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Recommended Citation

Lindner, James R. (1999) "Usage and Impact of the Internet for Appalachian Chambers of Commerce," *Journal of Applied Communications*: Vol. 83: Iss. 1. <https://doi.org/10.4148/1051-0834.2134>

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Abstract

The use of various Internet applications has opened the door for businesses in isolated areas to participate in a global economy. But has this new tool penetrated Appalachia Ohio, and can Extension help community and economic development professionals better use the Internet to achieve greater success? Chambers of Commerce throughout rural America are important stakeholders and clientele of Extension. A study using a descriptive survey method assessed the perceptions of Chamber of Commerce Executive Directors in Appalachia Ohio regarding the Internet. The study found relatively few significant barriers that limit access to the Internet and that proficiency in basic Internet skills is associated with higher perceived job success factors.

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Usage and Impact of the Internet for Appalachian Chambers of Commerce



James R. Lindner

Abstract

The use of various Internet applications has opened the door for businesses in isolated areas to participate in a global economy. But has this new tool penetrated Appalachia Ohio, and can Extension help community and economic development professionals better use the Internet to achieve greater success? Chambers of Commerce throughout rural America are important stakeholders and clientele of Extension. A study using a descriptive survey method assessed the perceptions of Chamber of Commerce Executive Directors in Appalachia Ohio regarding the Internet. The study found relatively few significant barriers that limit access to the Internet and that proficiency in basic Internet skills is associated with higher perceived job success factors.

The "Information Age" is maturing, probably even approaching middle age. Information technology is being invented, dispensed, adopted and abandoned at an increasing rate. Information can be transmitted at the speed of light (Buford, Bedeian, & Lindner, 1995).

One of the most recent technologies to gain prominent attention has been the Internet. The Internet is a collection of computer networks interacting and interfacing electronically for the purpose of transferring information provided by a server and requested by a user (Porter, 1997; Rogers, 1995; Eveland, 1986). Historically, there

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have been few regulations affecting content on the Internet (Rogers, 1995). Passage of the Telecommunication Reform Act of 1996, however, has resulted in much debate about regulatory and legal issues pertaining to the Internet (Westphal & Towell, 1998; Thomas, Forcht, & Counts, 1998; McCabe & Dwayne, 1997).

While the Internet has fairly widespread adoption in educational environments, it does not enjoy the same usage among the general public (DeYoung, Harris, & Larsen, 1995; Pirsch, 1993). A study of Ohio State University Extension agents found 94% had Internet access at work and 47% had access at home (Porter, 1997). Approximately 25% of adults in the United States use the Internet (Brockmann, 1998).

A survey of 550 small- and medium-sized businesses showed 47% had access to the Internet (Dun & Bradstreet, 1998). A workplace technology study (William Olsten Center, 1998) showed 77% of adults who use the Internet as a work tool reported the Internet made them more productive at their jobs. Clearly, the Internet is not a passing fad but an important business technology.

Tennessee, PonTell, Romine, and Motheral (1997a) suggest that development and usage of the Internet in rural communities can foster economic development. In the rural communities of Appalachia Ohio, Ohio State University Extension has taken a lead role in economic development, through programs in 4-H, Agriculture, Family and Consumer Science, or Community Economic Development. The Extension Service is uniquely qualified to work with local stakeholders and clientele regarding application of the Internet (Tennessee, PonTell, Romine, & Motheral, 1997b).

While the Internet has had an impact on how the Extension Service works, it has not had a significant effect on the type of work (Porter, 1997; Thomas, 1996). For example, Ohio State University Extension publishes its factsheets in print and in electronic form on the Internet. Factsheet content remains constant regardless of medium. The Internet, therefore, presents another tool for Extension to use in helping community leaders promote economic development.

To be successful in leading communities toward the development and usage of the Internet, Extension educators must focus on the needs of those potential users (Newcomb, McCracken, & Warmbrod, 1993). The Extension Service will have to adopt new methods of program delivery as more of its clients begin to use the Internet. This

study is part of Ohio State University Extension's strategy for helping development professionals in Appalachia Ohio achieve greater economic and community development success.

This study targeted Executive Directors of Chambers of Commerce throughout the Appalachian Region because Executive Directors of Chambers' of Commerce tend to be established business and community leaders. The Appalachia region in Ohio is an economically disadvantaged area, where opportunities for economic growth and development are more limited than elsewhere in the state (Lindner, Bierman, Henderson, Hochheimer, McFeeters, Miller & Wall, 1997). The role of Executive Director fits community leadership criteria of involving influence, power, and input into public decision-making over one or more spheres of activity (Langone, 1992).

Purpose and Objectives

The purpose of this study was to assess the perceptions of Chamber of Commerce Executive Directors in Appalachia Ohio regarding their Internet usage.

Specific objectives of the study were to:

1. Identify the technology barriers to Internet use by the target population;
2. Describe the Internet skill proficiency of the target population;
3. Describe the target population's perceptions about job success factors related to the Internet;
4. Identify the effect of participant characteristics on Internet skill proficiency and perceptions about job success factors; and
5. Determine the effect of Internet skill proficiency on perceptions about job success factors.

Methods and Procedures

Population

The target population included all area, city, or county Chamber of Commerce Directors (N = 96) in Ohio's Appalachia region. The Ohio Chamber of Commerce Directory was used to locate subjects in the target population. Selection by job title made the study gender- and age-blind. Herling (1995) and Rogers (1995) state that there is inconclusive evidence to support links between rate of Internet adoption and gender or age.

Research Design and Data Analysis

The study used a descriptive survey method. The survey consisted of four sections. The first section was designed to assess technological barriers to Internet access. Respondents who did not have Internet access completed only the first question and returned the survey. The second section asked respondents to evaluate their Internet usage skills. The third section measured perceived impacts of Internet usage on job success factors such as job performance. Appropriate Likert-type scales were used to gather data in sections one, two, and three (Clason & Dormody, 1994). The fourth section was designed to gather demographic data.

Content and face validity of the survey instrument were established by a panel of experts consisting of faculty and professional staff at Ohio State University Extension. Instrument reliability was estimated by calculating a Cronbach's alpha coefficient. Overall reliability for the instrument was .78. A pilot test was conducted two weeks before the study with three Chamber of Commerce Directors not selected in the sample. No changes were made to the questionnaire as a result of the pilot test.

The questionnaire was distributed by mail to the 96 subjects. A postcard reminder was sent to subjects who failed to respond. If the reminder failed to elicit a response, a follow-up letter and a duplicate questionnaire were mailed. The response rate was 69% (N = 66). An early versus late respondent comparison was made to determine if nonresponse was a threat to the validity of the study (Kerlinger, 1986; Miller & Smith, 1983). Using this procedure, no statistically significant differences between the groups were found. Therefore, findings from this study are assumed to be generalizable to the population from which it was drawn.

Results

Selected demographics of survey participants are listed below. The majority (61%) of the respondents were female. Forty percent of the respondents were age 46-65. Most (67%) of the respondents had a bachelor's degree. Thirty-five percent of the respondents had been employed two years or less at their current job, 26% had been employed 3-5 years, 26% had been employed 6-10 years, and 13% had been employed 11 years or more. Forty-seven percent (n = 31) of the respondents had access to the Internet.

Objective 1

As shown in Table 1, busy signal with Internet service provider ($M = 1.9$) was the first ranked barrier to accessing and using the Internet. The second ranked barrier was computer response time too slow ($M = 1.8$). The lowest ranked barrier was multiple users on the same terminal ($M = 0.9$).

Objective 2

As shown in Table 2, using search engines ($M = 2.8$), browsing the World Wide Web ($M = 2.7$), and accessing/sending email ($M = 2.7$) were the highest ranked Internet skill proficiencies possessed by Chamber Directors. Creating a page on the World Wide Web ($M = 0.7$), participating in on-line chats ($M = 0.6$), using remote login ($M = 0.4$), and creating a list service ($M = 0.2$) were the lowest ranked Internet skill proficiencies possessed by Chamber Directors.

Rank	Barrier	Mean	Standard deviation
1.	Busy signal with Internet service provider	1.9	1.4
2.	Computer response time too slow	1.8	1.4
3.	Server downtime; system timed out	1.4	1.1
4.	Hardware not working (i.e., computer, modem)	1.3	1.1
5.	Multiple users on the same terminal	0.9	1.3

Note. 0 = never; 1 = very rarely; 2 = rarely; 3 = occasionally; 4 = frequently; and 5 = very frequently. N = 31.

Table 2 Rank, Mean, and Standard Deviation of Internet Skill Proficiency			
Rank	Skill	Mean	Standard deviation
1.	Use search engines (e.g. Lycos, Yahoo, Excite, Infoseek)	2.8	1.4
2.	Browse the World Wide Web	2.7	0.9
3.	Access/send e-mail	2.7	1.2
4.	Attach application files to e-mail	1.3	1.3
5.	Upload/download files to/from the Internet	1.3	1.2
6.	Create a page on the WWW	0.7	1.2
7.	Participate in on-line chats	0.6	0.8
8.	Use remote login (TELNET)	0.4	0.8
9.	Create a list service	0.2	0.5
Note. 0 = not at all; 1 = a little; 2 = somewhat; 3 = very; and 4 = great deal. N = 31.			

Objective 3

As shown in Table 3, accessing information (M = 4.2) was the highest ranked perception about job success factors. Job satisfaction (M = 3.2) was the lowest ranked perception about job success factors.

Table 3 Rank, Mean, and Standard Deviation of Perceived Job Success Factors			
Rank	Success Factors	Mean	Standard deviation
1.	Access to information	4.2	1.0
2.	Ability to communicate with others	3.8	1.0
3.	Job performance	3.4	1.0
4.	Job satisfaction	3.2	1.1
Note. 0 = strongly disagree; 1 = disagree; 2 = somewhat disagree; 3 = somewhat agree; 4 = agree; and 5 = strongly agree. N = 31.			

Objective 4

The analysis of variance procedure was used to examine the effects of participant characteristics on Internet skill proficiency and perceptions about job success factors. No statistically significant differences between these factors were found. Hence, gender, age, level of education, and tenure at job were not significantly related to Internet skill proficiency or perceived job success factors.

Objective 5

The analysis of variance procedure also was used to identify the effect of the participants' Internet skill proficiency on their perceptions about job success factors. At an alpha level of .05, statistical differences were found between:

1. Accessing/sending E-mail and perceptions of access to information $F(4, 26) = 5.80$;
2. Accessing/sending E-mail and perceptions of ability to communicate $F(4, 26) = 9.37$;
3. Browsing the World Wide Web and perceptions of ability to communicate with others $F(4, 26) = 8.72$;
4. Browsing the World Wide Web and perceptions of access to information $F(4, 26) = 3.12$; and
5. Using search engines and perceptions of access to information $F(4, 26) = 3.36$.

No other significant differences between variables were found.

Conclusions and Recommendations

Based on the findings of this study, the following conclusions about Appalachia Ohio Chamber of Commerce Executive Directors were drawn and recommendations made.

The major complaints expressed about barriers to Internet use were busy signals from Internet service providers and slow computer response time. However, even these barriers rarely occurred.

Having established the accessibility of Internet technology, respondents then reported their skill levels for nine different Internet functions. The participants reported high Internet skill proficiency levels for using search engines, browsing the World Wide Web, and accessing/sending E-mail. Proficiency levels for creating a list service, logging on to a remote server, participating in on-line chats,

and creating World Wide Web pages were low to nonexistent.

Building on both the availability of the technology and the participants' skill in manipulating the technology, respondents were asked to give their perceptions of how the Internet affected their work. Respondents felt that the Internet increased their job performance, their access to information, their job satisfaction, and their ability to communicate with others.

Sex, age, level of education, and tenure at their current job were not related to Internet skill proficiency or perceived job success factors. Some Internet skill proficiencies, however, were related to job success factors. Chamber Directors with higher skill proficiencies in accessing/sending E-mail and browsing the World Wide Web were more likely to perceive the Internet as an effective means of accessing information and communicating with others. Chamber Directors with higher skill proficiencies in using search engines were more likely to perceive the Internet as a useful method of accessing information.

The results presented here tend to support the contention by the William Olsten Center (1998) that increased Internet skill proficiencies lead to higher job success such as job performance, access to information, job satisfaction, and ability to communicate with others. Chamber of Commerce Directors in Appalachia Ohio who had a high proficiency in accessing/sending E-mail, browsing the World Wide Web, and using search engines were more likely to perceive the Internet as an effective means of accessing information. Higher proficiencies in accessing/sending E-mail and browsing the World Wide Web were related to Chamber of Commerce Directors' perception of the Internet as a means of communicating with others.

The results presented here also confirm Herling's (1995) and Roger's (1995) findings that Internet skill proficiency and perceived job success factors are not related to specific demographic characteristics. This study also confirmed DeYoung, Harris, and Larsen (1995) and Pirsch's (1993) contention that personnel at educational institutions use the Internet at higher rates than the adult population in the United States. Brockmann (1998) stated that approximately 25% of the adult population in the United States uses the Internet. Ninety-four percent of Extension Agents in Ohio have access to the Internet (Porter, 1997). Appalachia Ohio Chamber of Commerce Directors report similar Internet access (47%) as small- and medium-sized business. The gap between Extension Agents' and Chamber of

Commerce Directors' access to the Internet presents agents with an opportunity to develop and deliver programs that will lead to more use of the Internet and positive perceptions about the Internet.

Whether working through 4-H, Agriculture, Family and Consumer Science, or Community Economic Development, Extension Agents can use these findings to help stakeholders in their communities learn more about the Internet. For Chamber of Commerce Directors in Appalachia Ohio, these results have specific implications. For business and community development professionals, these results have general implications that should be considered. There are relatively few significant technical barriers that limit access to the Internet. Proficiency in basic Internet skills is associated with higher self-perceived job success factors.

Extension personnel should provide education and training opportunities for Chamber Directors and other community economic development professionals. Information products such as factsheets and news articles could be used to help dispel myths about barriers to the Internet. Extension personnel should emphasize the perceived job success benefits derived from using the Internet. Finally, Extension personnel, researchers and educators alike should continue to study ways in which the benefits of electronic commerce in rural communities and use of Internet can help stakeholders and clientele achieve greater success.

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