U.S. Television News about the Smartphone:
A Framing Analysis of Issues, Sources, and Aspects

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Abstract

This study examines TV news networks' coverage of the smartphone from the news framing perspective. A content analysis was conducted on 2,792 TV news transcripts about the smartphone from four major TV news networks (*ABC, CBS, NBC,* and *CNN*) in the US during the time period from 2000 to 2012 in terms of issues, sources, and episodic/thematic aspects. Results found that US TV news emphasized ease of use, performance, and Apple issues. News sources of professors, the government, and industry analysts were frequently used. TV news framed episodic aspects more than thematic ones.

Keywords: TV News, Framing, Smartphone, News Aspects

Media coverage of information and communication technology (ICT) and its business has influenced consumers, the industry, marketers, and policy makers to a significant extent (Maeseele, 2011; Weaver, Lively, & Bimber, 2009). Consumers get informed about ICT, build images about ICT manufacturers, and make a purchase decision about ICT products largely based on what they see on media about ICT. In this way, media can influence consumers' perception and attitude toward ICT products, brands, or companies. Depending on how media cover issues about ICT, the policy of the government may be affected because policy makers also depend on media for news about ICT (Brubaker, Price, & Jones, 2011; Weaver et al., 2009).

To date, one of the ICTs that consumers use every day and has received substantial media attention is the smartphone. The smartphone is defined as a mobile phone offering computer functionality and ability to talk, text, browse, and install third party application software (Karikski & Soikkeli, 2013). According to a recent study by ComScore (2013b), there are over 133.7 million smartphone users in the US, indicating 57% of Americans have a smartphone and use it seven days a week. Another analysis projected that the number will increase up to 70% by 2016 (eMarketer, 2012). Scholars and analysts agree that the smartphone is transforming mobile media consumers' daily lives, activities, and behaviors by functioning as the part of a body (Ipsos Media CT, 2012).

There are existing studies about the news coverage of other technologies such as nanotechnologies. However, these studies were particularly focused on traits of the technology and the print media rather than a device and TV news (Maeseele, 2011; Weaver et al., 2009). Other researchers conducted consumer responses to ICT rather than specifications of content categories the news media cover (Vishwanath, 2009). An analysis of content categories can provide researchers and professionals with information about what aspects, issues, and sources are important in understanding ICT. In addition, recent legal trials between Apple and Samsung on smartphone patents have influenced consumers' purchase intention of a smartphone and brand identification development due to a series of news coverage of the two companies (Ajuria, 2012; Ramstad, Choi, & Osawa, 2012; Tak & Kim, 2012).

An analysis of news content about the smartphone is important in terms of technology communication in the media. This study can provide researchers about other mobile media such as mobile games or shopping with an analytical framework of issues, sources, and aspects. Besides, depending on how the media frame the smartphone, consumers or communication policy makers' evaluation can be largely determined. Emphasizing personal or social aspects of smartphones can affect smartphone adoption, addiction, and control. The information about the smartphone can provide the mobile technology professionals with relevant communication strategies for users and stakeholders.

This study examines TV news networks' coverage of the smartphone from the news framing perspective. TV news is still the most viewed media channel by the audience to get informed and influential due to ubiquity and audiovisual presentations (Cho, 2006; Gordon & Cafferty, 2006). Digital technologies have further widened audience accessibility to TV news through online video and mobile apps (Pew Research Center, 2012).

In this study, a content analysis was conducted on 2,792 TV news transcripts about the smartphone from four major TV news networks (*ABC, CBS, NBC,* and *CNN*) during the time period from 2000 to 2012. This study aims at examining a) issue frame in smartphone news reports; b) source frame in these TV news reports; c) aspect frame of the news reports, and d) how issues, sources, and aspects are related to each other.

News Framing of ICT

News framing is the selection of "some aspects of a perceived reality" that makes those aspects more salient to a media audience (Houston, Pfefferbaum, & Rosenholtz, 2012). A news frame represents a central organizing idea or story line that provides the audience with meaning to an unfolding strip of issues and events (Gamson & Modigliani, 1987). Entman (2003) explains that news takes place in the forms of events, issues, and actors. Chyi and McComb (2004) approach news frame in terms of time and space news topics, which are embedded in central ideas or themes (Dimitrova, Kaid, Williams, & Trammell, 2005). As particular issues, actors, or aspects, or angles are highlighted and made salient in news, "an identifiable slant" is constructed in the news delivery process (Bloch-Elkon, 2007). News framing is also called as the process of "symbolic packaging" by diverse actors in various institutional settings. The actors such as the news media and news sources employ symbolic

packages to interpret experiences, identify the sources of problems, and develop responses to the problems (Gamson & Modigliani, 1989).

Although there has been no study that directly analyzes news about the smartphone, some studies have found that the way the media frame ICT influences consumers' evaluations of technology. Druckman and Bolsen (2011) pointed out that consumers develop attitudes and take actions toward a technology from multiple factors including values, trust, and frames of arguments. In a study about nanoscale technology, news coverage about the technology deemphasized social responsibility even though the societal outcomes of the technology played an important part at the social level (Weaver et al., 2009). In this view, the way the news media cover the smartphone can be a factor to influence corporate image, consumer opinion, or consumer actions.

Another view relating news framing can be found in the technology acceptance and adoption perspective (Davis, 1989; Venkatesh & Davis, 2000). Consumers make judgment about the smartphone for adoption by their information experience. The technology acceptance model states that easy functionality, enhancement on task performance by using the technology, and experts' recommendation can be a catalyst of acceptance of the technology. The framing of news about the smartphone emphasizing task effectiveness, easiness, benefits, and interviews can facilitate the process of technology acceptance (Vishwanath, 2009).

Issue Framing of ICT

Research has used issues covered in TV news as a way to identify framing a news topic (Dardis, 2007). Although not about the smartphone, some studies have identified issues framed in technology news. Weaver et al. (2009) found that issue frames of science and technology news in top 10 U.S. newspapers emphasized "progress," "regulation," "conflict," and "generic risk" whereas actors and responsibilities were deemphasized. Vishwanath (2009) examined the framing of new communication technology and its relationship with consumer adoption. In the study, Vishwanath (2009) found that "ease of use" and "performance" issues received large attention by the consumers. Some studies analyzed nanotechnologies in TV or newspapers due to its social importance for human health. A study about nanotechnologies in British newspapers discovered the role of "celebrity" in promoting the technologies' benefits (Anderson, Allan, Petersen, & Wilkinson, 2005).

The news media also cover the issue of "progress" of ICT. As a new technology or advanced devices are developed, the news media update the progress to inform the audience (Maeseele, 2010). Relating to "progress," "research findings" about technologies were frequent issues covered in the news media (Einsiedel, 1992). In addition, government "policy" about technologies, environment, energy, and communications was found to be an important issue in newspaper coverage of technology in Canada (Einsiedel, 1992). Given the review, this study asks the first research question about TV news coverage of the smartphone.

RQ1: What issues in the smartphone have been covered in network TV news in the US over time?

Source Framing of ICT

Another approach to identifying framing of the smartphone is about who speaks of the technology. This approach examines interview sources that represent the members who are involved with the smartphone. News sources are an important part of quality journalism, which provides credibility, knowledge, and balanced views to the audience. News media frames emerge as journalists emphasize elite sources such as opinion leaders or experts (Durham, 2007). The news media play a translational role in social debates by providing the audience with the "access points" to experts (Fitzgerald & Rubin, 2010; Giddens, 1990).

A key role player in the dissemination of technologies is "corporate actors" and "the government." Their economic and cultural resources put corporate companies and the government in a position that other social members can use them as news sources (Maeseele, 2011). The news media often rely on "entrepreneurs" and "technology experts." Technology news particularly cites "scientists," "researchers," "public interest groups," and "the developers of products" (Pense & Cutcliffe, 2007). When a technology is involved with legal disputes, "lawyers" and "law professors" are frequent news sources (Decker & White, 2012).

Compared to experts, researchers, government officials, and interest groups, the voice of "citizens" or "consumers" about technology has been relatively few as news sources (Einsiedel, 1992). This one-sided news coverage can distort reality and make news stories a tool for one-way information flow, which can hamper consumers' fair judgment (Cho, 2006). Given the review, experts, consumers, analysts, the government and consumers' views would be possible sources for news about the smartphone.

RQ2: What sources in the smartphone have been covered in network TV news in the U.S. over time?

Aspect Framing of ICT

Communication research on news framing is focused on the journalistic orientation of news coverage. One of journalistic orientations deals with the coverage of a topic by the news media on responsible entities (Iyengar, 1991). The episodic news frame involves a case or event in which individuals are responsible. The thematic news frame emphasizes an issue at the social level including background information in a social/political context (Iyengar, 1990). Individual responsibility is concerned with emphasis on the origin of a problem (e.g., individual behaviors, personal condition, personal story), whereas social responsibility is focused on the people who have the power to control the problem (e.g., corporate role, contribution to society).

Applied to the smartphone, it is important not only for individuals to use the device but also for the social responsibility for it. The smartphone can be a socially responsible innovation (Center for Ethics and Technology, 2013). Daoudi and Murphy (2011) found that news about new communication technologies in the Arab news media framed five different aspects: "development," "emancipation," "subordination," "adaptation," and "resistance." These aspects reflect what social responsibilities the technology has in the Arab world. If the news covers social aspects of the smartphone, it can be called that the news is thematically framed. On the other hand, television news may cover user aspects of the smartphone including personal stories or attribution of risky smartphone use to individual responsibility. This analysis can offer the information about the building of smartphone image either positively or negatively, which can be related to consumers' buying decision or evaluations. News researchers contend that episodic news on TV news networks is likely still dominant because it can draw the audience's attention better (Kim, Carvalho, & Davis, 2010).

H1: The U.S. TV news media will cover episodic aspects more than thematic aspects about the smartphone over time.

Interaction among Issues, Sources, and Aspects

Research suggests that depending on the way technology is framed in news, it can interact with consumer opinions and government policies (Druckman & Bolsen, 2011). An

investigation of the relationships among smartphone issues, sources, and aspects would tell us what issues, sources, or aspects are interacting together to emphasize either episodic or thematic aspects. Gathering from this, it is possible to presume that news framing is associated with either personal or social aspects about the smartphone, which can influence consumer adoption, evaluation, and control. These points of view pose the following two research questions.

RQ3: How do issues about the smartphone in TV news relate to episodic-thematic aspects?

RQ4: How do sources about the smartphone in TV news relate to episodic-thematic aspects?

Method

A content analysis of news transcripts was performed on major TV news networks from April to June, 2013. According to Nielsen ratings, an international TV ratings and audience research company, *ABC*, *CBS*, *NBC*, and *CNN* are top four national network stations for news (Kondolojy, 2013). This study used news transcripts of the networks for the years of the news that started the touch-screen smartphone in the database. The first year for transcripts about the touch-screen smartphone, which was the first all-in-one device in the smartphone history, in the *Lexis-Nexis* database for the networks (*ABC* in 2000, *CBS* 2000, *NBC* 2000, and *CNN* 2000) was the year of 2000 (The Smartphone Revolution, 2013).

By visiting the database, an initial search of news stories in the networks using a single search term "smartphone" yielded 3,721 transcripts (*ABC*: 320, *CBS*: 369, *NBC*: 309, and *CNN*: 2,723). An investigation of the transcripts for redundancy, unrelated news, or minimal coverage of the smartphone was conducted to come up with the final sample. The sample yielded 2,729 transcripts (*ABC*: 216, *CBS*: 212, *NBC*: 211, and *CNN*: 2,087). The sample encompasses from news talk shows such *Good Morning America* to regular news programs such as *CBS Morning News*.

Coding Instrument

As the first framing element, news categories were drawn based on previous studies about ICT and the smartphone. Further, newly found issues, sources, or aspects during the coding procedure were added if the items repeatedly appeared. This coding method from grounded

theory is called "constant comparative method," which is frequently used in qualitative analysis (Glaser & Strauss, 1976). In the constant comparative method, the categories are coded until they become theoretically saturated.

A news transcript is the unit of analysis with the categories including issues, sources and episodic-thematic aspects. Issues, sources, and aspects were coded as *1* for presence and *0* for absence. Issue categories about the smartphone were derived from the combination of previous research and the constant comparative method (Vishwanath, 2009). The categories encompassed a) ease of use; b) task performance using the smartphone; c) Samsung; d) Apple; e) lawsuit (e.g., Apple vs. Samsung); f) new phone model; g) facts (e.g., statistical data, sales figures, stocks); h) values the smartphone provides (e.g., quality in life); i) promotion of phone brands (e.g., promotional news); j) prediction of the smartphone market; k) policy about smartphone (e.g., frequency or restriction on use for safety); l) celebrity (e.g., endorsement); and m) other (e.g., cost, other companies than Samsung or Apple).

News transcripts about sources coded interviews reported in TV news. If the same interview source appeared in a transcript multiple times, it was coded as one interview source. Interview source categories were as follows: a) professors (e.g., law, marketing, mobile technology); b) lawyer (e.g., patent lawyer); c) company spokesperson (e.g., Samsung or Apple); d) consumer (e.g., users); e) analysts (e.g., phone experts, market analysts); f) government (e.g., FCC); g) other (e.g., juries); and h) no source (anchors' report without an interview source).

Aspects of news were coded either 1 (presence) or 0 (absence) for each aspect category. For the episodic-thematic aspects, news transcripts primarily emphasizing individual episodes and responsibility about using the smartphone were coded as having an episodic aspect. Coverage dominantly focusing on the social role of the smartphone was coded as having a thematic aspect. The time span for data analysis was divided into four time frames: 2000-2003; 2004-2007; 2008-2010; and 2011-2012 based on important changes of the smartphone in terms of technology or new products. For example, the first smartphone to use Palm OS was Kyocera of Japan in 2001. Apple released iPhone in 2007. The Google phone and Windows phone were released in 2010. In addition, there were a series of legal dispute on

the Apple vs. Samsung trials in 2011-2012. Each time frame contains a historic change in smartphone development.

Intercoder Reliability

Two trained coders participated in coding the transcripts. To calculate coding consistency, inter-coder reliability was checked using Cohen's *kappa*, which is used for nominal data. As a result of the first coding, the coders found discrepancies in some coding items (e.g., episodic-thematic). The coders discussed the coding procedures and reached consensus on those items by clarifying the operational definitions of the items.

The inter-coder reliability for the issue(s) was .89, the source(s), .88, and the episodic/thematic frame(s), .91. Crano and Brewer suggest that the reliability ranges from .85 to .89 provide an acceptable range of inter-coder reliability. The data coded for this study are included in the acceptable range of reliability (Crano & Brewer, 2012).

Findings

Several analyses were conducted to answer research questions and hypotheses. A frequency test for statistical significance and Cramer's *V* correlations for categorical variables were implemented. Table 1 shows that TV news about the smartphone has significantly increased during the four time periods. When the number of stories is compared, time 4 (2011-2012) was larger than the other periods. *CNN* led in the number of smartphone news followed by *ABC*, *CBS*, and *NBC*.

Table 1: Number of Stories about the Smartphone by News Networks for the Past 13 Years (N = 2,729)

News Network	2000-2003 (%) Time 1	2004-2007 (%) Time 2	2008-2010 (%) Time 3	2011-2012 (%) Time 4	Total (%)
ABC[1]	4(26.7)	21(35.6)	49(7.0)	143(7.3)	217(8.0)
CBS[2]	4(26.7)	21(35.6)	51(7.3)	137(7.0)	213(7.8)
NBC[3]	0(0.00)	1(1.70)	22(3.1)	189(9.7)	212(7.8)
CNN[4]	7(46.7)	16(27.1)	578(82.6)	1,486(72.0)	2,087(72.5)

| Total | 15(100) | 59(100) | 700(100) | 1,955(100) | 2,729(100) |

ABC1: X2 [d.f. = 3] = 70.71, p < .001. Goodman and Kruskal tau = .03, p < .001.

CBS2: X2 [d.f. = 3] = 72.71, p < .001. Goodman and Kruskal tau = .03, p < .001.

NBC3: X2 [d.f. = 3] = 35.04, p < .001. Goodman and Kruskal tau = .01, p < .001.

CNN4: X2 [d.f. = 3] = 35.04, p < .001. Goodman and Kruskal tau = .04, p < .001.

RQ1 asked issues about the smartphone covered by US TV news over time. A total of 4,716 issues were identified in the analyses (Table 2). Among the 13 issue categories, the top three key issues identified in time 1 were new model (21.9%), performance (19.5%), and phone value (17.0%). In time 2, Apple (16.2%), phone value (15.7%), and performance (14.9%) seized news attention. In time 3, the top three issues included Apple (20.3%), ease of use (12.3%), and performance (9.97%). Again, Apple (19.7%), ease of use (14.0%), and performance (12.1%) were top news issues in time 4. TV news on the smartphone covered Apple most frequently, such as company information, competition with Samsung, or new products.

Table 2: News about the Smartphone for the Past 13 Years by Issue Categories (N = 4,716)

Issue	2000-2003 (%) Time 1	2004-2007 (%) Time 2	2008-2010 (%) Time 3	2011-2012 (%) Time 4	Total (%)
Ease of Use	5(12.1)	17(7.45)	160(12.3)	443(14.0)	625(13.2)
Performance[1]	8(19.5)	34(14.9)	129(9.97)	382(12.1)	553(11.7)
Samsung[2]	1(2.43)	3(1.31)	25(1.93)	192(6.08)	221(4.68)
Apple[3]	0(0.00)	37(16.2)	263(20.3)	470(19.7)	770(16.3)
Lawsuit[4]	0(0.00)	2(0.87)	6(0.46)	81(14.9)	89(1.88)
New Model[5]	9(21.9)	32(14.0)	75(5.80)	132(4.18)	248(5.25)
Facts[6]	1(2.43)	10(4.38)	47(3.63)	248(7.86)	306(6.48)
Phone Value[7]	7(17.0)	36(15.7)	113(8.73)	355(11.2)	511(10.8)
Promotion[8]	4(9.75)	12(5.26)	78(6.03)	164(5.19)	258(5.47)
Prediction[9]	1(2.43)	13(5.70)	44(3.40)	79(2.50)	137(2.90)
Policy[10]	2(4.87)	21(9.21)	45(3.48)	93(2.94)	161(3.41)

Celebrity	0(0.00)	2(0.87)	64(4.94)	134(4.24)	200(4.24)
Other[11]	3(7.31)	9(3.94)	244(18.8)	381(12.0)	637(13.5)
Total	41(100)	228(100)	1,293(100)	3,154(100)	4,716* (100)

* Total may exceed 2,792 due to multiple issues in one news transcript.

Performance1: $X2$ [d.f. = 3] = 63.22, p < .001. Goodman and Kruskal tau = .03, p < .001.

Samsung2: $X2$ [d.f. = 3] = 27.83, p < .001. Goodman and Kruskal tau = .01, p < .001.

Apple3: $X2$ [d.f. = 3] = 87.63, p < .001. Goodman and Kruskal tau = .03, p < .001.

Lawsuit4: $X2$ [d.f. = 3] = 18.24, p < .001. Goodman and Kruskal tau = .01, p < .001.

New Model5: $X2$ [d.f. = 3] = 207.78, p < .001. Goodman and Kruskal tau = .08, p < .001.

Facts6: $X2$ [d.f. = 3] = 20.94, p < .01. Goodman and Kruskal tau = .01, p < .001.

Value7: $X2$ [d.f. = 3] = 80.15, p < .001. Goodman and Kruskal tau = .03, p < .001.

Promotion8: $X2$ [d.f. = 3] = 18.28, p < .001. Goodman and Kruskal tau = .01, p < .001.

Prediction9: $X2$ [d.f. = 3] = 42.18, p < .001. Goodman and Kruskal tau = .02, p < .001.

Policy10: $X2$ [d.f. = 3] = 100.14, p < .001. Goodman and Kruskal tau = .04, p < .001.

Other11: $X2$ [d.f. = 3] = 70.34, p < .001. Goodman and Kruskal tau = .03, p < .001.

RQ2 questioned if there were changes in the types of sources used in TV news about the smartphone over time (Table 3). The government was the most interviewed source (19.0%), followed by professor (17.9%), and analyst (16.3%). Since the smartphone industry deals with airwave frequencies, which are high in demand, there was news about the FCC's involvement with smartphone use. Particularly law professors were frequently interviewed due to the coverage of the Apple-Samsung legal trials.

Table 3: News about the Smartphone for the Past 13 Years by Type of Source (N = 2,792)

Issue	2000-2003 (%)	2004-2007 (%)	2008-2010 (%)	2011-2012 (%)	Total (%)
Professor[1]	17(41.4)	36(22.3)	148(18.2)	301(16.9)	502(17.9)
Lawyer	3(7.31)	8(4.96)	37(4.63)	202(11.3)	250(8.95)
Spokesperson	5(12.1)	6(3.72)	35(4.31)	178(10.0)	224(8.02)
Consumer[2]	3(7.31)	23(14.2)	36(4.43)	141(7.92)	203(7.27)
Analyst[3]	4(9.75)	31(19.2)	157(19.3)	295(14.8)	457(16.3)

Government[4]	4(9.75)	42(26.1)	163(20.1)	322(18.1)	531(19.0)
Other	3(7.31)	7(4.34)	134(16.5)	249(13.9)	393(14.0)
No source	2(4.87)	8(4.96)	101(12.4)	91(5.11)	202(7.23)
Total	41 (100)	161(100)	811 (100)	1,779(100)	2,792 (100)

Professor1: $X2$ [d.f. = 3] = 64.90, $p < .001$. Goodman and Kruskal tau = .03, $p < .001$.

Consumer2: $X2$ [d.f. = 3] = 71.04, $p < .001$. Goodman and Kruskal tau = .03, $p < .001$.

Analyst3: $X2$ [d.f. = 3] = 92.58, $p < .001$. Goodman and Kruskal tau = .04, $p < .001$.

Government4: $X2$ [d.f. = 3] = 122.31, $p < .001$. Goodman and Kruskal tau = .05, $p < .001$.

H1 predicted that episodic aspects would outnumber thematic aspects (Figure 1). The difference between the two aspects was statistically significant ($Z = 37.03$, $p < .001$). Episodic aspects exhibited an increase over time, seven in 2000-2003, 17 in 2004-2007, 510 in 2008-2010, and 1360 in 2011-2012 (n = 1,894). The scripts that included thematic aspects were 4 in 2000-2003, 12 in 2004-2007, 123 in 2008-2010, and 407 in 2011-2012 (n = 546). The analysis proved that H1 was supported.
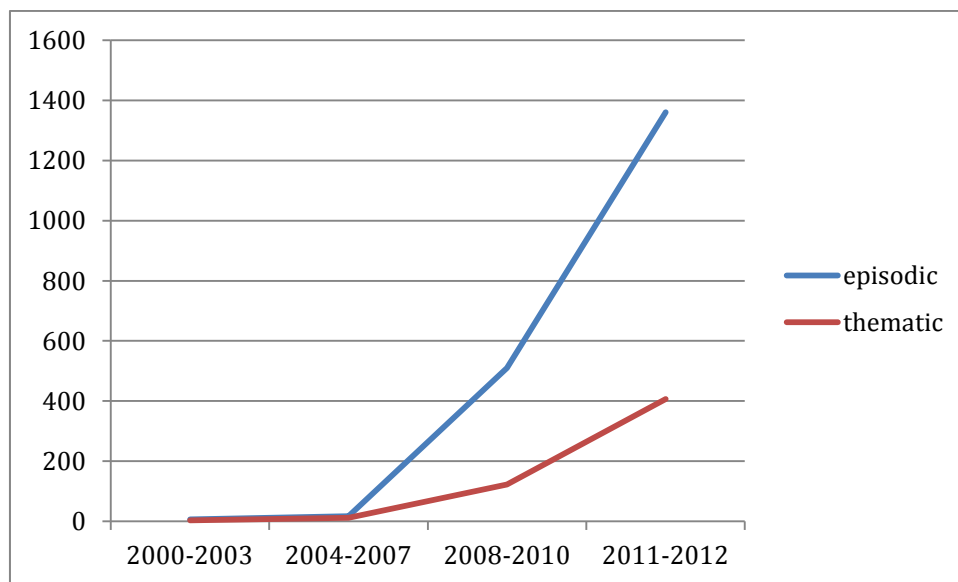

Figure 1: Aspect Distribution about Smartphone News (N = 2,729)

Episodic: $X2$ [d.f. = 3] = 53.38, $p < .001$. Goodman and Kruskal tau = .02, $p < .001$.

Thematic: $X2$ [d.f. = 3] = 12.05, $p < .001$. Goodman and Kruskal tau = .01, $p < .01$.

RQ3 concerned the relationship between news aspects and issues (Table 4). A Cramer's *V* test discovered news issues about the smartphone were positively related to episodic aspects more than thematic ones. Issues of Apple, new model, phone value, market prediction, and policy were more episodic than thematic.

Table 4: Cramer's V Correlations between Aspect Frames and Issues about Smartphone News

	Aspect	
Issue	Episodic	Thematic
Ease of Use	.075***	.006
Performance	.379***	.097***
Samsung	.027	.013
Apple	.174***	.010
Lawsuit	.196***	.161***
New Model	.321***	.008
Facts	.163***	.050*
Phone Value	.366***	.035
Promotion	.416***	.111***
Prediction	.179***	.053**
Policy	.289***	.042*
Celebrity	.004	.028
Other	.073***	.021

* p < .05. ** p < .01. *** p < .001.

RQ4 questioned how news sources about the smartphone were associated with aspects (Table 5). Results found that the more sources were related to episodic then thematic aspects. Particularly, professor, consumer, analyst, and government sources were positively related to episodic aspects about smartphone news.

Table 5: Cramer's V Correlations between Aspect Frames and Sources about Smartphone News

	Aspect	
Source	Episodic	Thematic
Professor	.311***	.159***
Lawyer	.052*	.006
Spokesperson	.029	.011
Consumer	.228***	.054*
Analyst	.306***	.006
Government	.299***	.124***
Other	.134***	.114***
No source	.315***	.113***

* p < .05. ** p < .01. *** p < .001.

Discussion

The current study analyzed TV news content about the smartphone over the past 13 years based on the transcripts. This research distinguishes from the previous studies about news framing of ICT in several ways. First, this study focused on a device rather than a technology itself (Weaver et al., 2009). By doing this, this study was able to detail unique issues, sources, and aspects of a mobile technology device, the smartphone, covered in TV news. Second, an analysis of TV news, which has not been investigated regarding ICT news, was conducted. Third, an analysis of episodic/thematic aspects delineates news coverage of the smartphone in either personal or social responsibility (Pense & Cutcliffe, 2007).

The analyses reveal that TV news covers the smartphone in various issues such as ease of use (e.g., functions of apps and tools of different phone brands), performance (e.g., how phones work), Apple (e.g., endeavor to develop next new devices), phone value (e.g., advantage of using smartphone), and facts (e.g., damage amounts of patent trials between Apple and Samsung). The emphasis on ease of use and performance by the TV news media would be a positive factor for meeting consumers' needs since they are what consumers expect most when they evaluate mobile technology devices (Vishwanath, 2009).

Meanwhile, Samsung, promotion, and celebrity received relatively low attention compared to Apple, ease of use, and performance. The US TV news media are possibly slanted to Apple

since it is the country's brand and Apple is in competition with Samsung. This might have a relationship with the fact that the most used smartphone in the US is Apple, which is different from other continents such as Europe where Samsung is the number one smartphone brand (ComScore, 2013a; M&M Global, 2013). As such, this issue framing of the smartphone may influence the ways US consumers understand and use the smartphone. Possibly, future research may conduct an analysis of other continents to see what smartphone brands are emphasized in TV news. The exponential growth of TV news coverage about the smartphone in time 3 (2008-2010) and 4 (2011-2012) may be attributed to competition among smartphone brands (e.g., Apple, Samsung, Nokia), the advent of mobile communication era (e.g., app development and market competition), and social problems caused by the smartphone (e.g., security, privacy, safety, addiction, use for crime).

Government, professors, and industry analysts were the top three sources for smartphone news. TV news depended on experts in soliciting opinions about the smartphone. This result is congruent with previous research that finds the dependency on expert views on technology (Swain, 2012). When TV news covered various issues such as cultural differences in smartphone use or addiction, news cited professors' opinions. The government source was dominant in the news about the smartphone as well. Government officials or politicians were interviewed when the news covered new policies needed such as smartphone use in aircraft or new airwave frequency allotment for mobile communication.

Consumers, companies' spokespersons, or lawyers were the least interviewed sources in smartphone news. These results are similar with other news framing studies in terms of the exclusion of audience voices in news (Cho, 2006). Since consumers are those who actually use the devices every day, they can be those who know the device well and can tell what works well and what doesn't. TV news may need to cover consumers' voices in order not to deliver the views from just one side.

TV news about the smartphone was predominantly episodic. This means that the news about the smartphone emphasized individual responsibility and personal stories about smartphone use rather than social responsibility or government aspects. For example, news about teen addiction to smartphone use discussed the current status of teen's use and other official data. However, it did not point out the government or social organizations' role in resolving this

problem. Thematic aspects such as politicians' new policy proposal of restrictions on texting while driving, phone use while walking, or the Federal Communications Commission's announcement of airwave frequency allotment for smartphone broadband were covered relatively less than individual episodes about the smartphone. TV news journalists may need to be aware of the importance of personal and social involvement in this important mobile device within a broader perspective to sufficiently provide the audience with both individual and social responsibilities. It is because that thematic frames emphasizing social responsibility in the new media can provide a solution to problems (Entman, 2003).

The correlations between issues and aspects show that ease of use, performance, value, new model, and promotion are highly and positively related to episodic aspects. These results suggest that TV news covers those issues as personal stories in an episodic frame. It is possible to interpret that such frame can elicit consumer adoption of the smartphone. Celebrity did not play an important role in smartphone news. Given the role of celebrity in technology adoption and dissemination (Biswas, Biswas, & Das, 2006), utilizing celebrities in endorsing or connecting with benefits may influence consumer evaluations of the smartphone. Further, public campaigns with celebrity endorsement with safe use of the smartphone to avoid addiction, inappropriate use, or use for crime are suggested.

The relationships between sources and aspects found the similar results with the relationships between issues and aspects. Sources were positively associated with episodic aspects. These results can be interpreted that professors, consumers, analysts, and the government are more likely interviewed when the news covers episodic aspects about the smartphone than thematic ones. In this view, thematic news emphasizing social responsibilities of the smartphone is called for. One notable finding from this analysis is the positive relationship between government source and episodic frame. When reporting news about crimes using the smarphone such as drug trafficking, government officials are interviewed expressing concerns about the problem. However, episodic aspect of the news is more dominant than thematic aspect. Therefore, it is suggested that officials offering solutions be emphasized for public awareness more than episodic aspect.

Empirical and Practical Implications

This content analysis of issues, sources, episodic-thematic aspects, and correlations between these news elements about the smartphone offers an enhancement in empirical research about mobile communication. This is a first empirical attempt to analyze news content of a communication technology device. This conceptual classification of news framing can be applied to other communication technologies such as tablet computers, applications including games and social media. In the current study, the results suggest that what issues or sources are emphasized and deemphasized. The results can provide a diagnosis of news frames about the smartphone. By knowing this, possible solutions to problems about the smartphone can be offered. The solutions can be important since the impact of the smartphone on society today is substantial. As research demonstrates, smarpthones are used in the fabric of everyday lives for health (Deng, 2013; Ratzan, 2011), civic engagement (Campbell & Kwak, 2010), and marketing (Wilken & Sinclair, 2009).

The results of the current study also offer the smartphone industry, consumers, and the government what issues are more saliently covered than the other. Particularly, mobile communication business sectors and the government can find the current status about smartphone coverage in the TV news media and plan how effectively they can better communicate with consumers, in terms of issues, sources, and personal/social responsibilities. Mobile communication business professionals may need to pay more attention to consumer voices.

Limitations and Future Research Directions

This study contains several study limitations. The current study only examined news about the smartphone on TV. How magazines or digital newspapers frame the smartphone can be agenda for future research. In order to enhance a comprehensive understanding of the relationship between the news media and the smartphone, future research may need to examine smartphone news on blogs or social media. Consumer groups can use social media such as Facebook or Twitter to discuss the device. Consumers can depend on product reviews or consumer opinions on technology devices in purchase decision by checking social media or blogs (Zhao, Yang, Vishal, & Zhao, 2013).

Lastly, for the consumer effect of news about the smartphone, an agenda setting study can be suggested. Agenda or attributes of the smartphone can be related to consumers' attitudes toward the smartphone. A longitudinal study about the relationship between news agenda and consumer agenda about the smartphone can offer an understanding about the role of the news media in consumers' views and evaluations on the smartphone.

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