

Determinant and Consequence of Online News Authorship Verification: Blind News Consumption Creates Press Credibility

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This study aims to identify the determinants and consequences of news authorship verification in the context of news aggregation sites. Checking news authorship becomes important where countless news articles produced by numerous authors are distributed and where fake news and low-quality news can prevail. Implementing structural equation modeling with our nationwide survey of around 1,000 people in South Korea, we found that the psychological motives for using news aggregators and the behavioral use of news aggregators both explain the extent of news authorship verification. News authorship verification influenced press credibility, rather than vice versa. This influence was negative, suggesting that people who are less likely to check news authorship are more likely to perceive the press as credible. This finding implies the danger of blind news consumption. News authorship verification also partially mediated the relationships between press credibility and other variables. These findings have theoretical implications for information verification and credibility research.

Keywords: authorship verification, authorship checking, information verification, news aggregator, credibility, digital journalism

This study aims to identify the determinants that make people more or less likely to check news authorship and to investigate the consequences of news authorship verification. To clarify, *news authorship* in this study refers to both journalists/reporters and news brands.²

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² This study uses the term *news authorship* or *news authors*, instead of *journalists*, *reporters*, or *news organizations*, to be consistent with the literature of information verification.

News authorship verification deserves scholarly attention, especially in the current times, when many people obtain news or information from news aggregators (i.e., online news-distributing platforms). As a response to the question of where one usually gets news, many people may provide the name of a news aggregation site—for instance, Google or Yahoo in Western countries, Baidu in China, and Naver in South Korea. Indeed, research has suggested that people are more likely to recall “which news aggregators they visited” than who produced or wrote the news they read (Sundar, 2008). News authorship, be it the names of news brands or journalists/reporters, has become less visible and recognizable in the era of news aggregation than it was in the era of newspapers, when news brands were the primary venue for not only producing but also distributing news.

The phenomenon of forgetting news authorship is somewhat ironic, considering that the increasing quantity and widening range of quality of online news that news aggregators convey have made authorship verification more important than ever. For instance, in South Korea, where we collected the data for this study, any three adults can legitimately establish online news companies, and fake news³ has prevailed by mimicking the brand names of existing news companies. Indeed, the fake news phenomenon has occurred around the world, manifesting significantly, for instance, in recent presidential elections in the United States, France, and Brazil. The seriousness of this phenomenon extends beyond the fact that some politicians label the media hostile to them as reporting fake news in order to dismiss press critiques (Erlanger, 2017). It can create false perceptions of reality and negatively influence democratic decision-making processes (Waisbord, 2018). The massive spread of fake news highlights the critical importance of media literacy (Jang & Kim, 2018); it shows that online news users must endeavor to thoroughly verify news authorship.

Checking news authorship not only contributes to assessments of news fakeness or quality but also reinforces journalistic accountability. Users’ awareness of who wrote or produced certain news articles makes journalists and news organizations more accountable for their news stories. However, empirical studies have found that, although authorship checking is the most basic level of information verification, it is the least practiced skill in reality (Flanagin & Metzger, 2000; Hargittai, Fullerton, Menchen-Trevino, & Thomas, 2010; Metzger, 2007; Metzger, Flanagin, Eyal, Lemus, & McCann, 2003). Between 80% and 90% of the 7,800 teenagers surveyed in two recent studies judged news credibility based on the number of details in the news content and the presence of large photos, rather than on the source of the news (McEvers, 2016; Shellenbarger, 2016).

Recognizing the severe negligence to news authorship verification despite its growing significance in the news aggregation era, this study aims to identify the factors that make people more or less likely to check online news authorship while using news aggregators, and to investigate the effect of authorship verification on press credibility. Past studies of information verification have mainly focused on identifying verification strategies, rather than explaining what makes people verify information. Drawing on the

³ “Fake news” in some literature has been used to refer to late-night talk shows (e.g., *The Daily Show with Jon Stewart* and *The Colbert Report*) that aim for political satire through ironic inversion of the real news and satirical imitations of political figures (Balmas, 2014). In contrast to this usage, “fake news” in this study refers to the news that pretends to be “real” news but is based on fabricated facts or lies: It aims to deceive, not satirize.

audience behavior literature (McQuail, 2010; Webster, Phalen, & Lichty, 2014; Webster & Wakshlag, 1983), we attempted to explain user behavior (i.e., authorship verification in this study) by investigating user motives, the frequency of their media use, the types of content they read, and their additional media use. In addition, some researchers have found a close association between information verification and credibility (Metzger, 2007), but whether credibility is the consequence of information verification or vice versa remains unclear. Taken together, the following questions are still open.

For instance, would people who use news aggregators to seek information verify news authors more frequently than those who visit news aggregators to find conversation topics? If people use additional news media other than news aggregators, would they tend to verify news authors? If people visit news aggregators to obtain political or economic news rather than sports or entertainment news, would they tend to check news authors? If people grant the press greater credibility, are they less likely to check news authorship? Or, is it the author verification that affects one's perception of press credibility?

Growing Needs for Authorship Verification in South Korea

To address these questions, we implemented a nationwide survey of around 1,000 people who obtain news via news aggregators in South Korea.

South Korea is well known for its high-speed Internet connection and early-adopter characteristics related to technology (S. M. Lee, 2003). It has been an important testing ground for new information and communication technologies (O'Connell, 2005). Likewise, the South Korean online news market is comparatively well developed. In South Korea, in particular, anyone can legitimately launch an online news website if he or she has two other individuals to work with, at the time of writing. The amount of news and the range in news quality have thus increased significantly in the contemporary South Korean online news environment.

The Korea Press Foundation's⁴ most recent survey (conducted in 2017) found that 75.6% of 5,082 respondents obtained their news online. Of those who used the Internet for their news, 85.6% obtained it from news aggregators such as Naver.com and Daum.net. This heavy reliance on news aggregators has incentivized news organizations to competitively produce eye-catching and provocative news articles in order to attract users who encounter numerous news headlines every day on news aggregation sites (Choi & Kim, 2017). Once users are hooked by the sensational headlines and click through to the news websites, those news publishers' online traffic increases, and their advertising revenues rise. News organizations are eager for online traffic from news aggregators because news aggregators have become almost the only, and certainly the most efficient, route for them to obtain online traffic. Indeed, less than 10% of respondents in the aforementioned national survey directly visit news organizations' webpages.

News aggregation sites becoming the primary venues for most Korean online news users has led to the wide distribution of not only high- but also low-quality news, confusing users as to which news deserves attention. Although news aggregators in South Korea distribute news articles produced by the

⁴ <http://www.kpf.or.kr/site/kpf/ex/board/List.do?cbIdx=247>

news organizations with whom they have signed news supply and affiliation contracts, the number of these news organizations rose to around 700 for Naver.com and 1,100 for Daum.net in 2017 (Yoo, 2017). In this environment, authorship checking, which enables online news users to single out lower quality news organizations and avoid clicking on their stories, has become increasingly important.

This context in South Korea allows us to identify determinants of online news authorship verification and its consequences on the press credibility perception formed by obtaining news mostly from news aggregators.

Explaining Authorship Verification

Information verification research has developed along two paths. One path examines how journalists verify information during the newsgathering process (e.g., Brandtzaeg, Lüders, Spangenberg, Rath-Wiggins, & Følstad, 2015; Kruikemeier & Lecheler, 2016; Tylor, 2015); the other focuses on how users verify information and identifies methods users employ to cross-check the validity of information (e.g., Flanagin & Metzger, 2000; Hargittai et al., 2010; Metzger, 2007; Metzger, Flanagin, & Zwarun, 2003). This research has addressed authorship verification as one of various information verification skills, and very little research has been done on authorship checking per se.

In the present study, we focus on news authorship verification in the context of news aggregation sites. The fact that all information services have different producers, distributors, and consumers, as well as different user interfaces and algorithms, makes it necessary to investigate specific information verification behavior in specific contexts (Metzger, Flanagin, Eyal, Lemus, & McCann., 2003a). We attempt to identify the psychological and behavioral factors that contribute to news aggregator users' authorship verification. To accomplish this, we integrate information verification literature with audience behavior literature. The underlying assumption here is that how one uses a certain medium explains what contributes to verifying the information provided in that medium. By linking the two streams of literature, we identify the determinants of news authorship verification.

Audience behavior literature explains individuals' exposure to media at the audience and media levels (McQuail, 2010; Webster et al., 2014; Webster & Wakshlag, 1983). This research is centered on the multichannel television environment, and the factors that can be extended to the online news environment include (a) individuals' preferences, (b) option awareness at the audience level, and (c) repertoires at the media level.

First, the individual preference factor originates from the uses and gratifications theory that focuses on the motives behind media use (Katz, Blumler, & Gurevitch, 1973). This theory assumes that people use media or media content to gratify certain needs such as information seeking, emotional diversion, companionship, social utility, and value reinforcement. Lee and Chyi (2015) found that information, entertainment, and social motives were statistically significant predictors for news aggregator use. In the context of information verification, research has shown that users verify information actively when they have a desire to reduce uncertainty about information credibility (Rieh & Hilligoss, 2008). Research has also indicated that information-seeking and social utility motives encourage source checking (You, Lee, Lee, &

Kang, 2013). In particular, people have been shown to prefer providing their sources of information ("I checked it THERE") over making vague references ("I read it SOMEWHERE") when talking to others (You et al., 2013, p. 1590). Researchers have also found that those who asked information-related questions to obtain information showed a 43% information verification rate, whereas those who asked conversational questions to stimulate discussions showed only 15% verification rate (Kim, 2010). In her dual processing model of website credibility assessment, Metzger (2007) included motivation as a factor that affects information evaluation. Whereas the mentioned studies examined the motives for information verification per se, the present study explores the motives for using news aggregators and their influence on authorship verification. Rather than addressing why users verified news authors, we attempt to determine whether motives for using news aggregators explain the extent to which users verify news authors. To test the influence of news aggregator use motives on authorship verification, we developed the following hypothesis:

H1: The motive for using news aggregators predicts news authorship checking.

Second, repertoires in audience research imply the frequent use of a small number of certain media or channels within an array of numerous media sources or channels (Heeter, 1985; Webster, 2005). Despite the various selections available, people frequently use only a handful of channels—usually 15 or so (Neuendorf, Atkin, & Jeffres, 2001; Yuan & Webster, 2006). This repertoire band represents one's viewing preferences, habits, and familiarity with the content of those channels. In line with this stream of literature, we focus on how frequently users use news aggregators and which types of news content they usually consume.

Regarding the frequent-use aspect, researchers have found a positive association between users' Internet-use experience level (in terms of Internet use, expertise, familiarity, and access) and information verification: The more experienced the user, the more frequently he or she verified information (Flanagin & Metzger, 2000). A later study also confirmed this finding (Flanagin & Metzger, 2007): The partial correlation between self-reported verification and Internet experience level was statistically significant, but the observed verification behavior in the experimental research did not show a similar statistically significant relationship. Although experience level is not exactly equivalent to usage frequency, the latter is a prerequisite for the former—without frequently using online news, one hardly becomes an experienced online news user. Considering these findings, we expect that people who used news aggregators more frequently would be more likely to check authorship.

H2a: The frequent use of news aggregators predicts news authorship checking.

In addition, the type of news consumed is an important consideration given that online news is unpackaged and can be consumed based on genre through user filtering. For instance, digital technologies enable those who prefer sports news to narrow their news exposure to only sports news. The popular categorization schema in political communication and journalism designates news stories as either soft or hard news (Boczkowski, 2009). Researchers in these fields have addressed the softening of news and the association between soft/hard news and news credibility and civic engagement (Boczkowski, 2009; Choi & Kim, 2017; Miller & Kurpius, 2010; Reinemann, Stanyer, Scherr, & Legnante, 2012; Shah, Kwak, & Holbert, 2001). In particular, some researchers have empirically shown that users more thoroughly verify hard news

stories than soft entertainment stories (Flanagin & Metzger, 2000). We therefore posit that users would more stringently verify non-soft news,⁵ which deals with information that significantly impacts their lives (political and economic news, for example), than soft news, involving entertainment or sports. In this regard, we developed the following hypothesis:

H2b: The use of non-soft news predicts news authorship checking.

Third, option awareness has been shown to affect media use behavior. Audience behavior research has found that the presence of alternative options influences the selection and use of media or media content (Webster et al., 2014). The use of alternatives would lessen user dependence on certain mediums. Researchers have found that lower media dependency is associated with lower media credibility (Cheng & Lo, 2012; Johnson & Kaye, 1998; Rimmer & Weaver, 1987). In this regard, users' reliance on other news media may lessen their reliance on news aggregators, which in turn may prevent news aggregator users from having blind faith in the news articles provided by aggregators. In addition, researchers have found that the greater the number of news media that people use, the more informed they are (Robinson & Levy, 1996). Thus, the use of additional news media may make users more critical and knowledgeable news consumers. As such, we speculated that using additional news media, as a means of becoming less dependent on news aggregators and more news savvy, could make users more likely to check the authorship of online news articles distributed on news aggregation sites. This chain of reasoning leads us to formulate the following hypothesis:

H3: The use of additional news media predicts news authorship checking.

Untangling the Relationship Between Authorship Verification and Credibility

Among the three different loci to which the concept of credibility pertains—source, media, and message (Appelman & Sundar, 2016; Metzger et al., 2003a)—this study focuses on source credibility.⁶ We are interested in news aggregator users' verification of news authors (i.e., journalists, reporters, and news organizations) and their perceptions of the credibility of these news authors (i.e., press credibility in this study).

Credibility has been assumed as stemming from information verification. The dual processing model of website credibility assessment holds that information evaluation influences information credibility (Metzger, 2007). However, several other studies have reported different findings. Flanagin and Metzger

⁵ For the sake of conceptual conservatism, we use the term *non-soft news* instead of *hard news* because some scholars categorize news types into soft news, general news, and hard news (e.g., Lehman-Wilzig & Seletzky, 2010). In this study, soft news includes reports on entertainment, sports, lifestyle/culture, and social issues such as crimes and accidents that are sensational and eye-catching. We classified all other news articles outside these genres as non-soft news.

⁶ To clarify, in this study, *sources* refers to journalists, reporters, and news organizations who produce news articles, whereas *media* refers to the news aggregation sites that distribute news articles produced by journalists/news organizations, and *messages* refers to article content itself.

(2007) found that the relationship between Web-based information verification and credibility was not statistically significant. Yang (2007) also found that the source factor measured by the endorsement of news-related blogs by celebrities, experts, or government statistics was not associated with Internet users' perceived credibility of the same news-related blogs. Furthermore, Hargittai et al. (2010), who observed and interviewed undergraduate students, found that the "students' level of faith in their search engine of choice is so high that they do not feel the need to verify for themselves who authored the pages they view or what their qualifications might be" (p. 480).

Given the conflicting results of previous studies, we could neither disregard the potential absence of a relationship between authorship verification and credibility, nor exclude the possibility that users who find the press credible may be less likely to check authorship than those who doubt its credibility. We examine these possibilities by testing the following hypothesis:

H4: News authorship verification affects the perception of press credibility.

Credibility has also been shown to have close associations with motives and media use variables which are included in this study to explain authorship verification. Researchers have found that motives such as information seeking, convenience, political surveillance, personal fulfillment, and social surveillance were all statistically significant predictors of blog credibility (Johnson, Kaye, Bichard, & Wong, 2007). Research has also shown that information seeking, entertainment, habit, and social utility motives were significant predictors of press credibility (Choi & Kim, 2017). In addition to motives, studies have suggested that media use variables affect credibility. Reliance on the Web has been shown to be a positive predictor of online newspapers' credibility (Johnson & Kaye, 1998), as has reliance on social network sites (Johnson & Kaye, 2014). However, some other studies failed to find statistically significant relationships between, for instance, the time spent using news websites and skepticism toward online news (Tsfati, 2010), or between reliance on news aggregators and press credibility (Choi & Kim, 2017). To untangle the relationships among authorship verification, credibility, and other variables such as motives and media use, we pose the following research question:

RQ1: Does authorship verification mediate the relationship between motive/news aggregator use/additional news use and press credibility?

In addition, previous research has found that demographics influence media credibility irrespective of medium—be it online newspapers, social network sites, blogs, or the Internet in general (Choi & Kim, 2017; Flanagin & Metzger, 2003; Johnson et al., 2007; Johnson & Kaye, 1998, 2004, 2014; Metzger et al., 2003a). In particular, researchers have shown a consistently positive association between age and media skepticism (Metzger et al., 2003a)—the older people get, the less credible they perceive the media to be. We therefore include gender, age, and education as control variables of press credibility in our model. Furthermore, previous studies have suggested that education may influence authorship verification, because people with higher education levels tend to cultivate higher levels of information literacy, acknowledging the importance of checking authorship (Flanagin & Metzger, 2007; You et al., 2013). Thus, education also serves as a control variable of authorship verification in our model.

Figure 1 shows this study’s overall conceptual model, including both audience behavior literature and credibility literature.

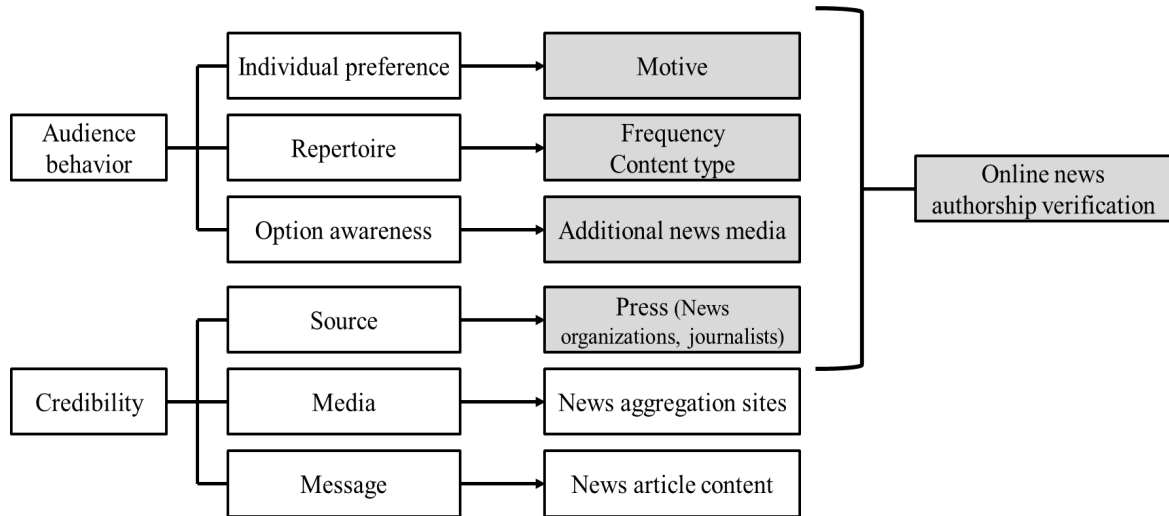


Figure 1. Conceptual model. The shaded boxes indicate variables used in the present study.

Based on the preceding conceptual model, we built a structural equation model that includes variables such as motives, news aggregator use, additional news media use, press credibility, authorship verification, and demographics (see Figure 2). Using a large nonstudent sample, we apply this model in an effort to identify the factors that influence news authorship verification and to untangle the relationship between press credibility and authorship verification.

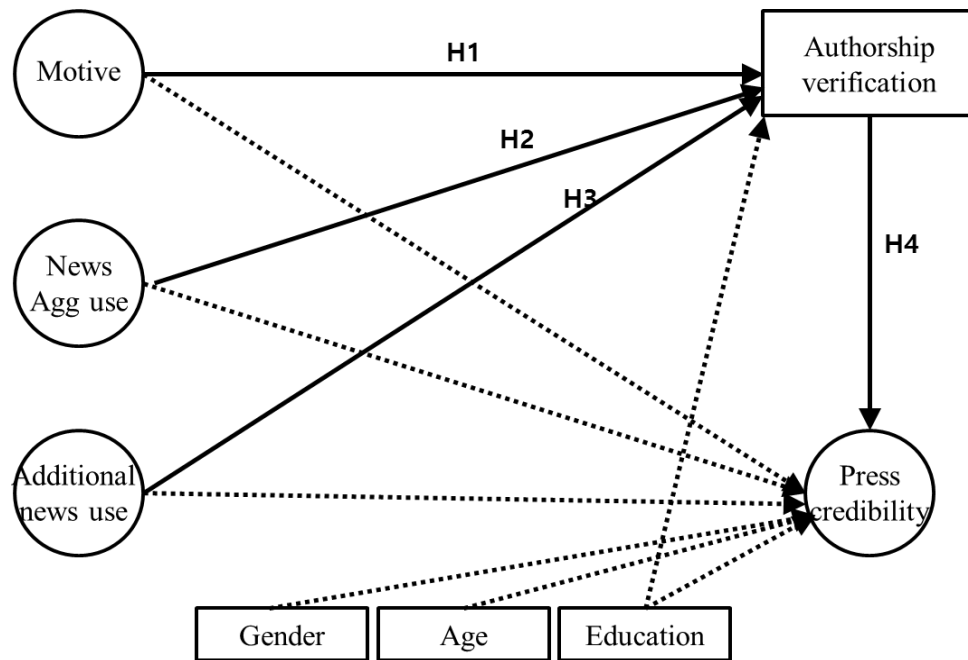


Figure 2. Research model explaining authorship verification and its relationship with press credibility. The dotted lines indicate paths that are not of primary interest in testing the study hypotheses, but are included in the model based on previous findings.

Methods

Data Collection

We chose to test the aforementioned hypotheses in South Korea's online news environment, as described earlier. We conducted a nationwide online survey of 1,000 people aged 20 and older who had used news aggregators during the week before the survey. Thus, survey respondents only included those who had recently used news aggregators. These 1,000 people were selected based on stratified sampling proportionate to the South Korean Internet users' demographics in terms of gender, age, and region of residence (provided by the Korea Internet and Security Agency⁷; see Table 1). We conducted the survey during the period August 19–26, 2014, with the assistance of Hankook Research, a South Korean market- and opinion-research company.⁸

⁷ <http://isis.kisa.or.kr/eng>.

⁸ Choi and Kim (2017) used the same data set.

Table 1. Demographic Information of Survey Respondents.

		Frequency	Percent
Gender	Female	470	47.0
	Male	530	53.0
Age group	20-29	208	20.8
	30-39	253	25.3
	40-49	263	26.3
	50-59	192	19.2
	60-69	84	8.4
	Region of residence	Seoul	213
	Busan	77	7.7
	Daegu	49	4.9
	Incheon	48	4.8
	Gwangju	28	2.8
	Daejeon	33	3.3
	Ulsan	27	2.7
	Gyeonggi	241	24.1
	Gangwon	28	2.8
	Chungbuk	30	3.0
	Chungnam	40	4.0
	Jeonbuk	32	3.2
	Jeonnam	29	2.9
	Gyeongbuk	49	4.9
	Gyeongnam	65	6.5
	Jeju	11	1.1
Total		1,000	100.0

Measurement

Authorship verification. In this study, authorship verification meant identifying authors, whether news organizations or journalists, by simply checking a brand logo or a byline in the news aggregation sites. The definition did not include additional efforts that online news users may have made for further verification, such as evaluating the journalists' qualifications. We measured authorship checking by asking respondents to quantify their agreement with the following statement on a 5-point scale ranging from *never* (1) to *always* (5): "I check news authors (either journalists, reporters, or news organizations) when obtaining news from news aggregation sites (e.g., Naver.com, Daum.net, and Nate.com)." Because this variable is not a psychological construct, but a behavioral one, a single indicator was used to measure the frequency of certain behavior.

Motives for using news aggregators. To measure respondents' motives for news aggregator use, we used 12 items that were developed based on previous studies (e.g., Diddi & LaRose, 2006; You et al., 2013). We conducted a factor analysis on these items using principal component analysis as the extraction method and varimax with Kaiser normalization as the rotation method. We developed responses using a 5-point Likert scale ranging from *strongly disagree* (1) to *strongly agree* (5). Based on previous findings, the following four factors were extracted; information-seeking, entertainment, social utility, and habitual motives. From this analysis, we identified nine items that were clearly aligned with the four factors. Among these items, the information-seeking motive items were "to learn more about certain issues" and "to obtain new information and learn about different perspectives." The entertainment motive items consisted of "to be entertained" and "to read exciting and provocative news stories." The social-utility motive items were "to obtain knowledge to partake in conversations," "to find subjects for conversation," and "because many others use news aggregators." The habitual motive items were "daily routine" and "habitually." These four factors explained 73.5% of the total variance. Our factor analysis satisfied the requirements of the Kaiser-Meyer-Olkin measure of sampling adequacy (.796) and Bartlett's test of sphericity, $\chi^2(36) = 2422.539, p < .001$.

Press credibility. To assess the press credibility, we used eight items to measure the degree to which respondents regarded the press as credible based on their previous experiences using news aggregators to obtain news. We asked respondents to express their opinions about the following eight statements on a 5-point scale ranging from *not at all credible* (1) to *very credible* (5): "Based on my experience obtaining news from news aggregation sites, I believe the press is objective/ fair/ accurate/ nonsensational/ trustworthy/ considerate to the reader/not seeking commercial profits/concerned about the public interest." This scale was developed based on previous studies (e.g., Chung et al., 2012; Gaziano & McGrath, 1986; Johnson & Kaye, 2014; Karlsson, Clerwall, & Nord, 2014; Kruike-meier & Lecheler, 2016; Meyer, 1988; Tsfati, 2010). Its Cronbach's α was .878.

News aggregator use. We classified online news content as soft or non-soft news. News about social issues, entertainment, sports, and lifestyle/culture was considered soft news, whereas all other genres of news, such as politics, the economy, information technology/science, and international affairs, were considered non-soft news. To measure how often respondents used news aggregators to obtain news, we

asked respondents to select one of the following choices: 1–2 times a week, 3–4 times a week, almost every day, or many times a day.⁹

Additional news media use. To measure additional news media use, we asked respondents how often they normally accessed offline newspapers, watched television news, or used official press websites (e.g., ohmynews.com, chosun.com) using a 5-point scale ranging from *never* (1) to *always* (5). We measured the respondents' perceptions of their normal media use, rather than the frequency or duration of their media use, because previous studies have found that the latter is not a significant indicator of credibility assessment (Cheng & Lo, 2012; Johnson & Kaye, 1998; Rimmer & Weaver, 1987).¹⁰

Control variables. For control variables, we took into account gender, age, and education. Fifty-three percent of the 1,000 respondents were men, 20.8% were in their 20s, 25.3% were in their 30s, 26.3% were in their 40s, 19.2% were in their 50s, and 8.4% were in their 60s. In terms of educational background, 22.9% had graduated high school or lower, 65.5% were college or university graduates, and 11.6% had a graduate degree or were all but dissertation (ABD) status.

Results

Descriptive Statistics

Table 2 displays the descriptive statistics for the major variables. For the authorship-verification variable ($M = 3.01$, $SD = 1.01$), 32.7% of respondents answered that they *always* and *often* checked the identity of journalists or news organizations when getting news from news aggregators, whereas 34.3% replied *never* or *rarely*. The remaining 33.0% stands in between these two ends. The fact that self-reporting and social desirability biases often affect these types of surveys suggests that the percentage of news aggregator users who actually checked authorship in a frequent manner might, in reality, be lower than 32.7%.

⁹ As explained in the Data Collection section, we implemented the survey to those who had used news aggregators during the week before the survey. Thus, we did not include the option "never."

¹⁰ Rimmer and Weaver (1987) recommended either modeling media use frequency and motive variables together or using a media dependency or preference variable to explain credibility assessments. Because the motives for using offline newspapers, television news, or press websites were beyond the scope of this study, we measured user perceptions of the use of these media rather than the number of times users accessed them or the hours they spent using them.

Table 2. Descriptive Statistics.

	Mean	Std. Deviation
Authorship checking ^a	3.01	1.01
Motive ^b		
- Information-seeking motive	3.96	0.66
- Entertainment motive	3.31	0.75
- Habitual motive	3.67	0.75
- Social utility motive	3.00	0.76
Press credibility ^c	2.66	0.57
News aggregator use		
- Types of online news content consumed ^d		
- Soft news	706.00	
- Non-soft news	294.00	
- Frequency of using portal sites for news ^e	3.18	0.83
News media use ^f		
- Offline newspaper use	2.86	1.45
- Television news use	4.14	1.09
- Press websites use	2.95	1.35

^a This score ranges from 1 (*never*) to 5 (*always*).

^b This score ranges from 1 (*strongly disagree*) to 5 (*strongly agree*).

^c This score ranges from 1 (*not at all credible*) to 5 (*very credible*).

^d Because this is a dummy variable indicating soft news at 1 and non-soft news at 0, frequency information is provided instead of means and standard deviations.

^e This score ranges from 1 (*1-2 times a week*) to 4 (*many times a day*).

^f This score ranges from 1 (*never*) to 5 (*always*).

Of the motives for using news aggregators, the information-seeking motive ($M = 3.96$, $SD = 0.66$) had the largest mean score, followed by the habitual ($M = 3.67$, $SD = 0.75$), entertainment ($M = 3.31$, $SD = 0.75$), and social utility ($M = 3.00$, $SD = 0.76$) motives. Of the news aggregators use construct, 70.6% of respondents tended to consume soft news using news aggregators for online content. For frequency of

use ($M = 3.18$, $SD = 0.83$), 39.1% used news aggregators many times a day, 45% almost every day, and only 15.9% used news aggregators four or fewer times a week.

The mean press credibility score ($M = 2.66$, $SD = 0.57$) was less than 3. A total of 80.6% of respondents gave credibility scores of 3 or less, indicating that on average, respondents did not regard the press as credible.

In terms of the use of other news media, such as offline newspapers ($M = 2.86$, $SD = 1.45$), television ($M = 4.14$, $SD = 1.09$), and official press websites ($M = 2.95$, $SD = 1.35$), respondents, on average, tended to use television news more than the other two. Totals of 50.1% and 42.2% of respondents *never* or *rarely* accessed offline newspapers or official press websites, whereas only 8.5% *never* or *rarely* watched television news. These findings indicate that many respondents seldom used offline newspapers and official press websites as additional news sources.

Structural Equation Modeling

From among the 1,000 survey respondents, we eliminated outliers whose standard scores were above 3 in absolute value for the variables of interest, reducing the total number of cases to 960.

To test the validity of the measurement model, we conducted a confirmatory factor analysis of the reflective indicator (i.e., the press credibility construct). Its factor loadings were all statistically significant. To enhance the convergent validity, we removed variables that had standardized factor loadings below 0.7 from the measurement model. We then averaged out the items' scores for each factor to avoid the underidentification problem.

The normality test with the full model, including both the measurement and structural model, suggested the presence of nonnormality. To handle the nonnormal data, we used the asymptotic distribution free (ADF) estimator instead of the widely used maximum likelihood estimator. In addition, we dropped 25 cases based on the Mahalanobis distance test that assesses multivariate outliers, resulting in the final 935 cases. Multicollinearity was not detected, having variance inflation factor all below 3.24.

Fit indices suggested a good model fit— $RMR = .038$, $AGFI = .993$, $RMSEA = .065$ (90% CI [.059, .071]), despite the statistical significance of $\chi^2 - \chi^2$ ($df = 84$, $N = 935$) = 415.884 ($p < .000$)—an index well known to be sensitive to large sample size, as is the case in this analysis. We implemented the structural equation modeling with AMOS 20.

Hypothesis Testing

As shown in Figure 3, we found that the motive for using news aggregators was a statistically significant predictor of authorship verification; this finding supported H1. H2 predicted that the frequent use of news aggregators (H2a) for non-soft news (H2b) would have a positive association with

authorship verification; our analysis also supported this prediction. Our findings did not, however, support H3; the use of additional news media did not predict authorship verification.

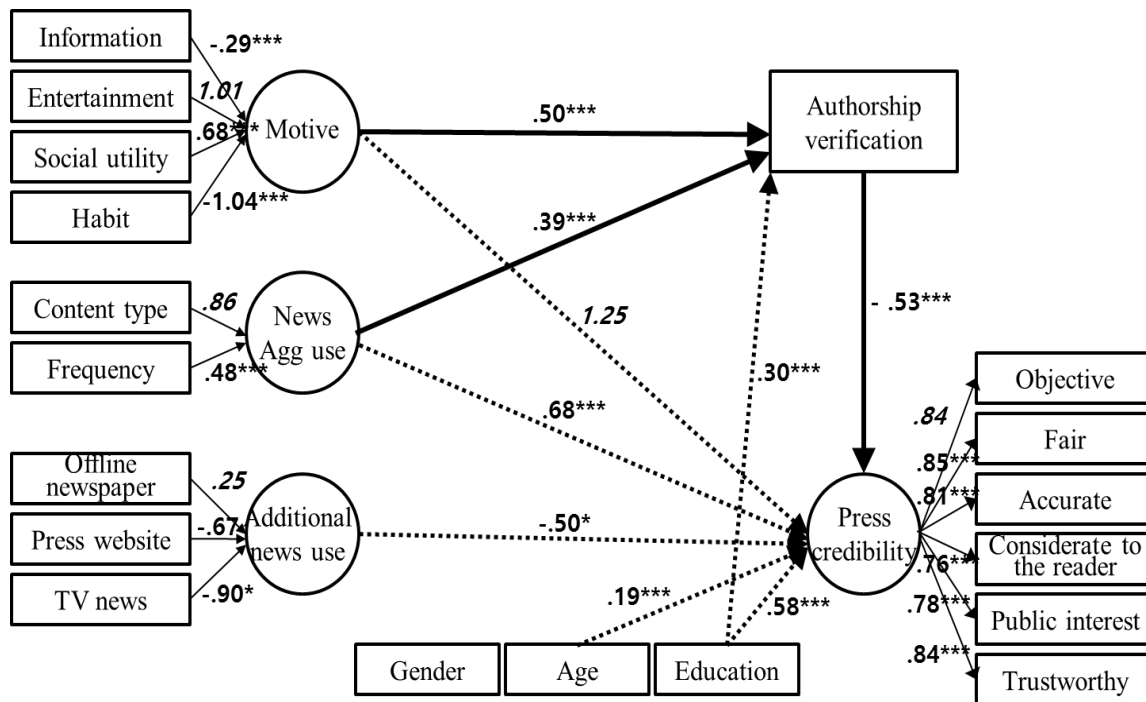


Figure 3. Result of the structural equation model. For the structural model, only statistically significant paths are visualized. The dotted lines indicate paths that are not of primary interest. Path coefficients are standardized. Among observed variables, those that had the largest factor loading were set as reference variables (numbers in italic). Error terms and covariance structures were not visualized for clarification purpose.

*** $p < .000$. ** $p < .01$. * $p < .05$.

As predicted by H4, authorship verification successfully explained press credibility (i.e., authorship verification \rightarrow press credibility). This relationship, among the relationships that were of primary interest, had the largest explanatory power, $\beta = -.53$, $p < .000$. Notably, we found that the path coefficient from authorship verification to press credibility was negative. Further elaboration on this finding is made in the Discussion and Conclusion section that follows.

Furthermore, we tested the possibility of the opposite direction by a comparison with an alternative model predicting authorship verification with press credibility (press credibility \rightarrow authorship verification). The comparison between the research model and the alternative model is implemented by testing their superiority to a full model that included both directions—this is a common approach when the direct

comparison between the two models is not possible because they are not nested to each other (MacKenzie, Lutz, & Belch, 1986). As Table 3 shows, we found the research model to be better than the alternative model, confirming that authorship verification more plausibly predicts press credibility than vice versa.

Table 3. Model Comparison Result.

Model		χ^2	<i>df</i>	χ^2 difference	AIC
Research model	Authorship verification → press credibility	415.88	84	.44 (<i>p</i> > .05)	627.88
Alternative model	Press credibility → authorship verification	448.93	84	33.48* (<i>p</i> < .05)	660.93
Full model	Both directions	415.45	83		629.45

Note: The χ^2 difference was calculated against the full model.

Regarding RQ1, we determined that authorship verification *partially mediated* the relationship between motive and credibility as well as the relationship between news aggregator use and credibility (see Table 4). Using a bootstrapping test, we found both the direct and indirect effects of exogenous constructs on press credibility, mediated by authorship verification, to be statistically significant. Whereas motive and news aggregator use variables had a positive effect on press credibility, authorship verification, standing between these two, decreased the magnitude of these effects.

Table 4. The Mediating Effect of Authorship Verification.

Dependent variable	Mediating variable	Independent variable	Standardized direct effect	Standardized indirect effect
Credibility	Authorship verification	Motive	1.25** (.006)	-.27** (.006)
		News aggregator use	.68* (.042)	-.21** (.009)

Note: Values inside the parentheses are *p* values calculated from bootstrapping using ADF distribution. The bias-corrected percentile method was used to calculate two-tailed significance values.
****p* < .000. ***p* < .01. **p* < .05.

Discussion and Conclusion

This study aimed to identify the determinants and consequences of news authorship verification in the news aggregation site context. Checking news authorship becomes increasingly important when countless news articles produced by numerous authors (i.e., news brands, journalists, or reporters) are distributed and where fake and low-quality news can prevail. However, authorship verification has rarely been examined systematically in either information verification literature or audience behavior literature. Given this circumstance, our findings may help advance scholarly understanding of the factors that explain news authorship verification and its consequences.

We investigated the determinants of news authorship verification by interweaving the information verification literature with audience behavior literature. We found that the psychological motive for using news aggregators and the behavioral use of news aggregators both explain the extent of news authorship verification. Specifically, the statistical significance test of the standardized total effect that each motive had on authorship verification suggested that the entertainment motive had a positive effect (.502, $p = .030$), and the habitual motive had a negative effect (-.516, $p = .007$). This result was unexpected because previous studies have shown information verification to be motivated by information-seeking and social utility purposes (Rieh & Hilligoss, 2008; You et al., 2013). Thus, one's purpose in using news platforms indeed determines one's verification of news authors, but it does so in different manner from how one verifies information.

In addition, we found the standardized total effect of news content type on authorship verification to be .332 ($p = .002$)—people who read non-soft news such as stories related to politics or economics showed a greater possibility of checking news authorship than those who read soft news such as entertainment or sports stories. This finding at a glance appears contrary to the mentioned finding that the entertainment motive had a positive effect on authorship verification. However, the possibility that people read political news to fulfil their interests or read entertainment news to obtain information about, for instance, stars can explain this seeming discrepancy. Our findings imply the presumption that the information motive leads to hard news consumption and the entertainment motive to soft news consumption to be false. Our findings also show that understanding the whole picture requires examination of both psychological and behavioral aspects.

The additional news use variable failed to predict authorship verification. Those who are savvy at obtaining news from multiple venues did not show a statistically significant authorship verification tendency. However, additional news use had a statistically significant, negative effect on press credibility—the more news savvy users were, the less credible they believed the press to be; this did not, however, lead them to more frequently check who wrote the news.

Taken together, we found motives for obtaining news via news aggregators, usage frequency of news aggregators, and news content type usually consumed via news aggregators to be the determinants of news authorship verification in the context of news aggregation sites. These findings contribute to the information verification literature that has mostly focused on identifying methods or skills implemented by users to cross-check the validity of information (Flanagin & Metzger, 2000; Hargittai et al., 2010; Metzger, 2007; Metzger, Flanagin, & Zwarun, 2003), without paying much attention to the factors that drive information verification.

In regard to the consequence of news authorship verification, we confirmed its relation to the press credibility. Previous research had not clearly established the direction of the relationship between authorship verification and credibility (e.g., Flanagin & Metzger, 2007; Hargittai et al., 2010; Metzger, 2007; Yang, 2007). However, this study found that the news authorship verification → press credibility model is more plausible than the credibility → authorship verification model. It showed that credibility → authorship verification was not statistically significant—the fact that people do not trust the press did not lead them to verify who produced the news. This finding supports Metzger's model (2007).

In addition, this finding is notable in that the effect of authorship verification on credibility turned out to be statistically significant even after controlling for relationships previously found to affect credibility. Furthermore, authorship verification partially mediated the relationship of credibility with motive and news aggregator use. These findings provide implications for credibility research that has typically investigated credibility with motive and media use variables, without considering the impact of information verification. Our findings suggest that, to better understand credibility, future studies need to consider the information verification variable.

The negative effect of authorship verification on credibility also deserves attention. This finding reflects the reality of online journalism. News aggregator users confront news articles produced by both legacy media and many unknown online-based news brands; they even frequently encounter news articles that do not have bylines or have bylines such as "digital news team," "online news team," or "new media team" that do not precisely specify who wrote the article. Thus, it is highly likely that the more people check authorship, the less credible they will consider the press to be. It can be further interpreted that the blind consumption of online news articles without consideration of authorship could contribute to perceptions of the press as more credible. This implies the danger of blind news consumption: Unless readers check who the author is, fake news can prevail, being regarded as credible.

This study's limitations should be acknowledged. As is common with surveys, the present results are not free of the social desirability bias. Flanagin and Metzger (2007) found a discrepancy between observed and self-reported verification behavior. Heavier Internet users tended to claim in surveys that they verified information, but they actually did not when observed. Therefore, respondents in the present study may have overestimated their authorship-checking behavior. Despite this problem, we selected a survey method that allowed us to have a large sample of participants stratified in proportion to online users' national demographics and to test the relationships of authorship verification with several exogenous and endogenous constructs.

By shedding light on the rarely examined authorship verification in online news consumption, this study opens further inquiries for information verification and credibility studies. The present findings on the news authorship verification → press credibility model need more follow-up evidence through being tested in different contexts. Furthermore, credibility researchers may extend this model to test the credibility transfer between the press and the news aggregators and examine whether the low-level press credibility negatively affected by news authorship verification induces the low-level news aggregator credibility. Future

research may also explore other determinants of news authorship verification besides those found in the present study—for instance, political ideology and personality traits.

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