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Abstract

The Internet has become a major factor in the mass media industry. As a consequence, information sources, including agricultural communicators, are considering the decision to move to Web-based publications and publicity dissemination tools. Rural and agricultural audiences, however, have favored traditional media as a source of news and information, creating something of a “rural-urban digital divide.” In an attempt to assess how mass media news operations are utilizing the Web as a newsgathering and information source, a statewide descriptive survey was conducted of a random sample of local and regional media outlets. Results showed that television, radio, and newspaper newsrooms were using computers and the Internet extensively not only for receiving information and research but also for disseminating news. Respondents indicated that 88.9% of reporters used the Internet on a daily basis, while 72.2% of news units maintain an online presence. These findings indicate that as media outlets increase their utilization of the Web, agricultural industries and higher education institutions need to move more to electronic dissemination of information.

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Abstract

The Internet has become a major factor in the mass media industry. As a consequence, information sources, including agricultural communicators, are considering the decision to move to Web-based publications and publicity dissemination tools. Rural and agricultural audiences, however, have favored traditional media as a source of news and information, creating something of a “rural-urban digital divide.” In an attempt to assess how mass media news operations are utilizing the Web as a newsgathering and information source, a statewide descriptive survey was conducted of a random sample of local and regional media outlets. Results showed that television, radio, and newspaper newsrooms were using computers and the Internet extensively not only for receiving information and research but also for disseminating news. Respondents indicated that 88.9% of reporters used the Internet on a daily basis, while 72.2% of news units maintain an online presence. These findings indicate that as media outlets increase their utilization of the Web, agricultural industries and higher education institutions need to move more to electronic dissemination of information.

Introduction

Because the Internet has become a major factor in the mass media industry, information sources, including agricultural communicators and mass media, are adopting the Web as a vehicle for publicity dissemination. Existing research in this area, although limited, indicates, however, that there may be some dissonance between efforts to move news dissemination onto the Web and the preferences of rural and agricultural audiences (Garrison, 2001; Howell, Habron, and Woods, 2002).

Although previous studies indicate that the general population is turning more to the Internet for information (Stempel, Hargrove, & Bernt, 2000), agricultural communications researchers have shown that certain audiences, such as those audiences that are more rural and agriculturally based, may still prefer to receive news the old-fashioned way. For example, in a study of agricultural landowners, Howell, Habron, and Woods (2002) found that respondents overwhelmingly preferred “conventional” print sources of

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information rather than online information delivery media. With respect to agricultural media, Wood-Turley and Tucker (2002) found in a readership analysis that, of the 335 readers surveyed, fewer than one fourth indicated they would prefer receiving news information electronically. In a study looking at dissemination of extension information, Suvedi, Campo, and Lapinski (1999) found that farmers ranked Data Transmission Network (DTN) and Web-based information as their least-popular sources.

Adoption innovation theorists utilize the concept of critical mass to indicate the point at which enough individuals have adopted an innovation so that it will continue to grow and be self-sustaining over time (Rogers, 1995, p. 313). Generally speaking, critical mass for online technology, such as the Internet and the World Wide Web, is being reached much faster than for other forms of media (Garrison, 2001). The number of users of online technology, compared to most conventional technological innovations, has shown a much steeper increase in rate of adoption (Garrison, 2001). By 2004, Nielsen/NetRatings reported that 135.82 million Americans were using the Internet (ClickZ.com, 2005). It was reported in February 2003 that Americans spent an average of 25 hours and 33 minutes per month using the Internet (CyberAtlas, 2003).

Rural markets, however, have remained relatively underserved by large commercial Internet service providers (Clement, Holbrook, & Staman, 2002). The United States Department of Commerce (2004) reported that while 27.2 million urban households have dial-up, only 11.4 million rural households reported the same usage. The authors also reported that rural areas were lower than the national average in their subscriptions to both cable modems and DSL (U.S. Department of Commerce, 2004). Rural lifestyles, traditionally viewed as more oriented to outdoor pursuits and occupations, have been viewed as a social context in which the benefits of modern communications technologies may not always be apparent (Hindman, 2000).

With the boost in users looking for information from sources other than the traditional print and broadcast formats, decision-makers in the mass media seem to have moved to keep their audience's attention by increasingly going online to offer news and information. In 2004, the National Telecommunications and Information Administration reported that 64.4% of dial-up users go online for news information (U.S. Department of Commerce, 2004). A survey done by the Pew Research Center found that one third (and almost half of those under 30) of respondents receive news online at least once a week (Bogart, 2000).

Garrison (2003) found in a study of daily newspapers that reporters were actively using new online technologies to research articles as well as to

contact sources. As journalists are moving toward using the Internet to gather information for stories, concerns among some members of the journalism community are being voiced. In a longitudinal study of journalists conducted from 1994-1998, respondents expressed some concerns about researching stories over the Internet, especially with respect to difficulties in verifying the accuracy of online sources, the possibility of sites containing unreliable information, lack of source credibility, and badly sourced information (Garrison, 2000). The same study also found a need for newsroom training in online research skills. On the other hand, journalism students entering the profession are also more likely to use the Internet to do research than in the past. Bressers and Bergen (2000) found that in a study of 400 Midwest university students, 47.8 percent use the Internet frequently for reference or research materials.

Although research indicates that mass media and the general public, in ever-greater numbers, are utilizing the Internet as an information source, less is known about the specific access and usage patterns among local mass media. How are media outlets using the Internet to conduct business and disseminate information? Do media outlets differ in their usage of the Internet, based on factors such as urban/rural location, media type, and/or utility, with respect to newsgathering and collection activities? How many media operations that access and use the Web also use it to disseminate news information? How useful or beneficial do these media operations find the Internet to be with respect to news collection and dissemination? Based on the above, the following objectives were used to guide this study:

- Describe the access and availability of the Internet as a news collection tool among a random sample of local print and broadcast media outlets.
- Determine the effectiveness and usefulness of the Internet, with respect to newsgathering and news dissemination operations, among a random sample of local print and broadcast media outlets.
- Determine the extent to which the Web is being utilized as a news and information dissemination source among a random sample of local print and broadcast media outlets.

Theoretical Framework

Rogers' diffusion of innovations framework is a starting place for studies focused on attempting to describe implementation and usage of a new technology (Rogers & Shoemaker, 1971). In their original conceptualization, Rogers and Shoemaker defined adoption behavior as the relationship between the time at which an individual chooses to adopt a technological

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innovation and the time at which other members of his/her social system do so. Rogers noted that diffusion of an innovation may not always be univariate and unchanging. Often, innovations go through a process of reinvention in which the innovation is changed or modified by a user in the process of its adoption and implementation (Charters & Pellegrin, 1972).

Theorists have used the diffusion framework as a stepping-off point in conceptualizing how users implement computer and communications technologies in the workplace. The technology acceptance model (TAM) is a theoretical framework that has been used to look at how perceptions of use and usefulness of a technology affect implementation of that technology. TAM has been described as a theoretical framework that explains the psychological determinants of acceptance behavior and attitudes toward technology in the workplace (Roberts & Henderson, 1998). TAM is an adaptation of the Theory of Reasoned Action (TORA) (Fishbein & Ajzen, 1975) applied to the business management and technology sectors. The TORA is said to provide the rationale for many assumptions seen in TAM, (Davis, 1993). TAM differs from the TORA in that it attempts to draw a distinction between attitude toward the object and attitude toward the behavior, (Davis, 1993).

TAM asserts that perceived usefulness and ease of use will represent the beliefs and attitudes that lead to acceptance of a new technology (Lederer, Maupin, Sena, & Zhuang, 1999). The researchers described perceived usefulness as the degree to which a person believes that a particular system will enhance their job performance by reducing their time to complete a task or providing information quickly. Perceived ease of use is the degree to which someone believes using a particular system would be effortless. Other model constructs include attitude toward use and behavioral intention of use.

Methodology

To conduct the study, a descriptive survey was mailed to a stratified random sample (N = 300) of local TV, radio, and newspaper media in Florida. This state has four of the top ten major metropolitan media markets, as well as a significantly large rural agricultural base. Florida is unique in the scale of its commodity production; despite a large urban population base, the state produces more than 200 major agricultural commodities and in 2002, reported total agricultural and natural resource outputs of nearly \$70 billion. The agricultural industry in the state also supports 725,957 jobs (University of Florida, 2005).

The sampling frame for the study was derived from the 2002-2003 Florida News Directory (News Media Directories, 2002), which lists all media outlets in the state. A random numbers table was used to derive the

sample, resulting in a total of 59 surveys sent to television station news editors, 141 to radio station news editors, and 100 to newspaper editors around the state.

A survey consisting of 22 items adapted from a previous study of statewide Texas media (Phillips, Janish, Fannin, & Mayes, 2002) and the TAM model was constructed to assess Internet usage, perceptions, and perceived ease of use and usefulness of the Internet to news media as described by the TAM model. Items consisted of dichotomous choice questions to assess usage factors and demographics, combined with a set of Likert-type five-point scales to assess perceptions of usefulness of specific aspects of Internet technology as used by news media operations. To collect media-specific demographic information, separate forms of the survey instrument were created. Question items for the variables of interest remained the same, but media specific terms were used to collect information on type of media outlet (print, radio, television) and audience/coverage/station affiliation. To ensure face and construct validity, the instrument was reviewed by a panel of experts comprised of individuals with experience in print, radio or television, and then refined based on reviewers' comments.

The instrument was first disseminated November 22, 2002. The researcher utilized survey administration procedures as specified in Dillman's tailored design method (Dillman, 2000) to generate as many respondents as possible. After the initial mailing, a follow-up postcard was sent 10 days later. A second survey was mailed two weeks later to all nonresponders. To control for nonresponse error, early and late respondents were compared with respect to the variables of interest. No significant differences were observed.

Findings

Data collection yielded 39 useable responses from 39 separate media outlets, for an overall response rate of 13%, a low, but not unexpected, response rate from what is often seen as a particularly challenging population from which to collect survey responses. Dillman (2000) describes self-administered questionnaires of businesses and organizations like media to be one of the hardest undertakings when trying to obtain high response rates. Although standards for acceptable response rates do vary according to industry or population to be studied, generally a response rate of 50% or above is seen as desirable (Babbie, 2001).

On the other hand, researchers and commentators have pointed out that the size of nonresponse error in any given survey is a function of both response rate and the extent to which respondents differ on the variables of

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interest. "If either a high response rate is achieved or if respondents do not differ from nonrespondents, then nonresponse error is not a problem. In fact, nonresponse error is only a problem if a low response rate is achieved and respondents differ from nonrespondents on one or more of the variables of interest" (Wiseman, 2003). Lindner, Murphy and Briers (2001) indicated that steps must be taken to account for possible nonresponse error whenever a response rate is less than 85%.

In the present study, both the sampling technique and the use of early/late respondent comparisons were utilized to control for error. Results of the early/late comparisons subsequently indicated that respondents in this study did not differ significantly in their responses on one or more variables of interest.

Demographics for the sample respondents indicated that 24 respondents represented print publications; 11 represented radio stations and four represented television stations. When compared to incidence of media types in the population from which the sample was derived, this breakdown was shown to be representative. With respect to geographic location, 16 had a primarily suburban coverage/circulation area; while five, respectively, had primarily urban coverage/circulation; 12 had primarily rural coverage/circulation; and three claimed to have a mixture of suburban, urban, and rural coverage/circulation areas. Suburban, urban, and rural were all defined by the organization responding.

The print publications reported that six had circulations between 1,000-5,000, followed by five with circulations between 20,000-50,000, eight with circulations between 5,001-10,000 and 10,001-20,000, three with circulations between 50,001-100,000, and two with circulations between 100,001-250,000.

Of responding print publications, 10 were weeklies; six were magazines and community news periodicals with monthly circulations; and five were dailies. Of responding radio stations, six were FM stations and three were AM. For the TV stations, one was a CBS affiliate, and the other respondents did not report affiliation.

Internet Access and Accessibility

Respondents reported that use of the Internet was part of the regular work for a wide variety of staffers. Of respondents, 77.1% (n = 27) had Internet access in their newsrooms for three years or more; 14.3% (n = 5) had access for between two and three years; and 8.6% (n = 7) had access for between one and two years. Respondents indicated that, in terms of availability, access to the Internet was fairly widespread in their newsrooms; only 30.6% (n = 11) of those respondents who answered this question indicated that access was available from only one computer location. Of respondents,

19.4% (n = 7) indicated that access was available for clusters of reporters with different Internet accounts, and 63.9% (n = 23) stated that access was available to all reporters in the newsroom from their own desktop computer.

Perceived Internet Usage and Usefulness

Of respondents, 43.8% (n = 14) indicated that their newsroom had a policy or philosophy with respect to Internet use by their staff, while 56.3% (n = 18) said they did not. Subsequent open-ended responses indicated that policies ranged from “Christian values” to “Internet use for business only” to “no illegal or immoral activity.”

Newsroom usage of the Internet was reported as being fairly extensive, with the majority of respondents indicating usage for a series of news collection functions. (See Table 1).

Table 1. *Internet Usage for News Collection Purposes*

Function	Yes		No	
	percent	n	percent	n
Send/receive e-mail	97.3	36	2.7	1
Receive news releases	97.3	36	2.7	1
Information research/background for stories	89.2	33	10.8	4
Receive graphics and photos	82.1	23	17.9	5
Queries/interviews with expert sources	67.6	25	32.4	12
Exchange viewpoints w. other journalists	51.4	19	48.6	18
Find links to add to your Internet site	43.2	16	56.8	21
Database manipulation	27.0	10	73.0	27

To assess perceived usefulness, respondents were asked to rate a series of newsroom-oriented Internet applications/functions according to their usefulness, on a five-point Likert scale ranging from 1 = “least useful” to 5 = “most useful.” Responses indicated that survey respondents found most functions of average to above average usefulness, with news graphics and photos achieving the highest mean (M = 4.08, SD = 1.06). (See Table 2).

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Table 2. *Perceived Usefulness of Internet Newsgathering Functions*

Function	n	Mean	SD
News graphics and photos	24	4.08	1.06
Stats, background information searches	35	4.03	1.25
News releases sent from govt. info. or PR offices	37	3.97	1.09
Newsfeed information	12	3.08	1.37
Database retrieval	13	2.92	1.44
Query/interviews with expert sources	33	2.88	1.24
Commercial news services	33	2.88	1.36
Transmission of stories for reporters on assignment	34	2.80	1.64

Perceptions of E-mail and Computer-Assisted Reporting

With respect to specific perceptions as to the usefulness of e-mail and computer-assisted reporting as news collection functions, respondents expected internal and external e-mail use by their newsroom staff to increase most substantially over the next five years. On a scale of 1-5, with 5 = "greatly increase" and 1 = "greatly decrease," the mean for e-mail was $M = 4.03$, $SD = .94$.

Using a Likert scale ranging from 1 = "least useful" to 5 = "most useful," respondents were asked to rate their perceptions of the benefits of computer-assisted reporting. Respondents found most benefits to be of average to above average usefulness, with speed of information gathering achieving the highest mean ($M = 4.38$, $SD = .74$). (See Table 3).

Table 3. *Benefits of Computer-Assisted Reporting*

Function	n	Mean	SD
Speed of information gathering	34	4.38	.74
Track story topics to insure fresh stories	33	3.51	1.18
Save costs	33	3.48	1.30
Stay current with the news industry	33	3.48	1.20
Conduct investigative news projects	32	3.47	1.24
Get story ideas by reading current trends on various Internet subject groups	32	3.31	1.17
Allow reporters away on assignment to file stories	31	3.29	1.44
Store script copies from previous newscasts	34	3.12	1.51
Edit	32	3.16	1.34
Interact with other journalists	33	2.51	1.17

When asked whether they would like to receive news information electronically or via traditional methods (fax or hand delivery), such as press releases from public relations firms, government agencies, or from other local sources, respondents indicated that they would prefer to receive such information electronically. Of respondents, 82.9% (n = 29) said that they would prefer to receive releases from government information offices/ Extension offices electronically; 71.4% (n = 25) said they would like to receive releases from public relation firms electronically; 88.6% (n = 31) preferred electronic transmission of news items from other local sources; 78.3% (n = 18) preferred electronic submission of letters to the editor; and 92.3% (n = 24) wanted electronic transmission of news graphics and photos.

Utilization of the Web as a News Dissemination Source

To achieve this objective, respondents were asked a series of dichotomous choice questions to determine if they had a Web site and whether it was used for news dissemination. Of the respondents (n = 26), 72.2% indicated that they maintained an online Web presence. Only two (7.7%) respondents indicated that their site required visitors to sign up for access, while 92.3% (n = 24) said they did not. Of those print, television, and radio respondents with Web site presences, most indicated that they maintained a variety of news dissemination features, ranging from programming information to archived news stories. (See Table 4).

In addition to these responses, respondents individually indicated under "other" the following: "standard community information"; "streamed music"; video clips"; "calendar"; "subscription"; "classified ads"; and "weather radar."

Discussion/Conclusions

Results indicate that sampled Florida media outlets are using the Web/ Internet extensively for news gathering, collection, and dissemination, and that they plan to do so even more in the future.

The low response rate of this study represents a limitation to the findings, and an acknowledgement of the difficulties of conducting industry-based research. However, an implication can be made that future research in this area might include mixed mode qualitative methods such as focus groups and content analysis, which could add to the richness of the data collected for analysis purposes and mitigate potentially low response rates.

The findings of this study indicate that local newspaper, radio, and TV station respondents utilize the Web/Internet for a wide range of activities, including downloading graphics and receiving e-mail, with the most common use cited as conducting research/background for stories. Internet use

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Table 4. Web Site News Dissemination Features by Media Type

Feature by Media	Yes		No	
	percent	n	percent	n
Print				
Promotion/advertising	92.9	13	7.1	1
News updates	85.7	12	14.3	2
Feature stories	85.7	12	0.0	0
News updates	100.0	2	0.0	0
Programming information	100.0	3	0.0	0
Feature stories	50.0	1	50.0	1
News links	50.0	1	50.0	1
Archived news stories	0.0	0	100.0	2
Streamed newscasts	0.0	0	100.0	2
Radio				
Programming information	100.0	8	0.0	0
Streamed newscasts	62.5	5	37.5	3
News links	62.5	5	37.5	3
Feature stories	50.0	4	50.0	4
Promotion/advertising	50.0	4	50.0	4
News updates	37.5	3	62.5	5
Archived news stories	28.6	2	71.4	5

by newsroom reporters appeared almost universal, and the great majority of media outlets indicated that they preferred to receive information from sources electronically, findings that might not have been the case as recently as five years ago. These results provide support for the argument that the importance of speed in newsgathering and dissemination processes may be fundamentally changing the way news operations do business, a fact that will also have implications for information sources in general and agricultural communicators in particular.

Through utilization of the Web, agricultural industries and institutions can enhance their opportunity to work with media by providing information in a form that can be linked from media outlets' Web sites to reach more of the general public, since that is one of the resources mass media sites provide. This could become one more way for the general public to get agricultural information. Unlike other forms of mass media dissemination, in this

case, the media outlet itself could be utilized as another avenue to get credible agricultural information out to the public.

Although the Internet potentially presents many benefits and opportunities for disseminating news about agriculture and for improving relations with media, media use of the Web will, however, continue to present something of a challenge for agricultural communicators who seek to bridge the rural-urban digital divide. Attempting to respond to newsroom trends toward electronic newsgathering and dissemination while still maintaining ties with rural audiences and their preferences for traditional media will not be easy. Charting a course that balances and offsets these two audiences may be one of the biggest challenges ahead for agricultural communicators.

About the Authors

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