

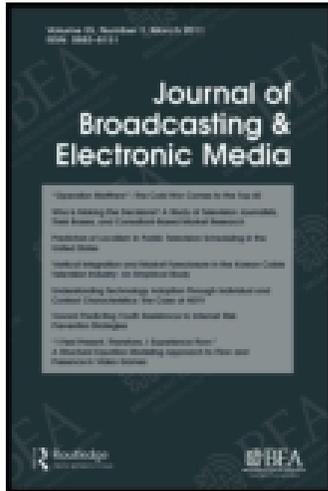
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Routinizing a New Technology in the Newsroom: Twitter as a News Source in Mainstream Media

Soo Jung Moon and Patrick Hadley

This study examined how news organizations employed Twitter as a news source, based on information subsidy and gatekeeping perspectives. News content analysis from 7 major media entities in 2010–2011 demonstrated that journalists embraced Twitter as a new channel for information gathering. TV frequently cited Twitter as a sole or a primary source. However, despite active usage of Twitter overall, journalists in both TV and newspapers maintained conventional routines by relying primarily on Twitter accounts of official sources. The popularity of Twitter accounts, as indicated by the number of followers, did not contribute to attracting more attention from journalists.

Word of Osama Bin Laden's death in May of 2011 arrived first via Twitter. Mainstream media learned the news even before President Obama's official press conference from a tweet by Keith Urbahn, a staff member of former Defense Secretary Donald Rumsfeld. Urbahn's message was retweeted from his Twitter followers to followers of others on Twitter, resulting in rapid spread of the news (Rieder, 2011).

Twitter, as a micro-blogging application, has distinctive characteristics that allow it to function as a more prominent partner for news media than other social networking sites. Aided by technological features such as "retweet" and "hashtag," Twitter can work like a "broadcast" medium with its short messages becoming breaking news feeds affecting mainstream media coverage (Ahmad, 2010). News organizations access Twitter to find newsworthy information and, at the same time, to disseminate their own news. They value the function of Twitter as an awareness system (Gleason, 2010).

While this influential potential impact of Twitter on news media has been discussed in the academic arena (Ahmad, 2010; Arceneaux & Schmitz, 2010; Hermita, 2010), few scholars have weighed on the implications of Twitter in the

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journalistic context, particularly in the process of information gathering. Even more limited is empirical evidence supporting theoretical discussions about the relationship between Twitter and the newsroom.

This is an exploratory study that aims to fill a void in journalism research in the micro-blogging context. This study answers the crucial question of how journalists use Twitter as a news source and whether Twitter can lead to changes in traditional newsroom routines using content analysis of seven major media outlets in the U.S. Our examination contributes to an understanding of current journalism practices in a new technology environment complicated by accelerating economic pressures.

Sourcing in journalism plays a key role in constructing news content (Gans, 1979; Manning, 2001). From a normative viewpoint, democracy functions with an informed citizenry and news media should provide fair and balanced information that represents voices of diverse groups. Sourcing, however, has been influenced not only by normative logic but also by economic logic (Fishman, 1980). Information subsidy and gatekeeping provide the theoretical framework for analysis of the dynamic interrelations among economic concerns, technology and news. Gatekeeping is a concept that explains the overall processes involved in news making (Shoemaker & Reese, 1996), while the information subsidy concept contributes to an understanding of why these routines are formed from a perspective of economic efficiency (Gandy, 1982).

On one hand, scholars suggest that journalistic routines and professional values endure regardless of technological stimulation (Singer, 2005). Conversely, others predict that new technology will drive changes in news gathering routines (Williams & Carpini, 2000). This study examines these seemingly contradictory perspectives through a systematic empirical analysis.

News Sources, Information Subsidy, and Gatekeeping

A major premise of studies on sourcing is the role of news media in a democratic society. As media are expected to facilitate informed choice by the public by conveying news, scholars have been interested in the providers of raw material for news. Scholars focus on the sources from whom journalists obtain information, and why journalists rely on them. As to the former, a consistent finding is the dominance of "those in the centers of power" (Whitney, Fritzier, Jones, Mazzarella, & Rakow, 1989). The contrast between the haves and have-nots is salient under any circumstances of investigation: Officials with institutional power, males (in terms of gender), and whites (in terms of race and ethnicity), dominate stories (Alexseev & Bennett, 1995; Armstrong, 2004; Hallin, Manoff, & Weddle, 1993). Concerns about source diversity are linked to criticism that media contribute to legitimizing the current social, economic, and political structure (Gans, 1979; Soloski, 1989).

One of the main causes of inequity among various socioeconomic groups in gaining media access is journalistic routine formed by the necessity of efficiency. This routine, especially in relation to information gathering, makes a connection

between information subsidy and gatekeeping. Information subsidy explains the routine, one of the major components of gatekeeping, as an economic choice based on an input-output calculation. Relying on this subsidy as a form of external information, media entities can reduce news production costs, and contribute to promoting providers' interests through information dissemination (Gandy, 1982). Gatekeeping refers to "the process by which countless occurrences and ideas are reduced to the few messages we are offered in our news media" (Shoemaker & Vos, 2009, p. 75). While the initial study defined gatekeeping as an individual decision (White, 1950), now organizations themselves are regarded as gatekeepers (Shoemaker & Reese, 1996).

Economic concerns and new technology are major variables affecting the news selection process, along with other organizational and societal variables (Livingston & Bennett, 2003). The news industry has established a professional routine to minimize costs through the efficient allocation of resources. Media sociology has provided the basis for a detailed description of how journalists persistently rely on official sources from governments (Gans, 1979).

The greater the concern among news professionals about economic efficiency, the more they become interested in new technology. The Internet and its offspring are expected to be key factors leading to changes in the traditional journalistic routine formed by information subsidy. Simply put, the Internet reduces the time and effort of journalists in reporting (Pavlik, 2000; Reich, 2008). Perception of cost and time savings was the most notable predictor of Internet use among journalists (Hachigian & Hallahan, 2003). Observers assert that "news organizations embraced the Web, in part, because technological change permitted it and, in part, because owners believed it was an economic necessity" (Weaver, Beam, Brownlee, Voakes, & Wilhoit, 2007, p. 55).

Technology, however, has been rarely identified as an independent force initiating changes in newsroom routines. Rather, various features, such as individual differences among journalists, institutional characteristics, and pressure from market or ideology, interplay with technology in affecting newsrooms routines (Shoemaker & Reese, 1996). That dynamic interaction has resulted in different scholarly findings. Some researchers foresee an erosion of the gatekeeping function of journalists (Williams & Carpini, 2000), while others argue for the persistence of traditional gatekeeping through an emphasis on interpretation and analysis (Domingo, et al., 2008). The impact of technology on information subsidy and gatekeeping will be discussed below with more detailed empirical evidence.

Internet and Twitter in the Newsroom

Changing technology has long had an impact on journalism across various traditional media. Reporters rely more on the Internet for news gathering, fact checking, conducting research, contacting sources and obtaining story ideas (Arketi Group, 2011; Pavlik, 2000).

Literature on the impact of the Internet on journalism can be divided into two groups: newsroom surveys on Internet use and content analysis of news stories. A survey found that journalists use the Internet mainly to read other news stories or to find new story ideas (Arketi Group, 2011). Hermans, Vergeer, and d'Haenens (2009) verified that employees of blogs use the Internet more than others. Newspaper journalists used the Internet less than local broadcasters, but more than national and regional broadcasters. However, Reich (2008) found only marginal differences among Israeli reporters in three types of news media (print, radio, online) in terms of Internet use for information gathering.

Unlike the mixed results of Internet use in newsrooms, content analysis has generally indicated high homogeneity of news stories across media. The gatekeeping role of traditional journalism persists online. Maier (2010) found that 60% of the top stories on online news sites covered the same topics as traditional media, with similar frequency and depth of coverage.

Twitter is becoming increasingly relevant for the journalism profession. Founded in 2006, it is a social networking and microblogging service that allows users to send and receive short text-based posts, known as "tweets." Twitter has enjoyed dramatic growth during its short existence. Over 90% of journalists responded that their reliance on social media, like Twitter, has increased, and that social media serve as a reliable tool for sourcing stories (Middleberg/SNCR, 2011). More detailed examination, however, showed interesting attitudinal and behavioral differences among media. A survey found that microblogging sites like Twitter were most highly cited by journalists working at Web sites (75%) and magazines (57%), as opposed to those employed by newspapers (43%). Over half of print media journalists said they never use these microblogging sites for online research. Newspaper people (91%) were also more negative than online journalists (76%) about the reliability of information from social networking sites (Cision & George Washington University, 2009).

Twitter has gotten widespread attention for its central role in facilitating communication about international political upheavals and natural disasters (Papacharissi & de Fatima Oliveira, 2011). In the journalism field, Twitter has been a useful tool for newspaper Web sites, supplementing the traditional investigative role of print journalists, as well as their role as providers of information about breaking news events (Ahmad, 2010). Using principles from the field of human-computer interaction, Hermida (2010) introduced a conception of Twitter as "ambient journalism." In this view, Twitter is a "broad, asynchronous, lightweight, and always-on" communication system that enables citizens to maintain a "mental model" of news and events around them, making it essentially "an awareness system." (p. 301).

Research Questions

Previous studies have found that while journalists recognize the efficiency of the Internet, and implement it as a tool for news gathering, their traditional routine

has not been altered fundamentally (Singer, 2005). Surveys, for instance, showed that journalists still prefer face-to-face or telephone interviews and reliance on the Web as a news source is negligible, even among online reporters (Reich, 2008). Availability, however, is another essential aspect of source usage in addition to credibility. While journalists prefer live sources most, technology has filled the void when live sources were unavailable (Pavlik, 2000). Twitter also worked as a primary or even a sole source in the various cases discussed above when there were no or limited alternatives. It is necessary to consider different levels of prominence by distinguishing primary from secondary sources. For example, females were frequently cited as subordinate sources in previous studies (Armstrong, 2004; Manning, 2001).

Regarding differences among media, prior research suggested that TV news counted on more routine sources than newspapers due to equipment constraints: "... crews must be dispatched to those happenings which are sure to yield stories, regardless of the vagaries of news developments" (Epstein, 1973, p. 134). Berkowitz (1987) compared his findings of TV news with a study of newspapers by Brown, Bybee, Wearden, & Straughan (1987) and found heavy reliance on routine sources by both network and local TV news. To examine whether Twitter was embraced as a part of journalistic routine by serving as a primary source, we ask the following set of research questions.

RQ_{1a}: How frequently do media use Twitter as a primary source?

RQ_{1b}: Do newspapers and TV differ regarding attribution of Twitter as a primary source?

The distinction between hard and soft news is based on news values that facilitate the gatekeeping process. Timeliness, proximity, human interest, impact, and conflict are common features that add value to news (Ettema, Whitney, & Wackman, 1997; Rich, 2009). Timeliness and conflict are key elements of hard news, while human interest is a main quality of soft, feature stories. Hard news concerns events that consist of "factual presentation" (Tuchman, 1997), and unlike soft news, it is difficult to control the timing of publication. In addition to the feature of newsworthiness, news style is dependent on significance: "(Newsmen) may simply summarize, hard news concerns important matters and soft news, interesting matters" (Tuchman, 1997, p. 176).

Journalists are cautious about using online sources due to issues of credibility and verification (Garrison, 2000). Since hard news is considered more important and serious, Twitter might be cited as a news source more frequently for soft news than hard news. However, one of the most notable features of Twitter being its speed of dissemination, and with timeliness being one criterion of news type, categorizing Twitter as a typical topic of soft news might be unsound.

A contradictory prediction also exists in the relationship between news style and medium. Although the portion of soft news as a percentage of total news has increased over time globally in all media, local and network TV stations are faster runners in the race for "tabloidization" than elite newspapers (Livingston & Bennett,

2003). Literature reveals that complex stories needing interpretation and analysis, such as the economy and politics, are more suitable for print (McManus, 1994). This distinct trait of print and broadcasting makes a difference in the degree of “featurization” of hard news. TV news chases soft news such as crime, celebrity, and entertainment, stressing sensational, personal, and emotional aspects (Slattery, Doremus, & Marcus, 2001). The higher portion of soft news in TV (Patterson, 2000) simply suggests Twitter might be cited more for soft news.

However, another major characteristic of TV news, immediacy, refutes this forecast. Offering information immediately to viewers is TV news’ “main purpose and competitive weapon” (Gans, 1979), and, for that reason, TV journalists feel more deadline pressure. It is plausible that TV news turns to non-traditional sources when alternative sources are not quickly accessible. Since timeliness is a key criterion to determine news style, frequent Twitter citations in TV hard news is expected. Bearing in mind the mixed findings of previous studies, we ask the following research questions.

RQ_{2a}: How frequently do media cite Twitter in hard and soft news?

RQ_{2b}: Do newspapers and TV differ regarding attribution to Twitter in hard and soft news?

In a content analysis of *The New York Times* and the *Washington Post*, Sigal (1973) found that 58% of news derived from routine channels such as official proceedings, press releases, and press conferences. The body of literature indicates striking similarities among mainstream media in political news (Altheide, 1985), and the Internet is expected to accelerate the homogeneity of news items because journalists know about other media coverage (Arketi Group, 2011).

Livingston and Bennett (2003) found technological advancement did not change this familiar routine for journalists. Journalists continue the gatekeeping practice of “officiating” by bringing official sources into the news frame, even when reporting unplanned event-driven news. As opposed to this argument, Williams and Carpini (2000) predicted critical changes in the profession from information gathering to increasing diversity of coverage. They also emphasized the possibility of participatory journalism provoked by new technology. Based on the mixed stances of the previous studies, we posit the following research questions:

RQ_{3a}: How frequently do media rely on Twitter feeds of traditional official sources in political news?

RQ_{3b}: Do newspapers and TV differ regarding reliance on Twitter feeds of official sources in political news?

The beat system demonstrates the standardized routine in news reporting. Journalists are assigned to cover beats that can feed the media regularly with newsworthy information. Information from a beat is regarded as credible because it is *official*.

These official sources are “judged to be authoritative and their opinions legitimate” (Schudson, 2002, p. 255).

Individuals and institutions associated with a beat have higher chances to secure access to media through regular contact with journalists. There is a hierarchy of beats, of course. Whitney et al. (1989) ranked the White House over the federal government and the federal government over local governments. This hierarchy is a reflection of powers and allows for the provision of newsworthy information in a predictable arranged way (Fishman, 1980). If we apply the real world logic to the “Twitterverse,” the number of followers is the most important and visible power indicator. Therefore, it is expected that if Twitter has been incorporated as an independent beat for journalists, the number of followers would be a predictor of newsworthiness. To examine the relationship between the number of Twitter followers and its value as a news source, we posit the last research question.

RQ4: Will there be a relationship between the number of followers of particular Twitter accounts and the number of attributions of those particular Twitter accounts in news stories?

Method

Sample

Seven representative media in the U.S. were selected: *The New York Times*, *Washington Post*, ABC News, CBS News, NBC News, Fox News Network, and CNN. *The New York Times* and *Washington Post* are elite newspapers used commonly for media content analysis (Sigal, 1973). As television has been cited most frequently as a main news source, all three networks and two major cable channels were analyzed (Pew, 2008).

We collected the sample from September 2010 to August 2011, which was the most recent full year at the time of this study. During this timeframe, Twitter surpassed 4 million users. This study used a relatively longer timeframe of 12 constructed weeks, i.e., 84 days. Compared to simple random or consecutive day samples, constructed week(s) was regarded as a more reliable way of sampling (Hester & Dougall, 2007; Riffe & Aust, 1993). While a single constructed week was acceptable in traditional media studies, previous research on new media employed various time frames from a week to 6 months depending on issues, number of samples, or availability (Leccese, 2009). Preliminary sampling for this study indicated the necessity of a longer time frame for securing a reliable number of stories for statistical analysis. Sampling over 12 weeks made it possible to select each day of the week from 12 different months, i.e., 12 Mondays, 12 Tuesdays, etc.

The keyword for the LexisNexis Academic (<http://www.lexisnexus.com>) search was “twitter.” All stories longer than 100 words including “Twitter” in the full body

were collected if they were produced by journalists of the media organizations. In the case of TV, the following sub-category of each station was used as the database for sampling: ABC News transcripts, CBS News transcripts, Fox News network, CNN transcripts, and NBC News transcripts. Stories from straight news programs, as well as non-conventional news magazines, such as ABC's *Good Morning America* or CNN's *The Situation Room*, were included.

All stories longer than 100 words including "Twitter" in the full body were collected if they were produced by journalists of the media organizations. Letters to the editor or columns by outside people were not included. As this study focused on usage of Twitter as a news source, stories containing general comments about it, e.g., privacy issues of social networking sites, were excluded. In addition, if "Twitter" appeared in the index or if the only reference was at the end of an article (e.g., "Click here to follow me on Twitter"), such stories were also excluded.

Coding

There are four main categories of variables: (1) the topic of news story; (2) type of news story; (3) the entity whose Twitter account was cited in the news story; and (4) primary sources.

First, the *topic* of each story was coded. While section title, headlines, leads, and first paragraph usually gave sufficient information about the topics, coders were asked to understand the context. For example, a few stories published in the business/finance section of newspapers were coded as technology news because their primary focus was technology rather than money. Likewise, if the stories in the technology section were oriented to business, they were coded as economic news. While our research questions required only a simple distinction between political and non-political news, the detailed coding scheme of topics provided one of the criteria for the next variable, news type.

When the stories were grouped into a *hard news* or *soft news* category, coders were asked to consider "timeliness" and "writing style" to determine news types. Unlike hard news, soft news is less time-sensitive. Hard news stories tend to employ the inverted pyramid style, while feature stories use a narrative or anecdotal approach. To identify writing styles, coders should find a focus sentence of each story, and examine whether the focus sentence was used as a lead or at least located in the first paragraph (Rich, 2009).

If coders could not determine news type using time element and writing style, then "topic" was suggested as the third criterion. Hard news had six items of news topics: politics (election, government, policy, and national security), international affairs, economy (business, finance, and stock market), crime (legal issue, accidents), disaster, and weather. Five items such as arts (high-end, classic arts), sports, entertainment (celebrities, gossip), life style (trend, fashion, travel), and science (technology, health) are grouped as soft news.

Regarding ownership, coders recorded the identity of the Twitter account holder when a specific individual or organizational account was cited in the stories. If multiple accounts were mentioned as sources in the same story, all the accounts were coded. But when a single Twitter account was cited repeatedly, it was coded only once. The verbatim identity of Twitter owners was categorized into nine items, including public administrators, Congress, foreign politicians, and experts.

This study used the term “primary sources” with a double meaning: a sole source or the most prominent one among multiple sources. To evaluate the weight of news sources in a story, coders first counted the number of sources in addition to Twitter. If Twitter was used as a sole source, the item was coded as both a sole and a primary source. When multiple sources were mentioned, coders were asked to understand the full context of the story to single out one as a primary source. Additionally, to evaluate the importance of the sources, frequency of citations, and location of the attributions such as headlines, leads or the first paragraphs were considered.

In addition to the media coding, if a specific Twitter account was mentioned as a source in the news stories, the number of followers of that account was recorded. The unit of analysis was a story (newspaper) or a segment (TV), but the owners of Twitter accounts were coded multiple times as explained above. Although it was not this study’s main interest, coders also examined if the specific account was a “verified” Twitter account. Twitter indicates the authenticity of account holder with a blue badge on the profile.

Inter-coder reliability was calculated based on 10% of the sample. The general agreement was 91.7%. Following are the values of Scott’s pi of each variable: topic (.82), hard or feature news (.97), category of Twitter owner (.73), sole source (.74), and primary source (.79). While the values of Scott’s pi for several variables are under .80, Neuendorf (2002) explained a wide disagreement among scholars on determining acceptable ranges of intercoder reliability. Significantly, she noted that requiring Scott’s pi higher than .80 is too conservative. The relatively low values of pi, however, raised the importance of rigor in the coding scheme as well as in coder training.

Results

Over the sampling period, a total of 946 newspaper stories and TV news segments used Twitter as a news source. This means the seven media published or aired 11.2 stories per day using information from Twitter. There was no trend of increase or decrease of sample numbers by month. Twitter was cited in the seven outlets in as many as 26 stories/segments per day in June of 2011 when the scandal involving then-Congressman Anthony Weiner was disclosed. By contrast, the number of stories/segments per day reached a low of 4.7 in October of 2010. CNN cited Twitter most frequently (389 segments) over the sampling period. It was followed by *The New York Times* (238 stories) and *Washington Post* (113 stories). Other TV stations’ number of segments was less than 100, such as ABC (68), NBC

(55), Fox News (49), and CBS (34). In terms of topics, politics (376 stories, 40%), entertainment (173 stories, 18%), and sports (130 stories, 14%) were common. Among 348 identified accounts, 70% (243) were verified.

RQ₁ asked about citation of Twitter as a primary source and whether this differs among media. To examine whether Twitter was used as a primary source, we employed two approaches. The first one is a more objective calculation of the percentage of Twitter sources per story (number of Twitter sources divided by total number of sources). If Twitter was the only source of a story, it was 100%. If Twitter was one of five sources cited in a story, the proportion was 20%.

Analysis showed various percentages of Twitter sources per story, from 100% (one source) to 8.3% (12 sources). While Twitter accounted for 57.1% of news sources across all media, TV (70.6%) showed a higher value than newspapers (34.2%). The difference of mean was significant at .001 level ($t = 18.8$, $d.f. = 944$).

The second approach relied on coders' judgment if there were multiple sources. As discussed above, the term "primary sources" means either Twitter as a sole source of the story or Twitter as the most salient source among multiple sources. We used three different approaches to answer the research question: Whether Twitter was a sole source; whether Twitter was a primary source even when additional sources were available; or whether Twitter was either a sole or a primary source.

Twitter was used as a sole source in 336 stories (35.5%). Among 610 stories with multiple sources, 25% of them (153 stories) used Twitter as a primary source. The frequencies showed that Twitter was used as a sole/primary source in more than half of the stories ($N = 489$) by itself or with other supplementary sources. Three cross-tab analyses in Table 1 demonstrated significant differences between two media. TV relied on Twitter as a primary source much more than newspapers.

The findings were consistent in all three analyses. TV used Twitter as a sole source in 301 stories (50.8%) while newspapers did in only 34 stories (9.7%). Value of chi-square (162.59) was significant at .001 level. When only multiple-sources stories were compared, TV ($N = 105$, 35.8%) and newspaper ($N = 48$, 15.1%)

Table 1
Media's Twitter Use as Primary Sources

		Newspaper	TV	χ^2
Sole source ($N = 946$)	Sole	34 (9.7%)	302 (50.8%)	162.59***
	Multiple	317 (90.3%)	293 (49.2%)	
Multiple sources ^a ($N = 610$)	Primary	48 (15.1%)	105 (35.8%)	34.70***
	Supplementary	269 (84.9%)	188 (64.2%)	
All ($N = 946$)	Primary	82 (23.4%)	407 (68.4%)	179.36***
	Supplementary	269 (76.6%)	188 (31.6%)	

Note. ^aNews stories with other sources in addition to Twitter were analyzed. $d.f. = 1$, *** $p < .001$.

also presented a statistical difference ($\chi^2 = 34.7, p < .001$). Overall, TV (N = 407, 68.4%) relied more on Twitter as a primary/sole source than newspapers (N = 82, 23.4%) by using Twitter only, or with less notable other sources ($\chi^2 = 179.36, p < .001$).

RQ₂ asked about Twitter citation by news type and news medium. Print and broadcasting cited Twitter more frequently in soft news than in hard news. Soft news accounted for 57.8% (203 stories) of newspaper and 60.5% (360 stories) of TV news citing Twitter as a news source. In sum, 60% of all stories citing Twitter were feature news. The difference between newspapers and TV was not statistically significant ($\chi^2 = .65, d.f. = 1, p = .45$).

RQ₃ asked about the use of Twitter feeds in political news. Among 376 domestic or international political stories, 316 stories cited specific Twitter accounts as sources. Both newspaper and TV relied mainly on politicians, as presented in Table 2.

The Twitter accounts of members of Congress were most frequently cited as news sources in newspapers (N = 26, 31.3%) and TV (N = 123, 52.8%). The salience of Congress may have been influenced by the media frenzy generated by the Weiner scandal. The next most commonly cited Twitter sources were President Obama and other government officials. Newspapers (N = 12, 14.5%) obtained more information from foreign governments than TV (N = 5, 2.1%). When all official sources such as the President, officials from executive branches, Congress members, and foreign governments were totaled, 228 (72.2%) stories relied on traditional official sources. By comparison, Twitter accounts of experts (1.6%), media (7.3%), or activists (10.1%) were rarely cited. The findings demonstrated that mainstream media relied more on the Twitter feeds of traditional official sources than on those of non-official sources.

Table 2
Number of Mentions of Twitter Accounts as Political News Sources

	Newspaper	TV	Total
President, Officials from executive branch	14 (16.9%)	48 (20.6%)	62 (19.6%)
Congress Members	26 (31.3%)	123 (52.8%)	149 (47.2%)
Foreign governments	12 (14.5%)	5 (2.1%)	17 (5.4%)
Experts/Scholars	3 (3.6%)	2 (0.9%)	5 (1.6%)
Activists	4 (4.8%)	28 (12%)	32 (10.1%)
Media People	7 (8.4%)	16 (6.9%)	23 (7.3%)
Others	17 (20.5%)	11 (4.7%)	28 (8.9%)
Total	83	233	316

While both media mainly relied on Twitter feeds of official sources in political news, a statistical analysis showed that TV more frequently cited those sources than newspapers ($\chi^2 = 5.06$, d.f. = 1, $p < .05$). TV cited Twitter accounts of traditional official sources 176 times (75.5%) while newspapers cited them 52 times (62.7%).

RQ₄ asked whether a relationship exists between the number of followers of particular Twitter accounts and the number of citations of those particular Twitter accounts in news stories. The most frequently cited were those of Anthony Weiner (102 times), followed by President Obama (26), Sarah Palin (24), and Tiger Woods (17). Most of the Twitter accounts were mentioned as sources two or fewer times (90%). In fact, 78% of them (272 accounts) were cited only once. It demonstrated that most Twitter accounts were outside of journalists' routine coverage. The stories were driven by the occurrence of sporadic events rather than consistent attention of journalists.

The correlation between the number of citations and the number of followers was not significant ($r = .06$, $p = .25$). The popularity of Twitter accounts, as indicated by the number of followers, did not contribute to attracting more attention from journalists.

Discussion and Conclusion

Considering the remarkable nature of Twitter as an information dissemination and information gathering tool, *news* should be a central emphasis of academic interest into Twitter. To answer the call, this study explored the relationship between journalism and Twitter using news content analysis of seven mainstream media outlets. First, it examined how journalists used Twitter as a news source; second, it considered how the popularity of Twitter in the cyberworld affected its salience in news stories.

Our analysis showed mixed pictures of newsroom use of Twitter for information gathering. Journalists working in mainstream media embraced Twitter as a new tool for reporting while maintaining routines in selecting specific sources. News media heavily relied on traditional official sources when they cited Twitter for political stories. Our finding supported previous studies' observation that TV relied more on routine official sources than newspapers. Significantly, TV used Twitter more heavily as a sole or primary source than newspapers. Both newspapers and TV more frequently used Twitter as a source in soft news than hard news. When the frequency of citations in news stories was compared with the number of followers of particular Twitter accounts, there was no significant correlation.

Although newspapers and TV did not show any difference in Twitter citations depending on types of hard and soft news, it does not mean that the two media embrace Twitter as a reporting tool without distinction. There were notable differences between media depending on story *topics*. For instance, many of TV's Twitter stories relate to U.S. politics (37%) while newspapers' domestic and international political news portion was less than 30%. When we re-classified stories as *serious/important*

vs. *less serious/interesting* using one criterion, "topic," the two media demonstrated noteworthy differences. Newspapers cited information from Twitter less frequently than TV for *serious* topics such as politics, economy, crime, and disaster coverage. Twitter was a useful source of *interesting* news such as art, sports, entertainment, and life style for newspapers, while it serves as a source of *important* news for TV.

This contrast seemed to be from the different characteristics of two media. Because of the scheduling of televised news programs, TV journalists have more frequent deadlines than their colleagues in the newspaper industry. For this reason, TV news relies more heavily on Twitter as a direct source even for serious topics while newspapers can take time to conduct additional investigation based on the clues offered by Twitter.

The comparison between the popularity of the cyberworld and interest to journalists provided further evidence to support the enduring gatekeeping process. This lack of correlation indicated that journalists accessed particular Twitter accounts not because the accounts had more followers but because some newsworthy things occurred related to the accounts. In other words, the popularity of Twitter as a source does not contribute to making the account a part of a *beat* that journalists contact regularly. Three-fourths of Twitter accounts in news were mentioned once. The monthly number of samples, which did not have any pattern, supported again the argument that there was no ground to assume the increasing or decreasing interest of journalists in Twitter over time. In sum, news is event-driven, not Twitter-driven.

It should be noted that the findings of this study do not imply that mainstream newsrooms have not been affected by Twitter at all. On the contrary, Twitter was commonly cited by major U.S. media outlets. Even *The New York Times* and *Washington Post* published 10% of stories with Twitter as the only source, despite the journalistic golden rule regarding "multiple sources."

There were notable examples of how traditional media relied on Twitter for information gathering. Twitter is a useful and, in special cases, a unique tool available to cover unplanned events such as disaster, crime or political turmoil. Further, Papacharissi and de Fatima Oliveira (2012) regarded Twitter itself as a news medium, and identified Twitter's ability to activate crowdsourcing based on observations during the recent Egyptian unrest. The fact that almost all media entities have multiple Twitter accounts, and some organizations have created a dedicated team to handle the new platform, illustrates its potential (Gleason, 2010).

Another expected role of Twitter as an out-bound communicator, however, appears to be primarily potential at this time. Studies indicate that news organizations use Twitter at most as a minor supplement for information dissemination. At this point, news media mainly expect Twitter followers to be attracted by 140-character news summary to visit the Web sites to read the whole story. Media outlets rarely ask followers for information or opinions in usual situations (Pew, 2010).

As an offspring of the Internet, Twitter has both strengths and drawbacks. On the one hand, it is hard to refute key journalistic concerns about credibility and verification problems with Twitter. Common issues of privacy or defamation add concern for responsible reporting using this technology. Emphasis on norms, values,

and ethics is an inevitable approach to distinguish traditional journalists from the new breed of news media participants (Singer, 2005). The media industry's social media guidelines reflect the ethical concerns toward the new tools. Most major news outlets and organizations, such as American Society of Newspaper Editors (ASNE), Society of Professional Journalists (SPJ), and Radio Television Digital News Association (RTNDA), set specific policies for social media use in reporting that emphasize traditional codes of ethics represented by credibility and transparency.

On the other hand, media critics have raised claims that journalists prefer their role as agents of social control through sturdy connections with dominant power, rather than as forces for social change. Ideally, Twitter can be an alternative to information subsidy by offering channels for diverse voices from minorities and other communities.

The double-sided potential of Twitter in journalism generates mixed implications regarding one of major findings of this study. As guided by information subsidy and gatekeeping theory, journalists were found to maintain the professional routines formed to achieve the highest efficiency of the organizations, even when employing Twitter as a news source. Journalists still throw their news nets to the same spots as they did in the pre-Internet age. This finding is consistent with previous literature that emphasized enduring routines of journalists in using the Internet. Because journalists still doubt the reliability of online sources, they visit state and local government Web sites most often (Garrison, 2000; Hermans, Vergeer, & d'Haenens, 2009). From a perspective of source diversity, Twitter might not contribute to a decrease in source bias at all. From a perspective of credibility and verification, however, frequent attribution of officials' Twitter accounts is understandable, or even a positive phenomenon. The portion of "verified" accounts (70%) among all identified Twitter accounts in this study also illustrates the persistence of the journalistic routine to seek credible sources.

Several limitations of this study accompany suggestions for future research. First, both newspaper and television media relied more on information from Twitter for soft news than for hard news. This result, however, must be interpreted with caution because we lack empirical data to allow us to compare stories using Twitter as a source with stories using traditional news sources. If, in general, a majority of stories relying on traditional sources also could be considered soft news, then our findings are less compelling. This caution should be emphasized considering our sampling included TV stations' *soft news programs*, such as news magazines or talk shows, not only the typical news format.

Second, one of the hot issues during the sampling period was Anthony Weiner's sex scandal, leading to a high portion of Congress members serving as news sources. At an individual level, the scandal caused the unusual case that the President was much less frequently cited than a Congressman who previously had no national recognition.

Third, valuable information could be gained about the journalistic sourcing routine through the distinction between citation of Twitter for straight news reporting and for commentary. Further, examining the feature of sourcing through message

analysis would be meaningful. For instance, do journalists cite Twitter to replace in-person interviews or to highlight unusual Tweets? The former supports Twitter's role in conventional information gathering while the latter reflects the trend toward sensationalized journalism.

Fourth, to examine correlations between resources and technology usage, content analysis should add various sized media organizations. Taking into account that information subsidy is a major theoretical framework of this study, it is essential to examine small- and medium-sized enterprises that have far fewer resources than the sample included in this study.

An additional suggestion for future study is issue tracking to examine the changing role of Twitter with development of an issue. Studies have shown the Internet serving as a major source in reporting of unplanned events, especially in the initial stage. Analyzing how Twitter serves as a source and disseminator over time and how the interplay between sources and phases of events leads changes in news frames would provide in-depth description to help our understanding of the impact of technology on news.

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