

E-LEARNING IN RURAL ENVIRONMENTS

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ABSTRACT

While metropolitan and suburban areas often have access to multiple broadband providers, some rural resident's access to the internet remains dial-up, or is non-existent. As a result the Digital Divide, "a gap between those able to benefit from digital technology and those who cannot," (Smyth 2006) widens for residents in these rural areas.

Companies and academic institutions alike provide (and sometimes require) application processes, training, and other educational resources online, that require a minimum broadband speed for access. These online requirements, resources, and training, especially in business, are becoming more and more the norm, reducing personnel costs, travel expenses and out of office time. The question exists, how do people in rural areas access these online resources, classes and training if broadband is not available in their area? What barriers exist and what alternatives and resources are available for the reported 1/3 of the population without broadband access?

This paper will discuss the status of and barriers to delivery of e-learning opportunities to areas where broadband is not currently available, and/or not broadly adopted. Organizational strategies and the success they have achieved will be explored in this presentation, and the plans a major provider has for making broadband more accessible to those living in rural communities.

INTRODUCTION

The Digital Divide

The Digital Divide, a phrase coined in the mid-1990s, is defined as “a gap between those able to benefit from digital technology and those who cannot” (Smyth 2006). This is a very simple explanation of a complex problem. The need for broadband access for all is self-evident, with the United Nations even declaring it a human right (Estes 2011).

Factors on the end-user side that contribute to this gap include availability of broadband in communities, technical knowledge and skills, and socio-economic status. On the side of internet providers, “Cost and the practical limitations of current infrastructures have prevented DSL and cable technologies from reaching many potential broadband users. Generally, DSL only extends about five kilometers from the central office switch and many existing cable networks do not provide a return channel. Converting these networks to support high-speed broadband or deploying wired infrastructure to new areas with low subscriber density is generally commercially unfeasible and requires years of disruptive installation” (Smyth 2006).

“The digital divide, once seen as a factor of wealth, is now seen as a factor of education: Those who have the opportunity to learn technology skills are in a better position to obtain and make use of technology than those who do not” (Bernard 2011).

Governmental Assistance in Expanding Broadband

In 2009, FCC Commissioner Michael Copps observed that “Broadband can be the great enabler that restores America's economic well-being and opens doors of opportunity for all Americans to pass through, no matter who they are, where they live, or the particular circumstances of their individual lives” (Federal Communications Commission, 2009).

While most economists, business leaders, teachers, politicians, and citizens agree with Michael Copps, the financial incentive for broadband companies to expend the upfront cost to deliver broadband to rural areas does not exist. These companies have historically decided that the prospect is not economically feasible for them to deliver this service to these areas.

With leadership and funding from the current administration, “The American Recovery and Reinvestment Act of 2009 (Recovery Act) established several broadband initiatives with \$7.2 billion in funding. This includes \$4.7 billion in funding for the Broadband Technology Opportunities Program (BTOP) administered by the National Telecommunications and Information Administration (NTIA) in consultation with the FCC. The purpose of BTOP is to provide access to broadband in unserved areas, improve broadband access for both underserved areas and public safety agencies, and provide broadband education, training and support.”

In a report published December 30, 2011 by the National Telecommunications and Information Administration, they noted that both “High-speed Internet access and online skills are increasingly necessary to compete in today's economy, yet many Americans are on the wrong side of the digital divide (NTIA 2011). The data reflects that: approximately 80 % of Fortune 500 companies now only accept job applications online; 60% of Americans use the internet to

function in their jobs; 1 in 3 households lack high-speed internet service; and 1 in 5 US households don't use the internet anywhere.

NTIA (2011) estimates that “more than 100 million Americans are cut off from many economic and educational opportunities . . . and more than 60 million Americans that don't use the internet anywhere will be left behind in the 21st century economy.”

NTIA is currently funding 230 projects and in December 2011 shared that grantees have reported: 29,000: Miles of broadband infrastructure deployed or upgraded; 24,000: New workstations installed in public computer centers; 755,000: Hours of training provided in the last quarter alone; 220,000: People who received the training in the last quarter; and 230,000: New broadband subscribers.

BROADBAND IN RURAL AREAS

Rural areas and residents face a number of issues when it comes to access to and adoption of broadband. The issues include availability, cost, and lack of technical skill and knowledge. The largest discrepancy in the reasons between rural and urban residents not having home internet is lack of access. Only 1.1% of urban households list lack of availability as the main reason they do not have home internet access, while 11.1% of rural residents list lack of availability as the main reason they do not have internet access at home (Dickes 2010). The National Broadband Map – Broadband Statistics Report based on data collected as of December 2010, reflects the urban and rural access discrepancy was as high as 29% and greater in some areas of the United States (NTIA/FCC 2011).

Table 2 illustrates the breakdown in Dickes' study regarding the range of reasons for no home internet access for rural and urban residents. Stated reasons included cost, no need/not interested, and lack of technical skill, which varied by only a few percentage points. The largest overall barrier, which both geographic groups share is no need/not interested, which was reported at a rate of 38.1 % for rural respondents, and 37.7% of urban respondents.

When examining broadband adoption rates, most rural states rank near the bottom. While other economic and societal factors may also play a part in adoption rates, the states that rank in the bottom 10 of the United States include: Mississippi, Alabama, Arkansas, West Virginia, South Carolina, Kentucky, New Mexico, Tennessee, Oklahoma, and Indiana (Dickes 2010).

Table 1. NTIA/FCC Broadband Statistics Report: Broadband Availability in Urban vs. Rural Areas. (NTIA/FCC 2011).

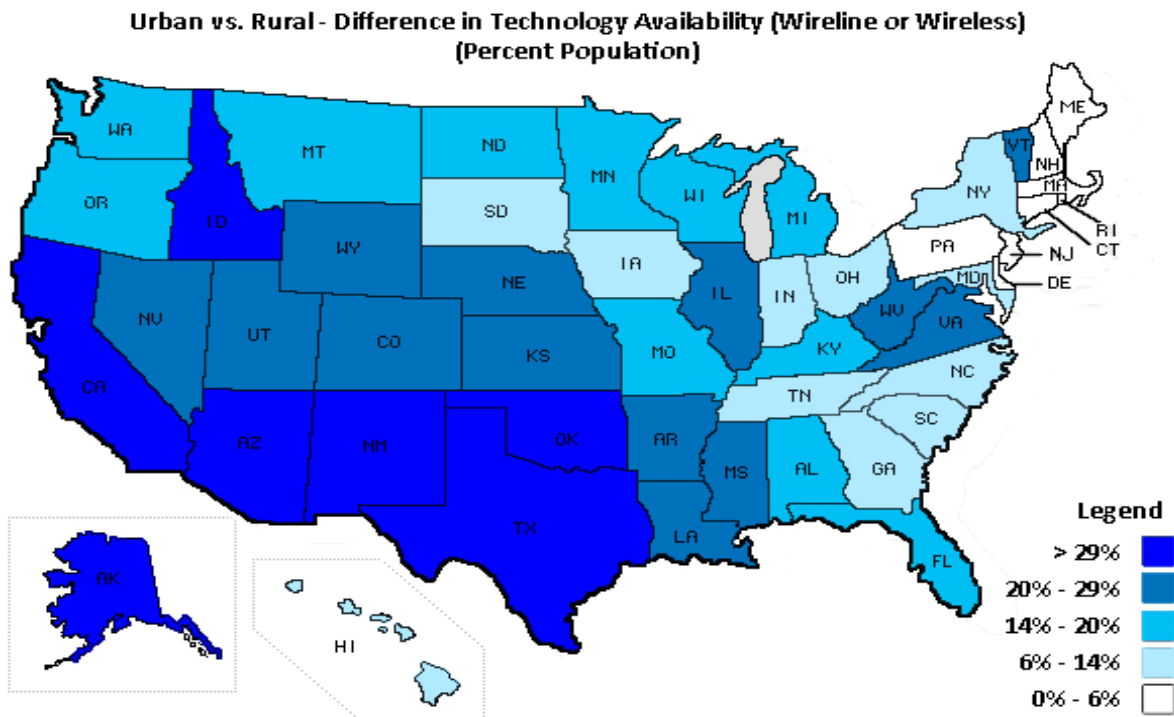
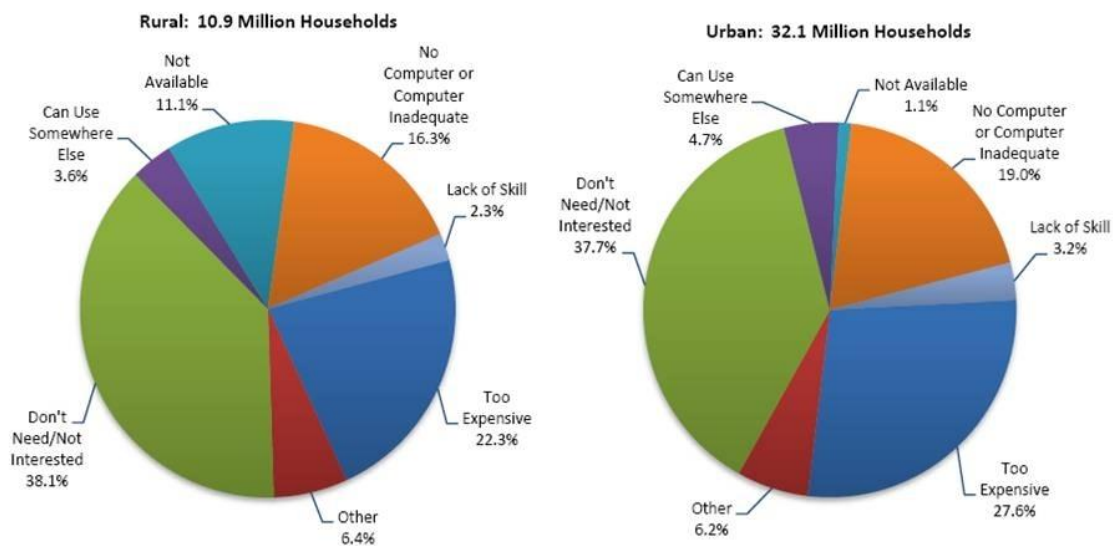


Table 2: Main Reason for No Broadband Internet Use at Home, by Rural/Urban Residence, 2009. (Dickes 2010)



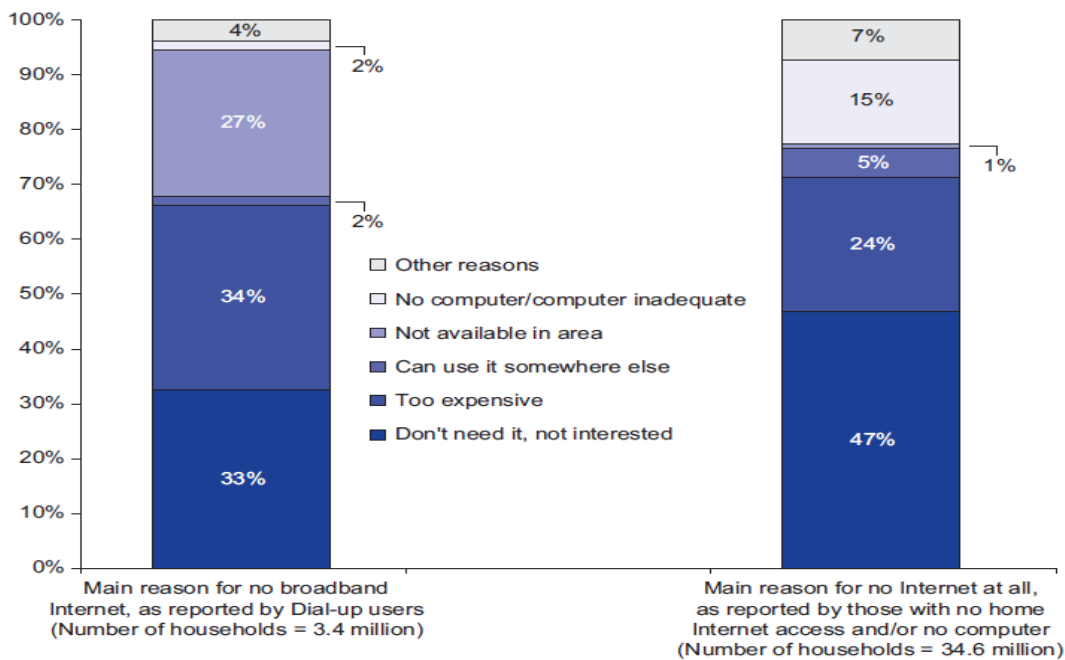
Source: National Telecommunications and Information Administration, 2010

The US Census Bureau published a 2010 study identifying the reasons for no broadband use by dial-up users and homes with no internet and/or no computer. Both sets of respondents replied that a major factor related to their not gaining access to broadband was their perception they “Don’t need it, not interested.”

As technology has become cheaper and easier to use, companies and academic institutions alike have created and greatly expanded online resources, training, and courses that require a minimum level of computer literacy. The factors/barriers that in many cases may have not been addressed while online resources have been ramped up include: rural attitudes regarding computer use in today’s economy, availability of affordable and accessible basic computer training, individual motivation to learn new technology, and understanding of the value of broadband.

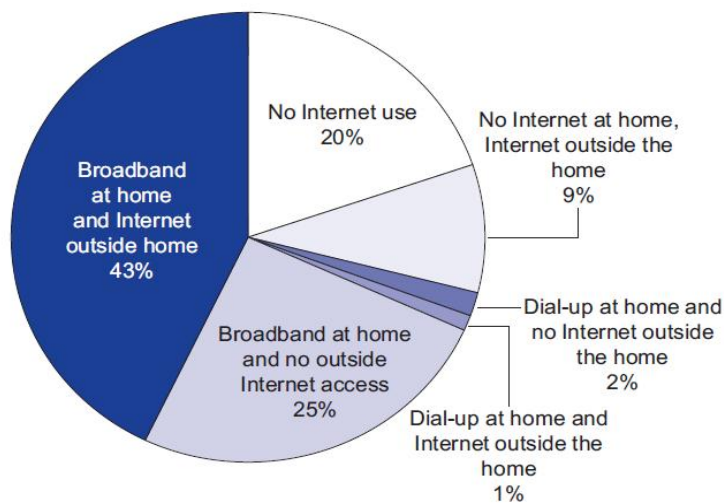
And last but not least, are business and educational institutions considering the impact the barrier to broadband access may be having on their employment pool, student population, and or compliance with institutional requirements? The barriers to access are clearly complex and even divergent . . . the old adage, build it and they will come may not be the only strategy we will be required to employ to address the digital divide. As our economy shifts, corrects, and is redefined, will groups of people be left behind based on age, geographic location, disability, race, etc.?

Table 3. Exploring the Digital Nation – Computer and Internet Use at Home. Main Reasons for Not Having Home Internet Access Service. (ESA & NTIA 2011)



Source: U.S. Census Bureau, Current Population Survey School Enrollment and Internet Use Supplement, October 2010, and ESA calculations.

Table 4. Exploring the Digital Nation – Computer and Internet Use at Home (ESA & NTIA 2011). Household Distribution of Internet Access Points – 2010.



Source: U.S. Census Bureau, Current Population Survey School Enrollment and Internet Use Supplement, October 2010, and ESA calculations.

According to the research report, Digital Nation (February 2011) “broadband internet adoption, as well as computer use, varied across demographic and geographic groups. Lower income families, people with less education, those with disabilities, Blacks, Hispanics, and rural residents generally lagged behind the national average in both broadband adoption and computer use. For example, home broadband adoption and computer use stood at only 16 percent and 27 percent, respectively, among rural households headed by a Black householder without a high school diploma. Also, households with school-age children exhibited higher broadband adoption and computer use rates than other households.

The differences in socio-economic attributes did not entirely explain why some groups lagged in adoption. Broadband Internet adoption disparities decrease when regression analysis holds constant certain household characteristics, such as income, education, race, ethnicity, foreign-born status, household composition, disability status, or geographic location. For example, the gap with respect to broadband Internet adoption associated with disabilities decreases from 29 to six percentage points when controlling for income, education, age, and other attributes.

The most important reasons households without broadband Internet or dial-up service gave for not subscribing were: (1) lack of need or interest (47 percent); (2) lack of affordability (24 percent); and (3) inadequate computer (15 percent).”

According to the 2008 State New Economy Index, which ranks states based on their ability to compete in the new economy, Arkansas ranks 47th in the nation. Arkansas also ranked 49th in deployment of broadband telecommunications. In a corresponding statewide survey conducted by Connect Arkansas, Inc., “of 608 registered Arkansas voters, 29% of respondents had “never used the internet,” while another 7% were unsure of what broadband, or high speed internet

access, meant. In addition, in Arkansas, although ~87% of our population has access, there is a significant percentage of the population (51%) that do not even subscribe to the internet. Many of these individuals cite that it is not relevant to them, while others cite that computer ownership is not important.”

VIABLE ALTERNATIVES

The data is irrefutable; there are a number of barriers to broadband access and access to online education for individuals that reside in rural areas. In response to these barriers, new partnerships and new strategies may provide the most promise.

The Federal Communications Commission recently announced an initiative to connect more persons living in disadvantaged communities to broadband by bringing together private companies to provide free computer training. Julius Genachowski, chairman of the F.C.C. announced the Connect to Compete program, and noted that “This is an important step . . . Only 68 percent of Americans with access to high-speed broadband Internet are using it, while in places like South Korea the rate is 90 percent . . . Moving the nation to full computer literacy will require multiple approaches. There’s no single action that will solve all these problems, but there are a series of initiatives that will move the needle (Seelye 2011)” The Geek Squad from Best Buy and Microsoft are two of the private partners, working with well-established and respected community organizations like Boys and Girls Clubs, Goodwill and 4-H in 20 cities.

The state of Idaho has created and implemented the “Idaho Digital Learning Academy” as a way to deliver previously unavailable courses and opportunities to its students in rural areas. Several school districts in the state are working together to provide content to students, saving the school districts money while increasing student’s learning opportunities (Rodine 2011). Using this system as a basis for content, schools and businesses could easily implement a similar system. In areas where broadband is not available through traditional methods, broadband could be obtained through the use of satellite.

CONCLUSION

President Obama committed to “connecting every part of America to the digital age” (NTIA, 2011), yet the studies are in, and true connectivity will require more than laying cables, flipping a switch, and buying hardware. While it will take time for all rural residents to have access to broadband internet, the Recovery Act of 2009 will aid in this endeavor. Businesses and educational institutions must consider their policies and be increasingly open to public/private/government partnerships to address the multi-faceted dimensions of the digital divide.

RECOMMENDATIONS

Access to broadband and online learning is a key element to prepare students and employees for the future. A strong correlation exists between broadband access and educational attainment, employment opportunities, and individual and community-wide economic viability. Access is only one barrier that must be addressed along with perceptions of value and basic computer

training needs for rural youth and adults. The relevance issue must likewise be addressed to provide the impetus to begin the process of adoption of computer technology as a whole.

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