Newspapers Connect with Readers Through Multiple Digital Tools

by Jennifer D. Greer and Yan Yan

A content analysis of 357 newspaper websites and their associated social media pages reveals that older tools, including RSS and e-mail alerts, remain popular but are giving way to mobile delivery and social networking.

In 2010, the Internet surpassed local and national print newspapers as the third most popular U.S. news platform,[1] but new digital delivery tools stood poised to reshape the way newspapers connected with readers. By early that year, 33 percent of cell phone users accessed news on their phones, 28 percent of Internet users customized their homepages with news feeds and 37 percent of Internet users participated in news dissemination through blogging, posting or linking on social media sites.[2]

Although use of traditional delivery platforms—broadcasting and print—is declining slightly, news consumption across digital platforms—including websites, cell phones, email and social networks—is increasing. Thus, news consumption is at its highest levels since the 1990s.[3] One survey found that while 31 percent of respondents read a print newspaper the day before, 34 percent went online for news. That number jumped to 44 percent when other digital delivery forms were included.[4] Deuze labels this a "worldwide shift from a 19th-century print culture via a 20th-century electronic culture to a 21st-century digital culture."[5]

How widely are U.S. newspapers using new digital tools to connect with audiences? This study seeks to answer that question. Through a content analysis of newspaper websites and associated social media pages, digital delivery

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tools' presence, placement and activity are examined. This study also looks at whether digital delivery platforms are leveling the playing field by comparing these variables by newspaper size.

Literature Review

Alternative delivery of print newspaper content has taken many forms in recent decades, starting in the 1990s with a rush to publish online, fueled, Nguyen argues, by a fear of "becoming irrelevant in the Internet age."[6] The trend continued in the late 2000s with newspapers adopting new digital delivery tools, including RSS feeds, e-mail digests, social media outlets and mobile devices. Newspaper executives who once viewed digital delivery as a threat to their core print revenue base began to embrace these tools as a means of long-term industry survival.[7]

Websites, E-Mail Digests and Aggregators

U.S. newspapers started moving online more than 25 years ago with *Viewtron*,[8] and newspaper bulletin board systems emerged in the early 1990s.[9] By the end of 1995, more than 330 U.S. newspapers had some type of online service,[10] and the industry had settled on the World Wide Web as the electronic platform of choice.[11] Early digital newspapers overlooked opportunities offered by the new medium,[12] and sites mainly featured "shovelware, reproductions of content that appeared in a news organization's primary distribution channels."[13] Content and interactivity grew in sophistication over time,[14] and static content gave way to customization and personalization.[15]

Faced with an increasingly crowded Web environment, newspapers stopped waiting for readers to find them online and started pushing information to e-mail inboxes. Many early online newspapers collected e-mail addresses through subscription or registration forms[16] and allowed readers to sign up for alerts. These e-mails contained links designed to drive readers to the website and were seen as a "relatively inexpensive, fast and easy way" to reach audiences.[17] However, e-mail delivery lacked true personalization,[18] and readers tired of inbox overload.[19] Furthermore, site traffic didn't increase when users deleted these e-mails unopened or only read the summaries without clicking into the site.[20]

E-mail delivery lost its cachet when new "push" tools emerged.[21] These tools include the news aggregator RSS, which uses an XML-based format and keywords to collect and deliver links, headlines and other content to a personalized newsreader or homepage.[22] RSS, or really simple syndication, represents the transition of the Web from "being a static means of one-way mass communication to an interactive personal communication medium."[23] Newspaper executives saw RSS as a way to boost site traffic by providing "a constant reminder and an enticing link on which to click, improving the chances that users will visit the site daily."[24] RSS technology was developed in 1994,[25] but the tool wasn't used widely by newspapers until 2004 when 42 general-interest U.S. papers

had feeds.[26] A 2005 survey found that 17 percent of dailies used RSS, outpacing all other personalization features.[27]

Social Networking

Social media builds on the ideological and technological foundations of Web 2.0, promoting the exchange of user-generated content.[28] In August 2003, MySpace.com was created, allowing users to post pictures, videos and personal details. By 2008, it was the largest U.S. social network with more than 200 million users.[29] Rival site Facebook was created in 2004 for college students and was opened to everyone in 2006.[30] Facebook soon overtook MySpace as the dominant U.S. social network[31] and counted more than 500 million users worldwide by 2011.[32]

The average American spent six hours and nine minutes on social network sites during December 2009, up 143 percent from December 2008.[33] Fully 75 percent of U.S. online news users get news through forwarded e-mail and social media, and 52 percent share news links through social media.[34] Readers are now both information consumers and content producers as they receive news from "referrers," then disseminate content through their networks and add comments simultaneously.[35]

Newspapers turned to social media as a relatively inexpensive way of connecting with current readers and reaching new audiences, especially the lucrative "tweens, teens and young adult" market.[36] Vivian Schiller of NYTimes.com sees social media marketing as "one of several essential strategies for disseminating news online—and for surviving."[37] Recommendations by Facebook friends can lead to increased readership of news stories.[38] *The Wall Street Journal* gets 7 percent of its site traffic from social media referrals,[39] and *The Roanoke Times* reported a twofold increase in Facebook-driven traffic in 2009.[40]

Twitter, a micro-blogging site released publicly in August 2006, allows individuals and organizations to blast 140-character posts. Twitter counted more than 175 million registered users by September 2010.[41] In 2007, *The Oregonian* became one of the first newspapers with a Twitter feed, and by 2009, about 1,300 Twitter accounts were affiliated with newspapers.[42] A 2009 study of the largest 100 newspapers found that 62 percent had at least one Twitter feed. On average, these newspaper feeds had 17,717 users and tweeted 11 times daily.[43]

Newspaper executives hoped frequent posting on Twitter would develop relationships with audiences.[44] *Slate's* John Dickerson contends that Twitter builds "a community of readers who find their way to longer articles because they are lured by these moment-by-moment observations."[45] After a year of using Twitter, *The New York Times* saw its number of unique monthly visitors increase from 14.6 million to more than 20 million. Similarly, Boston.com saw a 102 percent jump in visitors, and the *Los Angeles Times* saw a 94 percent increase.[46]

Mobile Delivery

In the past two years, newspapers have looked to mobile devices such as

smart phones, e-readers and iPads to reach audiences. These devices do more than simply pair mobile and Web capabilities; they offer seamless connectivity, increased personalization and opportunities for users to produce content.[47] Cell phones are used in every segment of the population, and e-readers and other devices are growing in popularity as they become less like computers and more like something that mimics "the ink on-paper experience."[48] Emmett argues that mobile devices will "complement other media, becoming 'smart,' readable, visual, acoustic and connected."[49]

Newspapers started developing mobile content in the late 2000s and soon saw benefits. *The New York Times'* mobile traffic increased by more than 9.8 million page views after launching its mobile-friendly version.[50] After the iPhone was launched, The Associated Press and other news corporations launched mobile applications.[51] The number of news outlets distributing content via AP Mobile jumped from 107 in May 2008 to more than 1,000 by October 2010.[52] The firm that powered AP Mobile and other news applications reported serving 100 million mobile news pages in December 2010 alone, a 160 percent increase from December 2009. The company was on track to serve 2.2 billion news pages in 2010.[53]

Size Matters

The Internet, in theory, levels the playing field, allowing publications of all sizes access to roughly the same technology.[54] Previous studies have found that for both weeklies and dailies online, circulation size is related to differences in interactivity, updating patterns and digital content. One of the earliest content analyses of online newspapers found larger papers consistently more sophisticated than their smaller counterparts,[55] a pattern that remained unchanged over time despite digital innovation. A cohort study over seven years found smaller papers lagging behind larger newspapers in every aspect of interactivity and in adoption of online tools.[56] Another found larger papers featuring more variety of online content.[57]

Scholars have linked these trends to differences in resources. Because smaller papers serve markets less dependent on online communication, they can't justify "spending scarce resources on a product that captures only a small percentage of the audience."[58] Lowrey argued that cost was a "real obstacle to site innovation for papers in small communities," where many "editor-publishers perceive the website as an extravagance, especially absent a proven business model."[59]

Research Questions

To examine how U.S. newspapers are adapting in this environment, three research questions were posed and tested through a content analysis of newspaper websites and their associated social media pages:

RQ1:
How widely are newspapers using emerging digital delivery tools?

RQ2:
How prominently are newspapers placing the tools on their websites?

RQ3:
How active are social media communities formed by newspapers who have adopted this subset of digital delivery tools?

For each question, analyses were run by size of corresponding print newspaper to examine differences among small, midsized and large newspapers.

Method

Population and Sample
To examine adoption of emerging digital delivery tools, this study looked to general interest, English language U.S. newspapers with both print and active online editions. Papers meeting those criteria were located in *Ulrich's International Periodicals Directory*. For daily newspapers, 1,382 were listed and a sample of 20 percent was drawn by starting at a random spot in the directory and drawing every fifth paper. Next, to balance the sample by geographic representation and community size, researchers selected a purposive sample of smaller dailies and weekly newspapers with functioning websites. *Ulrich's* lists 3,489 general interest weeklies with a corresponding website.

Unit of Analysis
For the first two research questions, researchers examined the entire newspaper website, meaning the homepage and any linked page hosted on the newspaper's server. Most digital delivery tools, when present, were found on the homepage (first level) or on pages linked off the homepage (second level). For the third research question, the newspapers' pages on three social media sites were analyzed. Only the main newspaper page for Twitter, Facebook and MySpace, defined as the one linked to off the highest level of the website, was analyzed.

Operationalization of Constructs
After demographics (circulation size and publication frequency) were recorded, coders examined presence and prominence of tools and the activity on social media pages. Measures used were based on those from previous content analyses of online newspapers.[60]
Digital delivery tools were defined as methods through which the newspapers distributed content beyond their basic print and Web platforms. Six tools were examined: RSS, e-mail alerts, text message/mobile edition, Twitter,

Facebook and MySpace. Each tool was coded as either present (1) or absent (0). Researchers looked for a corresponding icon (e.g., an envelope for e-mail, a bird or a "T" for Twitter). If these icons were not found, researchers then looked for text indicators of the tools, searched the sitemap and used keyword searching. For RSS, coders also looked for the automatic RSS detector through the Web browser.

Prominence was measured by location of the links to each tool on the home t. Links at the top of the homepage were scored as 5, while placement lower on the homepage, in a drop-down menu or on an internal page earned progressively lower scores. Sites without a tool present were scored as 0.

Social media activity was determined by following the links found on the sites, if present, to the newspapers' Twitter feed, Facebook page or MySpace pages. Once on these pages, the size of the community (indicated by followers or fans) was noted. Then frequency of updates was measured using a scale from 0 to 3 where 0 equaled no updates in the past week and 3 equaled multiple posts in the last 24 hours.

Newspapers' Twitter pages attract larger numbers of followers than their Facebook pages and have stronger penetration, based on percentage of print circulation.

Procedure

All daily newspapers were accessed on a mid-week (Tuesday through Thursday) evening (between 6 p.m. and 10 p.m.) in October 2009. This controlled for downtimes in newspaper website activity. For weeklies, the site was checked on the night of the print distribution. Two trained coders examined 26 newspapers outside of the sample to test the reliability of the measures. The coding instrument proved highly reliable, with intercoder reliability using Holsti's straight agreement method ranging from .86 to 1.00 across the variables. Average agreement was 93 percent for all variables for the 26 sites.

Findings

Demographics of the Sample

Of the 357 newspapers in the sample, 289 were dailies (81.0 percent) and 68 were weeklies (19.0 percent). Circulation size ranged from 400 to 747,803, with a median of 12,200 ($M = 38,537$; $SD = 88,972$). A small group of very large dailies skewed the mean to the high end. Most newspapers had circulations of fewer than 50,000, defined by the National Newspaper Association as "community newspapers," a category that represents about 90 percent of all U.S. newspapers. Papers in the sample closely mirrored the national percentage, with almost 87 percent defined as community newspapers. For analyses by size, papers were divided into three categories: Those smaller than 10,000 (153 papers or 42.9 percent of the sample), those between 10,001 and 50,000 (158 or 44.3 percent) and those 50,001 and larger (46 papers or 12.9 percent).

RQ1 asked what digital delivery tools were present on newspaper websites and whether adoption varied by newspaper size.

To test this question, cross-tabulations were run using Chi-Square analyses. As Table 1 shows, RSS feeds were most common, used by three quarters of the papers. Next were e-mail and text/mobile delivery options. Social media tools were least likely to be present, although Twitter was on about a third of the sites. MySpace was virtually nonexistent, not surprising given the dominance of Facebook in the late 2000s.

For every tool except e-mail delivery and MySpace, large newspapers were significantly more likely to feature the tools than were midsized and smaller papers. For example, as Table 1 shows, virtually all of the large papers used RSS, compared with less than two-thirds of the small papers. Large papers used text/mobile at nearly four times the rate and Twitter at nearly three times the rate of the small newspapers. For RSS, text/mobile, Twitter and Facebook, midsized newspapers' adoption rates were in between those of the large and small papers. Midsized papers, however, were significantly more likely than their small or large counterparts to offer e-mail options.

Table 1
Percent of Newspapers with Alternate Delivery Tools Present by Circulation Size

Tool	Total with tool % % of 357	Small % of 153	Medium % of 158	Large % of 46	X^2
RSS	74.2%	60.8%	81.6%	93.5%	27.91***
E-mail	36.4%	20.3%	43.0%	23.8%	39.40***
Text/Mobile	34.7%	20.3%	36.7%	76.1%	49.11***
Twitter	31.4%	17.0%	36.7%	60.9%	35.37***
Facebook	17.1%	13.1%	15.8%	34.8%	12.09***
MySpace	1.1%	0%	1.9%	2.2%	3.058

*$p < .05$, **$p < .01$, ***$p < .001$

Next, the total number of tools present per site was computed by giving sites one point for each tool, meaning the scores could range from 0 to 6. The average number of digital delivery tools present was 1.95. A one-way Analysis of Variance (ANOVA) found that the smallest papers used significantly fewer tools ($M = 1.31$) than the midsized ($M = 2.16$) and large papers ($M = 3.35$, F(2, 354) = 44.27, $p < .001$). Post-hoc analyses showed that the midsized and large papers also significantly differed ($p < .001$).

RQ2 examined the prominence of the tools by looking at their placement, when present, on individual pages and within sites.

As Table 2 shows, if tools had been adopted, they were placed fairly prominently on the sites. Discounting MySpace, present only on four sites, text/mobile alerts were placed in the most visible positions, followed by e-mail alerts, Facebook links and RSS feeds. Twitter feeds had the lowest prominence. The score of 4.37 for text/mobile indicates that virtually all the papers using this delivery method promoted it at the top of the homepage. Scores in the high 3s indicated less prominent placement on the homepage, for example in a drop-down menu or on a menu on the side of the page.

Few significant differences in prominence by newspaper size emerged, indicating that once papers adopt a tool, they promote it roughly equally. As Table 2 shows, only Facebook placement differed by size, with smaller papers placing links in more prominent positions than did the midsized and larger papers. In contrast, large and midsize papers were slightly, but not significantly, more likely to feature RSS icons prominently.

For the final research question, the unit of analysis shifted from the newspaper websites to the papers' social media pages.

Therefore, sites analyzed were limited to those with the tool present (112 sites with Twitter, 61 with Facebook and four with MySpace). Size of social network community and frequency of updates of these pages were analyzed in light of the papers' print circulation. Table 3 indicates that social media are reaching a

Table 2
Mean Prominence Scores (Standard Deviation) for Sites with Each Tool Present by Newspaper Size

Tool	Overall M (SD)	Small M (SD)	Medium M (SD)	Large M (SD)	F =
RSS	3.85 (1.46)	3.59 (1.46)	3.98 (1.35)	4.00(1.05)	2.62
Text/mobile	4.37 (0.99)	4.48 (0.99)	4.44 (0.96)	4.14 (1.03)	1.31
E-mail	3.94 (1.17)	4.00 (1.09)	4.07 (1.21)	3.58 (1.12)	1.97
Twitter	3.68 (1.16)	4.04 (1.22)	3.57 (1.16)	3.57 (1.07)	1.67
Facebook	3.85 (1.12)	4.35 (1.04)	3.64 (1.15)	3.56 (1.03)	3.16*
MySpace	4.60 (0.89)	---	4.33 (1.15)	5.00 (none)	0.25

*$p < .05$, **$p < .01$, ***$p < .001$

Table 3
Community Sizes for Social Media Pages, Percentage of Print Circulation,
Mean Differences Analyzed by Newspaper Size

Social Media Tool	Median all papers	Mean all papers	% of print circ.	Small	Medium	Large	F=
Twitter	428.0	999.6	3.5%	430.9	567.4	2,406.9	11.97***
Facebook	326.5	527.2	2.7%	273.2	444.5	979.4	14.89***
MySpace	250.5	620.7	1.4%	--	169.0	1976.0	35.96*

*$p < .05$, **$p < .01$, ***$p < .001$

fraction of newspapers' traditional print base. The median number of followers was below 500 for all newspaper social media pages, and the mean (influenced by large outliers) was below 1,000. Twitter feeds were larger, but Facebook communities were very small, with the largest page having only 1,886 "likes."

To examine this finding in context, the percentage of the print subscriber base that these communities represented was calculated. For example, the print circulation of the newspaper with 1,886 Facebook members was more than 200,000, meaning its Facebook following was less than 1 percent of its print circulation. Conservatively estimating two readers for every print copy of the paper, that paper's Facebook community was a mere one-half percent of its print readership. This pattern was seen across the board, as the social network communities represented less than 5 percent on average of the print circulation base.

Not surprisingly, larger newspapers had significantly larger social networking communities than did their midsized counterparts, which in turn had significantly larger communities than did the smallest papers. [See Table 3] Because these communities were so small, the percentage of the print circulation represented by these online communities shrank significantly as circulation sizes grew. For example, on Twitter, the mean of 273.2 followers for small papers represented 8.3 percent on average of the newspapers' print circulations. This was a significantly higher percentage than the corresponding 2.3 percent and 1.5 percent for the midsized and smaller papers respectively. The same pattern was found for Facebook (5.17 percent penetration for small papers, 1.96 percent for midsized papers, and 0.83 percent for large papers).

RQ3 looked at posting frequency on social media pages.
Newspapers overall were most active on Twitter. Of those with Twitter feeds, 72.3 percent (81 papers) posted multiple updates in the past 24 hours; while 10.7 percent (12 papers) hadn't updated in the past week. In contrast, only 39.3 percent (24 papers) of those with Facebook pages updated them multiple times a day while 36.1 percent (22 papers) had not updated in a week or more.[61]

No significant differences were found on update frequency by newspaper

size. Regardless of size, the Twitter update frequency score for all papers hovered around 2.40 (between one post in the past 24 hours and multiple posts in the past 24 hours), and the Facebook update frequency score was 1.61 (between one post in the past week and one post in the past 24 hours).

Discussion

U.S. newspapers are responding to changing consumer habits by adopting new digital delivery tools. Not all tools, however, are being used equally, and some tools reach only a fraction of the core print audience. The results suggest three areas for discussion: shifts in tools used, social media challenges and issues connected with newspaper size.

Older Tools Give Way to Mobile/Text

While some digital tools identified in previous studies are still going strong, some appear to be fading. This study provided only a cross-sectional look at newspapers in October 2009, but the results, viewed in light of past research, suggest longitudinal trends. The earliest push delivery tools (RSS and e-mail alerts) are still the most widely used by online newspapers. RSS's dominance is not surprising, given its ease of use and its age. By late 2009, virtually all journalists had been exposed to RSS in some form. Further, while other tools must be "fed," RSS is automatic and requires little maintenance once built into a site. RSS, however, was not placed as prominently as other tools, possibly because the automatic detector on most browsers alerts users to its presence. Site designers may not see a link as necessary.

Although e-mail alerts and newsletters were second in terms of adoption, that delivery option was present on only half as many sites as were RSS feeds. Further, e-mail delivery was virtually equal with text/mobile and Twitter, two newer options. Based on past studies, this could suggest that e-mail is losing favor as new push tools emerge. Indeed, one longitudinal content analysis found use of e-mail alerts declining between May 2009 and February 2010.[62] Perhaps consumers were not subscribing at rates executives had hoped for or readers were deleting e-mails without clicking into links, as critics suggest. Further, e-mail alerts require staff to update address lists, select content, write summaries and send the content. E-mail alerts/newsletters, however, when present, are given fairly high prominence. When resources are allocated for this tool, online staffs tried to attract followers through strong placement.

One tool so new it hadn't been examined in past studies was text/mobile delivery. This new delivery form was present on more than a third of sites overall. For large papers, that percentage was three-fourths. Further, the text/mobile icons or links were given the highest prominence. It should be noted that at the time of data collection, only a handful of U.S. papers had true mobile versions, and none of the 357 papers studied had a dedicated mobile application. Therefore, the data mainly reflect use of simple text alerts for breaking news

or selected content (e.g. scores). The launch of the iPad, the iPhone and their competitors is fueling the development of mobile applications for newspapers. This delivery method is poised to show the most dramatic growth yet.

Building Connections Through Social Media Networks

Use of social media news delivery tools clearly is growing, but adoption rates vary widely. Although almost a third of newspaper sites had Twitter, only one in six sites featured Facebook and only four featured MySpace. Twitter, the newest tool, seems to fit well with the new mission of newspapers to be the first to provide breaking news, especially in smaller communities without other news outlets. Newspapers adopted Twitter more quickly and widely than they did Facebook. Further, Twitter is updated more frequently. The styles of the tools could be a factor in these differences. Twitter's micro-blogging format and limit of 140 characters is perfect for breaking news and links into the site. Twitter also can function much like a free version of "Cover It Live," used by larger papers. Facebook's format and style, in contrast, lends itself to longer, more summary-oriented posts and links are not always present.

Newspapers' Twitter pages attract larger numbers of followers than their Facebook pages and have stronger penetration, based on percentage of print circulation. Twitter communities were twice the size of Facebook communities; the largest Twitter feed in the sample had six times as many followers as the largest Facebook page. While Twitter has the potential to build larger communities, none of the social networking tools came close to rivaling the newspapers' print readership base.

Both Twitter and Facebook were placed less prominently than all other tools. The low prominence could be due to the limited size of these communities, or the communities may be small because of the low prominence. In addition, update frequency was low for both Twitter and Facebook, with about one post per day on average. The infrequent updates are surprising from a sample dominated by large and midsized daily newspapers, which often update their web editions multiple times daily. The newspaper industry doesn't appear to have tapped into the full potential of what social media means to news delivery, at least through the tools studied here. These results indicate that social networking is an area ripe for innovation as the industry transforms itself. Conversely, the low activity on the pages could indicate that social media in its current form isn't the best fit for news delivery or that newspapers haven't figured out the key to success yet.

Size Still Matters

Fifteen years after newspapers began going online en mass, size still matters. For virtually every tool, the smallest papers lagged the midsize papers, which lagged the large papers. Even in an era where publishers and readers change roles in the blink of an eye, institutional resources and staffing sizes count. Those with more offer more. In adoption rates, only e-mail delivery bucked the pattern.

This tool, likely on the decline, was used most by midsized newspapers. Large newspapers, which had text/mobile tools present at twice the rate as midsize papers, have begun shifting from e-mail digests to delivery for mobile devices.

Large papers used Facebook and Twitter pages more widely and had larger communities than their smaller counterparts. However, large papers weren't updating more frequently and tool placement was virtually equal. Once smaller papers adopted social media, they promoted it and updated it at levels equaling the largest newspapers. The issue for the smaller papers is the adoption. Why?

While the Internet provides the opportunity for all publications to use tools equally, creating and feeding digital content still requires significant staff time. For many small papers, content online is updated only with the print publication cycle and it matches the printed paper word-for-word. Further, in small communities, penetration of the printed paper tends to be higher in these communities, Internet connectivity is lower, and geographic areas served are tighter, leaving print as the most efficient way to reach readers. These factors combined contribute to lower use of newspaper websites and other emerging digital tools. Low online readership and a dominant print product well supported by advertisers leave small market newspaper publishers little choice but to concentrate limited staff time and other resources to the core print product. While some of these issues will disappear as Internet connectivity shifts from a wired infrastructure to mobile devices linked to cellular networks, it is striking that size still carries as much weight in an increasingly digital era.

Conclusion

This study demonstrates that U.S. newspapers are using a variety of emerging digital delivery tools to reach readers in new ways. While smaller papers lag behind and some tools are not being used to their full potential, newspapers appear to be well poised to continue their role as the chief source of local news by reaching audiences in places they're congregating digitally. The fact that newspapers have adopted such a wide array of new tools in a relatively short time bodes well for the spirit of innovation necessary for them to thrive in the 21st century.

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