

THE IMPACT OF LAPTOP COMPUTERS, CELL PHONES, MOBILE DEVICES,
WIRELESS ACCESS, AND GENDER DIFFERENCES ON COLLEGE STUDENTS'
USE OF ONLINE SOURCES AND LEGACY MEDIA TO READ NEWS AND FIND
NEWS INFORMATION

By

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This is dedicated to my parents, Bob and Zoe, who taught me the value of hard work, education, and those Midwest, Madsen ethics. Behind my every accomplishment are their love, support and encouragement. I've been blessed to be a part of the family they built.

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Abstract of Thesis Presented to the Graduate School
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This survey of undergraduate mass communications students examined the impact of devices such as laptops, desktops, web-enabled cell phones, other web-enabled mobile devices, and gender differences on the students' use of media to read news and find news information. The study found that among participants, print newspapers, online news portals, print newspaper websites, and friends were the most cited sources of breaking news information, and students reported wanting depth and accuracy from their news sources. Students reported using laptops more than five days a week and web-enabled cell phones nearly two days a week to access news information online. The study found very little difference in the way that men and women reported using news sources online, their comfort with online sources, or their feelings toward online news.

CHAPTER 1 INTRODUCTION

In the digital age, some legacy media¹ were concerned about the possible threat posed by the internet to their operations (Francisco, 2006). Newspaper circulation was decreasing, and the readership of online news sources was increasing. As newspapers increased their use of online content to supplement or replace the print editions, readers had also moved online. While the percentage of people reading newspapers daily began decreasing in the 1940s, the increase in population helped to increase circulation until the 1970s when the population increases leveled off. In 1990, circulation reached a high of more than 60 million papers each day and then began a decline of more than 31% (Pew, 2004; Pew, 2010).

The first decade of the 21st century saw extensive changes in the newspaper industry. In December 2008, the parent company for the *Chicago Tribune*, the Tribune Co., filed for bankruptcy. In February 2009, *The Rocky Mountain News*, Colorado's oldest newspaper, closed after nearly 150 years of publication. The *Seattle Post-Intelligencer*, another publication with a nearly 150-year publication history, moved to an online-only operation in March 2009. *The Boston Globe*, New England's largest newspaper, was forced to go through massive budget cuts in the summer of 2009 to avoid being closed entirely by its parent company, *The New York Times*. *The Ann Arbor News* printed its last ink-and-paper edition after 174 years of publication in July 2009. Newsrooms across the country cut budgets and staffs in an effort to keep the

¹ Also known as "old media," media such as newspapers and television that existed before the internet was used for public news consumption

doors open and the presses running. In 2008, the US Bureau of Labor Statistics predicted that jobs for reporters and correspondents would continue to decrease another 4.700 jobs (8%) before 2018 (BLS, 2010).

While newspaper circulation declined over 30 years, the decline accelerated in the first quarter of 2009. In April 2009, circulations were down another 7%, but online readership had increased more than 10% (Arango, 2009). The web offered an opportunity for some publications which would have otherwise closed entirely to keep publishing in a paperless, digital format. Beginning in March 2007, Newspaper Death Watch² kept a list of the former print dailies that moved to a decreased print edition with an online component or to an online-only publication: *Seattle Post-Intelligencer*, *Capital Times*, *Detroit News/Detroit Free Press*, *Christian Science Monitor*, *East Valley Tribune*, and *Ann Arbor News*, among others.

Since the 1990s, newspaper organizations have tried to create a new business model for the written word in a society where reproducing it is free and easy. Shirky (2009) compared the state of journalism in 2009 to the upheaval caused by the invention of the printing press in the 15th century. He wrote that in the midst of a chaotic revolution, it is hard to predict what could ever replace the old system.

According to the Pew Internet and American Life Project study conducted in early 2010, 61% of Americans get some kind of news online on the typical day (Purcell et al.,

² <http://www.newspaperdeathwatch.com/>

2010), an increase from 23% four years earlier³ (Horrigan, 2006). More than 90% of Pew's respondents got their news from multiple media platforms instead of a single media source, with more than 50% getting news from four to six media platforms in the typical day. Fifty-nine percent got their news from a combination of online and offline sources (Purcell et al., 2010).

In 2010, the way that Americans were accessing information, including news, online was changing. Only 14% of American adults considered themselves dedicated users of wireline, desktop-type, access to online information (Horrigan, 2009). The introduction of widespread wireless internet access and mobile devices, such as web-enabled cell phones, with access to the internet were expected to change the media landscape even further. Increasingly, cell phones and other mobile devices, such as the iPod Touch and Amazon's Kindle reading device, could be used to access content online. In 2009, Pew (Rainie, 2009) reported that 29% of cell phone users have obtained some kind of news content using their cell phones. Since the release of Kindle in late 2007, Amazon offered online subscriptions to dozens of newspapers to be accessed on their Kindle wireless reading device. In January 2010, Apple announced their new iPad tablet device as competition to the Kindle and other e-book readers. Like the Kindle, the iPad would also offer newspaper subscriptions, and media organizations were scrambling to develop content that could be used on the iPad.

³ Pew changed the wording of the question from asking how respondents got their news "yesterday" in 2006 to asking how they got their news on a "typical day" in 2010.

The college-age population was of special interest to researchers of media consumption. College students enrolled in 2009 and 2010 were members of a generation (born between the years 1982 and 2001) that boasted many names: Millennials, Generation Y, the Next generation, or the Net generation (Strauss and Howe, 2000). They had barely known a time without robust access to the internet, and therefore, the way they used and accessed the internet was of special import to researchers.

This study examined the way that college students accessed news content, the sources they accessed, the devices they used, and the differences in the ways that students of different genders accessed content.

CHAPTER 2 LITERATURE REVIEW

With the changes in newspaper circulation, web readership, and the advent of new mobile devices used to access the internet, the literature on online news content and news consumption has expanded rapidly. This review of literature examined several facets that affected the way that college students used online content, the internet, and mobile devices.

Much of the most recent and most comprehensive information from 1999 to 2010 about young people and the internet has come from The Pew Internet and American Life Project, created in 1999 by a grant from the Pew Charitable Trust. The Project's mission was to examine various aspects of online life, including basic online activities and social media. Since its first published survey results in 2000, the project expanded to include surveys about new technology use, including cell phone use, broadband internet connections, online news consumption, technology trends, blogging, social networking, and the future of the internet, among other topics. The Pew Center offered some of the most comprehensive information about online activity, and results from its surveys were included throughout this review of literature. This literature review included nine Pew studies, conducted between January 2005 and March 2010:

- Rainie, L. How the internet has woven itself into American life, January 2005
- Fallows, Deborah. How women and men use the internet, December 2005
- Horrigan, John B. Online News: For many home broadband users, the internet is a primary news source, March 22, 2006
- Horrigan, John B. The mobile difference, March 2009
- Smith, Aaron. The Internet as a Diversion, September 2009
- Rainie, L. Internet, broadband and cell phone statistics, January 2010
- Taylor, P. & Keeter, S. Millennials: A portrait of generation next, February 2010
- Purcell, K., Rainie, L., Mitchell, A., Rosenstiel, T., Olmstead, K. Understanding the participatory news consumer, March 2010
- Rainie, L. The new news audience [PDF document], November 2009

Millennials

Strauss and Howe (2000) introduced the term Millennials to describe people born between 1982 and 2001. In their 2010 study of generational technology use, Taylor and Keeter (2010) looked Millennials over the age of 18, those in Generation X between the ages of 30 and 45, Baby Boomers between the ages of 46 and 64, and those in the Silent Generation older than 65. These generational terms and definitions were used throughout this paper.

Strauss and Howe (2000) identified key characteristics of the Millennial generation. Millennials valued the group over individual interests, felt close and spent a lot of time with their parents, valued intelligence and were motivated by grades, were racially diverse, and were interested in new technologies. Taylor and Keeter (2010) found that Millennials took pride in their techno-savvy and cited their “technology use” as the principal reason that their generation was unique compared to other generations.

While access to computers and the internet was based, to a large degree, on socio-economic factors, Millennials made up a generation had unprecedented access to and experience with computers and the internet. When traditional dial-up internet service providers like America Online, CompuServe, and Prodigy began offering internet access in 1995, the youngest Millennials weren't yet born. More so than any older generation, the young people of the Millennial generation were forerunners in the use of new technologies – they are “digital natives” (Prensky, 2001) and members of the “first internet generation” (Diddi & LaRose, 2006).

Researchers compiled a comprehensive portrait of the Millennials. The Pew Research Center (Taylor & Keeter, 2010) surveyed 2,020 American adults (over the age

of 18) via cell phone and landline in January 2010 to develop a profile of the characteristics of this young generation. Because many of the members of this generation were still under the age of 18 in 2010, the findings included only information about those Millennials who were over the age of 18 at the time the survey was conducted.

Taylor & Keeter (2010) found that Millennials outpaced older generations in their use of social media, wireless internet connections, and cell phones. Seventy-five percent of Millennials said they'd created a profile on a social networking site, compared to 50% of Gen-Xers, 30% of Boomers, and 6% of the Silent Generation. Sixty-two percent of Millennials had connected to the internet wirelessly when away from home – significantly more than the 48% of Gen-Xers, 35% of Boomers, and 11% of the Silent Generation who used wireless internet when away from home. Nearly 90% of Millennials used their cell phones to send text messages (Mdn=20 texts in the previous 24 hours). Seventy-seven percent of Gen-Xers sent texts (Mdn=12), 51% of Boomers sent texts (Mdn=5), and 9% of the Silent Generation sent texts (too few to count) in the previous 24 hours.

As with every generation, Millennials were not without their differences, even within the generation. Those between the ages of 18 and 29 who had attended college were more likely to “be online, use social networking sites, watch and post video online, connect to the internet wirelessly, and send and receive text messages” (p. 25). Younger Millennials, those under 25, were found to be heavier users of social networking sites and text messaging than Millennials older than 24 (Taylor & Keeter, 2010).

Taylor and Keeter (2010) found that the majority of Millennials considered the effects of technology to be positive. Seventy-four percent said that technology made their lives easier, compared to 64% of all respondents. Gen-Xers (69%), Boomers (60%), and the Silent Generation (50%) were not far behind Millennials in reporting that technology made their lives easier. Only 18% of Millennials, 21% of Gen-Xers, 30% of Boomers, and 36% of the Silent Generation said that technology made their lives more complicated. Fifty-six percent of Millennials, 52% of Gen-Xers, 54% of Boomers, and 41% of the Silent Generation said that technology made them use their time more efficiently, and 33% of Millennials, 34% of Gen-Xers, 35% of Boomers, and 41% of the Silent Generation said that technology caused them to waste time.

The same Pew study (Taylor & Keeter, 2010) found that 77% of Americans in January 2010 used the internet or send or receive e-mail at least occasionally. That was an increase from 14% in 1995 (Kohut, Bowman, & Petrella, 1995), 68% in 2005 (Rainie, 2005), and 74% in 2009 (Smith, 2009). But Millennials also outpaced the other generations in general when it came to their use of the internet. In 2010, 90% of Millennials were users of the internet, compared to 87% of Gen-Xers, 79% of Boomers, and 40% of the Silent Generation. Of Millennials between the ages of 18 and 24, 92% were internet users. The numbers were even higher, 96%, for Millennials who had attended or were attending college. Of those Millennials who had never attended college, 83% were at least occasional internet users (Taylor & Keeter, 2010).

Millennials were also the strongest user group of social networking sites, with 75% of Millennials reporting they had a social networking profile. Seventy five percent of those social networking users reported that they visited a social networking site more

than once a week, and 29% reported that they visited the site several times a day (Taylor & Keeter, 2010). Twitter use was also highest among Millennial users at 14%. Of those Millennials who attended college, 17% used Twitter, while only 9% of Millennials who did not attend college used Twitter (Taylor & Keeter, 2010).

Forty-one percent of adult Americans connected to the internet wirelessly, and the numbers increase to 62% when looking at Millennials who used the internet wirelessly. Pew found no significant difference between Millennials of different ages or genders in their use of wireless internet, but Millennials who attended college were found to be more likely to use wireless internet (74%) than those who had not attended college (47%). Free and ubiquitous wireless internet services available on many college campuses made a college student's access to wireless internet much more likely (Taylor & Keeter, 2010).

The Pew study (Taylor & Keeter, 2010) also reported that a majority of every generation owned a cell phone, but Millennials (41%) were more likely than Gen-Xers (24%), Boomers (13%), or the Silent Generation (5%) to have a cell phone only, without a landline telephone. Eighty-three percent of Millennials slept with or next to their cell phones. The 2010 Pew study (Purcell et al.) found that young people between the ages of 18 and 29 were the least likely to be interested in news. Only 35% of Millennial respondents to the Pew survey said they followed the news all or most of the time, compared with Gen-Xers (56%), Boomers (65%), and the Silent Generation (70%).

News Consumption

In 2010 survey of Americans over the age of 18, Pew researchers (Purcell et al., 2010) found that 78% of American adults said they got some news content from a local television station, and 73% said they get news content from a national network or cable

network news show. The internet ranked as the third source for news content at 61%. More than 50% of respondents said they heard news information on the radio, and 50% said that they read a local newspaper. Only 17% reported reading a national newspaper like *The New York Times* or *USA Today* on a typical day.

Diddi and LaRose (2006) studied the news consumption habits of college students and found among students in the study, internet portal sites were one of the most frequently used media for news consumption, second only to college newspapers. Internet portal sites, such as Google News or Yahoo! News compiled news stories from a variety of sources and allowed users to search for and read news from a multiple sources via a single search engine. It was assumed that the news consumption habits of college students may have differed from those of the general population of readers of all ages because of the ready understanding of and access to the internet, college newspapers, and libraries, the researchers argue that the results are relevant as a study of “the first internet generation” (p. 198). Researchers found that “when confronted by a myriad of media choices, the consumer lapses into habitual patterns of media consumption in order to conserve mental resources, rather than repeatedly engaging in active selection” (p. 195). The online medium is a familiar one for most Millennials, as 90% of all Millennials and 96% of Millennials who are attending or have attended college are internet users (Taylor & Keeter, 2010).

Online news outlets provided a new, user-driven way of navigating news stories. Thorson’s 2008 study looked at the use of “news recommendation engines,” such as a news website’s list of most emailed stories, and how they could change the pattern of news consumption. Thorson examined the most-emailed stories on the *New York*

Times website over two, 23-day periods. She found that the stories on the most-emailed list differed from the stories chosen as the most important by editors – those given prominent placement in the print edition of the paper. By creating the most-emailed list, readers of the online edition of the paper played a role in dictating which stories are given more play online. The appearance of same articles on the most-emailed list for several consecutive days indicated that such news recommendation engines did impact the navigation of news online.

The Associated Press (2008) performed in-depth interviews with 18 people between the ages of 18 and 34, with an emphasis on those between 18 and 24, from three different countries. Participants were chosen from six metropolitan areas in the United States, the United Kingdom, and India. All participants had access to the internet and used it to access news content daily. The study found that “the participants in the study were consuming a steady diet of bite-size pieces of news in the form of headlines, updates and quick facts” (p. 37), but that deeper subject such as “backstory” and “spin-offs” were harder for readers to find. Participants wanted increased depth and breadth rather than superficial or cursory coverage of news topics, but they had difficulty finding those details that the AP called “below-the-fold¹” items. One participant said that “news [today] is not the full story, but more like a preview—it’s kind of annoying sometimes. I don’t like to get bits and pieces of information” (p. 37). The study found and emphasis on the use of news portals as sources of news for young people. It found

¹ “Above the fold” refers to the most important stories in a newspaper, those stories that appear on the top half of the front page. Stories that are “below” the fold are considered less important.

that the young people in the study were using Yahoo! News as an entry point for news. Based on its findings, AP made changes to its business model, including a partnership with Yahoo! and the launch of its mobile site in May 2008.

Seeking News Online

Purcell et al. (2010) found that, among American adults, the internet is the third most popular source of news information, after local and national television news and ahead of radio and print national and local newspapers. Millennials also cited the internet as a primary source of news behind local and national television. Among Millennials, 65% reported getting most of their news from television sources, and 59% reported using the internet as their main news source (Taylor & Keeter, 2010). Pew researchers (Horrigan, 2006) found that after e-mail and online searching, seeking news content is the third most popular activity online. Pew found that 43% of broadband users got their news “yesterday” from an online source, and for “high-powered users,”² 71% got their news from an online source on a typical day.

As for the information that users were seeking online, weather was the number one response (81% of internet users), followed by national events (73%), health and medicine (66%), business and the economy (64%), international events (62%), and science and technology (60%) (Purcell et al., 2010).

The Associated Press study (2008) found that while the participants were exposed to news content around the clock, they spend more time focused on “above-the-fold” information, such as big headlines and breaking news stories. The participants reported

² Those who perform four or more activities on the Internet daily

that they didn't get depth or breadth in their news stories. The AP also reported that the young readers didn't like to get information in bits and spurts from an online source. Instead of being given short updates, the readers would have preferred to get a single, deeper story.

Kohut et al. (2008) found that 13% of Americans were what the researchers considered the "Net Newsers" audience segment. They used the internet as their main source of news content and frequently watch news videos online. Net Newsers were typically well educated and affluent, and they were the youngest of the audience segments Pew identified, with a median age of 35. Seventeen percent of Net Newsers read online news compared to 8% who read a print newspaper and 10% who read both. The researchers also found that between 2003 and 2008 the number of people who said they sought news online increased from 31% to 37%.

Ahlers (2006) identified four groups of news consumers: "online only," "multichannel users," "dabblers," and "offline only." In 2006, Ahlers found that 13% of American adults were offline only users, and two-thirds of those who never read news content online "appear unlikely to do so" (p. 29). Ahlers suggested that while a widespread migration to replace offline news sources with online ones had not occurred as of 2006, data from his study suggested "that a large-scale migration from traditional media to the online medium for news readership/viewership is merely a matter of time" (p. 38).

Horrigan (2006) found that while in general, the under-36 age group was less interested in news than older survey participants, among broadband users, the under-36 group was the most likely to get news online. Pew found that the speed of internet

connection played a role in determining whether or not a reader would seek news content online. For those Millennials readers under the age of 36, 46% of the broadband users turned to the internet for news while only 21% of the dial-up users sought news online (Horrigan, 2006).

As for where readers went for news online, Horrigan (2006) found that most internet users, 46%, went to a national TV news organization site, such as CNN or MSNBC, for news; 39% went to portal websites such as Google or Yahoo! News; 32% went to the site of a local daily newspaper; 31% went to a local TV news station; and 20% went to a national daily newspaper site. The numbers were between 1 and 6 percentage points higher for broadband users.

Online news readers got a different version of the news than those offline only readers. Gasher and Gabriele (2004) examined content in online and print versions of a Canadian newspaper to determine if editors of the online publication used the online medium to diversify the news content and bridge the gap between “real world and the news world” (p. 313). Most notably, they found that the online version of the paper contained more than twice the items³ than the print edition each day. Less news content could be expected with the limited news hole⁴ available in print news, but the items in the online edition came from fewer unique sources than those in the print paper. The print edition often drew stories from other newspapers, and it offered more

³ Items included stories, stand-alone photographs with captions, and editorial cartoons

⁴ The amount of space available for news content in a newspaper after the advertisements have been laid out.

variety in the news included than the online edition did. The researchers found that the online site did not offer in-depth coverage of topics. “The site provided only the barest of facts, offering minimal context, making it difficult to discern at times why an item might be of interest to its readers” (p. 320).

Unlike Gasher and Gabriele (2004), D’Haenens et al. (2004) determined that print and online versions of the newspapers they studied contained a comparable number of stories, despite their assumption that online papers would contain more stories. D’Haenens et al. found that online readers retain what they’d read in the same way that readers of offline news do. The researchers examined the differences between news retention after readers read a story online and in a print newspaper and found that “news consumption seems to be more dependent on the news category, reader gender and interest in a particular topic than on whether the news appears in print or online” (2004, p. 363).

Beginning in 1990, the Poynter Institute in St. Petersburg, Florida, performed the first of a series of studies in an effort to determine how readers read news items. The research involved observing participants reading news and used eye-tracking technology to follow the readers’ eye movements using special glasses fitted with two small cameras. The technology allowed researchers to gather information about what a reader looked at and how long he or she looked when reading news content. In 2008, the Poynter researchers, in partnership with the *Philadelphia News*, *Rocky Mountain News*, *St. Petersburg Times*, and the *Star Tribune*, released a study of 582 participants reading news in print newspapers or online. Researchers found that online readers read more of a story than readers of print newspapers. Online readers were likely to

click on stories that interested them, and when viewing a story of interest, they read more deeply than print readers. Online readers read a story to its completion 63% of the time, considerably more often than readers of the print papers.

Social media has become another platform for reading and distributing news beyond the traditional media outlets' online products. Smith (2008) found that 73% of active internet users, those who used the internet daily or every other day, have read a blog, 57% managed a profile on a social networking site, 55% left comments on blogs, 46% left comments on a news site, and 36% subscribed to RSS feeds. Smith predicted that because regularity of use increases over time that eventually everyone would become an active user of the internet, as people had with television since its widespread introduction in the US in the 1940s and 1950s (Smith, 2008).

The Associated Press found that young users follow news in part as "social currency." Being knowledgeable about news topics allowed them to converse with others or join conversations with peers. Some participants used news knowledge "to look smart, connect with friends and family and even move up the social-economic ladder" (AP, 2008, p. 47). One type of this social communication occurred when a reader posted or commented on a news link on a social networking site.

Of those with a social networking profile, 10% got their news online through those sites (Rainie, 2009). A 2010 Pew study found that 75% of online news users got some news content through e-mail forwards or via posts to social networking sites. Of online news consumers, 52% said that they had shared links to news content through e-mail or posts on their own social networking site profiles. Pew found that 51% of social networking users who were also online news consumers got news from their social

networking “friend’s” posts within the social networking site. Of social networking users and online news consumers, 23% had friended, fanned or followed⁵ a news organization or a journalist on the social networking site. For example, a Facebook user can become a fan of a specific journalist, and a Twitter user can follow a network or a television show using that site (Purcell et al., 2010).

Accessing Online Content

Purcell et al. (2010) found that most internet news users were likely to visit two to five websites for information, and 65% said that they did not have a favorite site for news information online. Only 11% found their news using more than five websites on a typical day, and 21% relied on a single site for their online news information daily (Purcell et al., 2010).

Flavian and Gurrea (2008) found that readers of online news chose their websites based on usability and familiarity with the site. As usability was one of the main characteristics that users cite in making the decision as to which online news source they will use, the usability of a site was even more pronounced depending on the device used to access the site. “The results support an intense effect of usability and familiarity with web sites on the choice of electronic newspaper. However, reputation, privacy and trust in the web sites do not influence significantly the final choice of digital dailies” (2008, p. 26) Despite the findings that blogs had a lower level of reputation than

⁵ Becoming a fan, friend, or follower on a social networking site is a way for users to show their connection to other users or to organizations that use the sites. For example, a Twitter user follows other Twitter users to see their posts. On Facebook, a user becomes a fan of a person or organization to indicate support or interest. Both Facebook and MySpace allow users to become friends with other users, giving both users access to each other’s profiles and showing a connection between the two.

established press sites, the growing popularity of blogs among online readers indicated that they should be included in a discussion of online news sources (Flavian, 2008).

Gebauer's (2008) study of mobile technology used the task-technology fit theory in analyzing user requirements for mobile devices. While the study focused on the business users' requirements for mobile technology, the findings may transfer to the fit between the task of accessing news content online and the current mobile technology available. The researcher found that some issues governing how well the mobile technology fit the users' requirements are the "form factors" such as device weight and screen size. Convenience, timeliness and flexibility were the most-often-mentioned impacts of mobile technology among participants of the study (Gebauer, 2008).

Young people defined technology broadly and in terms of activities performed rather than hardware and software used to perform them. Oblinger and Oblinger (2005) found that for college-age people, technology was so ubiquitous that they didn't always recognize it as technology. For example, they saw the internet as a tool used to access online functionality, but they didn't consider it a technology. Instead "technology" described something new or innovative, and for many young people, technologies such as internet, cell phones, e-mail, instant messaging, and text messaging are neither new nor innovative, but instead tools they've hardly known a time without.

Young people are not always aware of the potential uses of the technologies they employ. The 2005 case study by Robinson and Dodd (2006) about communications' students use of handheld computers found that students who used the devices, such as the Palm personal digital assistant or PDA, were familiar with a wide range of technologies but when introduced to the handheld computer were not likely to grasp the

potential of the device or its capabilities. Most of the students in the study needed the encouragement and guidance of the instructors to explore the capabilities of the technology.

Purcell et al. (2010) found that 33% of American adults had used their cell phones or another mobile device to access news content online. The first so-called “smart phone” was released by IBM in 1992. The phone, called the Simon, was the first multi-function cellular phone and was low-tech by 2010 standards. The Simon contained a calendar, address book, world clock, calculator, address book, games and email functionality. It was followed in 1996 by phones from Nokia and Ericsson. The term “smart phone” was announced in 2002 when Microsoft released a mobile operating system software using the term.

Smart phones increased in functionality since the release of the Simon. At the beginning of the 21st century, data transfer, email, and internet access became standard on cellular phones. Users had the ability to access web content, including news content, from their cell phones while away from a computer or a wired internet connection. Apple’s release of the iPhone in June 2007 changed the concept of the smartphone. The thin, light-weight phone combined all the functions of earlier smart phones with a larger screen that had better definition than available before, a portable media player, a personal assistant, a web browser, and the ability to download applications, or “apps.” Shortly after the release of the original iPhone, Apple released the iPod Touch, a non-phone mobile device that included much of the functionality of the iPhone but with Wi-Fi capability and without the phone function.

To capitalize on these mobile news users, media organizations started to develop mobile versions of their traditional websites. A mobile version of the site was more user friendly for users who would be viewing the site on a much smaller screen than the traditional computer monitor. Mobile sites generally included a single list of headlines rather than a layout that required users to scroll left to right on their small, mobile device screens. For example, *The New York Times* released a mobile version of its news site in September 2006. The mobile site for the Tampa Tribune debuted in early 2006, but traffic to the mobile site increased in 2007 along with the increase of web-enabled phones. Some media outlets, such as the *New York Times* and *USA Today*, developed apps that could be downloaded for free from Apple's App Store for the iPhone or iPod Touch. These apps were similar to mobile sites in that they made the news easily accessible with a single list of headlines and larger font sizes for users with the smaller screens, but mobile apps allow access to the news content without accessing a web browser. In 2010, 18% of mobile news consumers had downloaded and used an app for news content on their cell phone (Purcell et al, 2010).

According to the 2010 Pew study (Purcell et al., 2010), 80% of American adults owned a cell phone, and 37% went online using their cell phones. Twenty-six percent of all Americans (33% of cell phone owners) have used their cell phone to get some form of news content from the internet. Pew also looked at the type of news information users are seeking while using their cell phones. The most popular information that mobile news users sought was weather (26%), followed by news and current events (25%). In addition to offering apps, some major media outlets allowed users to subscribe to a service that sends text message alerts about news events to the user's

cell phone. CNN Text Alerts was part of the CNN toGO⁶ service that sent breaking news text messages to subscribers who used Verizon telephone service. These users were part of the 11% of mobile news users who had gotten news content via e-mail or text messages to their cell phones (Purcell et al, 2010).

Complementing Traditional Media

Research on news consumption found that online news content was a complement to print, television, and radio news rather than a replacement for those traditional media sources (Stempel, 1995; Stempel et al., 2000; Ahler, 2006; Nguyen, 2007; Purcell et al., 2010). Pew (Purcell et al., 2010) found that 38% of American adults relied solely on offline source of news such as television and print newspaper. Only 2% of American adults used the internet as a sole source of news information, but nearly 60% of American adults got their news from a combination of online and offline sources.

In a survey of media use in relation to the internet, Stempel, Hargrove, and Bernt (2000) used the knowledge-seeking model in explaining why “internet users are more likely than non-users to be newspaper readers and radio news listeners” (p. 71) across demographic variables. In comparing internet and non-internet users, the internet users were more likely to read a print newspaper and listen to news on the radio. The researchers theorized that internet users were information-seekers by nature and were more likely to seek out information on a variety of channels. The participants’ use of the internet as a news source complemented traditional news sources such as print newspapers and television news sources rather than replaced them.

⁶ http://www.cnn.com/togo/providers_verizon.html

Ahlers (2006) reported that 12% of U.S. adults directly substituted online news content for traditional media sources and another 22% have substituted some online content for traditional offline news. A substantial portion of the 22%, Ahlers reported, used online news to complement rather than a substitute for offline content (2006).

Gender

Studies have shown that women consider themselves less savvy with new technology, specifically computer use, than men do (Schumacher & Morahan-Martin, 2001; Tsai, Lin & Tsai, 2001). Sieverding and Koch (2009) found no inherent gender bias in the way their study participants perceived a male or female's ability to complete a complex computer task, but when asked to rate their own knowledge with computers, the female participants rated their own computer competence lower than men did (Fallows, 2005; Sieverding & Koch, 2009).

Consistent with earlier studies (Shashaani & Khalili, 2001; Sherman, End, & Kraan, 2000; Corston & Colman, 1996; Martin, 1991; Todman, 2000), Broos (2005) found a significant difference between men and women in information and communication technology experience and attitudes; women were more anxious, less confident and more hesitant when using computers and the internet. Fallows (2005) found that women, more than men, were anxious and concerned about what they deemed the dangers of the internet, such as pornography and identity theft.

Fallows (2005) surveyed men and women about the way they went online and the activities they did while online. Fallows found that men and women were accessing the internet in similar numbers. In 2005, 86% of women between the ages of 18 and 29 went online compared to 80% of men the same age. In older age groups, men were

more likely than women to go online, but looking at men and women of all ages, 61% of men were likely to go online compared to 57% of women.

Fallows (2005) found that men were going online more often than women. Of men and women who used the internet, 44% of men and 39% of women reported that they would go online several times a day. But from work, men (65%) and women (66%) were equally likely to go online. The activities men and woman performed online differed in 2005:

Compared with women, online men are more likely to use the internet to: check the weather, get news, get do-it-yourself information, check for sports information, get political information, get financial information, do job-related research, download software, listen to music, rate a product/person/service through an online reputation system, download music files, use a webcam, and take a class. Compared with men, online women are more likely to use the internet to: send and receive email, get maps and directions, look for health and medical information, use web sites to get support for health or personal problems, and get religious information (Fallows, 2005).

Broadband users were also more likely to seek news content online than non-users (Horrigan, 2006). Broadband users logged onto the internet more often than those with slower internet connections, and men with broadband logged on more often than women with the same connection. Men were more likely to have broadband internet access at home than were women (Fallows, 2005).

Fallows (2005) reported that men were more interested in the “world of technology” than women were (p. v). Men in the study were more likely to try new technology, hardware and software. Men reported that they were more confident than women at being able to troubleshoot their own computer problems, and men were more likely to consider themselves “computer geeks” than were women. Men were statistically more likely than women to be able to define all the following internet terms: spam (90% men, 87% women), firewall (83%, 73%), spyware (82%, 74%), internet

cookies (74%, 62%), adware (60%, 44%), phishing (36%, 23%), podcasting (16%, 11%), and RSS feeds (12%, 6%).

Fallows (2005) found that men were more likely than women to seek news content online. Fallows found that 75% of men and 69% women (a statistically significant difference) used the internet to find news content online. Sixty percent of men and 56% of women used the internet to see political campaign news online. In 2008, Kohut et al. (2008) found that 58% of the “Net Newers,” those who use the internet as their main source of news, were men.

Mobile News Consumption

Leung and Wei (2000) studied cell phones before the introduction of smart phones and mobile devices. Their research focused mainly on the ability for enhanced communication via cell phone, but did not go as far as the use of cell phones to access the internet or specifically news content online. “New generations of the cellular phone (such as PCS—Personal Communications Systems) have evolved from a mobile talking device into a multipurpose communication medium that is capable of transmitting and disseminating voice, text, graphics, data, and even video” (2000, p. 308).

The 2009 Pew survey of internet users (Rainie, 2010) found that 55% of American adults used a wireless connection to the internet via laptops, netbooks or handheld devices like a smart phone or other mobile device. Of Millennials over 18 years old, 80% used wireless connections. Eighty-three percent of American adults had a cell phone or smart phone, and 35% had accessed the internet via their phone (Rainie, 2010).

Westlund (2008) examined the attitudes and behaviors that influenced the adoption and diffusion of using a mobile phone to access news content online in

Sweden. "The convergence of mobile phones and multimedia has meant that the technological architecture of the mobile phone has changed. The mobile phone is no longer only a telephone; it has become a personal mobile device that integrates both communication and multimedia functionality" (p. 444). He found that "frequent users of online newspapers have adopted the mobile device as a news medium to a higher extent than the general public" (p. 452). He found a positive correlation between readers of free print dailies and those who read news content online that was not evident in readers of other daily print newspapers. Westlund found two groups relied more heavily on news content accessed through mobile devices: "on-the-go" people and those who spent a high number of hours working.

Uses and Gratifications

Uses and gratifications is not a theory but rather a collection of work and studies that examines the users' needs and the choices they make to satisfy those needs. Rubin and Rubin (1985) asserted that all communication contexts and channels could be explained through a uses and gratifications approach. Studies have applied the uses and gratifications approach to examine internet use (LaRose, 2001; LaRose, 2004) related to social networking (Raacke, 2008), political communication (Jackson, 2007; Kay, 2002), online gaming (Chang, 2006), religion and the search for it (Richardson, 2003), internet abuse (Song, 2004), and online news content (Diddi, 2006).

Uses and gratifications proposes that people actively seek out media (in this case, using the web to seek online news information) to satisfy certain needs (Katz, 1973). Morris and Ogan (1996) and Lin (1999) found that online users are more "active" in their selection of content in an online medium than users of other traditional

media, so uses and gratifications is especially useful in examining user motivations. Previous research found that users who consume online information make purposeful choices of the content they view by searching, navigating to, and clicking on information they wish to view (Lin, 1999; Johnson and Kaye, 2002).

Some studies approached uses and gratification research by looking at the observed gratifications and seeking the needs from which they result, others began with the users' needs and work to identify the resulting gratifications (Katz, 1973). Katz described a surveillance function that was exemplified by a "desire for security or the satisfaction of curiosity and the exploratory drive" (1973, p. 513).

This study included two different elements that could be examined through the lens of uses and gratifications research: the use of online news content and the use of a specific device to access news content online. Looking at several methods of connecting to online news content – a wired, stationary environment like a desktop computer, a wireless environment such as a laptop computer, or a wireless, mobile technology device such as a cellular, smart phone or other mobile device – this study examined the extent to which each technology is used to access news content online and to report on the gratifications associated with the surveillance need to access news content online.

Diffusion of Innovations

It was useful to expand the discussion from uses and gratifications to also include the theory of innovation diffusion (Rogers, 1995). With advances in technology, the portals to internet news content were becoming more plentiful in 2010. No longer was a user required to remain at a wired workstation to access the web; wireless networks offered some freedom of mobility that was outstripped by the advent of mobile devices that utilized wireless networks.

Everett Rogers' diffusion of innovations described the way that new technologies, or innovations, were adopted or diffused through a population. "Diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system" (p. 5). Rogers defined an innovation using five characteristics: relative advantage, compatibility, complexity, trialability (the ability to try an innovation before adopting it), and observability (the ability to observe how others use the innovation).

All five characteristics were evident in the innovation of seeking news content online. Seeking news online offered the relative advantage of being able to access up-to-the-minute content without consumer cost. With 70% of Americans using the internet (Horrigan, 2006), seeking news content online was compatible with the lifestyle of people who were already comfortable getting information online and with seeking news content through other media. Again, news online wasn't too complex as people are already comfortable seeking non-news content online. Studies showed that online news complements other news sources rather than replacing them (Stempel, 1995; Stempel et al., 2000; Ahler, 2006; Nguyen, 2007; Purcell et al., 2010), so the innovation was able to be tried without abandoning other media. In addition, online news information was so ubiquitous that its use was easily observable.

Once an innovation was defined, Rogers theorized that the adoption of the innovation will follow an S-curve with a slope that varied based on the innovation. "Some new ideas diffuse relatively rapidly and the S-curve is quite steep. Other innovations have a slower rate of adoption, and the S-curve is more gradual" (1995, p. 23) At the height of the S-curve, the innovation is so highly diffused, it is considered to

have reached critical mass. Stafford argued that the internet has reached “critical mass,” and new users to the internet were in the late adopter category.

In examining the use of online news sources, the aim was to learn about the diffusion status and the adopters of internet news. As for the devices used to access news content online, there was the question of diffusion of the device and diffusion of the process of using the device to access online news content. Using both uses and gratification and diffusion of innovation theories, Chen and Corkindale (2007) studied the factors that influenced the adoption of online news services. They identified six factors that influenced the adoption of online news sources: perceived usefulness, perceived core service quality, perceived supplementary service quality, trust, networking, and interface and subjective norm. This research examined why users chose one news site over another but not why users would choose to seek news information online rather than from a traditional print, television, or radio source.

In summary, this study examined the way that college Millennials accessed news content both on and offline and the news sources they accessed in a breaking news situation. Purcel et al. (2010) indicated that while young users are not the most interested in news content, they are avid users of technology, including the internet and web-enabled devices. Previous literature (Schumacher & Morahan-Martin, 2001; Tsai, Lin & Tsai, 2001; Broos, 2005; Fallows, 2005) indicated that men were likely to be more comfortable than women using computers and technology, but Taylor and Keeter (2010) suggested that both men and women in the Millennial age group were equally comfortable accessing the internet because both groups had spent most of their lives using computers.

The study was designed to address the following five research questions:

1. RQ1: Are college students more likely to hear breaking news from a source other than a traditional media organization?
2. RQ2: What is the extent to which college students use a particular device (desktop, laptop or mobile device) to access news content online?
3. RQ3: How does a college student's type of home internet connection (high-speed, dial-up) affect the type of device he/she uses to access news content online?
4. RQ4: Do college men perceive themselves more comfortable accessing news content online than college women?
5. RQ5: Do college men have a more positive attitude toward accessing online news content than college women?

CHAPTER 3 METHODOLOGY

A 37-item online questionnaire (see Appendix A) was developed and administered to undergraduate students in a media writing course at a large, southeastern university. The questionnaire was administered using the web-based Qualtrics¹ Research Suite, and students completed the questionnaire during class time. They were given a small token of a piece of candy for their participation. Students self-reported their experience in accessing different sources of news content, the devices they owned and used on a regular basis, and the way they would react to breaking news situations. Their responses were analyzed in an effort to answer the research questions.

Reliability and Validity

The survey method is known to be strong on reliability and weak on validity. All students who participated in the survey responded to the same questionnaire, with the exception of one question asking about class section number. That one question was updated between the fall 2009 and spring 2010 semesters to reflect the appropriate section numbers in each semester. That question was used only to determine which classes had completed the questionnaire, and the results were not used in any data analysis. Using the same instrument with every participant helped to ensure that student responses were appropriate for comparison.

As the sample was taken from a media writing course and most of the participants were majoring in advertising, journalism and public relations, they were probably a more

¹ <http://www.qualtrics.com>

uniform group than a sample of other undergraduate students. Also, because the students were taking a media writing class where they were expected to read news in an effort to better understand news-writing styles, there may be an element of social desirability bias where these students were more likely to report that they read news than others in their peer group.

The questionnaire asked about the number of days the respondent used each device (desktop computer, laptop computer, cell phone, and other mobile device) both to access news content and to access the internet. As a check of reliability, the number of days a device was used to access the internet was verified to be equal to or greater than the number of days the device was used to access news content online.

The students were self-reporting information about their news consumption, the devices they used, and the internet connection they had. The results are based only on what the participants self-reported, and this could impact the validity of a survey. Participants may have answered questions based on what they thought they should be doing as students in a news writing class.

As a check on the validity of demographic questions, the data about gender, major, and class standing was compared to the data for the college overall and found that the means for men and women in each major was close to the breakdown for the entire college. The class standings reported in the survey also matched what was expected as there were few freshmen and seniors in the sample results and the class was typically taken by sophomores and juniors.

The scenario questions were designed to gather information about how participants seek more information in a breaking-news situation. The questionnaire was

developed to offer three different scenarios, each with a different degree of access to the internet. Each scenario presented details about the situation and asked students how important it was for them to learn more information about the situation and the reason why it was important or unimportant to them. Students were also asked how likely they were to seek additional information about the situation. Using the scales for importance and for likelihood to seek more information, the aim was to measure the participants' behavior in how they would seek more information. In the subsequent open-ended question about why it was important to learn more about the situation, the hope was to gather information about the participants' motivation. By asking how the participant would seek additional information, the hope was to gather data on which sources a participant was likely to use to obtain information in a breaking-news situation. The subsequent question about why the participant chose a particular source was asked to gather information about motivation. The answers to the motivation questions were compared to the answers about importance of seeking more information and the reason for choosing a specific source to determine if the answers concurred. For example, if a participant answered that it was very important to get more information at a situation, then a motivation answer that "It is none of my business, so I wouldn't need to know more about the situation" would not be validated.

The survey instrument was administered during class time, and it took approximately 15 minutes to complete. It is possible that the students were not very reflective in taking time to answer each question. Only two questions for each scenario allowed the option to comment. Those comments were used to gather information about motivation, and that information was only provided by students who took time to

reflect and answer why they were likely or unlikely to seek more information and why they chose a particular source to find it.

The questions about accessing news content used the phrase “in a typical week” when asking participants about how often they engaged in a particular activity, such as accessing news content using a certain device or finding news content from a specific source. Asking about “a typical week” rather than “last week” or the “current week,” aimed to avoid receiving responses that were atypical for the participant. For example, a participant who was too busy or preoccupied with another matter in the previous or current week could still answer questions about “a typical week” to provide more meaningful data.

Using anecdotal evidence, participants were asked about a “typical week” rather than the “typical day” that Pew researchers used in their study (Purcell et al, 2010) because she assumed that most students were not accessing news content online daily. By expanding the unit of measure to a typical week, information could be collection about an activity that might not have occurred on a typical day.

As appropriate, questions included responses “other” or “none” to provide exhaustive answer options for all participants. Responses of “other” also prompted participants to enter text providing a description of the other option.

In the questions about devices, participants were asked which devices they owned or had access to on a regular basis. It was predicted that while some participants might not own a device examined in this study, desktop computer, laptop computer, web-enabled cell phone, or other mobile device with access to the web, it was still possible for the participant to regular use the device owned by a friend, roommate, significant

other, parent, or the university. The question about the length of time the participant had used each device on a weekly basis was used to gauge the participant's familiarity with the device.

Measures and Instrument

The questionnaire began with five demographic questions about age, gender, academic standing, major, and section number. Question 5 about the student's section number was asked to determine which classes had completed the questionnaire. As students were randomly divided into class sections for the university registration process, differences between students in each section were not expected, and this question was not used for any analysis or identification.

Scenarios

The questionnaire included three scenarios that described breaking-news situations in which students had increasing access to online sources. The scenarios and the questions that followed (questions 6 through 20) were included to gather data related to RQ1, Are college students more likely to hear breaking news from a source other than a traditional media organization?

The scenarios placed students in three different situations with varying levels of access to technology.

- Scenario 1: You are on the bus on your way to campus and you count six police cars and three fire trucks near the Reitz Union. You can see several officers and firefighters in the area, but you can't see an obvious reason why they are there and you aren't able to ask the officers what is happening.
- Scenario 2: You are planning to have lunch at your favorite restaurant on campus. When you get to the food court, the restaurant is closed and there is a notice on all the counters saying that it has been closed by order of the Health Department.
- Scenario 3: You are in your dorm room when your roommate tells you that the swine flu has hit another residence hall on campus making half the students sick.

Each scenario was followed by a set of questions asking how the students would seek news in each situation. Using a five-point Likert-type response scale from 1 (*extremely important*) to 5 (*extremely unimportant*), students were asked how important it was for them to know more about the situation. They were asked why it was important or unimportant for them to seek more information. On a seven-point scale from 1 (*very likely*) to 7 (*very unlikely*), participants were asked how likely they were to seek additional information about the situation. Students were also asked which method (both online and offline) they would use to seek more information about the situation: blog, family member/parents, friend, mobile device application, print newspaper, newspaper website, online news portal (such as Google News or Yahoo! News), radio, social networking website (such as Facebook or MySpace), television, or television station website. They were asked why they would seek information using this method.

News Content

For the purpose of this study, “news content” was defined as information about recent and important events, not including entertainment or celebrity news. Question 21 asked students how often they accessed news content online. Responses ranged from 1 (*several times a day*) to 7 (*never*). Students who responded that they never accessed news online were asked why in question 22.

For participants who did access news content online, question 24 asked how likely they were to access each of the following online news sources in a typical week: national newspaper site, regional/local newspaper site, national television news site (such as CNN or Fox News), news portal (such as Google News or Yahoo! News), local television news site, blog, mobile device application (such as an application for iPhone

or iPod), social networking site (such as Facebook, MySpace, or Twitter). The question used a seven-point Likert-type scale to measure whether the participant was likeliness to access news content online, from 1 (*very unlikely*) to 7 (*very likely*).

Question 29 asked participants how many days in a typical week they got news from the following online and offline sources: college newspaper, local/regional newspaper, national newspaper, radio, television, family/friends or an online source.

To gather information related to RQ2, What is the extent to which college students use a particular device (desktop, laptop, web-enabled cell phone or mobile device) to access news content online?, participants were asked about how many days in a typical week they used a desktop computer, laptop computer, web-enabled cell phone or other mobile device to access the internet and news content online.

Question 23 asked student how many days in a typical week they used each of the devices to access news content online. Question 37 asked how many days in a typical week the devices were used to access the internet (without specifying news).

Comparing the two answers allowed comparison for how often the devices were used to access the internet for general information and how often they were used to access news content on the internet.

Internet Connection

To gather data for RQ3, How does a college student's type of home internet connection (high-speed, dial-up) affect the type of device he/she uses to access news content online?, the questionnaire included questions about the type of internet connection the participant has access to both inside and outside the home.

Question 30 asked students which type of internet connection they had at home: dial-up, high-speed, Wi-Fi, other, or none. For the purpose of this study, "home" was

considered the place where the participant lived while attending school. Questions 31 through 34 asked about the type of high-speed and wireless internet the students used outside their homes in a typical week and the numbers of days in a typical week they used high-speed and wireless internet outside their homes.

Online News Content

Research questions RQ4, Do college men perceive themselves more comfortable accessing news content online than college women?, and RQ5, Do college men have a more positive attitude toward accessing online news content than college women?, asked about gender and online news access.

Question 25 used a five-point Likert-type scale ranging from 1 (*very comfortable*) to 5 (*very uncomfortable*) to ask participants how comfortable they were accessing online news content. All participants, even those who said they didn't access news online in a typical week, were asked questions 26 and 27 about what they liked and disliked about accessing news online. Using a five-point scale from 1 (*positive/strongly like*) to 7 (*negative/strongly dislike*), question 28 asked participants to describe their feelings toward news content online.

Question 35 asked participants about the devices, including desktop computer, laptop computer, cell phone with access to the Web, mobile device (other than a cell phone) with access to the Web (such as an iPod Touch or Kindle), that participants regularly had access to use. This question gathered information about the devices participants used and about their experience with each device. Using a four-point scale, question 36 asked about participant experience with a device, measured by the length

of time he or she had used a particular device, from 1 (*less than a year*), 2 (*between one and three years*), 3 (*between three and seven year*), to 4 (*more than seven years*).

Survey

The questionnaire was administered to the students of an introductory writing for mass communication course at a large southeastern university during the fall 2009 and spring 2010 semesters. The sample population was of particular interest because communications students have a vested interest in digital news content, and college students in 2009 and 2010 are part of the internet generation who had been exposed to the internet nearly their entire lives. Their use of the internet for accessing news content was of particular interest.

The university had a computer requirement for all undergraduate students. The requirement differed by college and sometimes by major, but all students were required to have access to and the use of a computer and access to the internet. The university campus also offered campus-wide wireless internet connection. Using a university login, students could access the internet throughout campus from either campus computer labs or using their own computers or mobile devices.

The students were asked to complete the voluntary survey during the computer lab portion of their writing class. Completing the questionnaire took approximately 15 minutes, and students in the classroom at the time the survey was administered were given a small token of candy, regardless of participation.

Limitations

This study used a small sample of mass communications students from a single college at a single, large, southeastern university. The results from this population are only useful in describing the behaviors of this group of students but cannot be

generalized to a larger population. Because the sample included only students in a mass communication class, participants may have been likely to report they were seeking news information more often than if the sample had been selected from other majors. The sample included only one telecommunications student, and that might have affected the likelihood that television would be used as a news source by participants. The university offered free wireless internet connection on campus for anyone with a university computer login. University computer requirements also meant that the population was very likely to own and regularly use a computer to access the internet.

The questions for the survey were developed and then submitted to the university's Institutional Review Board for approval. The findings of the survey could have been strengthened if some of the questions had been based on questions asked in previous research studies, thus providing a comparison to other time periods or populations. The questionnaire was not pilot tested before being administered in order to conduct the survey before the end of fall semester 2009.

The survey instrument construction had several elements that limited the results of the study. For example, question 24, the open-ended question about the number of days that students used a particular device to access news content online each week allowed for some misinterpretation. Responses from 32 participants were invalidated because the respondent entered a number greater than seven. Among laptop users, 22 entered numbers greater than seven and as great as 100 to indicate how many days in a typical week they access news content online using a laptop. Respondents may have answered the question to indicate the number of times per week, rather than the

number of days per week, they used a device to access news content online. A pilot of the instrument may have caught and corrected the problem with these questions.

CHAPTER 4 FINDINGS

This study was conducted in the fall 2009 and spring 2010 semesters using a 37-item online survey of undergraduate mass communication students at a large public southeastern university. The survey was conducted during class time in a media writing course required for students majoring in advertising, journalism, and public relations. The survey was created in Qualtrics and took students approximately 15 minutes to complete. Completing the survey was voluntary.

A total of 387 participants answered the questionnaire. Eighteen questionnaires were invalid because they were started but not completed. One survey, completed by an instructor, was also invalidated. The usable sample consisted of 368 completed student surveys.

Using IBM SPSS Statistics 18 frequencies on all data were run as well as cross tabulations, t-tests, and the chi-square test for independence as appropriate. An alpha level of $p < .05$ was used for all statistical tests to determine statistical significance. Content of participants' answers to open-ended questions were analyzed to identify patterns in respondent's comments about motivations. All percentages were calculated based on the number of respondents for a given question, not the number of participants in the study.

Three terms were defined in the survey to make sure survey participants would have the same concept in mind as they made their responses. "News content" was defined as information about recent and important events, not including entertainment or celebrity news. A "news portal" is an online site such as Google News or Yahoo! News which allows a user to search for news content from a variety of sources from a

single site. Several survey questions asked about internet use at “home,” and home was defined as the place the respondent lived while attending school.

Demographics

More than 98% ($n=361$) of respondents were between the ages of 17 and 22 with a mean of 19.4 ($SD = 0.84$). Of the seven participants outside that age range, three were 23, two were 24, and one was 30, and one was 31 years old.

The respondents were 22% ($n=79$) male and 79% ($n=289$) female. All respondents were undergraduates: 13% ($n=46$) freshmen, 59% ($n=218$) sophomores, 28% ($n=103$) juniors and less than 1% ($n=1$) seniors. While there were more female than male participants in the survey, the numbers closely match those of the undergraduates enrolled in the journalism, public relations, and advertising programs at the university, which were 22% male and 78% female in spring 2010 (Distribution by college, 2010).

Thirty-three percent ($n=122$) were majoring in advertising, 32% ($n=116$) in journalism, 32% ($n=117$) in public relations, and 3% ($n=12$) in other areas. The students majoring outside the three core majors were studying agricultural communications ($n=5$), English ($n=2$), visual art studies ($n=1$), exploratory humanities ($n=1$), psychology ($n=1$), music ($n=1$), and telecommunication ($n=1$).

Scenarios

Scenario 1. You are on the bus on your way to campus and you count six police cars and three fire trucks near the Reitz Union. You can see several officers and firefighters in the area, but you can't see an obvious reason why they are there and you aren't able to ask the officers what is happening.

In Scenario 1, 92% ($n=336$) of participants reported that it was either *extremely important* or *somewhat important* to get more information about the situation. No participants responded that it was extremely unimportant to get more information about the situation. Nearly 90% ($n=331$) of all respondents were likely to seek more information about the situation. Only 6% ($n=23$) of all respondents were *unlikely* to seek more information, and none of the respondents was *very unlikely* to see more information.

Of respondents who said they were likely to seek more information, the most common motivations were curiosity and safety concerns. Thirty-four percent ($n=124$) of all respondents listed a curiosity motivation for seeking more information about Scenario 1. Their answers to open-ended question 8, “*Why are you likely or unlikely to seek additional information?*” included answers with words such as, “curiosity,” “nosey,” “aware,” and “interested.” Eighteen percent ($n=65$) of respondents included words such as “safety,” “health,” “concern,” “danger,” and “emergency” in their answers. Respondents wrote comments such as “*I’m curious about what has happened at my school*” and “*I am likely to seek additional information not only to satisfy my own curiosity, but also to confirm that I am safe.*”

Sixteen percent ($n=60$) of respondents responded that they were motivated by a sense of community. They wrote comments about “my school” and “my campus.” Comments included “*It’s my community, and I live down the street. I need to know what’s going on*” and “*I would be likely to seek information because the safety of my school is very important to me.*”

Twelve percent ($n=43$) wrote comments that they were likely to seek more information so that they could “know what’s going on” and be “aware” and “informed.” Comments included responses such as “*Want to be informed in any situation. knowing is always better than not knowing.*”

Eleven percent ($n=42$) were motivated by personal concern and said that the news would directly affect them or people close to them. Just 2% ($n=6$) participants indicated that they were socially motivated to learn more about the situation. “*I liked to be informed about what we are discussing in class or what others are discussing around me.*” Of the students who responded that they were unlikely to seek additional information, some wrote comments that the situation “*did not concern*” them or that it was “*none of their business.*”

The three scenarios and subsequent questions were used to measure the response to RQ1, *Are college students more likely to hear breaking news from a source other than a traditional media organization?* Twenty-three percent ($n=82$) of participants reported that they would use a newspaper website to obtain more information. In response to the question about why the participant would use that method to seek additional information, written comments included that the information on a newspaper website was accurate, updated regularly, and detailed. In open-ended responses, participants wrote that the information would be updated more quickly on a website than in the print edition of the newspaper.

Twenty-two percent ($n=79$) of participants would use a news portal such as Google or Yahoo! News to seek additional information about Scenario 1. Respondents indicated portals were “easy and quick to access,” “accurate,” “free,” and the most

“quickly updated.” Several respondents wrote comments that portals allowed them to quickly seek information from a variety of online sources. They were also able to compare information for multiple sources as a type of fact checking.

Seventeen percent ($n=64$) of respondents reported they would turn to a friend to learn more about the police and fire officer presence near the student union.

Respondents said that campus news traveled quickly via word of mouth, and they would be likely to learn about the event from a friend. Participants said that they could quickly and easily get in touch with a friend, and that they would trust information from a friend to be accurate.

Only 11% ($n=39$) said they would use a print newspaper source for more information. Those respondents indicated a newspaper was an easily accessible, reliable source that would be likely to cover the situation at the student union.

Men and women responded differently when asked where they would seek information. The most common response of men was to use a portal while the most common response of women was a newspaper website (see Figure 4-1).

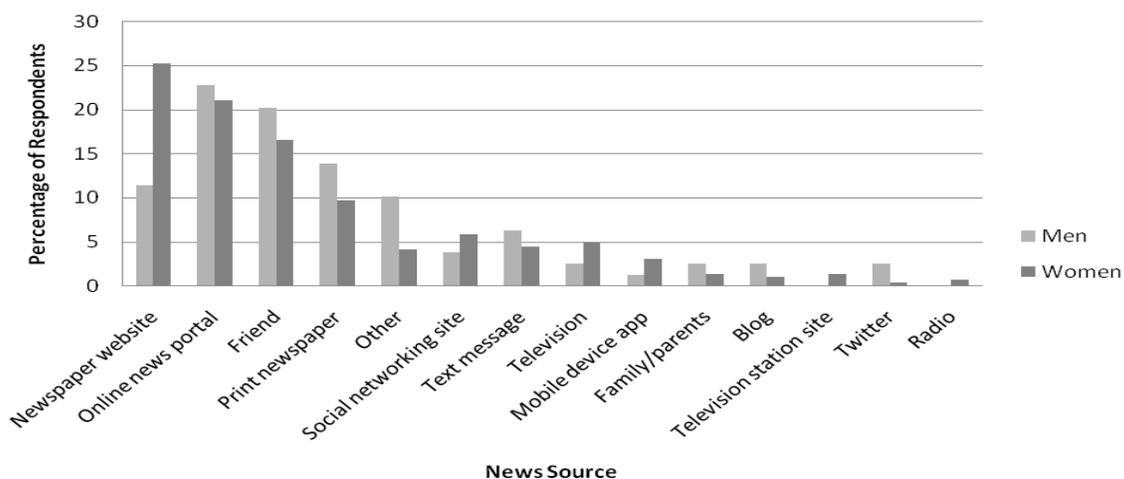


Figure 4-1. Scenario 1 - News Source by Gender

Scenario 2. You are planning to have lunch at your favorite restaurant on campus. When you get to the food court, the restaurant is closed and there is a notice on all the counters saying that it has been closed by order of the Health Department.

In Scenario 2, 88% ($n=323$) of participants reported that obtaining additional information about the situation was either *extremely* or *somewhat important*. There were no statistically significant differences in the way men and women responded to their likelihood to seek additional information about Scenario 2. Nearly 85% ($n=310$) of all respondents -- 86% ($n=68$) of men and 84% ($n=242$) of women -- were likely to seek more information about the situation. Only 10% ($n=37$) were *unlikely* to seek more information, and none of the respondents was *very unlikely* to see more information.

Of respondents who said it was likely they would seek more information, the most common motivation was the health concern of having eaten at a restaurant that was then closed by the health department. Thirty-three percent ($n=123$) of respondents wrote comments they were likely to seek more information because of the possible threat to their health. They wrote comments such as, "*I want to know what happened because I had eaten there in the past, so the health issues could impact me personally.*"

Twenty-six percent ($n=96$) of respondents cited curiosity as the motivation for seeking additional information about Scenario 2. Respondents wrote that they were "nosey," "curious," and "want to know more" about the closed restaurant.

Seventeen percent ($n=64$) wrote comments saying that they would seek additional information because the situation might directly affect themselves or people close to them. Some students responded the closing of the restaurant was of interest to them because the change would affect their routine and daily schedule. They would seek

additional information to determine if and when the restaurant would open again. The social currency motivation described in the Associated Press survey of young readers (AP, 2008) was not evident in the responses to this scenario. Only one respondent wrote a comment saying that discussion about the restaurant closing would make for good conversation. Of the students who reported that they were unlikely to seek additional information, the most common motivation was the student was generally not interested in information about food services or that the student would just go somewhere else to eat. Some reported they would not want to know unpleasant information about a restaurant they liked and frequented. For example, “*Since the restaurant is closed for health reasons, I[d] rather not know what caused it, since I used to eat there.*”

For Scenario 2, in response to RQ1, *Are college students more likely to hear breaking news from a source other than a traditional media organization?* a traditional media source was first among the participants’ chosen sources. Twenty-six percent (n=97) of participants reported that a print newspaper would be their primary source for additional information about a restaurant close by the health department. Participants wrote a newspaper would provide easy access and accurate information. Several participants reported they expected to get a greater depth of coverage from a print newspaper than other sources. Of the participants who included a specific publication in their written comments, most listed the campus newspaper.

In Scenario 2, 19% (n=71) of respondents reported they would go to a news portal to seek more information about the situation. Just as in Scenario 1, participants reported they would use a news portal to find more information because it was easily

accessible and quick. Participants indicated that a news portal also allowed them to seek information from multiple sources quickly and allowed for comparing information from those sources.

Nineteen percent ($n=68$) of respondents to the question reported they would go to a newspaper website for more information about Scenario 2. These participants wrote comments saying that a newspaper website would be updated before a print edition with information about the situation became available. Participants also wrote comments that a website is also more easily searchable than a print paper. Fourteen percent ($n=53$) of participants would seek information from a friend. These participants wrote that asking a friend would take very little effort and that contacting a friend would be faster than for the participant to look for information on his or her own. As with Scenario 1, participants wrote that word of mouth travels quickly.

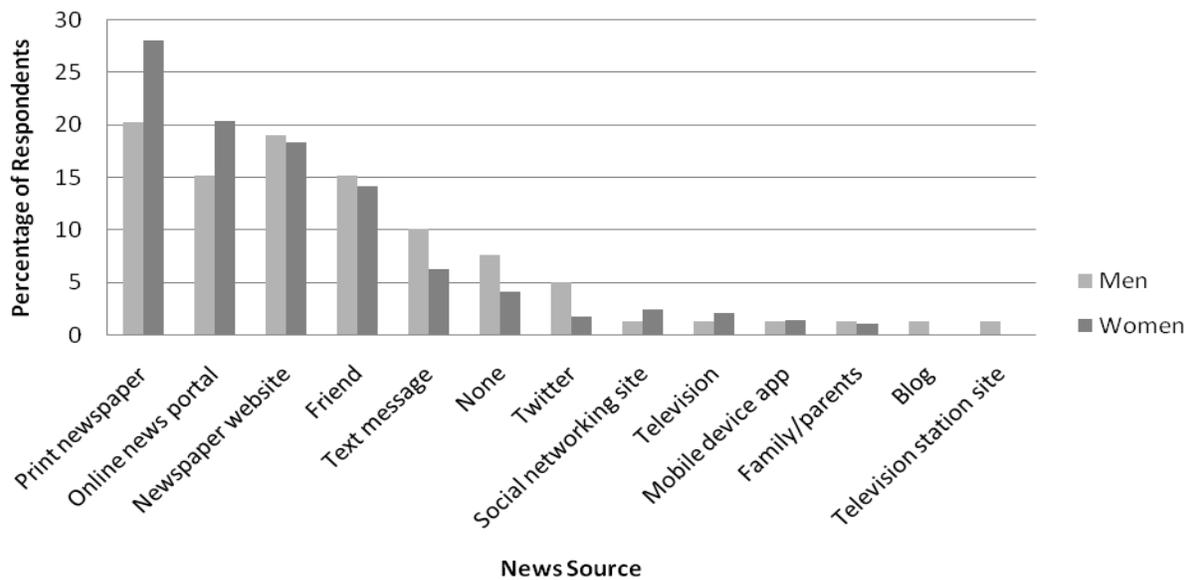


Figure 4-2. Scenario 2 - News Source by Gender

In Scenario 2, men and women both ranked a print newspaper as their primary source of new information about the situation. Among men, newspaper websites were cited second and news portals were cited third. Among women, the second most-cited source was a news portal, and newspaper websites were the third most-popular response. Among both men and women, the fourth most-cited response was a friend (see Figure 4-2).

Scenario 3. You are in your dorm room when your roommate tells you that the swine flu has hit another residence hall on campus making half the students sick.

The H1N1 swine flu was a health concern on the university campus, as well as nationally and internationally, during the 2009-2010 school year. In Scenario 3, 80% ($n=295$) of participants reported that it was *extremely* or *somewhat important* for them to know more information about the rumored H1N1 outbreak in a campus residence hall. Sixty-six percent ($n=192$) of women and 52% ($n=41$) of men said that they were *very likely* or *likely* to seek additional information. Twenty-two percent ($n=17$) of men and 15% ($n=42$) of women were *unlikely* to seek additional information.

Of respondents who said they would likely seek more information, the most common motivation was the concern of being exposed to the H1N1 flu. Forty percent ($n=147$) of respondents reported motivations such as “*This problem could directly affect my health*” and “*I want to avoid getting sick.*”

In Scenario 3, respondents reported a motivation not evident in the other two scenarios. Ten percent ($n=38$) of participants reported that they’d seek additional information to learn more about the swine flu, such as the symptoms, the severity of the strain, and how to prevent catching it. Some participants reported wanting to seek

information about which dorm had the outbreak so they could avoid residents from that dorm. Those who were not likely to seek more information wrote comments such as, “*I already got the swine flu vaccination*” and “*The swine flu has been around a while, so it isn’t a big deal.*”

In Scenarios 1 and 2 curiosity was a strong motivation, but it was not reported in Scenario 3. Only four respondents indicated that curiosity was the reason they would seek additional information about the rumor of swine flu in a residence hall.

In response to RQ1 *Are college students more likely to hear breaking news from a source other than a traditional media organization?*, Scenario 3 was the only scenario in which college students were most likely to seek information from a friend before looking to the (traditional?) media. In this scenario, when participants arguably had easiest access to online information because they were in a dorm room, 22% ($n=81$) of respondents reported they would get additional information about the situation from a friend. These participants reported asking a friend would be the easiest way to get first-hand, accurate information.

Seventeen percent ($n=63$) of participants said they would find additional information about Scenario 3 from a print newspaper. These respondents commented in their answers to open-ended questions that the print newspaper, specifically the college newspaper, was likely to cover a campus swine flu outbreak, and the campus newspaper was free. The students wrote that a print newspaper also was likely to have accurate information about the situation.

In Scenario 3, 13% ($n=48$) of participants reported they would get additional information from a news portal, such as Google or Yahoo! news. Participants wrote

comments about how news portals allowed them to access information from multiple sources and on a variety of subjects related to the swine flu and its treatment and prevention.

Thirteen percent ($n=46$) of respondents reported that they'd get additional information about Scenario 3 from a newspaper website. Participants wrote that finding information on a newspaper site would be quick to access and easy to search.

Nineteen percent ($n=15$) of men and 23% ($n=66$) of women reported they would contact friends first to get information about the rumored virus outbreak. After friends, 17% ($n=50$) of the women listed a print newspaper, and 13% ($n=37$) reported they would seek information from an online news portal. After friends, 18% ($n=14$) of men were likely to turn to a newspaper website and 16% ($n=13$) would go to a print newspaper for more information. Fifteen percent of men ($n=12$) and 9% of women ($n=25$) reported that they would not seek additional information from any of the listed sources (see Figure 4-3).

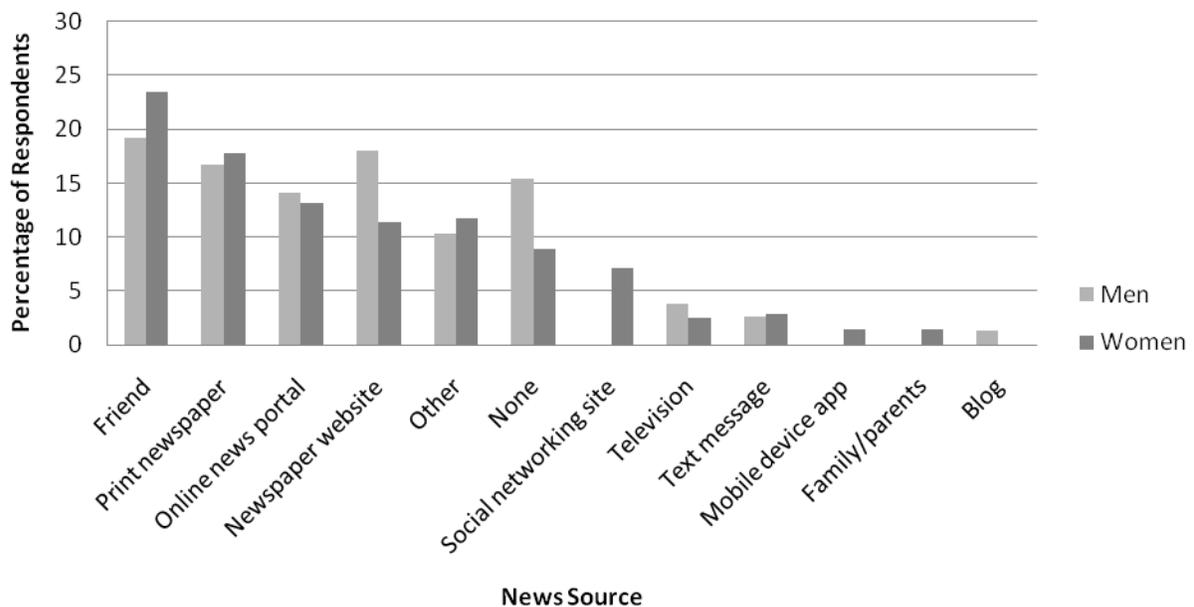


Figure 4-3. Scenario 4-3 - News Source by Gender

News Content

Participants were asked how often they accessed news content online in a typical week. Thirty-two percent ($n=118$) of respondents indicated they accessed news content online *several times a day* while 18% ($n=67$) accessed news content online *once a day*. Fifty percent ($n=183$) of the respondents reported that they accessed online news content fewer times than once a day.

Students who responded that they *never* sought news online were asked why. Only five of the 368 participants indicated that they never sought news online. The responses included lack of time and interest in news. The students responded that they would hear any important information from friends, family, or the print edition of the campus newspaper.

Participants were asked about their likelihood of accessing each of the following online sources: national newspaper site, regional/local newspaper site, national television news site (such as CNN or Fox News), news portal (such as Google News or Yahoo! News), local television news site, blog, mobile device application (such as an application for the iPhone or iPod), social networking site (such as Facebook, MySpace or Twitter), or other (see Table 4-1). Eighty-six percent ($n=315$) of participants were *somewhat likely, likely, or very likely* to use a news portal to seek news content online in a typical week. Eighty-one percent ($n=298$) said that they would go to a social networking site, followed by the 57% ($n=210$) who would use a national news website. Thirty-three percent ($n=122$) of participants reported that of the news options provided they were the least likely to seek news content online from a local television news site (see Table 4-1 and Figure 4-4).

An independent-samples *t*-test compared how men and women responded to the question about their likelihood of accessing each news source in a typical week, using a scale including 1 (*very unlikely*), 2 (*unlikely*), 3 (*somewhat unlikely*), 4 (*undecided*), 5 (*somewhat likely*), 6 (*likely*), and 7 (*very likely*). Men and women reported statistically significant differences in their likelihood to access only two sources: national TV websites and social networking websites. Based on their responses, men ($M=5.05$, $SD=1.50$) were more likely than women ($M=4.6$, $SD=1.77$) to visit a national television news website in a typical week ($t(359)=2.23$, $p=.03$). Women ($M=5.88$, $SD=1.72$) were more likely than men ($M=5.35$, $SD=1.73$) to get news information from a social networking website in a typical week ($t(357)= 2.38$, $p=.02$).

Table 4-1. Online sources and likelihood to access

In a typical week, how likely are you to access the following source of news content online?			
	Unlikely (1= <i>Very unlikely</i> , 2= <i>Unlikely</i> , 3= <i>somewhat unlikely</i>)		
	Undecided (4 = <i>Undecided</i>)		
	Likely (5= <i>Somewhat likely</i> , 6= <i>Likely</i> , 7= <i>Very likely</i>)		
Online source	% Likely	% Undecided	% Unlikely
News portal (such as Google News or Yahoo! News)	88	1	11
Social networking site (such as Facebook, MySpace or Twitter)	83	4	13
National television news site (such as CNN or Fox News)	65	7	28
Regional/local newspaper site	60	5	35
National newspaper site	58	5	37
Blog	36	7	57
Other	36	31	33
Mobile device application (such as an application for the iPhone or iPod)	35	8	57
Local television news site	34	7	59

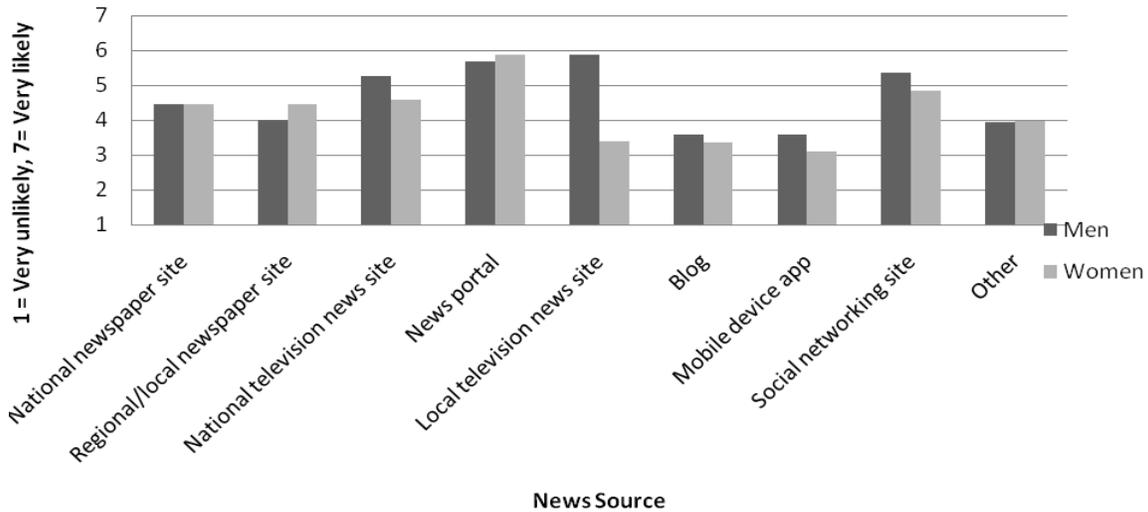


Figure 4-4. Likelihood of Using Each Source in a Typical Week, by Gender

A two-tailed *t*-test found that women ($M=3.77$, $SD=1.755$) reported getting news content from a college newspaper more days in a typical week than men ($M=3.33$, $SD=1.723$, $t(368)=-1.98$, $p=.05$). Women ($M=1.35$, $SD=2.05$) reported they sought news information from the radio more days a week than men ($M=.80$, $SD=1.72$, $t(368)=-2.41$, $p=.02$). Women ($M=4.42$, $SD=2.349$) reported using friends and family as a source of news information did so more days in the typical week than men ($M=4.42$, $SD=2.349$; $t(367)= -2.99$, $p=.003$).

Use of Devices to Access News

To determine the answer to RQ2: What is the extent to which college students use a particular device (desktop, laptop or mobile device) to access news content online?, participants were asked to indicate the number of days in a typical week they used any of the following devices to access news online – desktop computer, laptop computer, cell phone, or other mobile device (see Table 2). Participants reported using the laptop

computer most often when accessing news content online. Ninety-five percent ($n=325$) of those responding to the questions reported they accessed web news using a laptop. Respondents reported they accessed web news using a laptop an average of 5.1 days per week. Users of web-enabled cell phones for accessing news content online included 42% of respondents ($n=155$), and respondents reported accessing web news from their cell phones almost two days a week (1.9 days). Thirty percent ($n=108$) of respondents used their desktop computers to access news content online, and respondents reported using desktops an average of 0.7 days a week to access news content online. Twelve percent ($n=45$) indicated using other mobile devices, using those devices an average of less than one day a week to access news online.

A two-tailed t-test was used to compare the number of days men and women said they would use each of the devices (desktop computer, laptop computer, web-enabled cell phone, and other web-enabled mobile device) to access news content online. Men ($M=1.22$, $SD=2.154$) used a desktop computer more than women ($M=.61$, $SD=1.307$; $t(359)=2.384$, $p=.02$) (see Table 4-2 and Figure 4-5).

Table 4-2. Device used in accessing news content online

	Average number of days used per week	Number of respondents who used the device	Percentage of the respondents who used the device
Laptop computer	5.0	$n=325$	95%
Cell phone	1.9	$n=147$	42%
Desktop computer	0.7	$n=108$	30%
Mobile device*	0.4	$n=45$	12%

*non-cell, web-enabled mobile device, such as an iPod Touch or Kindle

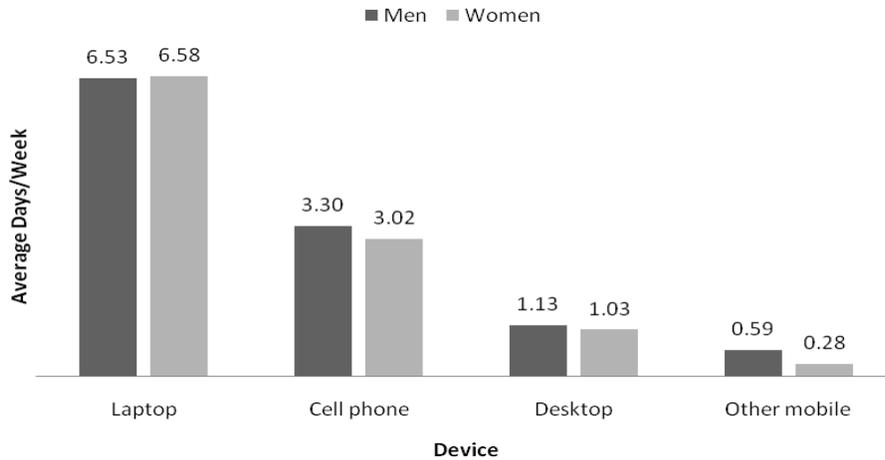


Figure 4-5. Internet News Access by Device, Gender

Speed of Internet Connection

In response to RQ3, How does a college student's type of home internet connection (high-speed, dial-up) affect the type of device he/she uses to access news content online? the overwhelming majority of the respondents (88%, $n=323$) used a high-speed, wireless internet connection in their homes, followed by a wired, high-speed connection (11%, $n=39$), and with only 1% ($n=3$) using a dialup connection. Only a single respondent did not have an internet connection at home. The sample of students ($n=3$) who used a dial-up connection was too small for use in statistical analysis.

Feelings about Online News

The survey included question 25, "How comfortable do you consider yourself accessing news content online?" to gather information about RQ4, "Do college men perceive themselves more comfortable accessing news content online than college women?" Among participants who reported they were very or somewhat comfortable accessing news content online, men (87%, $n=67$) and women (85%, $n=235$) responded similarly. A chi-square test for independence showed no statistical differences in the

way that men and women reported using online and offline sources to find information in a breaking news scenario.

The survey included question 28, "How would you describe your feelings toward news content online?" to gather information about RQ5, "Do college men have a more positive attitude toward accessing online news content than college women?" A *t*-test found that when reporting their "feelings" about news online on a five-point scale from 1 (*positive/strongly like*) to 5 (*negative/strongly dislike*), men ($M=1.63$, $SD=.737$) reported slightly more positive feelings about online news than women ($M=1.82$, $SD=.750$; $t(366)=-2.009$, $p=.045$).

When asked what they liked about accessing news content online, the participants' most common responses were that online news was fast, convenient, and free. In their open-ended responses, students wrote that online news was updated frequently and always accessible. Instead of having to wait for a television news story of interest, students wrote that they could search for the story immediately online. Reading news online also helped students share news with the ability to copy, paste, and forward links to others.

As for the reason that students disliked online news, the most common complaint was eye strain caused by looking at a screen. Students were also concerned that online sources may not be as credible as other news sources. Some students said that without a mobile device to access the web, they had to be near a computer to get news online, and in those cases, a newspaper was more portable for on-the-go reading of the news. Several students noted that online they could be easily distracted by e-mail or social networking. Several noted that they could be overwhelmed by the volume of

news information online and the fact that it was constantly updated. Some students remarked that they preferred the feeling of a newspaper in their hands, or that the print newspaper had a “cool factor” to it. As the participants were all communications students, several noted that they disliked online news because it was responsible for a decrease in the number of jobs for print journalists, and they were concerned about the future of print newspapers.

CHAPTER 5 DISCUSSION

This study was conducted during fall semester 2009 and spring semester 2010 with undergraduate communications students in an introductory media writing course in a large public university in the southeast. The study was designed to examine news-seeking behavior of Millennial college students and to see what trends could be determined.

News Sources

The results of this study showed the blur between traditional media and new media outlets. When the students in the study were asked to select the media source they would use in finding out more information on the three news scenarios presented, the top four choices were the same for all three scenarios – print newspaper, online news portal, print newspaper website, and a friend. But of the three media news sources cited, only one, the print newspaper, was a traditional news source. The other two media sources – an online news portal and a print newspaper website – represent “new” news sources, often replacing or complementing traditional news sources. In most cases, students did report that they would seek news outlets to find more information about a news event; however, they said they would go online to find those news sources. Traditional news organizations, such as newspapers and television and radio stations, need to be aware that their online product is going to be the source Millennials are checking for news, not their traditional outlet.

Very few students in the study responded that they would turn to television or a television website to learn more information about the scenarios in the questionnaire. But only one student in the sample was majoring in telecommunication. As only a

single telecommunications student was included in the study, the results may be different if more of these students were included. And a general population of college students, versus communications majors, may have responded differently in terms of using television news. In evaluating whether they would want to know more information for sample news scenarios, the vast majority of the students reported that they would seek more information about all three of the scenarios. They noted being motivated by curiosity and the desire to know more about their environment, and they were particularly interested in learning more about those issues that could affect them personally. The implication is that local media need to capitalize on that desire to learn more and focus on providing that hyperlocal coverage, reporting the news that would drive Millennials to the web to learn more, particularly about local news events, such as those used in the three scenarios.

In Scenario 3, students mentioned an information-gathering motivation that wasn't evident in the comments for the other two scenarios. Students wrote they were likely to seek more information about a swine flu outbreak in the dorms not to get more information about the situation on campus but to learn more about the flu – symptoms and tips for prevention. Media organizations could increase the usability of their online articles and take advantage of the benefits of online functionality by linking articles to useful information for readers. For example, an article about the swine flu could include a sidebar with links to the Centers for Disease Control website for additional swine flu information. An article about a restaurant closed by the Health Department could link to restaurant inspection reports online. Connecting users to additional information might

provide the added functionality and usability to a media organization's website that would encourage users to make it one of their most-used sites.

Device Use and Accessing News Online

An important finding of this study was confirming how students accessed news online. Fifty-one percent of the college students in this study accessed news content online at least once daily, and nearly a third accessed news content online several times a day. Only five of the 368 participants reported never seeking news content online. Laptop computers were the most-often-used devices among the study's sample for accessing news online. Ninety-five percent of the study's participants used a laptop computer at least one day a week to access news content online. Participants used a laptop an average of 5.1 days per week to access news content online.

The second most-used way of accessing news online was with a web-enabled cell phone. Forty-two percent of the participants used a web-enabled phone to access news content. Almost every day they used their phones to access the web, they also looked at news content online. These results indicate that the Millennials in this study were seeking news in a mobile way – on their laptops, smart phones, or other web-enabled mobile devices – more than five days a week, again supporting the importance of delivering news in an up-to-the-minute manner for immediate news access.

In his blog post "Newspapers and Thinking the Unthinkable" (March 13, 2009), Clay Shirky compared the changes in news control and distribution caused by the printing press to changes caused by modern technology advancements, from the internet providing a new news delivery system to Craigslist changing the newspaper business model. The results of this study of college students in 2009 and 2010 and

their news-seeking behavior supports Shirky's premise that a revolution in news acquisition was underway.

Among the students who participated in this study, mobile applications or "apps," such as those for the iPhone or iPod Touch, were not widely used. Before Apple started presale of its new iPad mobile tablet device in March 2010 for an April release, media organizations were already working to develop content for the iPad device (Luckie, 2010). The larger screen size of the iPad may combat some of the eye-strain problems students noted in accessing news content online. The iPad also will provide competition to other tablet readers, such as Amazon's Kindle and Barnes and Noble's Nook, which have provided news content. These tablet devices can also provide a news navigation system that will be easier to use for readers. Also, release of new mobile devices and web-enabled cell phones may decrease device prices and make some of them more affordable to a larger population.

The Robinson and Dodd (2006) research found that students don't always know the power of the devices they own. Mass communications instructors want their students to be avid news readers, so including information about how to use online tools such as RSS readers and devices such as web-enabled cell phones and other mobile devices in their classes might encourage students to seek news online in ways they hadn't before.

Gender and News Online

This study did not find a significant difference in men and women's comfort accessing online news sources. Both in their responses to the question about their comfort seeking news online and in examining the sources that men and women said they would access in a breaking news scenario, men did not report being more

comfortable online nor being more likely to use an online source than women. This finding may indicate that in a generation where use of computers and the internet is so ubiquitous that both genders have had the opportunity to become comfortable in using computer technology.

Both women and men reported overwhelmingly positive feelings toward online news content. Participants wrote comments about what they liked and disliked about online news content revealed that students liked the ease with which they could find news online, the quickness with which news content was posted online, and the availability of news from multiple sources. They disliked eye strain from reading online and the overwhelming amount of information and the number of sources online. They were concerned about the accuracy of information posted online and the credibility of the sources of news information.

In designing online news content, news organizations should develop an online delivery of news in that way that reduces eye strain. News websites should be designed so that they are easy to navigate both with the visual design of the page and with search functions. For the students participating in this study, 85% of respondents reported that they were likely to use a news portal in a typical week to find news content online. The popularity of news portals may be in part due to their design, which does not follow the newspaper page design that many newspapers have used in creating their online news sites. Portals also compile stories from many different sources in a single, online location, making it very easy to check a variety of sources through a single site.

In 2010, Pew research (Purcell et al., 2010) found that people used multiple platforms to get their news information. Similarly, students in this study wrote

comments saying that they were still reading a print newspaper in addition to reading news online. Some valued the paper product for what one student called “the cool factor” of holding the print edition of a newspaper. Other students commented that they liked the portability of a print newspaper because they weren’t using mobile device technology to access news content. Most students in the study were regular readers of the free campus newspaper. Newspaper organizations will need to keep in mind that, as they increase the use of the online medium, that some readers, both in the Millennial and other generations, still prefer a print product.

The survey findings also have implications for college communications programs. The communication students in this study were comfortable using the internet to search for and access information. Communications instructors could take advantage of students’ access to the internet to provide course materials in a format that students can access both on a desktop or laptop computer and on a mobile device such as a web-enabled cell phone or the iPod Touch. Students in this study were online for a variety of reasons – many wrote comments saying they liked online news because they could access it quickly when they had gone online for email, instant messaging, or to log on to a social network site. Communications programs should use this information to reach students where they are – online on their laptops or cell phones. Knowing that so many students have and use their laptops and cell phones to access the internet may mean that a university could implement a method that uses those devices to notify students of breaking news events that could affect them on campus.

Beyond using mobile devices and online materials, this has course content implications. If the Millennials are obtaining news primarily from news portals and social

network sites, the communications curriculum should include how to prepare and present news for those delivery methods. Newspapers and other traditional media organizations are hiring fewer new employees and, beginning in about 2005, were laying off their current employees. So the jobs for new communications graduates for producing news may be with news portals and social networking organizations. A curriculum that reflects the changes in media acquisition and expectations can help current graduates be competitive for job opportunities.

Qualities of Online News

College students in this study supported what the young people in the 2008 Associated Press study reported. They wanted depth from their news coverage. Participants wrote comments saying they disliked online news content that was posted quickly without details or updated frequently without adding new or substantial details. Students in this study reported being overwhelmed by the sheer amount of news information available online, but they were disappointed when multiple stories covered the same set of limited details in an effort to have something posted to the web quickly. The implication for news organizations is the importance of prompt posting of updated news stories on the organization's website. Quickly posting breaking news information was not enough for the participants in this study. They indicated that they would continue to seek updated information about a situation, so they needed news sites that would continue to add information as it became available. Readers in this study were also concerned about stories being accurate. News websites that have accurate information will build a following. The study indicated that students would appreciate a site that indicates when it has made a mistake or had posted corrected information.

The students in the survey also wanted online content to be easily searchable. They complained that they could become overwhelmed by the amount of information available online, and they had trouble, at times, finding the news information they were seeking. One student wrote, "*There is so much information and it is sometimes difficult to sort through it all and find the best place for information.*" News organizations need to model online sites in ways that make it easy to find breaking news information. Many newspaper websites began as an online site that mimicked the printed newspaper page, but it may be time to move away from that model to one that is more streamlined for the needs of the online audience. News organizations, even those that restrict archive access to subscribers or registered users, need to provide easily searchable archives or the ability to tag articles for easier searching. Offering users a way to tag or bookmark articles of interest would make it easier for users to find those articles later. Many in the study received or shared news content with friends, so a way to share bookmarked stories might be of interest to this group.

As Flavian and Gurrea (2008) reported, people tend to go to only few sites and to sites that are the most user friendly and familiar to them when they are in search of news information. A news organization's online site that provides depth of coverage, frequently updates news stories, posts accurate information and makes prompt corrections, and is easy to search desired could become one of go-to news sources this population's participants would use for news.

Internet Connection

Internet connection speed was not an issue among the students in this study, as 98% of the participants had wired high-speed or wireless high-speed connections. Only three of the 368 survey participants had a dial-up internet connection, Based on this

almost universal access to high-speed internet that news consumers, at least the news consumers in this study, have, news organizations can create online news content, such as video or audio files, that requires high-speed access without leaving behind these readers. In their current home and school setups, students were prepared with the high-speed connection that greater functionality would require. News organizations should work to provide content, such as photos galleries and video, that goes beyond what is available in a print-only medium.

Future Research

The participants in this study were all communications students, who arguably had a vested interest in news delivery and consumption. News consumption habits and the motivations to seek news information may be different in this sample than in a sample that included a wider variety of majors. Future research could expand the sample to look at students in several different colleges at the university or to look at students from several different universities.

Future research should also look at a larger population of Millennials outside the college environment. The students in this study attended a university that required every student to have access to a computer. That university computer requirement, which was reinforced by a computer requirement in the communications college, meant that the students in this study were very likely to have a computer. In addition, the university provided wireless access with the use of a university computer account, and the city itself provided wireless access locations, in addition to apartment complexes and businesses, thus promoting the use of portable web-enabled laptops and cell phones. A larger, random-sample study of media use by Millennials could also examine differences in Millennials who have and have not attended college. By expanding the

study to the larger population of Millennials through a larger random sample study, researchers could see how results are affected by ubiquitous wireless access and by level of education.

Additionally, research using a larger random sample could examine the way men and women approach technology related to news content on the internet. If so, college instructors and media organizations do not need to worry about female students' self efficacy with technology because men and women showed no difference in their comfort using online sources.

Finally, on-going research on the diffusion of mobile devices to access news content is needed to follow changes in the use of mobile devices and predict trends. While mobile devices such as the iPod Touch and Kindle were not widely used in this study, the release of new devices such as the iPad make mobile devices a valuable potential market for media organizations and long-term research about news consumption using mobile devices is warranted. Ongoing research on Millennials' use of technology and news-seeking behavior can help document and predict adoption trends.

APPENDIX A
SURVEY INSTRUMENT

1. What is your section number?
2. What is your gender?
 - 1 – Male
 - 2 – Female
3. What is your age?
4. What is your academic status?
 - 1 – Freshman
 - 2 – Sophomore
 - 3 – Junior
 - 4 – Senior
 - 5 – Other
5. What is your major?
 - 1 – Advertising
 - 2 – Journalism
 - 3 – Public relations
 - 4 – Other

Think about the following scenario while answering the questions on this page.

Scenario 1: You are on the bus on your way to campus and you count six police cars and three fire trucks near the Reitz Union. You can see several officers and firefighters in the area, but you can't see an obvious reason why they are there and you aren't able to ask the officers what is happening.

6. How important is it to you to learn more about what is happening?
 - 1 – Extremely important
 - 2 – Somewhat important
 - 3 – Neither important or unimportant
 - 4 – Somewhat unimportant
 - 5 – Not at all important
7. How likely are you to seek additional information about the situation?
 - 1 – Very likely
 - 2 – Likely
 - 3 – Somewhat likely
 - 4 – Undecided
 - 5 – Somewhat unlikely
 - 6 – Unlikely
 - 7 – Very unlikely

8. Why are you likely or unlikely to seek additional information?
9. What method would you use to seek additional information?
- 1 – Blog
 - 2 – Family member/parents
 - 3 – Friend
 - 4 – Mobile device application
 - 5 – Print newspaper
 - 6 – Newspaper Web site
 - 7 – Online news portal (such as Google News or Yahoo! News)
 - 8 – Radio
 - 9 – Social networking Web site (such as Facebook or MySpace)
 - 10 – Television
 - 11 – Television station Web site
 - 12 – Twitter
 - 13 – Text message
 - 14 – Other
 - 15 – I would not seek additional information about the situation
10. Why would you respond in that way?

Think about the following scenario while answering the questions on this page.

Scenario 2: You are planning to have lunch at your favorite restaurant on campus. When you get to the food court, the restaurant is closed and there is a notice on all the counters saying that it has been closed by order of the Health Department.

11. How important is it to you to learn more about what is happening?
- 1 – Extremely important
 - 2 – Somewhat important
 - 3 – Neither important or unimportant
 - 4 – Somewhat unimportant
 - 5 – Not at all important
12. How likely are you to seek additional information about the situation?
- 1 – Very likely
 - 2 – Likely
 - 3 – Somewhat likely
 - 4 – Undecided
 - 5 – Somewhat unlikely
 - 6 – Unlikely
 - 7 – Very unlikely
13. Why are you likely or unlikely to seek additional information?

14. What method would you use to seek additional information?
- 1 – Blog
 - 2 – Family member/parents
 - 3 – Friend
 - 4 – Mobile device application
 - 5 – Print newspaper
 - 6 – Newspaper Web site
 - 7 – Online news portal (such as Google News or Yahoo! News)
 - 8 – Radio
 - 9 – Social networking Web site (such as Facebook or MySpace)
 - 10 – Television
 - 11 – Television station Web site
 - 12 – Twitter
 - 13 – Text message
 - 14 – Other
 - 15 – I would not seek additional information about the situation

15. Why would you respond in that way?

Think about the following scenario while answering the questions on this page.

Scenario 3: You are in your dorm room when your roommate tells you that the swine flu has hit another residence hall on campus making half the students sick.

16. How important is it to you to learn more about what is happening?
- 1 – Extremely important
 - 2 – Somewhat important
 - 3 – Neither important or unimportant
 - 4 – Somewhat unimportant
 - 5 – Not at all important
17. How likely are you to seek additional information about the situation?
- 1 – Very likely
 - 2 – Likely
 - 3 – Somewhat likely
 - 4 – Undecided
 - 5 – Somewhat unlikely
 - 6 – Unlikely
 - 7 – Very unlikely
18. Why are you likely or unlikely to seek additional information?

19. What method would you use to seek additional information?
- 1 – Blog
 - 2 – Family member/parents
 - 3 – Friend
 - 4 – Mobile device application
 - 5 – Print newspaper
 - 6 – Newspaper Web site
 - 7 – Online news portal (such as Google News or Yahoo! News)
 - 8 – Radio
 - 9 – Social networking Web site (such as Facebook or MySpace)
 - 10 – Television
 - 11 – Television station Web site
 - 12 – Twitter
 - 13 – Text message
 - 14 – Other
 - 15 – I would not seek additional information about the situation

20. Why would you respond in that way?

The following questions ask about your experience using the Internet to access news content online. For the purpose of the questions on this page, consider “news content” as information about recent and important events, not including entertainment or celebrity news.

21. In a typical week, how often do you access news content via the Internet?
- 1 – Several times a day
 - 2 – Once a day
 - 3 – 5+ times a week
 - 4 – 3-4 times a week
 - 5 – 1-2 times a week
 - 6 – Less than once a week
 - 7 – Never

22. If never, why not?

23. In a typical week, how many days do you use each of the following devices to access online news content?
- 1 – Desktop computer
 - 2 – Laptop computer
 - 3 – Cell phone with access to the Internet
 - 4 – Other mobile device with access to the Internet (such as an iPod Touch)

24. In a typical week, how likely are you to access the following source of news content online?

Question	1 Very Unlikely	2 Unlikely	3 Somewhat Unlikely	4 Undecided	5 Somewhat Likely	6 Likely	7 Very Likely
National newspaper site	<input type="checkbox"/>						
Regional/local newspaper site	<input type="checkbox"/>						
National television news site (such as CNN or Fox News)	<input type="checkbox"/>						
News portal (such as Google News or Yahoo! News)	<input type="checkbox"/>						
Local television news site	<input type="checkbox"/>						
Blog	<input type="checkbox"/>						
Mobile device application (such as an application for the iPhone or iPod)	<input type="checkbox"/>						
Social networking site (such as Facebook, MySpace or Twitter)	<input type="checkbox"/>						
Other	<input type="checkbox"/>						

25. How comfortable do you consider yourself accessing news content online?

- 1 – Very comfortable
- 2 – Somewhat comfortable
- 3 – Neutral
- 4 – Somewhat uncomfortable
- 5 – Very uncomfortable

26. What do you like about accessing news online?

27. What do you dislike about accessing news online?

28. How would you describe your feelings toward news content online?

- 1 – Positive/strongly like
- 2 – Like
- 3 – Neutral
- 4 – Dislike
- 5 – Negative/strongly dislike

29. How many days in a typical week do you get news from the following sources?
- College newspaper
 - Local/regional newspaper
 - National newspaper
 - Radio
 - Television
 - Family/friends
 - Online source
 - Other
 - Source, other text

The following questions ask about the type of Internet access you have at your home and outside your home. For the purpose of questions 16 through 18, consider “home” the place you live while attending UF.

30. Which of the following types of Internet connections do you have at your home?
- 1 – Dial-up
 - 2 – High-speed
 - 3 – High-speed, wireless/Wi-Fi
 - 4 – Other
 - 5 – None – I do not have an Internet connection at my home
31. In a typical week, where do you use high-speed Internet outside your home?
- 1 – School/campus
 - 2 – Work
 - 3 – Friend/family home
 - 4 – Public library
 - 5 – Internet café
 - 6 – Other
 - 7 – N/A – I do not use high-speed Internet on a weekly basis outside my home.
32. In a typical week, how many days do you use high-speed Internet outside your home?
- 0 1 2 3 4 5 6 7
33. In a typical week, where do you use wireless Internet outside your home?
- 1 – School/campus
 - 2 – Work
 - 3 – Friend/family home
 - 4 – Public library
 - 5 – Internet café
 - 6 – Other
 - 7 – N/A – I do not use wireless Internet on a weekly basis outside my home.

34. In a typical week, how many days do you access Wi-Fi/wireless Internet outside your home?

- 0 1 2 3 4 5 6 7

The following questions ask about the type of devices you own or regularly use. For the purpose of the questions on this page, think about the devices you use in a typical week – they might include your personal equipment or something you use at work/school/friend’s home/etc.

35. Which of the following do you own or regularly have access to use? (Select all that apply)

- Desktop computer
- Laptop computer
- Cell phone with access to the Web
- Mobile device (other than a cell phone) with access to the Web (such as an iPod Touch or Kindle)
- Other
- None

36. How long have you used the following devices on a weekly basis?

Question	Less than a year	1-3 years	3-7 years	More than seven years
Desktop computer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laptop computer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cell phone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other mobile device	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

37. In a typical week, how many days do you use each of the following devices to access the Internet?

- Desktop computer
- Laptop computer
- Cell phone
- Other mobile device

APPENDIX B
VARIABLE DEFINITIONS

Variable	Question and responses
3	What is your gender? 1 – Male 2 – Female
4	What is your age?
5	What is your academic status? 1 – Freshman 2 – Sophomore 3 – Junior 4 – Senior 5 – Other
5Text	Academic status, Other
6	What is your major? 1 – Advertising 2 – Journalism 3 – Public relations 4 – Other
6Text	Major, Other

Think about the following scenario while answering the questions on this page.

Scenario 1: You are on the bus on your way to campus and you count six police cars and three fire trucks near the Reitz Union. You can see several officers and firefighters in the area, but you can't see an obvious reason why they are there and you aren't able to ask the officers what is happening.

- 7 How important is it to you to learn more about what is happening?
1 – Extremely important
2 – Somewhat important
3 – Neither important or unimportant
4 – Somewhat unimportant
5 – Not at all important
- 8 How likely are you to seek additional information about the situation?
1 – Very likely
2 – Likely
3 – Somewhat likely
4 – Undecided
5 – Somewhat unlikely
6 – Unlikely
7 – Very unlikely
- 9 Why are you likely or unlikely to seek additional information?
- 10 What method would you use to seek additional information?
1 – Blog
2 – Family member/parents
3 – Friend
4 – Mobile device application

- 5 – Print newspaper
 - 6 – Newspaper Web site
 - 7 – Online news portal (such as Google News or Yahoo! News)
 - 8 – Radio
 - 9 – Social networking Web site (such as Facebook or MySpace)
 - 10 – Television
 - 11 – Television station Web site
 - 12 – Twitter
 - 13 – Text message
 - 14 – Other
 - 15 – I would not seek additional information about the situation
- 10Text Method, Other
- 11 Why would you respond that way?

Think about the following scenario while answering the questions on this page.

Scenario 2: You are planning to have lunch at your favorite restaurant on campus. When you get to the food court, the restaurant is closed and there is a notice on all the counters saying that it has been closed by order of the Health Department.

- 12 How important is it to you to learn more about what is happening?
- 1 – Extremely important
 - 2 – Somewhat important
 - 3 – Neither important or unimportant
 - 4 – Somewhat unimportant
 - 5 – Not at all important
- 13 How likely are you to seek additional information about the situation?
- 1 – Very likely
 - 2 – Likely
 - 3 – Somewhat likely
 - 4 – Undecided
 - 5 – Somewhat unlikely
 - 6 – Unlikely
 - 7 – Very unlikely
- 14 Why are you likely or unlikely to seek additional information?
- 15 What method would you use to seek additional information?
- 1 – Blog
 - 2 – Family member/parents
 - 3 – Friend
 - 4 – Mobile device application
 - 5 – Print newspaper
 - 6 – Newspaper Web site
 - 7 – Online news portal (such as Google News or Yahoo! News)
 - 8 – Radio
 - 9 – Social networking Web site (such as Facebook or MySpace)
 - 10 – Television
 - 11 – Television station Web site
 - 12 – Twitter

- 13 – Text message
- 14 – Other
- 15 – I would not seek additional information about the situation
- 15Text Method, Other
- 16 Why would you respond that way?

Think about the following scenario while answering the questions on this page.

Scenario 3: You are in your dorm room when your roommate tells you that the swine flu has hit another residence hall on campus making half the students sick.

- 17 How important is it to you to learn more about what is happening?
 - 1 – Extremely important
 - 2 – Somewhat important
 - 3 – Neither important or unimportant
 - 4 – Somewhat unimportant
 - 5 – Not at all important
- 18 How likely are you to seek additional information about the situation?
 - 1 – Very likely
 - 2 – Likely
 - 3 – Somewhat likely
 - 4 – Undecided
 - 5 – Somewhat unlikely
 - 6 – Unlikely
 - 7 – Very unlikely
- 19 Why are you likely or unlikely to seek additional information?
- 20 What method would you use to seek additional information?
 - 1 – Blog
 - 2 – Family member/parents
 - 3 – Friend
 - 4 – Mobile device application
 - 5 – Print newspaper
 - 6 – Newspaper Web site
 - 7 – Online news portal (such as Google News or Yahoo! News)
 - 8 – Radio
 - 9 – Social networking Web site (such as Facebook or MySpace)
 - 10 – Television
 - 11 – Television station Web site
 - 12 – Twitter
 - 13 – Text message
 - 14 – Other
 - 15 – I would not seek additional information about the situation
- 20Text Method, Other
- 21 Why would you respond that way?

The following questions ask about your experience using the Internet to access news content online. For the purpose of the questions on this page, consider “news content” as information about recent and important events, not including entertainment or celebrity news.

- 22 In a typical week, how often do you access news content via the Internet?
- 1 – Several times a day
 - 2 – Once a day
 - 3 – 5+ times a week
 - 4 – 3-4 times a week
 - 5 – 1-2 times a week
 - 6 – Less than once a week
 - 7 – Never

23 If never, why not?

In a typical week, how many days do you use each of the following devices to access online news content?

24 Desktop computer

25 Laptop computer

26 Cell phone with access to the Internet

27 Other mobile device with access to the Internet (such as an iPod Touch)

In a typical week, how likely are you to access the following source of news content online?

28 National newspaper site

1 – Very unlikely

2 – Unlikely

3 – Somewhat unlikely

4 – Undecided

5 – Somewhat likely

6 – Likely

7 – Very likely

29 Regional/local newspaper site

1 – Very unlikely

2 – Unlikely

3 – Somewhat unlikely

4 – Undecided

5 – Somewhat likely

6 – Likely

7 – Very likely

30 National television news site (such as CNN or Fox News)

1 – Very unlikely

2 – Unlikely

3 – Somewhat unlikely

4 – Undecided

5 – Somewhat likely

6 – Likely

7 – Very likely

31 News portal (such as Google News or Yahoo! News)

1 – Very unlikely

2 – Unlikely

3 – Somewhat unlikely

4 – Undecided

- 5 – Somewhat likely
- 6 – Likely
- 7 – Very likely
- 32 Local television news site
 - 1 – Very unlikely
 - 2 – Unlikely
 - 3 – Somewhat unlikely
 - 4 – Undecided
 - 5 – Somewhat likely
 - 6 – Likely
 - 7 – Very likely
- 33 Blog
 - 1 – Very unlikely
 - 2 – Unlikely
 - 3 – Somewhat unlikely
 - 4 – Undecided
 - 5 – Somewhat likely
 - 6 – Likely
 - 7 – Very likely
- 34 Mobile device application (such as an application for the iPhone or iPod)
 - 1 – Very unlikely
 - 2 – Unlikely
 - 3 – Somewhat unlikely
 - 4 – Undecided
 - 5 – Somewhat likely
 - 6 – Likely
 - 7 – Very likely
- 35 Social networking site (such as Facebook, MySpace or Twitter)
 - 1 – Very unlikely
 - 2 – Unlikely
 - 3 – Somewhat unlikely
 - 4 – Undecided
 - 5 – Somewhat likely
 - 6 – Likely
 - 7 – Very likely
- 36 Other
 - 1 – Very unlikely
 - 2 – Unlikely
 - 3 – Somewhat unlikely
 - 4 – Undecided
 - 5 – Somewhat likely
 - 6 – Likely
 - 7 – Very likely
- 36Text News source, Other
- 37 How comfortable do you consider yourself accessing news content online?
 - 1 – Very comfortable

- 2 – Somewhat comfortable
- 3 – Neutral
- 4 – Somewhat uncomfortable
- 5 – Very uncomfortable
- 38 What do you like about accessing news online?
- 39 What do you dislike about accessing news content online?
- 40 How would you describe your feelings toward news content online?
 - 1 – Positive/strongly like
 - 2 – Like
 - 3 – Neutral
 - 4 – Dislike
 - 5 – Negative/strongly dislike

The following question asks about the sources (both online and off) where you get your news content. For the purpose of the following question, consider “news content” as information about recent and important events, not including entertainment or celebrity news.

- How many days in a typical week do you get news from the following sources?
- 41 College newspaper
 - 42 Local/regional newspaper
 - 43 National newspaper
 - 44 Radio
 - 45 Television
 - 46 Family/friends
 - 47 Online source
 - 48 Other
 - 48Text Source, other text

The following questions ask about the type of Internet access you have at your home and outside your home. For the purpose of questions 16 through 18, consider “home” the place you live while attending UF.

- 49 Which of the following types of Internet connections do you have at your home?
 - 1 – Dial-up
 - 2 – High-speed
 - 3 – High-speed, wireless/Wi-Fi
 - 4 – Other
 - 5 – None – I do not have an Internet connection at my home
- 49Text Connection, Other text
- 50 In a typical week, where do you use high-speed Internet outside your home?
 - 1 – School/campus
 - 2 – Work
 - 3 – Friend/family home
 - 4 – Public library
 - 5 – Internet café
 - 6 – Other
 - 7 – N/A – I do not use high-speed Internet on a weekly basis outside my home.

- 50Text High speed, Other text
- 51 In a typical week, how many days do you use high-speed Internet outside your home?
- 52 In a typical week, where do you use wireless Internet outside your home?
- 1 – School/campus
 - 2 – Work
 - 3 – Friend/family home
 - 4 – Public library
 - 5 – Internet café
 - 6 – Other
 - 7 – N/A – I do not use wireless Internet on a weekly basis outside my home.

- 52Text Where, other text
- 53 In a typical week, how many days do you access Wi-Fi/wireless Internet outside your home?

The following questions ask about the type of devices you own or regularly use. For the purpose of the questions on this page, think about the devices you use in a typical week – they might include your personal equipment or something you use at work/school/friend’s home/etc.

- 54 Which of the following do you own or regularly have access to use?
Desktop computer
- 55 Which of the following do you own or regularly have access to use?
Laptop computer
- 56 Which of the following do you own or regularly have access to use?
Cell phone with access to the Web
- 57 Which of the following do you own or regularly have access to use?
Mobile device (other than a cell phone) with access to the Web (such as an iPod Touch or Kindle)
- 57Text Mobile, text
- 58 Which of the following do you own or regularly have access to use?
Other
- 59 Other, text
- 60 Which of the following do you own or regularly have access to use?
None

How long have you used the following devices on a weekly basis?

- 61 Desktop computer
- 1 – Less than a year
 - 2 – 1-3 years
 - 3 – 3-7 years
 - 4 – More than 7 years
- 62 Laptop computer
- 1 – Less than a year
 - 2 – 1-3 years
 - 3 – 3-7 years
 - 4 – More than 7 years
- 63 Cell phone
- 1 – Less than a year

- 2 – 1-3 years
 - 3 – 3-7 years
 - 4 – More than 7 years
- 64 Other mobile device
- 1 – Less than a year
 - 2 – 1-3 years
 - 3 – 3-7 years
 - 4 – More than 7 years

64Text Mobile, other text

In a typical week, how many days do you use each of the following devices to access the Internet?

- 65 Desktop computer
 - 66 Laptop computer
 - 67 Cell phone
 - 68 Other mobile device
- 68Text Mobile, Other text

APPENDIX C
FREQUENCY TABLES

Gender

		Frequency	Percent
Valid	1	79	21.5
	2	289	78.5
	Total	368	100.0

Age - outliers

		Frequency	Percent
Valid	17	1	12.5
	23	3	37.5
	24	2	25.0
	30	1	12.5
	31	1	12.5
	Total	8	100.0

Ages - all

		Frequency	Percent
Valid	17	1	.3
	18	39	10.6
	19	183	49.7
	20	109	29.6
	21	22	6.0
	22	7	1.9
	23	3	.8
	24	2	.5
	30	1	.3
	31	1	.3
	Total	368	100.0

Academic status

		Frequency	Percent
Valid	1	46	12.5
	2	218	59.2
	3	103	28.0
	4	1	.3
	Total	368	100.0

Major

		Frequency	Percent
Valid	1	122	33.2
	2	116	31.5
	3	117	31.8
	4	13	3.5
	Total	368	100.0

Age - removing outliers

		Frequency	Percent
Valid	18	39	10.8
	19	183	50.8
	20	109	30.3
	21	22	6.1
	22	7	1.9
	Total	360	100.0

V7

		Frequency	Percent
Valid		1	.3
	1	141	38.3
	2	195	53.0
	3	22	6.0
	4	9	2.4
	Total	368	100.0

V8

	Frequency	Percent
Valid	2	.5
1	119	32.3
2	131	35.6
3	81	22.0
4	12	3.3
5	15	4.1
6	8	2.2
Total	368	100.0

V13

	Frequency	Percent
Valid	144	39.1
1	95	25.8
2	71	19.3
3	21	5.7
4	25	6.8
5	11	3.0
6	1	.3
Total	368	100.0

V10

	Frequency	Percent
Valid	5	1.4
1	6	1.6
2	64	17.4
3	10	2.7
4	39	10.6
5	82	22.3
6	79	21.5
7	2	.5
8	20	5.4
9	16	4.3
10	4	1.1
11	3	.8
12	18	4.9
13	20	5.4
14	368	100.0
Total		

V15

	Frequency	Percent
Valid	1	.3
1	4	1.1
2	53	14.4
3	5	1.4
4	97	26.4
5	68	18.5
6	71	19.3
7	8	2.2
8	7	1.9
9	1	.3
10	9	2.4
11	26	7.1
12	18	4.9
13	368	100.0
Total		

V12

	Frequency	Percent
Valid	163	44.3
1	160	43.5
2	33	9.0
3	11	3.0
4	1	.3
5	368	100.0
Total		

V17

	Frequency	Percent
Valid	179	48.6
1	117	31.8
2	37	10.1
3	21	5.7
4	14	3.8
5	368	100.0
Total		

V18

		Frequency	Percent
Valid	1	156	42.4
	2	77	20.9
	3	57	15.5
	4	19	5.2
	5	24	6.5
	6	21	5.7
	7	14	3.8
	Total	368	100.0

V22

		Frequency	Percent
Valid	1	118	32.1
	2	67	18.2
	3	30	8.2
	4	60	16.3
	5	64	17.4
	6	24	6.5
	7	5	1.4
	Total	368	100.0

V20

		Frequency	Percent
Valid		3	.8
	1	1	.3
	2	4	1.1
	3	81	22.0
	4	4	1.1
	5	63	17.1
	6	46	12.5
	7	48	13.0
	9	20	5.4
	10	10	2.7
	13	10	2.7
	14	41	11.1
	15	37	10.1
	Total	368	100.0

V24 - Desktop computer

		Frequency	Percent
Valid		6	1.7
	0	253	70.1
	1	48	13.3
	2	25	6.9
	3	11	3.0
	4	7	1.9
	5	5	1.4
	6	1	.3
	7	11	3.0
	Total	361	100.0

n=361 M=0.739612

V24 - Desktop computer (invalid)

		Frequency	Percent
Invalid	10	1	100.0
	Total	1	100.0

V25 - Laptop computer

	Frequency	Percent
Valid	5	1.5
0	16	4.7
1	26	7.6
2	32	9.4
3	23	6.7
4	20	5.9
5	43	12.6
6	11	3.2
7	170	49.9
Total	341	101.5

n=341 M=5.014663

V26 - Cell phone

	Frequency	Percent
Valid	6	1.7
0	207	58.5
1	22	6.2
2	19	5.4
3	15	4.2
4	5	1.4
5	24	6.8
6	2	.6
7	60	16.9
Total	354	100.0

n=354 M=1.912429

V25 - Laptop computer (invalid)

	Frequency	Percent
Valid	1	4.5
8	8	36.4
10	2	9.1
14	1	4.5
15	3	13.6
20	1	4.5
21	1	4.5
25	1	4.5
30	2	9.1
35	1	4.5
50	1	4.5
100	1	4.5
Total	22	100.0

V26 - Cell phone (invalid)

	Frequency	Percent
Valid	1	12.5
8	3	37.5
10	2	25.0
100	1	12.5
20	1	12.5
25	1	12.5
Total	8	100.0

V27 - Other mobile device

	Frequency	Percent
Valid	5	1.4
0	317	87.6
1	13	3.6
2	3	.8
3	8	2.2
4	7	1.9
5	4	1.1
6	2	.6
7	8	2.2
Total	362	100.0

n=362 M=0.439227

V27 - Other mobile device (invalid)

	Frequency	Percent
Valid 50	1	100.0
Total	1	100.0

V28

	Frequency	Percent
Valid	5	1.4
1	31	8.4
2	49	13.3
3	55	14.9
4	18	4.9
5	85	23.1
6	53	14.4
7	72	19.6
Total	368	100.0

V29

	Frequency	Percent
Valid	11	3.0
1	34	9.2
2	38	10.3
3	53	14.4
4	17	4.6
5	111	30.2
6	65	17.7
7	39	10.6
Total	368	100.0

V30

	Frequency	Percent
Valid	9	2.4
1	18	4.9
2	29	7.9
3	55	14.9
4	25	6.8
5	103	28.0
6	71	19.3
7	58	15.8
Total	368	100.0

V31

	Frequency	Percent
Valid	8	2.2
1	9	2.4
2	16	4.3
3	15	4.1
4	5	1.4
5	57	15.5
6	95	25.8
7	163	44.3
Total	368	100.0

V32

	Frequency	Percent
Valid	7	1.9
1	65	17.7
2	79	21.5
3	68	18.5
4	27	7.3
5	76	20.7
6	29	7.9
7	17	4.6
Total	368	100.0

V33

	Frequency	Percent
Valid	10	2.7
1	86	23.4
2	58	15.8
3	61	16.6
4	25	6.8
5	61	16.6
6	41	11.1
7	26	7.1
Total	368	100.0

V36

	Frequency	Percent
Valid	326	88.6
1	9	2.4
2	1	.3
3	4	1.1
4	13	3.5
5	6	1.6
6	2	.5
7	7	1.9
Total	368	100.0

V34

	Frequency	Percent
Valid	8	2.2
1	126	34.2
2	54	14.7
3	24	6.5
4	29	7.9
5	37	10.1
6	39	10.6
7	51	13.9
Total	368	100.0

V37

	Frequency	Percent
Valid	9	2.4
1	243	66.0
2	59	16.0
3	16	4.3
4	9	2.4
5	32	8.7
Total	368	100.0

V35

	Frequency	Percent
Valid	11	3.0
1	20	5.4
2	12	3.3
3	13	3.5
4	14	3.8
5	48	13.0
6	71	19.3
7	179	48.6
Total	368	100.0

V40

	Frequency	Percent
Valid 1	146	39.7
2	162	44.0
3	54	14.7
4	6	1.6
Total	368	100.0

V41 - Days College newspaper

		Frequency	Percent
Valid	0	23	6.3
	1	26	7.1
	2	54	14.7
	3	44	12.0
	4	55	14.9
	5	147	39.9
	Total	349	100.0

n=349 M=3.498567

V41 - Days College newspaper

		Frequency	Percent
Valid	6	2	10.0
	7	17	90.0
	Total	19	100.0

V42 - Days Local/regional newspaper

		Frequency	Percent
Valid	0	250	67.9
	1	42	11.4
	2	30	8.2
	3	21	5.7
	4	5	1.4
	5	12	3.3
	6	3	.8
	7	5	1.4
	Total	368	100.0

V43 - Days National newspaper

		Frequency	Percent
Valid	0	234	63.6
	1	28	7.6
	2	26	7.1
	3	18	4.9
	4	17	4.6
	5	21	5.7
	6	3	.8
	7	21	5.7
	Total	368	100.0

V44 - Days Radio

		Frequency	Percent
Valid	0	231	62.8
	1	27	7.3
	2	35	9.5
	3	22	6.0
	4	13	3.5
	5	20	5.4
	6	3	.8
	7	17	4.6
	Total	368	100.0

V45 - Days Television

		Frequency	Percent
Valid	0	87	23.6
	1	32	8.7
	2	48	13.0
	3	61	16.6
	4	44	12.0
	5	32	8.7
	6	11	3.0
	7	52	14.1
	Total	368	100.0

n=368 M=2.953804

V46 - Days Family/friends

		Frequency	Percent
Valid	0	47	12.8
	1	18	4.9
	10	1	.3
	2	33	9.0
	3	47	12.8
	4	41	11.1
	5	51	13.9
	6	13	3.5
	7	117	31.8
	Total	368	100.0

n=368 M=4.214674

V47 - Days Online source

		Frequency	Percent
Valid	0	43	11.7
	1	17	4.6
	10	1	.3
	2	34	9.2
	20	1	.3
	3	27	7.3
	4	35	9.5
	5	47	12.8
	6	20	5.4
	7	142	38.6
	8	1	.3
	Total	368	100.0

n=368 M=4.600543

V48 - Days Other

		Frequency	Percent
Valid	0	366	99.5
	2	1	.3
	4	1	.3
	Total	368	100.0

n=368 M=0.016304

V49

		Frequency	Percent
Valid		2	.5
	1	3	.8
	2	38	10.3
	3	321	87.2
	4	3	.8
	5	1	.3
	Total	368	100.0

V50 - Where high speed used outside home

		Frequency	Percent
Valid		1	.3
	1	265	72.0
	2	8	2.2
	3	28	7.6
	4	16	4.3
	5	3	.8
	6	9	2.4
	7	38	10.3
	Total	368	100.0

V51 - High speed outside home

	Frequency	Percent
Valid	2	.7
2	50	18.7
3	32	11.9
4	49	18.3
5	50	18.7
6	35	13.1
7	52	19.4
Total	268	100.0

n=268 M=4.537313

V51 - High speed outside home (invalid)

	Frequency	Percent
Valid 8	16	16.3
9	82	83.7
Total	98	100.0

V52 - Where wireless used outside home

	Frequency	Percent
Valid	3	.8
1	297	80.7
2	3	.8
3	20	5.4
4	12	3.3
5	6	1.6
6	8	2.2
7	19	5.2
Total	368	100.0

V53 - Wireless outside home

	Frequency	Percent
Valid	3	10.3
1	26	89.7
Total	29	100.0

V53 - Wireless outside home (invalid)

	Frequency	Percent
Valid 8	26	7.7
9	51	15.0
10	47	13.9
11	45	13.3
12	54	15.9
13	21	6.2
14	95	28.0
Total	339	100.0

V54 - Own desktop

	Frequency	Percent
Valid	275	74.7
1	93	25.3
Total	368	100.0

V55 - Own laptop

	Frequency	Percent
Valid	12	3.3
1	356	96.7
Total	368	100.0

V56 - Own cell phone with web

	Frequency	Percent
Valid	191	51.9
1	177	48.1
Total	368	100.0

V57 - Own other mobile device

	Frequency	Percent
Valid	319	86.7
1	49	13.3
Total	368	100.0

V58 - Own other

	Frequency	Percent
Valid	364	98.9
1	4	1.1
Total	368	100.0

V59

	Frequency	Percent
Valid	364	98.9
Cell phone with no access to web	1	.3
cell phone without web access?	1	.3
cell-phone without internet	1	.3
Kindle e-reader	1	.3
Total	368	100.0

V60 - Own none

	Frequency	Percent
Valid	367	99.7
1	1	.3
Total	368	100.0

V61 - Length of use Desktop

	Frequency	Percent
Valid	102	27.7
1	36	9.8
2	22	6.0
3	59	16.0
4	149	40.5
Total	368	100.0

V62 - Length of use Laptop

	Frequency	Percent
Valid	5	1.4
1	16	4.3
2	186	50.5
3	123	33.4
4	38	10.3
Total	368	100.0

V63 - Length of use Cell phone

	Frequency	Percent
Valid	48	13.0
1	36	9.8
2	63	17.1
3	159	43.2
4	62	16.8
Total	368	100.0

V64 - Length of use Mobile device

	Frequency	Percent
Valid	315	85.6
1	33	9.0
2	11	3.0
3	5	1.4
4	4	1.1
Total	368	100.0

V65 - Days to access web Desktop

	Frequency	Percent
Valid	2	.5
0	245	67.1
1	32	8.8
2	23	6.3
3	22	6.0
4	12	3.3
5	12	3.3
6	1	.3
7	18	4.9
Total	365	100.0

n=365 M=1.052055

V65 - Days to access web Desktop (invalid)

	Frequency	Percent
Valid 10	1	100.0
Total	1	100.0

V66 - Days to access web Laptop

	Frequency	Percent
Valid	1	.3
0	10	2.8
1	3	.8
2	4	1.1
3	1	.3
4	5	1.4
5	11	3.1
6	7	1.9
7	318	88.6
Total	359	100.0

n=359 M=6.56546

V66 - Days to access web Laptop (invalid)

	Frequency	Percent
Valid 9	1	12.5
10	3	37.5
20	1	12.5
30	1	12.5
50	1	12.5
100	1	12.5
Total	8	100.0

V67 - Days to access web Cell phone

	Frequency	Percent
Valid	1	.3
0	178	49.0
1	9	2.5
2	13	3.6
3	5	1.4
4	6	1.7
5	11	3.0
6	5	1.4
7	136	37.5
Total	363	100.0

n=363 M=3.060606

V67 - Days to access web Cell phone (invalid)

	Frequency	Percent
Valid 10	1	25.0
20	1	25.0
25	1	25.0
50	1	25.0
Total	4	100.0

V68 - Days to access web Mobile device

	Frequency	Percent
Valid	1	.3
0	337	91.6
1	1	.3
2	7	1.9
3	5	1.4
4	5	1.4
5	3	.8
6	1	.3
7	8	2.2
Total	367	100.0

n=367 M=0.346049

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BIOGRAPHICAL SKETCH

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