CONNECT IOWA®

Broadband: Boosting Education in Iowa

September 2012

Rising education costs, combined with the need for a solid education in today's global marketplace, have increased the demand for distance learning in Iowa. By taking classes online (also known as e-learning), students are able to access the best professors in the world on their computers or mobile devices, often at a fraction of the cost of taking a "traditional" course in a classroom setting. At the same time, broadband enables educators to bring the world into the classroom at the click of a button. Making the most of this capability, though, requires Internet connectivity and a curriculum that can allow for online coursework.

Online learning is becoming an increasingly important part of our education system at all levels, from secondary and postsecondary education to other types of adult learning, including corporate training. This creates both the need and opportunity for educators who are skilled in online instruction and the demand for increased knowledge of the most effective practices surrounding e-learning.[1] The National Education Technology Plan predicts by 2016, four out of every ten new jobs will require some form of advanced education or training. Additionally, fifteen of the thirty fastest growing career fields will require a minimum of a bachelor's degree.

Broadband is making those educational goals attainable to millions of students. According to a recent report from the Sloan Consortium, 65% of surveyed education institutions said that online learning was a critical part of their long-term strategy, and 6.1 million students took at least one class online in the fall 2010 semester.[2]

Among the findings from this survey:

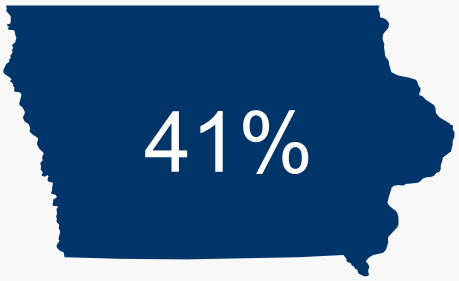
- **41%** of Iowans with Internet access utilize e-learning, significantly lower than the Connected Nation average (44%) among ten states throughout the US.
- According to the 2011 Connect Iowa Residential Assessment, **37%** of Iowa e-learners are rural, while 63% live in urban or suburban households.
- **Nearly four out of five (79%)** Iowans who are e-learners are employed adults, significantly higher than the 70% who are employed adults in other states.
- In Iowa, **45%** of adult e-learners are between the ages of 18 and 34, while another 45% are age 35 to 54.
- **Over one-half** of Iowa e-learners (51%) have a high school diploma or have attended some college, and an additional 45% have a college or advanced degree.

To determine how Iowans are using the Internet to take online courses, Connect Iowa surveyed 1,200 adults statewide as part of a random digital dial survey of 12,004 adults across ten states (Alaska, Florida, Iowa, Michigan, Minnesota, Nevada, Ohio, South Carolina, Tennessee, and Texas) in 2011. This study also examines the demographic make-up and habits of e-learners, using survey data collected by Connected Nation in 2011.

What is E-learning?

E-learning provides students the ability to take classes and access unlimited educational opportunities using the capabilities of high-speed broadband Internet. Education is a quintessential element to one's success; however, there are those who are unable to obtain the education required for gaining job opportunities and advancing their careers. This is due to a number of factors, including the challenges of distance and convenience.[3] This is where e-learning plays a vital role in providing online education to students of all ages. E-learning provides the opportunity to gain new skills from the comfort of home, at work, or at a nearby library or community center.

Figure 1.
Percent of Iowa E-learners



According to the 2011 Connect Iowa Residential Assessment, 80% or nearly 1.8 million Iowans access the Internet either at home or someplace else. Among them, over four out of ten (41%) go online to take classes or

1 National Education Technology Plan (NETP). http://www.ed.gov/sites/default/files/NETP-2010-final-report.pdf
2 *Going the Distance: Online Education in the United States,* 2011, The Sloan Consortium, *http://sloanconsortium.org/publications/survey/going_distance_2011*
3 Iowa State University, http://new.dso.iastate.edu/asc/academic/elearner/advantage.html

conduct research for schoolwork (e-learners). This translates to approximately 754,000 e-learners in Iowa. This is significantly lower than the Connected Nation average of 44% utilizing e-learning among ten states throughout the US. Among the ten states, Texas has the highest e-learning rate of 50%, while Minnesota has the lowest, with only 37% Internet users using the Internet for e-learning.[4]

Among the approximately 754,000 e-learners in Iowa, 85%, or approximately 642,000, have home broadband service, while 10%, or approximately 74,000, rely on Internet connections outside of their home. In addition, 3% of e-learners (approximately 26,000 adult Iowans) are still relying on dial-up service, and the remaining 2% are unaware whether they have dial-up service or broadband service at home.

Demographic Distribution of E-learners

Demographic factors such as age, the presence of children in the home, income, race, educational attainment, disability status, and employment status all play a significant role in e-learning in Iowa (Table 1).

Urban-Rural Classification

Iowa e-learners are significantly more likely to be rural than e-learners in other states. According to the 2011 Connect Iowa Residential Assessment, 37% of Iowa e-learners are rural, while 63% live in urban or suburban households.

Race/Ethnicity

According to the 2010 US Census, approximately 91% of Iowa's population is Caucasian, compared to 72% nationally.[5] Similarly, our study shows that 90% of e-learners in Iowa are Caucasian, while 6% are minorities. This is significantly different from the rest of the states surveyed by Connected Nation.

Table 1.
E-learners by Demographics

Demographic	E-learners in Other States	Iowa E-learners
Urban-Rural Classification		
Rural	12%	37%
Non-rural	88%	63%
Race		
Caucasian	65%	90%
Minority	33%	6%
No answer/refused	2%	4%
Annual Household Income		
Less than $25,000	15%	17%
$25,000 to $49,999	20%	16%
$50,000 to $74,999	19%	21%
$75,000 or more	34%	32%
No answer/refused	12%	14%
Age		
18 to 34 years	43%	45%
35 to 54 years	42%	45%
55 or older	15%	10%
Educational Attainment		
Less than high school	3%	1%
High school diploma or some college	52%	51%
College graduate or advanced degree	43%	45%
No answer/refused	2%	3%
Presence of Children		
Household with children	52%	55%
Household without children	47%	43%
No answer/refused	1%	2%
Employment Status		
Employed full-time or part-time	70%	79%
Not employed	29%	20%
No answer/refused	1%	1%
Disability Status		
Adults with disabilities	10%	10%
Adults without disabilities	88%	85%
No answer/refused	2%	5%

4 Connected Nation Residential Assessments, http://www.connectednation.org/research
5 2010 US Census, 2010 SF1 File, http://factfinder2.census.gov/faces/nav/jsf/pages/searchresults.xhtml?ref=geo&refresh=t

Annual Household Income

There are similarities among e-learners in the state of Iowa and those in other surveyed states along income lines. Across Iowa, 53% of Iowa e-learners earn annual household incomes of $50,000 or more. These figures are similar to education application users in other states. In fact, the median household income for an Iowa e-learner is $61,600 a year.

However, only 16% of Iowa e-learners have annual household incomes between $25,000 and $49,999, which is significantly lower than in other states. In contrast, 17% of Iowa e-learners have annual household incomes below $25,000, which is a larger share of e-learners than in other states.

Age

In Iowa, 45% of adult e-learners are between the ages of 18 and 34, while another 45% are age 35 to 54. Only one-tenth of the e-learners in Iowa are age 55 or older, compared to 15% age 55 or older in other states. This suggests that e-learners overall are considerably younger. The median age of Iowans who are e-learners is 38 years old.

Educational Attainment

Over one-half of adult Iowa e-learners (51%) have a high school diploma or have attended some college, and an additional 45% have a college or advanced degree. These figures are on par with e-learners in other states surveyed. This shows that e-learners in Iowa (as well as in other states) have often already achieved a higher degree but are taking advantage of online courses to further their education for work, to get an advanced degree, or for the joy of learning.

Presence of Children

As households with children are more likely to subscribe to broadband, it makes sense that this adoption of technology would translate into a greater usage of that technology in these households. This hypothesis holds true in terms of e-learning. According to Connect Iowa, 55% of e-learners in Iowa are households with children at home, similar to other states, while 43% of e-learners represent Iowan households without children. The use of e-learning among Iowan households with children is significantly higher than the households without any children.

Employment Status

Nearly four out of five Iowans (79%) who are e-learners are significantly higher than the 70% of employed adults in other states. Upon further examination, the difference between e-learners in Iowa and other states is due in part to the fact that Iowa students, retirees, and unemployed adults are significantly less likely to be e-learners than their peers in other states, meaning one-fifth or 20% e-learners in Iowa are not employed.

Disability Status

One in ten Iowa e-learners has at least one self-reported disability.[6] While this percentage is comparable to adults in other states, it does suggest that Iowans with disabilities are less likely to take online classes. This could be due to several reasons, such as the increase in disabilities among the elderly (a population of Internet users who have already been shown to be less likely to participate in e-learning), or difficulty taking online courses as a result of the disabilities, such as challenges reading a computer screen resulting from visual impairment.

6 Adults with disabilities are defined as those who responded in the affirmative when asked “Do you have any long-term physical, mental, or emotional conditions that make it difficult to do any of the following tasks? (Walking or climbing stairs; concentrating, remembering, or making decisions; visiting a doctor’s office or shopping by yourself; dressing or bathing),” or answered “yes” when asked “Are you blind or have serious difficulty seeing, even when wearing glasses” and/or “Are you deaf or have serious difficulty hearing?”

Marginal Effect of Demography among E-learners

Connected Nation also used a regression model to examine the marginal impact of each of these demographic groups on the likelihood of an individual being an e-learner in Iowa, as well as across all ten states surveyed by Connected Nation. The model is statistically significant across all ten states combined, as well in Iowa alone. The marginal effect of household income, age, educational attainment, households with children that use the Internet for schoolwork, race/ethnicity, state of residence, and employment are significant for the likelihood of an Internet user being an e-learner among Internet users in all ten states; race, income, and employment did not play a significant factor on one being an e-learner in Iowa.

Across all ten states surveyed by Connected Nation, minority Internet users are significantly more likely to be e-learners than Caucasian Internet users, unlike in Iowa where race is not a factor. Younger users age 18 to 34 across all ten states including Iowa are significantly more likely to be e-learners than those 35 or older.

The marginal impact on rural status is not significant across all ten states including Iowa, which is interesting considering a large gap still exists with Internet availability and adoption rural and urban residents. Geographically speaking, Florida, Nevada, South Carolina, and Texas Internet users are significantly more likely to be e-learners than Iowa Internet users.

Conclusion

E-learning expands educational opportunities from traditional classes in brick and mortar campuses to the ability to take classes from the convenience of a home computer. Long hours of travel and the hassle of parking are replaced with the ability to structure learning on one's own schedule from the comfort of home.

Demographic factors such as age, the presence of children in the home, income, race, educational attainment, disability status, and employment status all play a significant role in e-learning in Iowa. Connect Iowa research shows that e-learners in Iowa tend to be younger, have higher annual household incomes, and are more likely to have children in their household. In addition, more than one-half of e-learners in Iowa do not have a college degree.

In addition, various demographic factors are significant in the likelihood of an individual being an e-learner. Of note, three demographic factors play a significant role in one's likelihood of being an e-learner in Iowa: age, college education, and the presence of children who use the Internet for homework. In terms of geography, Iowa Internet users are significantly less likely to be e-learners than states such as Florida, Nevada, South Carolina, and Texas.

E-learning is a vital tool to support education and yet is unavailable or underutilized by many residents. Increasing broadband connectivity among educational institutions and residents not only in Iowa but across the nation is vital to making distance learning a reality for many students. In addition to having a broadband connection, it is essential to promote these tools through programs such as Iowalearns.org, which promotes online education throughout the state of Iowa and directs students to the distance learning opportunities available from public and private colleges and universities in Iowa.[7]

A more detailed version of this report was also presented at the Iowa Distance Learning Association Conference held on April 13, 2012, at Altoona, Iowa.[8] To read the full report presented at the conference, click here.

7 Iowa Learns, http://iowalearns.org/
8 Iowa Distance Learning Association, http://www.idla.org/?page_id=432

Methodology

To explore the e-learning phenomenon, Connected Nation conducted a random digit dial telephone survey of 12,004 adult heads of households across a heterogeneous selection of ten states (Alaska, Florida, Iowa, Michigan, Minnesota, Nevada, Ohio, South Carolina, Tennessee, and Texas) between June 22 and August 19, 2011. This sample included 9,555 adults who stated that they either use the Internet from home or someplace else, such as a friend's home, at work, or at a public computing center. When asked which activities they conducted online, 3,768 of those Internet users reported that they go online to "take online classes or conduct research for schoolwork," and this group constitutes the sample of e-learners throughout this study. Of the 12,004 adults age 18 or older, 10,022 were contacted via landline telephone and 1,982 were contacted via cell phone. Interviews were conducted in English in every state, while residents in Texas, Nevada, and Florida were also offered the option to take the survey in Spanish. On average, the surveys took approximately 12 minutes to complete.

In Iowa, 1,200 adult heads of households were surveyed using this same methodology. Of those, 1,000 adults were contacted via landline telephone and 200 were contacted via cell phone. Across Iowa, 952 adult heads of households identified themselves as Internet users, and 354 of those were identified as e-learners.

Multiple attempts were made to each working telephone number on different days of the week and at different times of the day to increase the likelihood of contacting a potential respondent. To ensure a representative sample, quotas were set by age, gender, and county of residence (rural or non-rural), based on 2010 United States Census data. The data was then weighted using a rim weighting process to account for any minor variances between the statewide population and the survey sample based on these factors. Based on the effective sample sizes, the margin of error for the 2011 Connected Nation Residential assessment of all ten states is ±1.4% at a 95% level of confidence, while the margin of error for Iowa is ±3.21% at the same level of confidence. The margin of error for e-learners among all Connected Nation states is ±2.5% at a 95% level of confidence, while for Iowa e-learners it is ±6.1% at a 95% level of confidence.

As with any survey, question wording and the practical challenges of data collection may introduce an element of error or bias that is not reflected in these margins of error. For the purposes of this study, "urban" residents are defined as respondents living in counties that contain the core city of a Metropolitan Statistical Area (MSA), "suburban" residents are those living in MSA counties that do not include a core city, while "rural" residents are defined as residents of all remaining counties that are not part of an MSA. "Low-income" households are defined as those with self-reported annual household incomes below $25,000. Surveys were conducted by Thoroughbred Research and Eastern Research Services, with weighting and research design consultation provided by Lucidity Research LLC. The survey results were reviewed by experts in the fields of statistics and survey design in multiple states.

These surveys were conducted as part of the State Broadband Initiative (SBI) grant program, funded by the National Telecommunications and Information Administration (NTIA). The SBI grant program was created by the Broadband Data Improvement Act (BDIA), unanimously passed by Congress in 2008 and funded by the American Recovery and Reinvestment Act (ARRA) in 2009. To learn more about Connect Iowa and its programs please visit http://www.connectiowa.org or e-mail us at info@connectiowa.org.

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APPENDIX

Sample Size (N)	Connected Nation Average	Iowa
Total Residents	**12,004**	**1,200**
Internet Users	9,555	952
Broadband Adopters	7,682	772
E-learners	3,770	354
Race		
Caucasian	9,173	1,077
Minority	2,377	74
Urban-Rural		
Rural	3,923	400
Non-Rural	8,081	800
Annual Household Income		
Income $25,000 or less	2,281	198
Income $25,000 to $49,999	2,572	246
Income $50,000 to $74,999	1,853	211
Income $75,000 or more	3,047	307
Age		
Age 18 to 34 years	2,402	216
Age 35 to 54 years	4,849	486
Age 55 or older	4,753	498
Disability Status		
No reported disabilities	7,976	890
Adults with disabilities	2,184	242
Employment Status		
Employed adults	6,697	710
Adults who are not employed	5,064	466
Educational Attainment		
No high school diploma	913	54
Some college or high school graduate	6,496	673
College graduate or advanced degree	4,234	442
Households		
Households with children	4,158	399
Households without children	5,514	534