

The adoption of smartphones among American journalists: A national survey

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Abstract

This national survey of working journalists examined the extent to which they have adopted smartphones in their work and how that adoption has changed their routines and practices. Results show that most journalists have smartphones and feel they have improved the quality of their work. Journalists with smartphones are freed from their desks and gather more multimedia information than those without smartphones.

Keywords

Smartphones, multimedia, diffusion, technology, journalism, routines

Journalism is in a state of flux as its practitioners struggle to adapt historically entrenched routines and practices to a changing business and technological environment. Recent technological advances in particular have expanded journalism's possibilities. For instance, in 2003 a "backpack journalist" might have carried about \$15,000 in computers, cameras and phones. But only a few years later, all of this capability was available in a single, palm-sized device costing less than \$500. Since these smartphones became widely available in 2007, journalism trade observers and commentators have noted their potential as a journalistic tool.¹

Smartphones, of course, were not invented for journalism, and there is no doubt about their popularity among Americans in general. In 2012, nearly half of all American mobile phone users owned smartphones.² Journalists, and in particular newspapers, have been criticized for being behind the curve of technological adoption relating to the Internet and digital media,³ even though historically, journalists were among the earliest and swiftest adopters of such advances as the steam-driven press and the telegraph.⁴ So the question becomes, how are American journalists adopting and using these tools that so greatly expand their ability to collect and produce news? Learning about the adoption and use of smartphones has implications for production practices; that is, what news journalists gather and, by extension, what news the public reads. Furthermore, journalism education may need to include more complete training on these devices — not the nuts and bolts of their operation, but the "always on" availability that may change when and where journalists work. Journalists' use of smartphones, then, represents an important indicator of larger trends in the industry and among consumers toward digital journalism.

This study focuses on how journalists are using smartphones in their daily work and how adoption of this new technology has changed their routines and practices. It will also determine whether adoption of smartphones is being driven by individual journalists or the organizations they work for and attempt to understand what factors influence a journalist's decision to adopt. To answer these questions, this study conducts a national survey of journalists working at daily newspapers in the United States.

Diffusion and technology

Everett Rogers⁵ uses the concept of diffusion to explain how innovations spread through a population and are adopted. Rogers identifies five phases to the adoption process: innovators, early adopters, early majority, late majority, and laggards. Earlier adopters are generally better educated than others in the system and have higher socioeconomic status. This study considers smartphones as the innovation and conducts a survey to determine where they are in the diffusion process among journalists.

The change agent in diffusion theory is the person responsible for advocating adoption. The change agent is external to the system, having more authority or knowledge regarding the innovation. In the case of the smartphone, newsroom supervisors may be driving adoption among reporters, or the adoption process may proceed more organically among them. This study asks whether individual journalists or the companies they work for are driving adoption of smartphones.

Five characteristics of the innovation itself are considered to be most important in explaining its adoption. Relative advantage describes how well an innovation improves upon

what it replaces. Compatibility describes how well an innovation fits the existing values, expectations and needs of potential adopters. Complexity is the degree of difficulty in understanding or using an innovation. Trialability is how well adopters may experiment with an innovation on a limited basis. Finally, observability describes how visible the results of an innovation are, whether the adopter can see his peers using and benefiting from the innovation.

Two final concepts from diffusion theory also are relevant to this study. First, Rogers defines re-invention as the degree to which an innovation is changed or adapted to suit the needs of the adopter.⁶ Smartphones were designed as consumer (or perhaps business) communications devices, but the potential exists for them to be re-invented as journalistic tools. Second, Rogers notes that once an innovation has been adopted, it may or may not become routinized — that is, part of the individual's or organization's standard practices. Innovations whose adoption is mandated by management are less likely to be routinized, whereas if the adoption decision is made collectively by adopters, routinization is more likely.

Rogers himself acknowledges some limitations of the diffusion paradigm, including a pro-innovation bias and reliance on cross-sectional data which cannot establish causality. The cross-sectional nature of this study is appropriate for determining where smartphones are in the diffusion process and how the devices are now being used, but it can only hint at factors possibly fostering adoption.

Information systems research

Researchers in information systems have adapted many of the concepts in Rogers' work to study the adoption of new technologies, particularly in businesses or other organizations. Their approach is not sociological but is generally intended to assist managers in their role as change agents. Much of this work serves to determine which factors may predict whether employees or customers will adopt a new technology, even while acknowledging that prediction is inherently inexact and nearly impossible.⁷

Venkatesh et al.⁸ conducted a review of the Technology Acceptance Model literature, determining that two factors were central in explaining adoption — performance expectation and effort expectation. Performance expectation is similar to Rogers' relative advantage, considering whether the user expects an innovation to increase efficiency and productivity. This factor was most important for males, especially younger males. Effort expectation focuses on ease of use and the amount of effort one must expend in order to adopt — similar to Rogers' notions of complexity and compatibility. This factor was most important for females, especially older females.

Companies that adopt a technology or require their employees to adopt are successful only when they are sufficiently prepared for it.⁹ One factor in this preparation is the company's willingness to fund the technology, which has been found to be a significant factor in influencing individual adoption.¹⁰ Another important factor in explaining individual adoption in the workplace is the technology's relevance to the job at hand.¹¹ Finally, the role of managers or supervisors in an individual's decision to adopt has been shown to vary depending on the employee.¹² Managerial directives have been found to be effective in motivating even reluctant employees to adopt a new technology,¹³ which may or may not then become routinized.

Technology adoption in newsrooms

Newsrooms have an uneven history of technological adoption, generally using new technologies to automate tasks they already did. Computers became commonplace in newspaper newsrooms in the 1970s, mainly for word processing.¹⁴ In the 1980s, the copy desk began using computers as their main work tool with the advent of pagination systems that allowed them to cut and paste electronically.¹⁵ As personal computers became suitable for a wider range of applications, there was some pressure for journalists to use computers to perform data analysis, but the practice never really caught on.¹⁶ By 2000, almost all journalists were using computers in their daily work.¹⁷

Journalists were eager to adopt pagination systems and the Internet, likely because they made easier some of the work they were already doing.¹⁸ But journalists are not always ready adopters. Maier found that most resisted incorporating complicated data analysis skills into their journalistic skill set. And a study of newspaper journalists in Sydney, Australia, found that, despite having access to laptops to file stories remotely, most reporters were content calling a “copy taker” and dictating a story to them over the phone.¹⁹

Smartphones, unlike earlier innovations, do not require specialized training. They are designed and sold as consumer devices and theoretically can be used by anyone. While Pew studies and other academic work²⁰ have focused on how audiences use smartphones, there has been little study of how journalists use them in creating news content.

Another way in which smartphones are unlike other newsroom innovations is that they are personal devices that may be adopted with or without any directive or cooperation from employers. In fact, one survey of smartphone users found that no respondents reported using their smartphone exclusively for business purposes — if they used a smartphone for business use, it was also their personal phone.²¹ It is important, then, to know who is driving this innovation.

Two traits of smartphones account for their applicability to professional journalism. First, they may access the Internet via the cellular data network, allowing the user to run Web applications anywhere there is a cellular signal. Second, the devices carry advanced photo, video and audio recording technology and the ability to edit those media. There has been a push among both journalism educators and professional leaders toward multimedia reporting, and the case of the smartphone is vital in understanding how much multimedia is valued, both among news organizations and among individual journalists.

A companion question is how this tool has changed journalists’ standard practices. Increasingly, a journalist who is asked to cover a political rally might take photos, shoot video and write a story. This multimedia production requires cross-training for existing journalists who have specialized in one medium and a new set of hiring criteria for incoming journalists. Many quantitative studies, including those mentioned above, show widespread adoption of innovations. Qualitative work, however, suggests most journalists fail to see the advantages of some innovations and find them incompatible with their current job structures and cultures.²² They resent being asked to do more work simply because technology enables them to do it.²³ As a result, recent studies found that most newsroom work was still done by specialists²⁴ and most job ads favored specialists.²⁵ Where technologically capable journalists can be found, however, they advance quickly in newsroom hierarchies.²⁶

Research questions

The following questions were developed to determine how journalists have adopted smartphones and how they have reinvented and routinized the innovation at hand.

RQ1: To what extent have American journalists adopted smartphones?

RQ2: Is adoption of smartphones as journalistic tools driven by organizations or individuals?

RQ3: How do journalists use smartphones in their work?

RQ3a: How has their work changed as a result of smartphone adoption?

Method

To answer the three research questions, a national survey of journalists at daily newspapers was conducted. Newspaper journalists were chosen because of their primacy in the United States news system and because newspaper jobs in particular are still done largely by specialists²⁷ rather than incorporating several media. Because this study seeks to evaluate the technology itself (rather than job requirements) as an enabling factor, it is expected that any multimedia shift would be most visible among newspaper journalists (as opposed to, for example, TV journalists, who have always worked with both words and images). This study focused on reporters and editors working at daily newspapers in the U.S. with circulations of more than 10,000 as these publications are most likely to have full-time staffs and the technology infrastructure capable of incorporating smartphones.

Journalists were selected from the database of a media contact service that has maintained media lists in the U.S. for more than 75 years. The database contained contact information for nearly 20,000 reporters and editors working at daily newspapers with circulations greater than 10,000. This group was split into small newspapers (with circulations between 10,000 and 49,999), mid-sized papers (50,000 to 149,999) and large papers (150,000 and larger). Random samples were taken within these strata proportional to the number of journalists in each. In the final sample of 5,000 journalists, 1,859 worked at small papers, 1,354 worked at mid-sized papers, and 1,787 worked at large papers.

A survey was prepared and delivered via Qualtrics online survey software. No incentive was offered. The survey was open from Feb. 21, 2012, to March 3, 2012, and generally took about 10 minutes to complete. All journalists were asked to provide demographic information about themselves, including age, gender, education, income, and the number of years they had worked as a professional journalist.

The survey asked whether the journalist owns a smartphone and whether they or their employer paid for the device. Journalists were asked whether they use smartphones in their work and how they are used. Finally, they were asked why they use smartphones in their work and what are the advantages and disadvantages of doing so.

Data was analyzed using SPSS 19. Open-ended questions were coded by the author using categories created to match themes in the responses.

Results

The survey returned 362 completed questionnaires that were used in data analysis. Another 118 partially completed questionnaires were not used.²⁸ Respondents came from all age groups, with the highest concentrations in the age groups 50-54 (17%), 55-59 (15%) and 45-49 (12%). Another major grouping was around the age groups 35-39 (11%), 30-34 (11%) and 25-29 (10%). The sample included more males (56%) than females (44%) and respondents were highly educated, with 95% having at least a 4-year college degree. Respondents were mostly white (87%), and 77% listed combined annual household incomes of greater than \$50,000. Despite the low participation rate, these demographics show the sample provides a good match for American journalists in general.²⁹ Respondents were distributed evenly across small (35%), medium (33%) and large (32%) newspapers and had a median of 22 years of experience in journalism. Reporters comprised 67% of the sample, and the other 33% were editors.

Extent of adoption

The first research question (RQ1) asked to what extent American newspaper journalists have adopted smartphones. About three quarters of the journalists surveyed (76%) reported owning a smartphone. Based on respondents' perception of when they got their smartphone compared with their colleagues, smartphone owners were distributed in a curve across the five adoption phase categories, with most (23%) placing themselves in the majority category (insert Table 1 about here). Adoption of the smartphone is not complete, but it is certainly past the majority phase. There were no statistically significant differences among demographic groups, including for age, sex, race, income and years as a professional journalist.

Who is driving the adoption

The second research question (RQ2) asked whether individuals or organizations are driving adoption of smartphones. While three-quarters of journalists own smartphones, almost half (48%) of the respondents reported that their employer had required or strongly encouraged them to have a smartphone. About two-thirds of journalists who have smartphones responded that they paid for their smartphone (69%), pay for their voice plan (63%) and pay for their data plan (64%). More than three-quarters (78%) reported that they used it for both business and personal use, with only 11% saying they used their smartphone for business purposes only.

But these frequencies do not tell the whole story.³⁰ The employer requirement is a highly significant predictor of smartphone ownership. Those whose employers had required or encouraged smartphone use were much more likely to have a smartphone (91% to 62%; $\phi = .34$, $p < .001$). Additionally, an employer directive was a highly significant predictor of using the smartphone for business purposes (18% to 3%; Cramer's $V = .31$, $p < .001$).

Interestingly, considering newspaper size (measured by circulation) as an independent variable does not uncover associations with any of the outcomes described above. Newspapers of all sizes are about equally likely to require smartphone use, and about equally likely to pay for them. Journalists at papers of all sizes were about equally likely to have smartphones and use them in their work.

How smartphones are changing journalism

The fourth research question (RQ3) asked how journalists use smartphones and (RQ4a) how their work has changed as a result. About 78% of respondents disagreed or strongly disagreed with the statement that their routines have changed little in the last five years, indicating that most journalists perceive changes in their work. Most journalists (72%) agreed or strongly agreed that using a smartphone has improved their work, and 41% of them reported using it in their work seven days a week.

About 75% of all journalists reported they are required to report using multiple media, and smartphones clearly contribute to working across more media. As shown in Table 3 (insert Table 3 about here), most journalists did not fall into the frequent multimedia production categories (though by contrast, 98% of them were frequent producers of text). But smartphone owners are significantly more likely to be frequent audio producers (29% vs 11%, $\phi = .17$, $p < .001$) and frequent video producers (23% vs 9%, $\phi = .15$, $p < .01$). The smartphone is also changing journalists' field work. While away from the office, smartphone owners were significantly more likely than non-owners to be frequent producers of multimedia, including audio, video and photo.

While journalists are using their smartphones to produce mobile, multimedia reports, they listed other applications as the main reason they use their smartphones. After coding the open-ended responses, the most frequent use was email, comprising 38% of responses, followed by social media (21%), internet research (13%), texting (9%) and photos (6%). Taking video, recording audio and getting directions using the phone's GPS feature each accounted for 2% of responses, and other responses included finding sources, monitoring their paper's website, and taking notes.

Advantages of smartphones

In the survey this study conducted, journalists were asked in an open-ended question, "What is the greatest advantage to using a smartphone?" As one reporter from a mid-sized newspaper responded, "These days, that's like asking a reporter in 1970 why he uses a typewriter." As shown in Table 4 (insert Table 4 about here), Journalists' responses clearly grouped around three main ideas: working from anywhere (33%), keeping in touch (28%) and being able to provide immediate news updates (21%). Convenience and ease of use accounted for 14% of responses, and responses focusing on multimedia uses accounted for 5%. Many responses in the working from anywhere category actually used the word anywhere and mentioned several job tasks, but some offered more nuance. A food editor with 22 years of experience said, "Allows me to be out of the office more to connect with sources personally." An education reporter at a mid-sized newspaper said, "It acts as a mini-mobile desk in my pocket, even at the chaos of a fire scene or stuck at a board meeting." Most responses in the keeping in touch category focused on email, particularly in communicating with "the office." But some responses focused on forming connections with audiences. An online sports editor with 13 years of experience said, "It helps me maintain a steady dialogue with my readers through services like Twitter and Facebook." A central theme in the immediacy category was serving readers.³¹ A staff writer at an 11,000-circulation newspaper said, "I have more followers online because I post to Twitter and Facebook from my smartphone at events. It gets

information out quickly.” Another respondent, a metro reporter with 15 years of experience, said “It provides an immediacy to news coverage and also offers an outlet for news that might not rate a news story, but deserves a mention.” A particularly insightful response from the convenience category was shared by the Washington correspondent at a New Jersey newspaper: “Allowed me to stop carrying several other devices, including a voice recorder and a point-and-shoot camera.”

Disadvantages of smartphones

Two dominant themes emerged in journalists’ responses to the open-ended survey question about the smartphone’s greatest disadvantage. Respondents said being always on call or never free from work (35% of responses) was one main disadvantage, and the other was the limitations of the device itself (30%), including battery life and its small screen and keyboard. In fact, constant contact was frequently listed as both an advantage and a disadvantage. One reporter with 35 years of experience made a subtle distinction, listing “access to office” as the main advantage and “access from office” as the main disadvantage. The following comment from a health reporter at a small daily gets at both the “always on” problem and another, less frequently cited issue: “You’re always connected, which comes with the expectation to be continually posting updates in addition to taking notes for stories.” About 9% of journalists with smartphones felt that it was a burden because of the expectations associated with it, such as taking on new job tasks or new expenses. A city hall reporter with nine years of experience shared this anecdote: “A few weeks ago, while driving out of town to a camping trip, an aide to the mayor texted me that he was releasing an important statement. I spent the next three-plus hours in a gas-station parking lot in (a small town) calling sources, doing internet research and writing the story from my Droid.” He went on to say that the story wouldn’t have happened without his smartphone, but he found the experience undesirable. Some journalists have accepted being always on call as a fact of the job. The arts and features editor at a 400,000-circulation daily said, “I have long ago gotten over annoyance with being on duty 24/7. It’s just reality today.” A few journalists (4%) shared concerns that using smartphones degrades the quality of their work through inaccuracy (usually, because of the small keyboard or many phones’ auto-correct feature, which replaces typos with its best guess at what the user meant) or other issues. A reporter with 23 years of experience said, “So focused on immediacy that you miss the big picture or are distracted from ongoing events.” About 12% of respondents said the smartphone had no disadvantages. Finally, a staff writer at a mid-sized newspaper pointed out a problem not common with earlier technologies: “Well, today I can’t find my phone. I never lose my desktop computer.”

Discussion and Conclusion

This national survey found a majority of journalists have smartphones, much more than among the American public, and they use them frequently in their work. The lack of significant differences among demographic groups may result from widespread adoption among journalists. That is, early adopters tend to have different demographic characteristics than late adopters, so finding all demographic groups among smartphone adopters likely indicates widespread adoption.

This study also finds that employers play a significant role in encouraging adoption of smartphones. The finding that size of the paper did not correlate with an employer directive may be explained by the fact that decisions about newsroom technology are often made by higher-level management. For example, one large newspaper chain in 2010 allocated funds to its papers of all sizes for the purchase of new smartphones.³² No matter who paid for the device, most journalists said they use them for both personal and business purposes. If they were purchased as personal phones, they have now become part of a journalists' work toolkit as well.

Finally, smartphones have become an integral part of a journalist's job. Results show that journalists have adopted smartphones because they are better than the tools they now use and because they improve the quality and effectiveness of their work as journalists. Also, a higher proportion of journalists with smartphones collect their news in various media, even though newspaper journalists as a whole are still overwhelmingly text-focused. What is more, smartphones free journalists from their desks and allow them to make personal contact with sources, report from the scene or, as one city hall reporter said, "stay for the entire meeting and still make deadline."

This study suggests that technological adoption in newsrooms may be following a new course. Initially, adoption may be driven by the individual. Then, once the innovation has proven its worth, organizations begin pushing for adoption and accelerate the process. This suggests a wait-and-see approach in organizational adoption in which individual employees bear the risks of auditioning a new technology and then, once the technology's worth has been validated, the organization reaps the benefits of adoption. The implication is that this process may place the relationship between organization and individual (already stressed by smaller staffs and greater demands) under even greater stress.

The results presented here also suggest that an innovation may be routinized quickly when it is well suited to the job. Smartphones had been widely available for only about five years at the time this survey was administered, and already many journalists consider them essential to their jobs. The question is what accounts for this relatively rapid adoption. First, the smartphone has specific job uses that appeal to journalists, as evidenced by journalists being ahead of the American public in adopting. Journalists feel that smartphones improve the quality and efficiency of their work. Newsroom managers, then, must be on the lookout for technologies that improve quality and efficiency, as they are likely to be quickly adopted. Second, routinization may be accelerated when both employee and employer desire adoption of a technology. This finding is key in suggesting that newsrooms may be increasingly flexible in adapting to new technologies, an ability that will be crucial as the pace of technological development increases.

Smartphones' adoption has come with changes to journalistic routines. Journalists' decision to adopt smartphones has contributed to a change in where they work, whereas adoption of earlier, similar technologies — such as point-and-shoot cameras, handheld camcorders and laptop computers — has not had such an impact. Smartphone adoption has changed the amount, quality and types of multimedia information journalists collect and has changed how quickly and from where they collect that information. In other words, journalists' adoption of the smartphone has influenced what news they gather, where they work and the speed at which news is delivered to the public. This places a host of new requirements on journalists,

which research suggests many will find burdensome. The journalists of the future will likely be asked to do more and gather news more quickly for two reasons: first, because technology allows it, and second, because the public will become accustomed to it. Rapid reports in a greater array of media may become the norm.

Therefore, adopting smartphones is not the same for journalists as exchanging typewriters for personal computers, in the end accomplishing the same tasks with different equipment. Smartphones differ somewhat from model to model, but all employ two key features — web connectivity and multimedia production tools in a mobile package — that make them particularly attractive to modern journalists. Mobile web connectivity and multimedia capability enable journalists to add new tasks to their repertoire and do work at times and in places where it was previously impossible or prohibitively inconvenient. Already journalists see smartphones as an indispensable tool, and this mindset is bound to change expectations of employers and consumers. Journalism educators must prepare new generations of journalists to work across media types and to be mobile journalists, rather than sitting at a desk.

This study is limited by having a small number of respondents and a low survey response rate. Also, a large number of journalists did not complete the survey. Future studies may offer incentives or other means to encourage participation in order to ensure a representative sample. Future studies may also consider using alternative methods to include non-tech savvy respondents, as a survey about technology administered online likely favors the tech-savvy respondent.

The backpack journalist envisioned in 2003 has become reality, except that journalists now carry their essential toolkit in their pocket instead of a backpack. This work lays a foundation for future studies to compare content produced using smartphones with other content as well as determine how this new mobile, immediate, multimedia content is received by the public.

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Bibliography

1. Damon Kiesow, "iPhone 4 Offers New Tools for Journalists," Poynter.org, November 22, 2010, (11 March, 2012). Al Tompkins, "Archived Chat: How to Use Your iPhone When Reporting." Poynter.org, July 7, 2009, (11 March, 2012). Jeff Sonderman, "BBC develops iPhone app for its reporters," Poynter.org, June 16, 2011, (11 March 2012).
2. Nielsen, "Report: The Rise of Smartphones, Apps and the Mobile Web," <http://www.nielsen.com/us/en/insights/news/2011/report-the-rise-of-smartphones-apps-and-the-mobile-web.html>, December 15, 2011, (22 February, 2012).
3. Rick Edmonds, Emily Guskin, and Tom Rosenstiel, "Newspapers: Missed the 2010 Media Rally," Project for Excellence in Journalism, 2011 (14 March, 2012). <http://stateofthedia.org/2011/newspapers-essay/>
4. Michael Schudson, *Discovering the news: A social history of American newspapers* (Basic Books, 1978).
5. Everett Rogers, *Diffusion of Innovations* (New York: Free Press, 2010).
6. Everett Rogers, *Diffusion of Innovations* (New York: Free Press, 2010).
7. Werner Wirth, Thilo von Pape, and Veronika Karnowski, "An Integrative Model of Mobile Phone Appropriation," *Journal of Computer-Mediated Communication* 13 (April 2008) 593–617.
8. Venkatesh, Viswanath, Michael G. Morris, Gordon B. Davis, and Fred D. Davis. "User acceptance of information technology: Toward a unified view." *MIS quarterly* (2003): 425-478.
9. Charalambos L Iacovou, Izak Benbasat, and Albert S Dexter, "Electronic Data Interchange and Small Organizations: Adoption and Impact of Technology," *MIS Quarterly* 19 (1995) 465.
10. Sang Hyun Kim, "Moderating effects of Job Relevance and Experience on mobile wireless technology acceptance: Adoption of a smartphone by individuals," *Information & Management* 45 (September 2008) 387–393.
11. Anol Bhattacharjee and Clive Sanford, "Influence processes for information technology acceptance: An elaboration likelihood model," *MIS Quarterly* 30 (2006) 805–825.
12. Dorothy Leonard-Barton and Isabelle Deschamps, "Managerial Influence in the Implementation of New Technology," *Management Science* 34 (1988) 1252–1265.
13. Scott R Boss et al., "If someone is watching, I'll do what I'm asked: mandatoriness, control, and information security," *European Journal of Information Systems* 18 (March 31, 2009) 151–164.
14. Burgoon, Judee K., Michael Burgoon, and Charles K. Atkin. *The world of the working journalist*. Newspaper Advertising Bureau, 1982.

15. John Russial, "Pagination and the newsroom: A question of time," *Newspaper Research Journal* 15 (1994) 91–101.
16. Scott R. Maier, "Digital diffusion in newsrooms: The uneven advance of computer-assisted reporting," *Newspaper Research Journal* (2000) 95.
17. Bruce Garrison, "Computer-assisted Reporting Near Complete Adoption.," *Newspaper Research Journal* 22 (2001) 65.
18. Bruce Garrison, "Diffusion of online information technologies in newspaper newsrooms," *Journalism* 2 (August 1, 2001) 221–239.
19. Michael Er, "Technology adoption and the mobile worker: The case of the field journalist," 2007 International Conference on Collaborative Computing: Networking, Applications and Worksharing (New York City, New York, 2007).
20. Clyde Bentley and Kenneth Fleming, "Examining the relationships of smartphone ownership to use of both legacy and new media outlets for news," *Association for Education in Journalism and Mass Communication* (St. Louis, Missouri, 2011); Hsiang Iris Chyi and Monica Chadha. "News on new devices: Examining multiplatform news consumption in the digital age." In 12th International Symposium on Online Journalism, Austin, Texas, April, pp. 1-2. 2011.
21. Joseph Kalkbrenner and Atefeh Mccampbell, "The Advent of Smartphones: A Study on the Effect of Handheld Electronics on Personal and Professional Productivity," *Journal of Applied Global Research* 4 no. 8 (2011) 1–9.
22. Mark Deuze. "What Is Multimedia Journalism?" *Journalism Studies* 5, no. 2 (May 2004): 139–152.; Jane B. Singer, "Strange bedfellows? The diffusion of convergence in four news organizations," *Journalism Studies* 5 (2004) 3–18.
23. Sue Robinson, "Convergence Crises: News Work and News Space in the Digitally Transforming Newsroom," *Journal of Communication* 61 (2011) 1122–1141.
24. John Russial, "Growth of Multimedia Not Extensive at Newspapers," *Newspaper Research Journal* 30 (2009) 58–74.
25. John Russial and Arthur Santana, "Specialization Still Favored In Most Newspaper Jobs," *Newspaper Research Journal* 32 (2011) 6–23.
26. Sue Robinson, "Convergence Crises: News Work and News Space in the Digitally Transforming Newsroom," *Journal of Communication* 61 (2011) 1122–1141.
27. John Russial and Arthur Santana, "Specialization Still Favored In Most Newspaper Jobs," *Newspaper Research Journal* 32 (2011) 6–23.

28. This leads to a participation rate of 9% (calculated for both completed and partial surveys using guidelines from “Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys,” published by The American Association for Public Opinion Research, 2011)

29. In the most recent comprehensive look at demographic characteristics of journalists (David H. Weaver, “The American Journalist in the 21st Century: US News People at the Dawn of a New Millennium,” Mahwah, New Jersey: Lawrence Erlbaum, 2007), Weaver found journalists to be predominantly male (67%) and white (85%), to be mostly college graduates (89%), and to be concentrated in age groups around 40, which would be age 50 by the time of this survey. One difference is in income: Weaver found a median personal income of \$43,588 for journalists. The difference is likely explained by this survey asking for combined household income rather than personal income.

30. Several journalists emailed the author after completing the survey to say that there was a reimbursement system in place to offset the cost of smartphone ownership. They indicated on the survey that they pay, but the truth is their employers reimburse them for some or all of the cost. Because the survey allowed respondents to mark only that they, their employer or someone else paid to purchase the phone and pays for voice and data plans, these data likely underestimate the number of employers subsidizing the cost of smartphone ownership through reimbursements.

31. A question earlier in the survey found that about 95% of respondents agreed or strongly agreed that “Today’s news consumers expect breaking news to be reported immediately.”

32. The author worked for a Lee Enterprises newspaper at the time and helped carry out this corporate directive.