Mobile News Information Behavior of Undergraduate and Graduate Students in the U.S.: An Exploratory Study

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Abstract
This research study explored how undergraduate and graduate students in the U.S. use mobile phones to receive, read, find, share, and store news. Fifty participants responded to an online survey. Results show that participants were less engaged, proficient, and satisfied in sharing or storing news than in receiving, reading, and finding news on their mobile phones. Participants commented on their lack of familiarity with the storing and sharing function, and how they would improvise by using sharing for storing. A number of demographic variables such as class (undergraduate versus graduate), age group, type of student (American versus international), and ethnicity had a significant impact on types of news that participants followed and on their proficiency or satisfaction ratings of processing mobile news. The study provides valuable insights into users’ mobile news information behavior.

Keywords: news information; information behavior; mobile phones or smartphones; university students


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1 Introduction and Literature Review
According to Ahonen (2013), mobile is the 7th mass medium following print, recordings, cinema, radio, television, and Internet, and it is the first truly personalized mass medium. According to a report produced by Pew Research Center (2016), more and more Americans, especially younger generations, turned away from traditional media and instead use news apps or social media as their main sources of news. Among online news consumers, there has been a striking increase in mobile audience and a continuing shift to mobile devices (Lu & Holcomb, 2016). Mobile access to news has transformed the media ecology: users’ relationships to news have changed as news is now not only pocket-sized and personalized, but the consumption of news has also become a socially-engaging, socially-driven, and participatory activity (Pew Research Center, 2010; O’Brien & Freund, 2014; Struckmann & Karnowski, 2016).

Over the years, a rich body of empirical research work on news consumption patterns associated with the emergence of new forms of media has been developed (e.g., Lee & Ma, 2012; Pentina & Tarafdar, 2014; Struckmann & Karnowski, 2016; Beam, Hutchens, & Hmielowski, 2016). In 2006, Diddi and LaRose investigated the role of the Internet in college students’ news consumption. The authors examined the survey responses of over 300 undergraduate students from a Midwestern university in the U.S. and discovered that as the first Internet generation, college students were “more likely to use the Internet for news and read more news magazines” than non-college students (Diddi and LaRose, 2006, p. 205). The authors further found that when facing an increased number of news outlets, college students acted more as “news grazers” who checked news periodically without a fixed time to consume news (p. 205). Recently, Shim, You, Lee, & Go (2015) found that “the rapid growth of mobile phones has not only altered the way in which people consume news, however; it has also changed the landscape of news media content” (p. 109).
By analyzing 281 responses, Shim et al. (2015) uncovered that while both information seeking and accessibility motives directly impacted mobile news usage, social utility was not a significant predictor.

Even though news information seeking has been consistently reported as one of the most frequently observed mobile behaviors (e.g., Dearman, Kellar, & Truong, 2008; Sohn, Li, Griswold, & Hollan, 2008; Church & Smyth, 2009; Amin, Townsend, Ossenbruggen, & Hardman, 2009; Heimonen, 2009; Komaki, Hara, & Nishio, 2012; Church, Cherubini, & Oliver, 2014), seldom has any study focused exclusively on the stream of activities that a user goes through when interacting with news on a mobile phone. These activities might include, but are not limited to, receiving, reading, finding, sharing, and storing. Additionally, further investigations into the intensity of mobile news users’ engagement during various stages of news processing are rare.

This paper reports preliminary results of a pre-diary survey of a diary study that explores several dimensions of mobile news behavior of university students in the U.S.

2 Research Questions

This survey research addresses the following research questions:

- **RQ1.** What types of news do undergraduate and graduate students in the U.S. process on their mobile phones?
- **RQ2.** What primary media do participants rely on to receive, read, find, share, and store news? Are there any statistically significant differences among primary media used for various news processing activities?
- **RQ3.** How frequently do participants use their smartphones to receive, read, find, share, and store news? Are there any statistically significant differences in the intensity of various news processing activities?
- **RQ4.** What drives users to use their mobile phones to process news?
- **RQ5.** What types of apps do participants use to process news?
- **RQ6.** How do participants perceive their ability to use their mobile phones to process news?
- **RQ7.** How satisfied are participants with using their mobile phones to process news?

3 Methods

3.1 Participants

Fifty undergraduate and graduate students (74% female, 26% male) completed a pre-diary survey. A majority of the participants (72%) were younger than 25 years of age. In terms of ethnicity, 40% were White/Caucasian, 34% Asian, 14% Hispanic/Latino, and 14% Black/African American. Participants were from 30 different universities in 17 states across the U.S. Sixty-two percent of the participants were undergraduates and 38% were graduate students. Among 50 participants, 76% were American students and 24% international students. Nearly 42% were in social sciences, another 42% were in science and engineering, and close to 15% were in arts and humanities. The average length of smartphone use was close to five years (4.84), ranging from 1 to 11 years. A Mann-Whitney test revealed significant differences between graduate and undergraduate students in terms of their length of smartphone use ($U = 154.50, p < .01$). Significant differences were also found among various age groups in their lengths of use ($χ^2(4, N = 50) = 13.89, p < .01$). A majority of the participants used iPhones (76%), 12% used Samsung Galaxy, and the remaining participants used other kinds of models, including OnePlus X and ZTE Lever.

3.2 Procedures

The recruitment was performed through a number of advertisements on “call for participation” type websites, as well as via advertisements on social media sites (Craigslist, Facebook, and Twitter). In addition,
researchers and their research assistant distributed recruitment messages through their personal connections. Potential participants were first asked to sign up by filling out a screener survey. They were then contacted to complete a pre-diary survey. The data collection of the pre-diary survey was conducted between June 30 and August 5, 2016. Upon completing the survey, participants used their mobile phones to record news items that they processed over the duration of three weeks. After completing 12 diary entries, a number of participants were contacted for a follow-up interview. This paper pertains only to the results of the pre-diary survey.

4 Results and Discussion

4.1 Types of News

More than half of the participants followed US news (92%), world news (74%), entertainment news (64%), and political news (64%). Participants also followed public health news (40%), specific country related news (38%), sports news (36%), and more. Figure 1 displays percentages of participants who followed various types of news.

Significant differences were found between percentages of male and female ($\chi^2 (1, N = 50) = 5.43, p < .05$), and between percentages of American and international students ($\chi^2 (1, N = 50) = 4.73, p < .05$) who followed US news. Significant differences also occurred among proportions of various ethnic groups ($\chi^2 (4, N = 50) = 12.12, p < .05$) as well as between percentages of American and international students ($\chi^2 (1, N = 50) = 4.73, p < .05$) who followed financial news. Similarly, differences among percentages of ethnicity ($\chi^2 (4, N = 50) = 9.68, p < .05$), and between percentages of American and international students ($\chi^2 (1, N = 50) = 9.12, p < .01$) who followed specific country news were statistically significant.

![Figure 1. Types of News Participants Followed](image)

4.2 Primary Media

Most participants reported using mobile devices as the primary media (72-82%), and desktop/laptop as the secondary media (10-24%) in receiving, reading, finding, and sharing news. However, in the case of storing news, an almost equal number of participants reported using mobile devices (40%) and desktop/laptop (36%) as the primary device. Twenty percent of participants selected N/A as the type of media used for
storage, suggesting that they did not have a designated storage media for news. Significant differences were found among types of primary media used for different news processing activities ($\chi^2 (12, N = 50) = 44.47, p < .01$).

<table>
<thead>
<tr>
<th>Types of Media</th>
<th>Receive</th>
<th>Read</th>
<th>Find</th>
<th>Share</th>
<th>Store</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile Devices</td>
<td>41 (82%)</td>
<td>39 (78%)</td>
<td>36 (72%)</td>
<td>37 (74%)</td>
<td>20 (40%)</td>
</tr>
<tr>
<td>Desktop/Laptop</td>
<td>5 (10%)</td>
<td>8 (16%)</td>
<td>12 (24%)</td>
<td>9 (18%)</td>
<td>18 (36%)</td>
</tr>
<tr>
<td>Traditional Media</td>
<td>3 (6%)</td>
<td>3 (6%)</td>
<td>2 (4%)</td>
<td>0 (0%)</td>
<td>2 (4%)</td>
</tr>
<tr>
<td>N/A</td>
<td>1 (2%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>4 (8%)</td>
<td>10 (20%)</td>
</tr>
</tbody>
</table>

Table 1. Primary Media to Process News

4.3 Reasons for Mobile News

In response to the question concerning their primary reasons for using their mobile phones to process news, 92% of respondents selected “I always carry my smart phone and have it handy when I need it”, i.e., portability as their reason. The second most frequently selected reason was accessibility (88%), indicating “it is very easy for me to use my phone to access news information.” Additionally, shareability (54%), which refers to “It is very easy for me to use my phone to share news information with my friends/family and community members,” and convenience (48%), which means “Compared to other devices, my phone is the most convenient tool to process news information,” were also selected by about half of the participants. Figure 2 illustrates percentages of participants’ responses.

![Figure 2. Reasons for Using Mobile Phones as the Primary Device in Processing News](image)

4.4 Types of Apps Used

Participants reported using mostly social media apps for reading (50%), finding (52%), sharing (68%), and receiving (42%) news, suggesting that they relied heavily on social media apps for news processing. News apps also were used for receiving (30%), reading (22%), and finding news (14%), although they were not as popular as social media apps. For sharing news, instant or text messaging apps (12%) were the second most frequently used. In addition, participants did not engage much in storing news information. Significant differences were found in the types of apps used for receiving, reading, finding, sharing, and storing news ($\chi^2 (20, N = 50) = 97.60, p < .01$).
<table>
<thead>
<tr>
<th>Types of App</th>
<th>Receive</th>
<th>Read</th>
<th>Find</th>
<th>Share</th>
<th>Store</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Media Apps</td>
<td>21 (42%)</td>
<td>25 (50%)</td>
<td>26 (52%)</td>
<td>34 (68%)</td>
<td>15 (30%)</td>
</tr>
<tr>
<td>News Apps</td>
<td>15 (30%)</td>
<td>11 (22%)</td>
<td>6 (12%)</td>
<td>4 (8%)</td>
<td>7 (14%)</td>
</tr>
<tr>
<td>Search Engine Specialized News Apps</td>
<td>8 (16%)</td>
<td>7 (14%)</td>
<td>12 (24%)</td>
<td>2 (4%)</td>
<td>4 (8%)</td>
</tr>
<tr>
<td>Aggregator Apps</td>
<td>3 (6%)</td>
<td>5 (10%)</td>
<td>4 (8%)</td>
<td>1 (2%)</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>Instant or Text Messaging Apps</td>
<td>1 (2%)</td>
<td>1 (2%)</td>
<td>1 (2%)</td>
<td>6 (12%)</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>N/A</td>
<td>2 (4%)</td>
<td>1 (2%)</td>
<td>1 (2%)</td>
<td>3 (6%)</td>
<td>22 (44%)</td>
</tr>
</tbody>
</table>

Table 2. Types of Apps Used to Process News

4.5 Frequency of Processing News

Data showed that people receive, read, and find news rather regularly. Specifically, 68% reported that in the last 30 days, they received the news *daily* and 26% received the news *weekly*. In the case of reading, 74% read the news *daily* and 26% *weekly*. In terms of finding, 66% found news *daily* and 32% *weekly*. Twenty-two percent of the participants shared news *daily* and 28% *weekly*, whereas 38% never stored news information and 32% stored news *monthly*. These results indicate storing news was not a daily routine activity for participants. Significant differences were found in the frequency of different mobile news processing activities ($\chi^2 (12, N = 50) = 129.40, p < .01$).

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Receive</th>
<th>Read</th>
<th>Find</th>
<th>Share</th>
<th>Store</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daily</td>
<td>34 (68%)</td>
<td>37 (74%)</td>
<td>33 (66%)</td>
<td>11 (22%)</td>
<td>8 (16%)</td>
</tr>
<tr>
<td>Weekly</td>
<td>13 (26%)</td>
<td>13 (26%)</td>
<td>16 (32%)</td>
<td>14 (28%)</td>
<td>7 (14%)</td>
</tr>
<tr>
<td>Monthly</td>
<td>2 (4%)</td>
<td>0 (0%)</td>
<td>1 (2%)</td>
<td>19 (38%)</td>
<td>16 (32%)</td>
</tr>
<tr>
<td>Never</td>
<td>1 (2%)</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>6 (12%)</td>
<td>19 (38%)</td>
</tr>
</tbody>
</table>

Table 3. Frequency of Processing News

4.6 Proficiency of Processing News

Participants rated their own proficiency in using mobile news via a 5-point Likert scale, with 5 being extremely proficient. The averages of both receiving and reading were 4.74; for finding, the average was 4.78; for sharing, 4.20; and for storing, 3.96. Participants reported being less proficient in sharing and storing news than in receiving, reading, and finding news. Through a Kruskal-Wallis test, significant differences were found in self-rated proficiency across various activities ($\chi^2 (4, N = 50) = 32.01, p < .01$).

In terms of demographic variables, a Mann-Whitney U test revealed undergraduate students had significantly higher proficiency ratings in reading news than graduate students ($U = 220.00, p = .05$). Significant differences were also found between American and international students in their proficiency in both receiving and finding news. In particular, American participants rated significantly higher in their proficiency in receiving news ($U = 163.00, p < .05$) and finding news ($U = 160.50, p = .05$) than international participants. There were significant differences among various age groups in receiving ($\chi^2 (3, N = 50)=8.43, p < .05$), reading ($\chi^2 (3, N = 50)=7.83, p = .05$), and finding news ($\chi^2 (3, N = 50)=9.90, p < .05$).

4.7 Satisfaction of Processing News

Participants also rated how satisfied they were in using their smartphones to process news on a 5-point Likert scale, with 5 as highly satisfied. The averages of receiving, reading, and finding news via smartphone were each 4.42. The average satisfaction rating of sharing was 4.15, while storing was 3.52. Figure 3 shows
average ratings of both proficiency and satisfaction. Significant differences were found in satisfaction ratings across various activities ($\chi^2 (4, N = 50) = 25.85, p < .01$).

Significant differences were found between undergraduate and graduate students in their satisfaction ratings of finding and sharing. A series of Mann-Whitney tests showed that undergraduate students gave significantly higher ratings in their satisfaction of finding news ($U = 184.00, p < .05$) and sharing news ($U = 201.50, p < .05$) than graduate students. American students rated their satisfaction in reading ($U = 141.00, p < .05$) and finding news ($U = 149.50, p < .05$) significantly higher than international students. Significant differences were also found in satisfaction ratings of storing news ($\chi^2 (4, N = 50) = 10.83, p < .05$) among various ethnic groups. Lastly, participants who used iPhones rated their satisfaction of finding news on their phones at a significantly lower rate than participants who used other models ($U = 150.50, p < .05$).

![Figure 3. Proficiency and Satisfaction of Processing News](image)

4.8 Participants’ Reflections on Their Use of Mobile News

Fourteen respondents provided final comments on their experiences in mobile news processing. Several respondents noted the convenience in accessing news via mobile phones, stating that “It is handy and easy using my phone to receive and read publicly news-related information, because it is easy to read up on such during my commutes to and from work. Mobile application[s] are capable of downloading all the daily news and one can read them offline.” Participants also discussed their habit of expanding their interactions with news from mobile to other media—“I am likely to find more information when I could not find enough information from my news app. So, I expand my search through labtop [sic] and social media.” Another participant indicated that the design and usability of the news sites really mattered—“media versions of sites to access news can either be well executed or annoying. When sites are not designed well, I am more likely to skip reading the story from those sites.”

Respondents also commented on their lack of familiarity with or the technical limitations of the storing function on their mobile phones. As stated by one participant, “I’m not familiar with quick ways to store such articles on my phone- though space would be an issue. I’d probably share more articles but sometimes the icons for sharing (for Facebook or Twitter for example) don’t seem to work on my phone.” Another participant echoed, “It is easy to access and explore news, but it is hard to store and categorize them with
a smartphone. Sometimes I use the sharing function instead of storing news on social media apps so I later can find them easily by the shared time."

5 Conclusion

This research study investigated various dimensions of mobile news behaviors of university students in the U.S., focusing on a stream of activities including receiving, reading, finding, sharing, and storing news via mobile phones. The results show that participants were less engaged, proficient, and satisfied in sharing and storing news than in receiving, reading, and finding news through their mobile phones. Particularly, storing was the least frequent activity and had the lowest ratings in proficiency and satisfaction as compared to other activities. Participants’ own comments about their unfamiliarity and/or difficulties in storing and organizing news on their mobile phones suggest that mobile users’ lower proficiency and satisfaction might be the outcome of technological limitations of mobile phones or apps in sharing, storing, and categorizing news items. Further analysis of the diary data would enable a more in-depth understanding of mobile news information behaviors and might shed more light on why storing and sharing were not as predominant or effective as receiving, reading, and finding activities when using mobile phones to process news.

Note from authors: An additional round of data collection was performed in Fall 2016 which involved 13 participants. Combined results of both rounds will be reported in a future publication.

6 References


