduced lunch program. Despite these constraints, NPSD boasts technology-rich classrooms in all grade levels with tablet computers at the elementary and middle school levels, and the high school functioning as a “one-to-one” school. According to Superintendent of Schools Mr. Scott Graham teachers are using a variety of online tools and resources to supplement online instruction.¹⁵³ The district administration strongly encourages teachers to adopt digital instructional resources that collect student performance data. This allows teachers to determine student mastery levels so that students may progress through their high school career at their own personalized pace. Mr. Graham emphasized that the school is very flexible and student-centered, permitting students to structure their individual academic schedules to include online courses, blended courses, or a combination of both. In Mr. Graham’s words, “there is no ‘no’ here,” meaning that school will always find a way to give each student what she/he needs. As with the Titusville Area School District and the Everett Area School District broadband Internet connectivity within the geographical boundaries of the school district is limited. NPSD has leveraged federal E-rate reimbursements and community donations to work with a telecommunications provider to install a cell tower booster antenna on school property in order to better serve the Internet needs of the community.

¹⁵² National Center for Education Statistics, Retrieved from https://nces.ed.gov/ccd/districtsearch/district_detail.asp?ID2=4217700&details=1.

¹⁵³ Ibid.

RURAL LAND

URBAN AREAS URBAN CLUSTERS RURAL

RURAL PEOPLE

FEDERAL LANDS COMPLETELY URBAN
 CONCENTRATION OF RURAL POP.
 lowest highest

TENNESSEE HAS A HIGH RATE OF RURAL STUDENTS who are eligible for free or reduced lunches—63.9% against a national average of 48.2%.¹⁵⁴ Schools and districts have worked to find solutions to change these statistics for rural students in the state, often leveraging online and/or blended learning models to increase equity of access to advanced courses, highly effective teachers, and high quality educational content to support individualized instruction. Tennessee lags well behind even the national average of 23% rural student enrollment in these classes—only 10% of Tennessee’s rural students enroll in AP courses.¹⁵⁵

VITAL Education: Expanding opportunities in Putnam County

The Virtual Instruction to Accentuate Learning (VITAL) Program supports 23 schools throughout the Putnam County School System in the Upper Cumberland region of Tennessee. While Putnam County itself includes the micropolitan areas of Algood, Baxter, Cookeville, and Monterey, areas that contain more than 10,000 residents but less than 50,000, Putnam County itself serves students across 400 square miles. The rurality of the county increases dramatically outside of these micropolitan areas and beyond the I-40 corridor which transects the county.¹⁵⁶ The student population served by VITAL is comprised of 55% economically disadvantaged students and 5% are classified as English Language Learners. Putnam County reports a 25.2% poverty rate with a disproportionate impact on children. Over one in three children live in poverty in the area served by VITAL. Roughly the same percentage (31%) of school-aged children live with a single head of household and the mobility rate indicates that 14% of the population has changed residences in the last calendar year. The Putnam County School System includes ten elementary schools, four middle schools, three high schools, and one adult learning center. The mission of VITAL is to provide the over 11,000 students enrolled in their programs with a “high quality, flexible, technology-based educational opportunity that allows them to maximize their potential to serve and participate productively in 21st century society.”

¹⁵⁴ Ibid.

¹⁵⁵ Ibid, p. 146.

¹⁵⁶ Economic Research Service: USDA. Tennessee – Rural Definitions: State-Level Maps. Retrieved from https://www.ers.usda.gov/webdocs/DataFiles/53180/25597_TN.pdf?v=39329.

The VITAL Program

Sam Brooks serves as the Personal Learning Supervisor for VITAL and Putnam County Schools. VITAL began in 2008 by offering online course options to Putnam County students. Since that time the program's offerings have grown exponentially. VITAL's work spans a wide range of needs and leverages a myriad of technology tools to meet those goals and to support Putnam County students at all ages and levels, including the following:

- **Credit Advancement and Credit Recovery:** VITAL's course offerings provide extended access to hard-to-staff classes across Putnam County. This is an invaluable service in an area in which the hiring and retaining of qualified teachers for math, AP, and foreign language courses is often difficult. When the state of Tennessee added Personal Finance to its diploma requirements for math VITAL worked with online course vendors to create a class aligned to state standards for Putnam County students. Acceleration through credit advancement allows opportunities for advanced middle school students to begin to accrue high school credits, and supports high schoolers in earning college credits. In addition, online courses allow students to take classes to recover credits and stay on track for graduation while still attending traditional classes.
- **Dual Enrollment:** VITAL's Dual Enrollment Program builds on the district partnership with Cookeville Higher Education Campus, Volunteer State Community College, and Tennessee Tech University to allow high school students to take college-level classes and to earn credit at both levels. This work is further supported by Tennessee Promise, the state scholarship and mentoring program which provides two tuition-free years of attendance at a community or technical college in Tennessee. VITAL helps students apply for the scholarship and provides support in helping students find and take classes that align to their individual learning goals. All of these services come together in VITAL Collegiate High School, an early college option for Putnam County students. These wrap-around supports help Putnam County's students close what Tennessee calls "the aspirational gap." In the graduating class of 2016, of ACT-testing students, 80% reported that they aspired to enroll in postsecondary education; of the students who took the ACT, however, only 57% actually did enroll.¹⁵⁷
- **IVC (Live) Distance Learning:** VITAL's IVC programming began in the fall of 2009 when a USDA Rural Development Services Distance Learning and Telemedicine Grant (USDA RUS) allowed for the purchasing of IVC equipment and teacher training. This technology allows the live-streaming of classes from one school to another across the district, and in some cases beyond. AP Calculus and Spanish I classes were first offered in 2010 and the community responded enthusiastically. Over time many other classes have been added, allowing Putnam County to increase the reach and impact of some of its finest teachers as well as addressing the need for additional staffing in specialty areas. Sam Brooks is quick to point out that the technology is useful not only for direct instruction, but also for providing unique learning opportunities via virtual field trips. Students can experience places such as the Great Barrier Reef or the Rock and Roll Hall of Fame without leaving the classroom. IVC also offers rural students access to qualified content area experts in hard-to-staff areas, and allows schools and districts serving rural students to maximize the impact of highly effective teachers beyond their site or building.

¹⁵⁷ ACT. *The Condition of College and Career Readiness 2017: Tennessee*. Retrieved from <https://www.act.org/content/dam/act/unsecured/documents/cccr2017/Tennessee-CCCR-2017-Final.pdf>.

- **K-12 Personalized Learning:** Using technology tools and online content, VITAL has been a driver of the shift towards personalized learning across Putnam County. VITAL's latest work involves using digital tools to transform teaching and learning in the traditional classrooms of the schools that it partners with. Teachers work with VITAL to move to a blended and/or flipped classroom model. Students can move at a more individualized pace and receive instruction more targeted to their own learning needs.
- **VITAL HomeConnect:** In order to address the high rate of mobility in and out of county schools, an issue that disproportionately affects rural and higher-poverty families, VITAL founded HomeConnect, a tuition-free homeschool serving grades K-5. The homeschool model uses a blend of online and print materials to enhance learning. Younger students whose families move for work or due to housing issues can stay on pace and, if they choose to re-enter the county school system, will return on par with their academic peers. Tennessee's mobility rate for rural students ranks higher than the national average.¹⁵⁸ The program is entering its second year of implementation.

Supporting the transformation of teaching and learning

While VITAL's passion is serving students, it has become a hub for professional development both in Putnam County and beyond. VITAL provides instructional technology trainings for the 20+ schools in the county. As a Google Certified Trainer himself Brooks has been responsible for more than 75 Google Apps for Education professional development trainings for teachers in the Putnam County School district. VITAL also hosts site visits regularly for school and district leaders as well as others in education who are looking to learn from the successes of their program.

When asked what he thinks has been the largest contributing factor to VITAL's success, Mr. Brooks states that building methodically on a solid foundation and striving to meet partners, including teachers, administrators, and students, where they are have both been key. However, keeping the focus on student, says Mr. Brooks, has helped VITAL remain true to its vision and mission across the change and growth during the ten years of VITAL's existence. "We are student-centered in any choice or conversation where we are making decisions. The question is always, 'How will this impact our students?'"

As always, challenges remain. While technology helps make professional development accessible to more teachers, it is difficult to reach all areas. Students are limited in some school settings in the county by a lack of devices, although the district has set a goal of being completely 1:1 by 2018. Going 1:1 will allow the district to continue its use of blended learning to enhance instruction and outcomes for all of their students. Home Internet access continues to be an issue for rural students in Putnam County who might otherwise benefit from VITAL's programming. A 2016 report by the Strategic Networks Group found that, "the vast majority of the areas in Tennessee without access are located in rural regions of the state. For example, only 2% of urban citizens do not have access to ... broadband connectivity in Tennessee compared to 34% of rural citizens."¹⁵⁹ Putnam County's residential usage rates lag behind the statewide average for Internet access, hindering students' abilities to access online or digital content when they are not on-campus or are working from home.

¹⁵⁸ Rural School and Community Trust, *Why Rural Matters 2015-2016*, 2017, p. 146.

¹⁵⁹ Strategic Networks Group. Internet Connectivity and Utilization in Tennessee 2016. In partnership with the Tennessee Department of Economic and Community Development. Retrieved from <https://www.tnecd.com/files/415/broadband-study.pdf>.

Success points

In the first semester after VITAL's launch, Putnam County School District saw its failure rates decline by one third in the first semester. During the 2013–14 school year, 86% students engaging in the district's "Smart Lunch" program accrued credits in courses that they would have otherwise failed.¹⁶⁰ The district estimates that between assisting with credit intervention by allowing students to make up material through virtual formats or through full credit recovery, VITAL has helped save or recover more than 300 credits in its first four years.¹⁶¹ From 2008 to 2014 VITAL played an integral role in increasing Cookeville High School's graduation rate from 86% to 94%. During the same time Putnam County School District's graduation rate increased from 86% to 92.6%.¹⁶² Finally, in the years from 2012 to 2015 public high school students in Putnam County reached ELA proficiency levels five percentage points higher than the statewide average.

Looking ahead for Putnam County

VITAL remains firmly committed to helping remove whatever obstacles stand in the way of student learning. Putnam County School District is already piloting some potential access solutions. For example, they are partnering with Kajeet to equip school buses with their SmartBus solution, allowing students to use school-appropriate Wi-Fi while riding the bus to and from school. As with many rural areas, these commutes can extend the school day substantially. Students can spend up to two and a half hours per school day in transit alone. Recapturing that time as instructional moments can help students stay on pace. Students can complete and turn in homework, work in supplemental curriculum for skill-building, or advance in their online coursework during the bus ride to and from school.

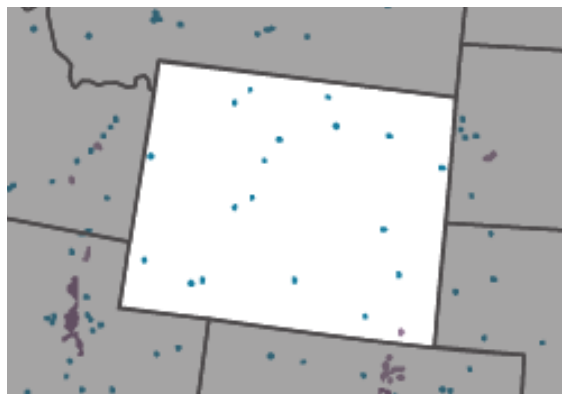
Other initiatives on the horizon focus on extending VITAL's own understanding of personalized learning, working to scale the impact of those trainings across the district. For example, at the beginning of the 2017–18 school year Putnam County Director of Schools Jerry Boyd re-organized the Teaching & Learning Department to create and align support for PreK–12 so all Putnam County students have the opportunity to be truly college and career ready by graduation. This work anticipated the state of Tennessee's push for EPSO's (Early Post-Secondary Opportunities), which range from AP and IB courses to local dual enrollment courses, industry credentialing, and Cambridge programming. The state's goal is that 75% of its students graduate with at least one EPSO by 2020; Putnam County is setting the bar higher and have challenged its students and staff to reach 100% within the same timeframe. "The joining of VITAL program and Putnam's CTE program, now known as Future Ready VITAL, will give us the opportunity to reach all of our population of students in Putnam County with all EPSO options including dual enrollment, dual credit, AP, IB, and industry certifications," say Brooks. VITAL's middle school offerings for early post-secondary opportunities have also expanded. These options allow middle school students in Putnam County to take high school credit classes that will set them up for more college credit as they enter their junior and senior years. Currently Putnam County has 650 students accruing high school credit through these courses during middle school.

VITAL was not built in a day. Mr. Brooks has tips for anyone else looking to innovate: "Start small and build on early successes. Don't try to do it all in a day."

¹⁶⁰ Tennessee Department of Education. Virtual Education Report. 2015. Retrieved from https://www.edweek.org/media/tennessee%20rpt_virtual_education_2015.pdf.

¹⁶¹ Ibid.

¹⁶² Ibid.

RURAL LAND

URBAN AREAS
 URBAN CLUSTERS
 RURAL

RURAL PEOPLE

FEDERAL LANDS
 COMPLETELY URBAN

CONCENTRATION OF RURAL POP.

lowest highest

ONE OF THE CENTRAL CONCERNS IN RURAL EDUCATION IN THE STATE OF WYOMING is the “boom or bust” nature of the local and state economy. Education funding in the state of Wyoming varies greatly, and is highly dependent upon the energy extraction industry. In fact, Wyoming’s economy is more closely tied to mining and drilling than any other state.¹⁶³ However the state’s rural nature makes it even more vulnerable as economic growth in general has become increasingly concentrated in metropolitan areas. Wyoming is the only state in the United States that does not have a metropolitan area of more than 100,000 people.¹⁶⁴ Wyoming also has the 4th highest mobility rate in the nation for rural students. According to *Why Rural Matters 2015–2016*, “one out of every seven students [in rural Wyoming] has changed residences within the past year.”¹⁶⁵

University of Wyoming’s Project ECHO is a collaboration with the Wyoming Department of Education and the University’s WIND (Wyoming Institute for Disabilities). The Project ECHO model began with a mission of breaking down the walls between specialty and primary care in the healthcare field. However, as Canyon Hardesty, the director of WIND at the University of Wyoming, can attest, “the question quickly became how could we translate this model from health to education.” ECHO for Education works to connect specialized knowledge and content area experts who serve as an academic ‘hub’ with schools and districts across the state who form the ‘spokes’ of the wheel. The model provides support and professional development for rural areas of the state who otherwise struggle to access this caliber of training and expertise.

¹⁶³ Ibid.

¹⁶⁴ Justin Fox. Bloomberg View. *Why Wyoming is in Economic Trouble*. Dec. 2016. Retrieved from <https://www.bloomberg.com/view/articles/2016-12-19/why-wyoming-is-in-economic-trouble>.

¹⁶⁵ Rural School and Community Trust, *Why Rural Matters 2015–2016*. 2017. p. 5.

The ECHO model hosts weekly or biweekly virtual seminar-style meetings which are similar to round tables; the meetings combine mentoring and presentation of case studies as well. Participants are encouraged to submit case studies for the group to review; schools and districts can share both challenges and potential solutions with one another as part of their community of practice. The seminars are supported by basic, inexpensive teleconferencing technology which is widely available across the state.

Beginning in 2014, the first topic that UW ECHO for Education addressed was the use of assistive technologies to support students with cognitive or physical disabilities as well as to support differentiation of instruction. The first trainings were met with enthusiasm and the program grew from there. University of Wyoming's ECHO Networks now include Assistive Technology, Autism, Behavior Supports, Career Development, Early Childhood, Education Leadership, School Leadership, Secondary Transitions, and Student Health. The networks evolved from the clear need to support at-risk students, particularly in rural communities where there is often a higher incidence of disability, according to Ms. Hardesty. Research from the field documents the difficulties inherent in providing services to such students in the rural educational setting. Schools and districts in more remote areas also struggled to help their students with college and career planning. The Leadership tracks allow schools and districts using the ECHO model to both learn from one another and build internal capacity as well. Based on feedback from districts the Institute is working to create a Technology in Education network.

"We really listened to the schools and districts to target high incidence needs," says Ms. Hardesty. She notes that the university already had long standing relationships with many of the state's 48 districts. This meant that meaningful, ongoing conversations about district needs were already underway to support the project launch. "The increased knowledge and skills have been great to see," stated Hardesty, "with the most significant results being that schools and districts walk away from each session with tools to implement and adapt to their own environments." She also notes the built-in learning lab aspect of Project ECHO. "We are always looking to adjust and grow."

District profile: Uinta County School District #1

The town of Evanston is in a high alpine desert environment at 6800 feet above sea level in the Bear River Valley of Wyoming, framed to the south by the majestic Uinta mountains. The student population is approximately 50% free and reduced lunch and predominantly Caucasian with a growing Hispanic population, according to school officials. All Uinta County District #1 schools are located within the town and within a few minutes of one another; the district runs about 20 miles to north and south, with bus routes extending up to an hour one way to bring students in from surrounding areas. Primary industries for the area are in oil and coal extraction as well as ranching. Educational funding varies greatly depending on the economy, and the area is actively working to bring in business that is not related to oil and gas to help stabilize the highs and lows associated with the extraction industry. The district has experienced declining enrollment over the past three years.

UCSD's vision is that all district students are prepared for the demands of college or career and equipped to be exemplary 21st century citizens. To this end, in 2014 the district began their move to a more student-centered learning model with a learning device pilot program at Horizon High School. Each of Horizon's 70 students were issued a Chromebook and both teachers and students began training on the digital tools that this made available to them. In 2015 additional purchasing extended the program into middle school grades. By the fall of 2016 the district was able to go fully 1:1 in grades four to twelve, with additional technologies

available at the early elementary grade levels to support differentiated instruction, often along a station rotation model.

Jaraun Dennis, the Chief Technology Officer for UCSD, is quick to point out that while the initiative began with technology purchasing, it did not end there. In fact, the district put a six month moratorium on technology purchases in order to reevaluate and plan for a more deliberate, thoughtful implementation. The school and district leaders sought a true transformation of teaching and learning, beyond what was possible by simply providing a technology-rich environment for their students. He cites the district's trip to the annual iNACOL Symposium as a pivotal moment in their blended learning journey. "As we got exposed to more of these concepts, we were able to identify more clearly, even to ourselves, what we wanted blended learning to look like and accomplish in our schools."

The school's move to blending soon became much less about the technology and much more about personalizing curriculum, pathways, and playlists. At Uinta #1 students, parents and teachers collaboratively view and discuss the student's data as well as their postsecondary goals to design personalized learning plans. The model that Uinta developed rests on what they call the "Core Four": digital tools to individualize, small groups, data-informed decision-making, and self-direction. Digital tools and software are key components to enhancing the educational experience and allowing teachers to meet diverse needs at scale. Says Mr. Dennis, "One mantra we have anytime we are looking at purchasing is 'What are we hiring that piece of software to do?' We became very strategic." This ensures that there is a strong match between the tools being used with the academic need being addressed. Students are grouped flexibly and dynamically depending on their need in a particular subject or skill; teachers are continually reviewing student data to adjust and tailor instruction. However, the district's emphasis on self-direction means that it is not only up to the teachers to own the process. The district developed a Self-Direction rubrics as well as a system of goal trackers as a simple way for students to own and reflect on their own learning. The rubric helps students understand the shifting role of the teacher as a learning facilitator and fosters skills such as self-advocacy, challenge-thinking, and persistence.

Uinta #1 also realized that teacher training and buy-in was crucial in changing their education model. Rather than imposing a new order, Mr. Dennis says, "we decided we wanted a different approach." The district leadership developed an opt-in model for teachers, hoping to target around 25-30 early adopters who could lead the way in blended learning in Uinta; over 75 teachers came forward. The project scaled up to accommodate as many as they could and the teachers underwent a three day Blended Learning Intensive. In year two another 75 teachers opted in and by the end of the school year, blended learning had found over half of the teaching staff across the district. Mr. Dennis identifies this as another turning point as blended learning and the pedagogy of personalized learning now became into the district's identity, "part of who we are and what we do."

The personalized approach has also affected how the district implements professional development. "We asked ourselves, 'How does our PD model support what we want to see in the classroom?'" Over the past few years, Uinta has worked to provide choice and voice for teachers as well. For example, an inservice day might see the district offering rotating sessions with an array of different selections that are aligned to district-wide goals; teachers identify and attend the trainings they most need or are interested in. The new format also empowers teachers to become the experts and to share their knowledge with their colleagues. The response has been enthusiastic, says Mr. Dennis. "It helps directly teach that the opportunities that are here for us as professionals are what we also need to provide for our students."