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### Arizona Stakeholders

In March of 2020, the field of education experienced what will forever be termed as a "disruption to education." As schools concluded their spring breaks and prepared for the last quarter of the academic school year, the COVID-19 pandemic brought what educators once knew as a "sense of normalcy" in education to a halt. The pandemic left school systems, students, and families struggling to adapt to new styles of teaching and learning. It was a time that education had not experienced in over a hundred years!

The pandemic disrupted everything in education from closing schools to developing new techniques for instructional delivery. School systems were forced into a rapid transition to deliver learning into the homes of our students. Campuses closed, which quickly exposed the gap between those who had technology and those who didn't. Within just a few short weeks school systems were scrambling to reverse the learning process; instead of sending students to school to acquire learning, learning was delivered into the homes of every student.

Without time to adjust, schools quickly began to deliver instruction through a variety of delivery systems including online learning management systems, learning packet delivery, loading information on jump drives for those students that had no other method; as well as, delivering instruction through distance/virtual/online learning. The angst, the pressure, and the confusion were overwhelming, but educators and families managed the best they could. Through these trying times, it was quickly learned just how the disparities of access to technology including, access to devices, internet services in the home and preparedness for at-home learning were impacting students and their families.

By August of 2020, it became clear that the journey of online/distance/virtual learning would continue into the 2020-2021 school year. Balancing health and wellness and educational services became one of the most complex challenges in modern history for educators. Over time educators did what educators do, finding ways to deliver services to continue the educational process for our most cherished possession, our students.

Quite rapidly, school systems and educators began to problem-solve new ways to deliver education to all students regardless of their geographic location, socioeconomic status, family structures, or any other barriers that would prevent them from attaining the essential education that all students have a deserved right to attain. School systems scrambled to purchase Chromebooks, find connectivity for all students, and manage instructional delivery systems via distance learning to ensure the learning gap could be minimized for all students. In the midst of the most complex educational shift in history, it didn't take long to identify the greatest barrier to delivering educational services during a pandemic, "The Rural Digital Divide." This whitepaper will expose areas of the rural digital divide that has been present for decades, as well as, outline key areas that Arizona must address to close the digital divide in rural Arizona.

The authors would like to give due credit to Arizona Superintendent of Instruction Kathy Hoffman and the Arizona Department of Education. Superintendent Hoffman and the Arizona Department of Education team coordinated a technology task force to explore challenges in technology presented by the pandemic. As a result, a "Rural Digital Divide" subgroup was established and tasked with exploring of the "rural digital divide" in Arizona.

After much discussion, exploration, and effort the rural digital divide task force developed the following whitepaper on the rural digital divide in Arizona (2020). It is the aspiration of the rural digital divide task force to bring this essential piece of work to the attention of stakeholders throughout Arizona, as well as, the United States of America to bring to light the digital divide that exists within rural Arizona; as well as bring about solutions to the essential need for connectivity to allow all students equitable access to learning. The following whitepaper will explore the rural digital divide in Arizona with the hope that Arizonans and all Americans can construct new possibilities for closing the rural digital divide for all students in Arizona.



## INTRODUCTION

For centuries Arizona students have been presented with a variety of pathways to receive an education. Walking, horseback, bicycle, car, and school buses have all led to the schoolhouse where teaching and learning would take place. That all changed in March of 2020.

The 2020-2021 school year disrupted this basic process for learning attainment as the schoolhouse was significantly impacted by the COVID-19 pandemic. As a result, remote learning, by necessity, became the most prevalent form of accessing instruction. This was a major shift in education, unseen by the vast majority of educators, which has now required that students get to school by setting up their electronic devices and signing in online.

For students living in rural areas of the state, access to remote learning has been an extreme challenge and, in many cases, impossible. Never has the disparity between urban and rural areas been more evident than in the remote learning circumstances Arizona students, teachers, and families find themselves in today.

Not one divide but many...

#### The Digital Divide(s) in Arizona

The term "digital divide" is one that is often used to describe a gap between specific regions or groups with or without access to modern communication technology. For Arizona, affordability and availability were two vital factors that we took into consideration when we determined the digital divide. That being said, there are currently 755,000 Arizonans without access to a wired connection capable of 25 Mbps, and 862,000 residents that only have access to one internet provider.

Source: BroadbandNow

According to 2018 data from BroadbandNow, Arizona ranks 36th in the nation for broadband access. Coverage within Arizona ranges from 93% in Maricopa county to 1% for residents in Apache county. Over 13,000 students attend school in Apache county. (https://www.publicschoolreview.com/arizona/apache-county)

To help mitigate connectivity issues, cellular hotspots are being distributed to students (beneficial if cell service is available) and wireless access is being expanded around some schools (this requires students to get to school grounds, a difficult thing to accomplish in rural settings).

To reach the goal stated by the Arizona Department of Education, "Equity for all students to achieve their full potential", Arizona must do a better job at providing the infrastructure and digital resources needed by today's Arizona students.

#### PURPOSE

The intent of this whitepaper is to provide data, testimony, and reality to how the digital divide is manifesting itself for some of Arizona's rural schools. Over fifty-five (55) rural Arizona school districts shared their stories of how the digital divide has impacted their districts during the 2020 COVID-19 pandemic. The "Rural Digital Divide" whitepaper will outline the stories, challenges, and the future for rural education as rural school districts navigate through the challenges to educate students in the 21st Century.



# METHOD OF RESEARCH

To conduct research on the rural digital divide, school districts in rural Arizona were asked to respond to a survey gathering information on their specific challenges and needs that exist within the rural digital divide. Focus areas of the survey included the impact of the rural digital divide on learning through online resources, access to the internet, access to 1:1 devices, how the digital divide impacts inequities in rural settings, the impact of the rural digital divide impacts funded the rapid exposure to the rural digital divide since March of 2020.

The Rural Digital Divide survey was sent to rural school districts associated with the Arizona Rural Schools Association, which comprises 143 school districts, 427 schools, and 197,000 students. Fifty-eight (58) rural school districts and county superintendents responded to the survey resulting in a total of seventy-nine (79) individual responses from various regions of the State of Arizona.

The survey was administered in December of 2020 and remained open for responses through February of 2021. The respondents were representative of public schools, charter schools, and county superintendent offices, as well as schools located on and off tribal lands.



# FINDINGS: ARIZONA'S DIGITAL DIVIDE(S)

#### **RURAL DIGITAL DIVIDE: INTERNET ACCESS**

#### "The greatest single challenge is the lack of students' access to the Internet." Arizona Rural School District

Inadequate or lack of connectivity continues to be one of the greatest challenges for students in rural Arizona. Survey responses indicate that connectivity at home was the second-highest ranked digital inequity issue with, eighty-one (81) percent of respondents reporting lack of connectivity as a major concern and another seventeen (17%) percent reporting it as somewhat of a concern while less than three (3%) percent responded the lack of connectivity was a concern.

### CONNECTIVITY IN THE HOME



Not only was home access an issue, sixty-two (62%) percent of respondents also indicated that internet service providers for school systems was a major concern, and twenty-seven (27%) felt it was somewhat of a concern.

In addition, nearly forty-three (43%) percent of respondents indicated that broadband connectivity was the greatest barrier their district faced in implementing online learning.

When presented with other potential barriers, no other factors came close to the percentage of

impact that broadband connectivity had on the impact of online learning with the most significant "other" barrier being the lack of in-home support or parental knowledge at nearly seventeen (17%) percent. This is especially problematic when districts are reporting that forty-four (44%) percent of their student populations are learning virtually while thirty (30%) percent of students' families do not have access to the internet at home, as reported in the survey.

In efforts to mitigate this issue, districts purchased hotspots that depended on cell service.

As shared in survey responses:

"There is no internet on the Colorado River Indian Tribes Reservation...Hotspots are spotty not only on the reservation but also along the Colorado River going North to Lake Havasu City. The mountains block signals, signal strength is low, and the service for the internet is spotty to say the least."

"While we were able to secure hotspots for all students/teachers that needed them, that did not ensure stable internet access to all students. This is essential for effective distance learning to occur."

"Some (students) have no internet, some have limited bandwidth, some run out of data plans, some have no access points for the internet."

"Families have access, but often it is unstable and unreliable, buffering, limited mbps."

"The cost of the internet for some parents is also out of reach. Many rely heavily on the use of cell phones. One per family."

"Getting access in Rural American should be a priority. Improving capacity in the urban districts should not be a priority over those that have none."



"Multiple families who live together and families that have multiple students all trying to connect to the same internet. Lack of competitive internet providers in the community."

It is important to recognize that following the pandemic, connectivity will continue to be a primary factor for effective learning experiences for Arizona's students. Being connected is not just for remote learning but, everyday learning as students rely heavily on the internet for learning and homework beyond the typical school day. Connectivity is the foundation from which students acquire access to learning materials, tutorials, learning experiences, and other essential functions of education in the 21st Century. For a rural student with limited access to resources, closing the rural digital divide is critical.

#### RURAL DIGITAL DIVIDE: DEVICES

The digital divide is not limited to connectivity. Another major barrier in the rural digital divide is access to technological devices. A holistic approach for digital learning requires a reliable connection followed by a device for each student. Laptops, Chromebooks, or iPads are the most common devices distributed to students. Many rural and tribal students, upwards of thirty-six (36%) of those surveyed, responded that students lack access to the devices they need at home to work remotely. Access to devices ranked third highest out of the ten inequalities presented to survey respondents.

In comparison to the urgency associated with establishing accessible and reliable internet connectivity, sixtyfour (64%) percent of survey respondents indicated that only about ten (10%) percent of students continue to lack access to digital devices. Fourteen (14%) percent of respondents indicated that up to twenty (20%) percent



of students, one in five, continue to lack at-home digital devices for remote learning.

Consequently, sixty-four (64%) percent of respondents also indicated that their districts intended to provide virtual learning next year regardless of the status of the pandemic, which will have major implications for virtual learning without sustainable internet connectivity and learning devices.

Here is an example of some of the survey responses:

"Lack of devices and internet service for students was a big challenge especially for families who had 2-3 siblings attending our school."

"Many have one device but not multiple devices for virtual learning."

"Issues arose when there were multiple students in the household."

"We now have a 1:1 for our students but when a student breaks a device they may have to use something else while we fix it."

School systems have been challenged with the task of delivering online learning opportunities which require a device to receive and transmit information. The challenge of ensuring all students have access to a device that can be utilized for one-

to-one teaching and learning will be a barrier to overcome to close the digital divide in rural Arizona.



#### RURAL DIGITAL DIVIDE: ONLINE LEARNING

Once provided with a reliable internet connection and an adequate device to learn the next challenge lies in having an organized & effective learning environment, teacher efficacy for online teaching; as well as, in-home support (parent knowledge)to ensure learning is both efficient and effective.

School systems have utilized the disruption that the COVID-19 pandemic has caused to rethink methodologies for delivering instruction.

"We are discussing the possibility of continuing online as a choice model."

"For specific students, it fits"

"GoogleClassrooms is an excellent form of continuing and ongoing virtual classroom to compliment inperson learning, even after we can be in-person."

"I would like for distance learning to continue to be an option for our families."

"Extended day/year instructional access in an effort to close the academic learning gap that will significantly exist after this school year."

"Leveraging online learning opportunities as we return to hybrid/in person instruction."

"If we are able to be completely In-person next year, distance learning for those unable to attend due to sickness or other short-term absences."

However, it is not a perfect fit for all students and all families.

"In the younger levels, it's almost impossible to teach remotely without parental support, which we saw some, but not all."

"The biggest barrier to virtual learning is to expect the home environment to function similarly as the school's learning environment. At home, students cannot be expected to learn/work with the same level of efficiency, depth, or accountability."

"Many families and students have just given up."

"Kids are working more since they are online learning and not required to attend in person so they stay working and are dropping out of school."

"The greatest barrier is parents who work. My students who are 4 year olds, they have to be guided in the process. Oftentimes they are with adults who really don't know how to use technology. This is because parents can't afford childcare."

"Once the pandemic passes, we will no longer have distant learning. Our small campus cannot support that option. Plus, our students in distant learning struggle to remain engaged."

In addition, eighty-three (83%) percent of respondents indicated that motivation by students to complete online coursework was their greatest concern.

Online learning is a new challenge for rural school systems in Arizona. This challenge will need to be met with strategic planning to ensure the learning gap is overcome through at-home learning opportunities that are afforded through connectivity, devices and in-home support.



#### LEARNING MANAGEMENT SYSTEMS

It was noted throughout this research that ninety (90%) percent of students, at the time of the survey, were learning through an online/distance/virtual learning platform through the use of a Learning Management Systems (LMS). A learning management system is a software application for the administration, documentation, tracking,

"We will likely offer an online option, would like for secondary students to submit assignments to an LMS." reporting, automation, and delivery of educational courses, training programs, and learning programs.

Learning management systems create a digital learning experience, aiding teachers in the teaching and students in learning. Learning management systems collect and manage attendance, grades, curricula, etc. LMS platforms give students and parents access to learning materials and provide an instructional delivery that allows for equity in access to learning materials. Some examples of learning

management systems include Schoology, SchoolsPLP, Edgenuity, etc.

It was noted in this research that sixty-four percent of school districts that responded indicated they would conduct post-pandemic distance/virtual/online learning in some form next school year regardless of the outcome of the pandemic.

Online learning can only occur with proper connectivity, devices, and learning platforms to ensure students succeed in a virtual environment. Although there are many challenges to overcome, the future of online learning is here to stay in one form or another. Rural schools in Arizona must overcome the rural digital divide to ensure all students in Arizona have equal access to a high-quality education!

#### RURAL DIGITAL DIVIDE: FUNDING

One of the most impactful aspects of the pandemic centered around school funding. The initial impact of the pandemic left school systems perplexed about how they would be able to deliver instruction via online learning without current and readily available supplies of laptops, Chromebooks, iPads, hotspots, webcams and other necessary technology to extend the classroom into the homes of thousands of students. Less than five (5%) percent of school districts surveyed noted that they were financially prepared to transition to distance/ online/virtual learning.

Pre-pandemic many school districts had yet to fully integrate to one to one technology systems. The pandemic created

a sense of urgency amongst school systems to ensure every student had access to technology including a learning device, connectivity, and a learning management system. The costs of such systems ranged from tens of thousands to hundreds of thousands of dollars for school systems that were suddenly faced with the necessity to immediately expend funds to continue the learning process.

Relief was provided through CARES Act funding. Congress allocated \$54.3 billion in funding for K-12 school systems throughout America.



"We will likely offer an online option, would like for secondary students to submit assignments to an LMS."

"We used ESG and other grant money to ensure that 100% of student have computers at home."

"After CARES funding, 100% of students were provided a Chromebook"

At the beginning of the pandemic how prepared was your district for distance/virtual/online learning?



Arizona's portion of the CARES Act funding equated to \$370 million in new funding for K-12 schools and charter schools throughout Arizona.

Arizona rural schools expedited funding for technology needs but had to balance other necessities such as personal protective equipment, sanitation supplies, new online learning management systems, staff training on new online platforms; as well as, additional costs associated with food service operations.

As noted from respondents:

"The financial burdens the district experienced were significant. There were not enough devices, although many programs were free the district is required to purchase licenses which were not within the yearly budgeted amount."

"This was a significant cost, which was not budgeted, for the district."

"We had to hire more staff to deal with extra safety requirements and we hired more substitute staff for certified and non-certified positions."

"Rainy day funds were pulled to immediately make proper adjustments."

"Cost of training for staff, technology team to serve staff and students, inability to purchase devices."

"Teachers had to buy their own online materials and online teaching materials out of our own pockets."

In addition, districts noted that sustainability is a major concern. The technology costs will be reoccurring and a long-term investment:

"Enrollment is down. This will have a significant financial impact on our district as we move forward into the next school year."

"We had reserves built up - but will really need to tighten spending for the upcoming years."

"Only about 60% of the cost was covered by CARES funds."

"The cut in funding to the district due to students learning online has made a major impact on how we will proceed in the SY 21-22."

CARES funding was needed for relief for districts:

"Our school received two sets of CARES Act funds. We also received financial assistance from the Tribe through the CARES Act funding they received."

"The CARES money helped immensely."

"ESSER and Enrollment Stabilization helped. We would have been hard pressed without these funds to deliver educational services."

Even with the additional funding from federal stimulus grants, there are still concerns about sustainability, connectivity and affordability in the challenges that lie ahead in closing the digital divide in rural Arizona.

"As a rural school district our concern is affordable high-speed internet services; even with USAC E-Rate support the total cost(s) associated with district services are considerably higher than other parts of the state with comparable service."

"The financial challenge is not as great as the lack of access to the internet for many students."

"We have nowhere near the tax base of urban strongholds whose representatives ensure their acquisition of appropriate budgets for all they need and even want (overrides, bonds, etc.)."



The financial burdens that rural school districts will face in the future will be enormous once stimulus funding expires. Eighty-eight percent (88%) of the respondents indicated they would not be able to or were unsure about how to sustain distance learning platforms upon the conclusion of CARES/ESSER funding. Forty-seven percent (47%) of the respondents indicated that they would be reliant upon state funding for sustainability of distance learning platforms as CARES/ESSER funding expires and twenty-nine percent (29%) of respondents indicated they would be reliant upon federal funding for sustainability of distance learning past the expiration of CARES/ESSER funding.

The challenges that lie ahead will require dedicated funding to ensure connectivity for all students, to repair and replace equipment and to build capacity around distance learning whether delivering instruction from school to home or building learning capacity within the home (i.e. tutoring, homework, online learning, etc.). Rural schools in Arizona are ready to move into a distance learning/virtual/online platform to provide equitable access to learning opportunities for all students which will require closing the financial divide for rural schools in Arizona.

#### RURAL DIGITAL DIVIDE: EQUITY

Inequity has forever plagued school systems. Inequities in funding, opportunities, and resources exist throughout the field of education. The 2020 COVID-19 pandemic heightened the awareness of inequities in rural school systems in Arizona.

Those surveyed were asked to identify what inequalities have been identified as a result of the ongoing digital divide for rural school systems including:

- online curriculum
- access to career preparation
- pre-AP, dual enrollment
- professional development for teaching online coursework
- connectivity
- internet service providers
- online remediation resources for at-risk students
- student motivation
- academic outcomes due to lack of online resources.

It is not surprising that sixty-four (64) of the seventy-nine (79) respondents noted connectivity as the greatest inequity of the rural digital divide. Closely related were the inequities of service providers to provide internet access (62% of respondents) and academic outcomes due to the lack of online resources (60% of respondents). In addition, over fifty percent of the respondents noted that limited online resources for at-risk students was an identified inequity in their district.

Arizona has a challenge and a duty to eliminate the inequities that exist in rural communities by closing the rural digital divide in Arizona.



#### RURAL DIGITAL DIVIDE: EDUCATIONAL OUTCOMES

Educational outcomes are the ultimate goal of education. Regardless of when, where, and how students in Arizona are educated, the ultimate outcome is student achievement. The rural digital divide has created inequities and inequalities that have hindered the educational outcomes of many rural communities. From student motivation



to the potential for dropout the rural digital divide during the pandemic has created great concern among rural educators.

One of the greatest concerns was noted in the responses that seventy-eight (78%) percent of respondents were concerned that the digital divide has increased the potential for students to drop out of school.

Respondents were most concerned with the lack of student motivation due to digital learning with eightytwo (82%) percent of respondents stating this was a major concern and fourteen (14%) percent saying student motivation was somewhat of a concern.

Sixty (60%) percent of respondents indicated that

academic outcomes due to lack of online resources was a major concern to them while thirty-two (32%) percent said the lack of online resources was somewhat of a concern.

As a result of this study, there are compelling reasons for why there is a high level of concern for dropping out of school due to the rural digital divide:

"Kids are working more since they are online learning and not required to attend in person so they stay working and are dropping out of school."

"There is no room for intervention, so those that already struggled, will have an even greater divide in their knowledge and skills."

"Many families and students have just given up."

"Affordability of local internet is cost prohibitive for working/non-working families."

The concern for educational outcomes comes in many forms from achieving acceptable academic grades to credits to finishing high school. The level of concern for how the rural digital divide is creating the potential for high school dropouts not only during the pandemic but into the future demonstrates the dire need for Arizona to address the rural digital divide that exists.



### Conclusions

The body of this research has exposed many findings about the rural digital divide. The conclusion that the rural digital divide exists has been solidified and verified by those in the field. It is understandable that closing the digital gap is a complex issue, which will require all stakeholders involved to change mindsets and break the cycle of economic and educational inequalities.

Rural school systems need equitable access in every corner of the state of Arizona. Not all school districts can afford to address the rural digital divide. Additional funding is required to ensure there is equal access to the internet, technology devices, learning management systems, and support both in the home and from school to home.

We can build community through the internet! Everyone who wants to be connected must have the ability to be connected! This must include classes for parents to help them understand how to operate computers to support at-home learning; as well as, connectivity to allow teachers to support students in a 24/7/365 environment each and every day.

Families that choose to or need to live in rural areas should not limit the opportunities that their children have for a quality education. This study reveals the disadvantaged subpopulation that exists in Arizona (e.g., rural students, rural Native American students, rural second-language students).

There is much work to be done to ensure connectivity, equity, sustainable funding, and attainment of educational outcomes is not hindered at the hands of the rural digital divide in Arizona!



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Yours in education,

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Benson School District	Double Adobe School District
Berean Academy	Douglas Unified School District #27
Bisbee Unified School District	Duncan Unified School District
Bisbee Unified School District	Edkey Sequoia Schools
Bowie Unified School District #14	Holbrook Unified School District
Casa Grande Elementary School District	Hopi Jr./Sr. High School
Chinle Unified School District No. 24	Joseph City Unified School District



Kayenta Unified School District #27	Red Mesa Unified School District
Kingman Unified School District #20	San Simon USD #18
Lake Havasu Unified School District	Sanders Unified School District
McNeal Elementary School	Santa Cruz Elementary District #28
Miami Unified School District #40	Santa Cruz Valley USD No. 35
Mohawk Valley School District	Sierra Vista Unified School District
Naco Elementary School	Somerton School District #11
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Omega Alpha Academy	Topock Elementary District #12
Painted Pony Ranch Charter School	Tri-City College Prep
Paloma Elementary School District #94	Valley Academy for Career & Technology Education
Palominas School District	Whiteriver Unified School District
Parker Unified School District	Window Rock Unified School District No. 8
Patagonia Elem/High School	Young Scholars Academy Charter School
Pinon Unified School District	



### **Resources:**

- E Found of Common Sense Media: COVID-19 is a wake-up call to close the digital divide
- 🗕 2018 Arizona Statewide Broadband Strategic Plan
- Council for Chief State School Officers. (2020). Restart & Recovery: Home Digital Access Data Collection: Blueprint for State Education Leaders [Whitepaper]

