

Does Media Literacy Help Identification of Fake News? Information Literacy Helps, but Other Literacies Don't

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S. Mo Jones-Jang¹ , Tara Mortensen²,
and Jingjing Liu²

Abstract

Concerns over fake news have triggered a renewed interest in various forms of media literacy. Prevailing expectations posit that literacy interventions help audiences to be “inoculated” against any harmful effects of misleading information. This study empirically investigates such assumptions by assessing whether individuals with greater literacy (media, information, news, and digital literacies) are better at recognizing fake news, and which of these literacies are most relevant. The results reveal that information literacy—but not other literacies—significantly increases the likelihood of identifying fake news stories. Interpreting the results, we provide both conceptual and methodological explanations. Particularly, we raise questions about the self-reported competencies that are commonly used in literacy scales.

Keywords

fake news, media literacy, information literacy, digital literacy, news literacy, misinformation, disinformation

Although the decentralized and participatory nature of digital communication has contributed to the diversification of knowledge diffusion process, it has also fostered a pressing need for developing ways to assess the accuracy of information. Such issues of accuracy in media diets have received particular attention due to the sudden rise of fake news over the 2016 U.S. presidential election. A number of commentators indicated that the election

¹Boston College, Chestnut Hill, MA, USA

²University of South Carolina, Columbia, SC, USA

Corresponding Author:

S. Mo Jones-Jang, Department of Communication, Boston College, Saint Mary's Hall, S474, 140 Commonwealth Ave, Chestnut Hill, MA 02467, USA.

Email: jangsr@bc.edu

results might have been influenced by widespread “fake news,” which is defined as “fabricated information that mimics news media content in form but not in organizational process or intent” (Lazer et al., 2018, p. 1094; see also Egelhofer & Lecheler, 2019; Tandoc, Lim, & Ling, 2018). Concerns about the harmful effects of fake news on democratic societies have yielded a number of ways to combat fake news. While some criticize producers and distributing platforms (e.g., social media sites), others address the urgent need for media literacy education, which can help audiences to develop the ability to better handle fake news (Clayton et al., in press; Mele et al., 2017; Mihailidis & Viotty, 2017).

Among various prescriptive measures against fake news, this article focuses on the audience-centered solution—the media literacy approach. In the current digital ecosystem where photographic proof is not sufficient to change the minds of partisans, and fake stories lurk in every corner of the internet, equipping digital users with the skillset needed to discern facts from falsehoods is gaining relevance. The common assumption of this approach is that those with greater media literacy tend to consume false or dubious stories in a more critical manner, mitigating the influence of fake news on society.

However, so far, little empirical evidence exists showing the positive role of media literacies in fighting fake news. Additionally, a wide array of literacy concepts (e.g., media literacy, information literacy, news literacy, and digital literacy), developed from different traditions, make this empirical investigation even more challenging. Thus, addressing the voids in the literature, this study aims to provide initial evidence about which kinds of literacies hold the most relevance to fake news contexts by enhancing viewers’ ability to identify fake news. In practice, this understanding is essential for discussing and programming the endeavors of media literacy interventions to improve the quality of information flow in digital communication.

Combating Fake News

While false news is not a new phenomenon, claims of “fake” news surged during the 2016 U.S. presidential election (Allcott & Gentzkow, 2017). Recent evidence indicates that (1) 71% of U.S. adults saw fake political news (Pew Research Center, 2016), (2) 88% of U.S. adults felt confusion about basic facts due to false news stories (Pew Research Center, 2016), and (3) some fake news stories were more widely circulated on social media than the most popular real news stories (Silverman, 2016). A number of commentators have suggested that the popularity of fake political news undermines the key assumption of democracy concerning an informed citizenry and could have influenced the election outcome (Bennett & Livingston, 2018; Parkinson, 2016). Apart from political contexts, professionals and educators from a wide range of domains have warned that the internet, particularly, social media, may increase the circulation of hearsay and misleading information (Jang, McKeever, McKeever, & Kim, 2019; Kwon, Bang, Egnoto, & Raghav Rao, 2016; Mele et al., 2017; Vosoughi, Roy, & Aral, 2018).

Algorithmic Decision

Responding to these concerns, largely three types of solutions to fight fake news have been suggested (Mele et al., 2017). Each highlight three different actors: the

information provider, crowdsourcing, and the audience. First, the information provider approach stresses the role of information systems and providers (Jang et al., 2018). Given that digital users encounter digital information based on the algorithmic decisions, social media systems (e.g., Facebook and Google) have been confronted with pressure from civic society to revise their algorithms and reduce the appearance of fake news (Allcott & Gentzkow, 2017; Clayton et al., in press; Park, Chung, & Shin, 2018).

Correction Efforts From Crowdsourcing

The second approach relies on crowdsourcing efforts. This solution indicates that users are able to recognize or at least cast doubt on fake stories by looking at peer users' comments on them. Additionally, a boom in fact-checking sites make fact-checking procedures increasingly convenient to users. However, mixed evidence exists regarding the effects of voluntary correcting efforts (Bode & Vraga, 2015; Wood & Porter, 2019).

Audience's Media Literacy

The media literacy approach, which is the main subject of this article, focuses on the audience's critical ability to process fake news. This approach posits that literacy interventions should be practiced to better equip citizens with the cognitive ability to discern facts from fake stories (Flynn, Nyhan, & Reifler, 2017). As Adam Smith noted in *The Wealth of Nations*, "The more [people] are instructed, the less liable they are to the delusions of enthusiasm and superstition." This view indicates that media literacy intervention can heighten criticism by increasing knowledge about the media and the effects of the media, as well as the ability to distinguish the realism of the media representation from reality.

Inoculation theory provides a useful explanation for media literacy interventions (McGuire, 1964). The theory suggests that prior exposure helps the audience against future attacks. In the context of fake news, for example, by offering knowledge and skills to resist or critically interpret fake news stories, media literacy education enables individuals to be "inoculated" against any harmful influence of fake news (Jeong, Cho, & Hwang, 2012). The message interpretation process (MIP) theory also provides a theoretical rationale for media literacy education. Drawing from social cognitive theory, the MIP model views that proper message interventions or education can mediate the relationship between exposure to harmful messages and subsequent decision making (Austin, 2007). For example, according to the MIP, children's exposure to media portrayal of substance use may not lead to their unhealthy behavioral choices as long as adequate education about media messages and realism is provided (for a review, see Kupersmidt, Scull, & Benson, 2012).

Previous findings have shown that literacy interventions represent a promising strategy for reducing the effects of risky or antisocial messages on individuals' decision making (Austin, Pinkleton, Chen, & Austin, 2015). Evidence suggests that those with greater literacy tend to make healthier decisions regarding sexual behaviors, alcohol consumption, and political participation (Austin et al., 2015; Pinkleton, Austin, Zhou, Willoughby, & Reiser, 2012). A meta-analytic study indicates that individuals

with an increased media knowledge and understanding of the media production system tend to show more skeptical and realistic expectancies about media messages (Jeong et al., 2012). More relevant to the context of this study, social network research shows that rumor spreading is increasingly accelerated among uneducated users compared with educated users (Afassinou, 2014). As this study investigates the positive role of media-related literacies, we provide brief reviews for four types of literacies.

Literacy: Media, Information, News, and Digital Competencies

Based on specific domains and different emphases, various types of media-related literacy concepts have emerged. Media literacy, information literacy, news literacy, and digital literacy have all been given increased attention in recent years.

Media Literacy

The body of literature surrounding the field of media literacy has been described as “a large complex patchwork of ideas” (Potter, 2010, p. 686), but perhaps the most commonly cited definition is Aufderheide’s (1993): “The ability of a citizen to access, analyze, and produce information for specific outcomes” (p. 6). Basic assumptions of the field include the precepts that media are constructed and construct reality, that media have commercial, ideological, and political motivations and implications, that form and content are related, that each medium has unique aesthetics and conventions, and, finally, that receivers negotiate the meanings of messages (Aufderheide, 1993). The goals of educating people in these precepts is to create informed, autonomous citizens who question the information they receive, appreciate aesthetics, develop self-esteem and competence, and have a sense of advocacy (Aufderheide, 1993; Tyner, 1998, p. 199).

Inan and Temur (2012) developed a reliable scale that tests skill in consuming the television media critically and responsively. Questions revolve around whether respondents believe that they would follow the news using multiple sources, would contact news channels and newspapers to tell criticisms, would discuss news with friends and family, and would consume news with which they disagree. However, most media literacy scales, including Inan and Temur’s (2012) scale, rely on self-reports of perceived knowledge. As noted by researchers (e.g., Gross & Latham, 2009; Vraga, Tully, Kotcher, Smithson, & Broeckelman-Post, 2015), perceptions of one’s knowledge and actual knowledge are related but distinct constructs—one can feel knowledgeable without actually holding correct beliefs (Radecki & Jaccard, 1995).

The literature on media literacy emphasizes people’s perceived beliefs about their ability to critically consume, question, and analyze information. Thus, we predict that their perceived competence of media literacy leads to greater identification of fake news stories.

Hypothesis 1: Those with greater media literacy are more likely to identify fake news.

Information Literacy

Livingstone, Van Couvering, and Thumim (2008) describe the difference between media and information literacy: “Media literacy sees media as a lens or window through which to view the world and express oneself while information literacy sees information as a tool with which to act upon the world” (p. 106). The Association for College and Research Libraries (ACRL, 2000) defines information literacy as the intellectual framework for understanding, finding, evaluating, and using information. Boh Podgornik, Dolničar, Šorgo, and Bartol (2016) developed a valid and reliable literacy measure by following the standards of the ACRL. Unlike other literacy scales that only measure self-reported abilities and beliefs, this scale comprises multiple-choice questions with one correct answer for each to test actual knowledge. The questions focus on students’ abilities to identify verified and reliable information, search databases, and identify opinion statements. Compared with media literacy, which has been constructed with regard to print and audiovisual media, information literacy has been defined and developed with regard to digital environments. As information literacy emphasizes the ability to navigate and locate information (Livingstone et al., 2008), we predict the following:

Hypothesis 2: Those with greater information literacy are more likely to identify fake news.

News Literacy

News literacy, developed from a similar theoretical tradition of media literacy, highlights the importance of literacy in terms of democracy and citizens’ civic engagement (Malik, Cortesi, & Gasser, 2013). The goals of news literacy include an understanding of the role that news plays in society, a motivation to seek out news, the ability to find/identify/recognize news, the ability to critically evaluate and analyze news, and the ability to produce news. News audiences can achieve these goals through greater understanding of the conditions within which news is produced, including its normative goals and influences, which sometimes conflict with journalistic ideals of objectivity and truth (Ashley, Maksl, & Craft, 2013; Shoemaker & Reese, 2013). Ashley et al. (2013) developed a reliable 15-item scale based on a model used by Primack et al. (2006). Their model included self-reported answers about (1) authors and audiences (how authors, motivated by profit, target audiences), (2) messages and meanings (that messages contain value judgments, which are interpreted differently by different people, and that these messages are designed using specific techniques intended to affect the audience), and (3) representation and reality (the way that media filters and omits information, which affects audiences’ perceptions of reality). It is plausible that news consumers who are educated about these processes and motivations behind news distribution—that some news is not a complete, wholly unbiased representation of reality and is indeed a profit-based business with its own influences—will more critically assess and evaluate the completeness, truthfulness, and potential biases of pieces of news found online. We expect that a greater understanding of audiences, news

messages, and news production will relate to a greater ability to identify fake news. Therefore, we posit the following:

Hypothesis 3: Those with greater news literacy are more likely to identify fake news.

Online, New Media, and Digital Literacy

Researchers in recent years have turned their attention to the development of scales that address the online, digital, and social media environment in which the line between producer and consumer has blurred (Jenkins, 2006; Park, 2013). Scholars call for increased attention to the participatory nature of digital media. For example, Buckingham (2015) highlights the symbolic, emotional, and persuasive aspects of digital media but is critical of an overemphasis on functionality and information retrieval. Coiro, Knobel, Lankshear, and Leu (2014) state that literacy should reflect the rapid and continuous process of change in the way we “read, write, view, listen, compose, and communicate information” (p. 5). To them, literacy is related to the way in which people are able to adapt constantly to new technologies. Hargittai (2005) measured self-reported skills, focusing largely on the recognition of internet-related terms like *wiki* and *tagging* (further developed in Hargittai & Hsieh, 2011). Hargittai (2005) showed a positive relationship between the understanding of various internet-related terms and users’ actual ability to find accurate information online. For example, those with a better understanding of internet terms took less time and were more effective at finding information online, including looking for a job, comparing presidential views on an issue, and researching a car to purchase. Hargittai and Hsieh (2011) updated the scale in 2011. Therefore, it is plausible that knowledge about internet terms and the ability to detect accurate information related to news accuracy are related. Thus, we predict the following:

Hypothesis 4: Those with greater digital literacy are more likely to identify fake news.

And we ask the following:

Research Question: Which literacies will be most useful for recognizing fake news?

Method

Participants

A national sample of U.S. citizens ($n = 1,299$) participated in the online survey in March 2017 in exchange for a cash value reward. The data collection was administered by Survey Sampling International (SSI), which recruits and maintains a survey

panel of more than 600,000 online users and has been used in previous research (e.g., Iyengar & Westwood, 2015).¹ As this study focused on ordinary citizens' ability to identify fake news, we opted to use a demographically diverse panel instead of college students who tend to be politically imbalanced and show skewed demographic characteristics.

Respondents were 83.3% White, 6.4% African American, 4.1% Asian, 3.8% Hispanic, followed by 2.1% other. The average age of the participants was 48.24 years ($SD = 17.81$). Of this sample, 51.2% were female. The median income category was \$50,000 to \$74,999, and median education level was "4-year college degree including current students." We also measured political ideology ($M = 3.62$, $SD = 1.74$; 1 (*very conservative*) to 7 (*very liberal*)).

Measures

It was a challenging task to choose among many published literacy measures. We considered a number of criteria for this decision, including scholarly popularity, recency, target audience, and question format. For example, we excluded measures when they were exclusively designed for teens or they used open-ended questions. Additionally, we adopted part of the measures when the scale has a lengthy list of questions.

Media Literacy. Media literacy was assessed using four items taken from previous work (Inan & Temur, 2012). We combined and revised the original items to reduce the number of items, while doing our best to represent relevant dimensions. For example, Inan and Temur's (2012) original scale has four similar items about exchanging information with family or friends and from TV, newspapers, or magazines. Our item used in this study was, "I would exchange information with my family or friends about the news I see in newspapers and on TV. Table 1 summarizes the descriptive characteristics and wording of literacy scales used in the current study. The four responses, which varied from 1 (*strongly disagree*) to 5 (*strongly agree*), were averaged to form the level of media literacy ($M = 3.66$, $SD = 0.75$, $\alpha = .73$).

Information Literacy. Information literacy was measured using five questions from Boh Podgornik et al.'s (2016) information literacy index. Unlike other literacy scales, which measure self-reported competencies, the information literacy scale used in the study consists of multiple-choice questions with one correct and three incorrect responses provided. For example, one of the questions asked, "the most reliable, verified, concise and comprehensive description of an unknown specialized concept can be found in ____." Four responses, including daily newspaper, bilingual dictionary, lexicon or encyclopedia, and research article were provided. The correct response (lexicon or encyclopedia) was coded as 1 and all other incorrect responses were coded as 0. The index was created by summing the five responses ($M = 1.69$, $SD = 2.30$, $\alpha = .52$). Relatively low Cronbach's α does not necessarily mean the literacy index is limited. Rather, this reflects the dichotomous nature of single items. More important,

Table 1. Descriptive Results of Literacy Scales.

	M	SD	Min	Max
Media literacy	3.66	0.74	1 = Strongly disagree	5 = Strongly agree
I would follow the news using multiple media sources.	3.88	0.96	1	5
I would contact with news organizations to show my reaction and tell my criticism.	3.04	1.2	1	5
I would exchange information with my family or friends about the news I see in newspapers and on TV.	4.01	0.87	1	5
I would caution people around me about the negative sides and negative effects of media.	3.73	0.98	1	5
Information literacy			0 = Incorrect answer	1 = Correct answer
The most reliable, verified, concise and comprehensive description of an unknown specialized concept can be found in ____.	0.25	N/A	1	0
In which list have the information sources been correctly ordered from the least to the most formally established and verified?	0.23	N/A	1	0
Which of the data listed below are "raw" unprocessed data?	0.39	N/A	1	0
Compared with a search within the title and abstract, a full-text search database results in ____.	0.29	N/A	1	0
Which statement on GMO is not the author's personal opinion?	0.53	N/A	1	0
News literacy	4.15	0.6	1 = Strongly disagree	5 = Strongly agree
The owner of a media company influences the media content.	4.02	0.9	1	5
Individuals can find news sources that reflect their own political value.	4.19	0.79	1	5
Two people might see the same news story and get different information from it.	4.3	0.76	1	5
News coverage of a political candidate will influence people's opinions.	4.15	0.81	1	5
News makes things more dramatic than they really are.	3.99	0.92	1	5
A story about conflict is more likely to be featured prominently.	4.25	0.79	1	5
Digital literacy	3.25	1.1	1 = None	5 = Full
How familiar are you with advanced search?	3.32	1.3	1	5
How familiar are you with PDF?	3.54	1.31	1	5
How familiar are you with Spyware?	3.32	1.23	1	5
How familiar are you with Wiki?	3.39	1.3	1	5
How familiar are you with Cache?	3.14	1.42	1	5
How familiar are you with Phishing?	3.24	1.33	1	5
How familiar are you with Tagging?	3	1.4	1	5
How familiar are you with JPG?	3.31	1.45	1	5
How familiar are you with Weblog?	2.77	1.34	1	5
How familiar are you with Malware?	3.43	1.23	1	5

Note. Min = minimum; Max = maximum; N/A = not applicable; GMO = genetically modified organisms.

to create a knowledge index that taps into multiple dimensions of literacy (i.e., to increase validity), reliability of the measure is inevitably compromised to some extent (Delli Carpini & Keeter, 2003). Faced with the trade-off, we valued discriminant validity since the purpose of the information literacy index was to assess the dimensions of various literacy scales.

News Literacy. We assessed Ashley et al.'s (2013) three dimensions of news literacy (i.e., authors and audiences, messages and meanings, and representation and reality), adopting six Likert-scale items. We selected two items per each dimension of news literacy. For example, as shown in Table 1, the first two items ("The owner of a media company influences the media content" and "Individuals can find news sources that reflect their own political value") were used to assess the dimension of authors and audiences. The next two items measured the dimension of messages and meanings, and the last two items tapped into the dimension of representation and reality. The six responses, which varied from 1 (*strongly disagree*) to 5 (*strongly agree*), were averaged to form the level of news literacy ($M = 4.15$, $SD = 0.60$, $\alpha = .82$). When we chose the items, we tried not to include the literacy items about technical knowledge such as "lighting is used to make certain people in the news look good or bad."

Digital Literacy. Adopted from Hargittai and Hsieh's (2011) established scale, we assessed digital literacy. We asked respondents to indicate their familiarity with 10 internet-related terms, such as *PDF*, *phishing*, and *tagging*. Respondents answered these questions on a 5-point scale ranging from 1 (*none*) to 5 (*full*). The 10 responses were averaged ($M = 3.25$, $SD = 1.10$, $\alpha = .95$).

Fake News Recognition. To evaluate people's ability to identify fake news in a digital news environment, we presented respondents with 10 news stories. Six of them were fake, and four of them were real news stories. We asked whether they were able to identify 10 news headlines as fake or real. Considering that digital audiences consume news stories in a variety of forms such as visiting news websites or encountering newsfeeds on social networking sites, we presented the news stories to respondents both in a plain text form and in a Facebook-style image format. Five stories were provided in text, and five stories were presented in an image, as depicted in Figure 1. All 10 images of news stories are available through the online appendix (<https://smojang.files.wordpress.com/2019/08/appendix-10-images.pdf>). To counterbalance any effects of the presentation format, we randomized the news format across 10 stories.

We selected these 10 stories using the list of top-20 stories that generated the most Facebook engagement about the 2016 U.S. presidential election (see Silverman, 2016). For example, we used the fake news reports that Pope Francis endorsed Donald Trump and that Hillary Clinton sold weapons to ISIS (Islamic State of Iraq and Syria), which generated the most and the second-most Facebook engagement over the election campaign period, respectively (Silverman, 2016). We also employed mainstream political news stories that yielded high Facebook engagement. Then, we chose fake news stories in a politically balanced way, using three fake stories intended to damage Trump and

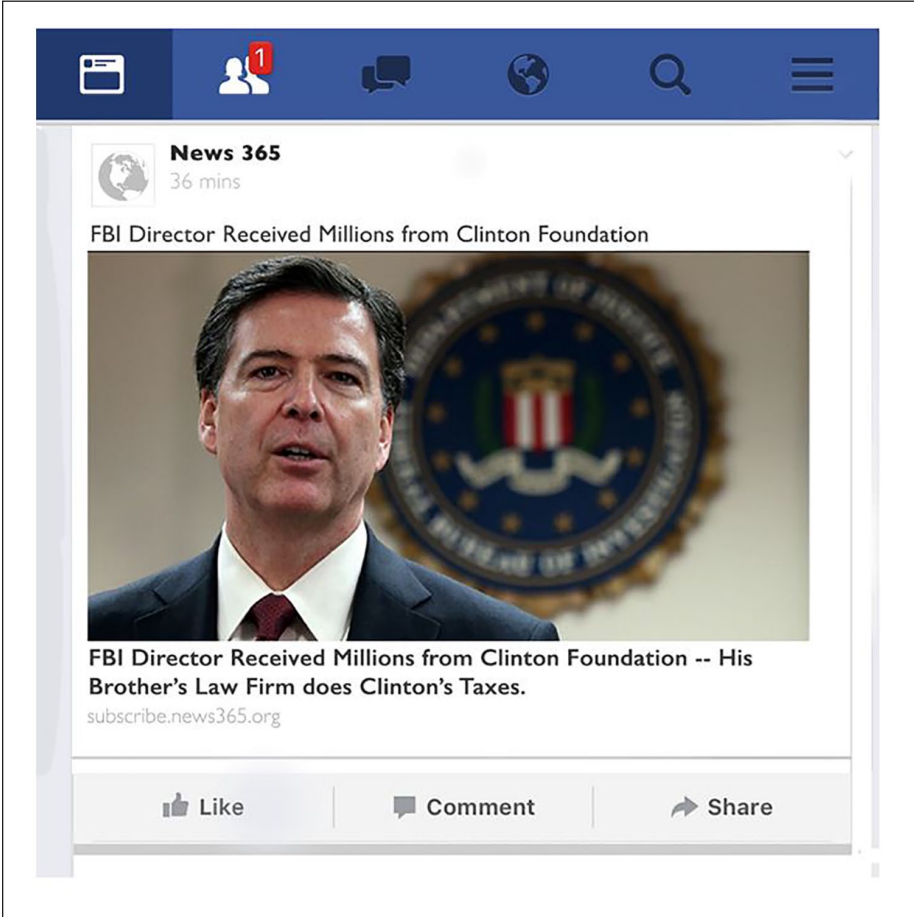


Figure 1. Screenshot of one example of fake news.

another three fake stories intended to hurt Clinton. Finally, by cross-checking these 10 stories via fact-checking websites (e.g., factcheck.org, snopes.com), we confirmed that we included four real and six fake news stories. On average, respondents correctly identified fake news more than 6 out of 10 attempts ($M = 6.35, SD = 1.63$).

Control Variables. Campaign interest was assessed using two questions: “How interested were you in the election campaigns last year?” and “How interested are you in information about what’s going on in national government and politics?” The responses ranging from 1 (*not interested*) to 5 (*extremely interested*) were averaged ($M = 4.01, SD = 0.87, r = .72$). Prior fake news exposure was measured by asking respondents to answer the question of how often they see fake news online in 5-point Likert-type scale from 1 (*never*) to 5 (*always*; $M = 3.58, SD = 0.85$). Other demographic

Table 2. OLS Regression Analysis Predicting Fake News Identification.

	Model 1	Model 2	Model 3
Age	.293 (.002)***	.280 (.003)***	.244 (.003)***
Gender (Female = high)	.009 (.089)	.007 (.090)	-.003 (.089)
Education	-.035 (.043)	-.037 (.043)	-.053 (.044)
Household income	-.004 (.026)	.001 (.026)	.004 (.026)
Political view (Liberal = high)	.198 (.025)***	.193 (.025)***	.190 (.025)***
Campaign interest		.003 (.052)	.019 (.055)
Exposure to fake news		-.067 (.052)*	-.060 (.053)*
Media literacy			-.057 (.070)
Information literacy			.119 (.038)***
News literacy			.023 (.076)
Digital literacy			-.037 (.048)
Total adjusted R ²	.117	.122	.139

Note. Entries are regression coefficients along with standard errors in parentheses. OLS = ordinary least squares.

* $p < .05$. *** $p < .001$.

variables, including gender, age, income, education, and political views served as control variables in the regression analysis.

Results

To examine the predictors of people's ability to identify fake news, hierarchical multiple regressions were conducted. The results are summarized in Table 2. The first block of predictors, consisting of demographic variables (age, gender, education, household income, and political ideology) significantly predicted fake news identification. Specifically, respondents who are older and more liberal were more likely to identify fake and real news stories correctly.

Model 2 looked at whether previous exposure to fake news and campaign interest were associated with fake news identification. Unexpectedly, prior exposure to fake news was negatively associated with fake news identification, and campaign interest was not a significant predictor.

Model 3 tested our key hypotheses (Hypotheses 1 to 4), examining whether four existing literacy scales are significantly related to the ability to recognize fake news. The results showed that information literacy, which emphasizes users' abilities to navigate and locate verified and reliable information, was positively associated with fake news identification, but the other types of literacies did not show a significant relationship. Therefore, the findings supported Hypothesis 2 but not Hypotheses 1, 3, and 4.

Discussion

The recent uproar of fake news has invited increased attention to the notion of media literacy. The key premise of this approach is that users with greater literacies are better

able to recognize and refute fake news online (Jang & Kim, 2018; Mihailidis & Viotty, 2017). Realizing the lack of empirical support for the audience-centered solution, the present study provided initial evidence of which types of literacies are most helpful for the audience to identify fake news.

Our results showed that accurate identification of fake news was significantly associated with information literacy but not with other types of literacy scales used in this study. Information literacy focuses on peoples' abilities to navigate and find information online that is verified and reliable. The scale used in the present study used multiple-choice questions about the correct way to seek out information, with one correct answer. Admittedly, it is difficult to pinpoint whether the unique ability of information literacy resulted from its conceptual or methodological differences from other literacy scales, below we offer our best interpretation of the results.

At the conceptual level, various types of literacies have many common elements, but there are notable differences between information literacy and other media literacy concepts. In general, media literacy research has emphasized critical understanding of media messages, whereas information literacy research has attended more to the identification, location, evaluation, and use of information. Whereas traditional media literacy has been developed with regard to legacy media, information literacy has been constructed based on the digital media environment. These divergent roots led to different theoretical foci and highlights.

These different standpoints provide an interesting framework to understand the findings of this study. Theoretically, both a critical understanding of media messages and media systems (media literacy or news literacy) and skills to navigate and locate information with efficiency and accuracy (information literacy) should be important in identifying fake news. However, in practice, our findings suggest that the latter is more relevant to fake news recognition. In other words, to identify fake news stories, it is crucial that individuals are equipped with the skills and competencies to sustain and update their access to rapidly changing information systems. This is similar to the suggestion of Coiro et al. (2014) who emphasized the importance of people adapting constantly to ever-changing technologies. Information-literate users quickly find the information they need by searching among a wide range of disorganized digital sources. Moreover, as fake news stories resemble the format of real news stories and are systematically produced and distributed, critical-thinking skills of media messages may not be enough to discern real from fake stories. Having knowledge about the processes of news making, the nature of news, and the subjective nature of news seeking (news literacy) does not necessarily mean that individuals will be more discerning of fake news online. On the other hand, it would be more important to locate fact-checking websites or other relevant online tools efficiently and compare and evaluate multiple sources (Mihailidis & Viotty, 2017; Sundar, 2016). This finding corroborates the view that media-related literacy concepts should place greater emphasis on the processes of effective gathering of truthful and verified information, as well as the concept of evaluating any information regarding its authoritativeness and credibility (Buckingham, 2009). Concerning digital literacy, some may argue that knowledge of certain terms (e.g., tagging, PDF) does not necessarily lead to the critical skills needed to identify fake news.

In addition to conceptual differences, it is worth addressing the methodological differences of the four literacy measures. As noted in the literature review, information literacy scale measures actual knowledge rather than self-reported competency (e.g., media literacy, news literacy) or perceived knowledge (e.g., digital literacy), which is where the other three scales fell short. Substantial evidence suggests that actual knowledge and perceived knowledge are entirely separate concepts (Gross & Latham, 2009; Radecki & Jaccard, 1995). Beliefs about whether individuals would critically assess news (e.g., “I would follow the news using multiple sources” (Inan & Temur, 2012) do not necessarily equate to such critical assessment.

Furthermore, previous research found that those who believe they are knowledgeable about a topic were less likely to engage in information-seeking behavior (Radecki & Jaccard, 1995; Vraga et al., 2015). The failure to recognize their incompetence—often referred to as the Dunning–Kruger effect—has profound implications because one major prerequisite of voluntary fact-checking effort is actually acknowledging their incompetence (Kruger & Dunning, 1999; Pennycook, Ross, Koehler, & Fugelsang, 2017). Presumably, those who need more information-seeking behavior and extra effort become the ones who are least likely to do so. Similarly, in our analysis, self-reported prior exposure to fake news was a negative predictor of fake news identification, and campaign interest was not a significant predictor. The findings showed that those who claimed their experience and familiarity with news topics did not excel at fake news identification.

Given that various literacies show inconsistent methodological approaches and ambiguous conceptual differences, our findings support the idea that we need a comprehensive framework of media or information literacies in a changing media environment. Ideally, an overarching framework should decrease theoretical discrepancies, connect practical applications, and strengthen central lifelong learning goals across different literacy types. For example, Mackey and Jacobson (2011) presented a met-literacy as a unified construct that supports the acquisition, production, and sharing of knowledge in collaborative online communities. However, it still remains a challenging task to develop comprehensive measures for such conceptual frameworks.

Regardless of the scale being an actual knowledge test or a self-assessment, the finding that information literacy is positively associated with fake news literacy is worth noting. It indicates that one important way to improve people’s ability of differentiating fake from real news is to improve people’s information literacy skills. While fake news recognition might not be a theme that could receive a society-wide education effort, the Americans have generally been exposed to information literacy education starting elementary school, and all the way up through higher education. In today’s digital age where the creation and diffusion of unreliable or fake information is easier than ever, we need more advance, extensive, and in-depth education on information literacy.

Following the intervention model of Boh Podgornik et al. (2016), future interventions against fake news should focus not only on the context of teenager education but also on the context of news and media. In the same way that education interventions focus on using, for example, library resources effectively for writing academic papers,

news and media interventions must focus on educating lay people about using online resources for developing the kind of knowledge base required for being an informed citizen. Furthermore, because it was found in this study that knowing how one *should* assess news does not necessarily equate such action, interventions could benefit from actual exercises in assessing news pieces online, where observable steps are taken to assess information. Finally, development of future scales could follow the example of Boh Podgornik et al. (2016), but be adopted for the online news media environment, measuring actual knowledge rather than self-perceived knowledge.

Several limitations should be considered. First, when we used various literacy scales, we often adopted part of the measures due to the concern of lengthy survey questionnaire. Although our reliability evaluations did not raise this concern, this should be noted for further scrutiny of each scale.

Second, as this study used fake news stories surrounding the 2016 U.S. presidential election, some of our measures or findings are grounded on the context. For example, we found a negative relationship between prior exposure to fake news and fake news recognition, but this relationship could be artificially inflated due to the current political dynamics in the United States. Given that President Donald Trump publicly calls mainstream newspapers, such as *The New York Times* and *The Washington Post*, and television channels, such as CNN, “fake news,” some Trump supporters would have considered news from these sources as “fake news.” This scenario is in line with our findings that liberals tended to be better at the identification of fake news stories. However, we need additional investigations to see whether this political difference is generalizable to other contexts or specific political contexts the 2016 U.S. election had generated.

Third, the findings do not reveal how individuals identify fake news stories. Some may be skeptical of fake stories by reading the message content, but others may get some hint of fake news by looking into the format or source of the presented stories. The current study used existing fake news stories and controlled the source or format of stories by utilizing a common social media platform (i.e., Facebook News Feed). By using campaign interest, a control variable, we tried to minimize the confounding force of political interest into our measure of fake news identification, but little is known whether individuals identify fake news based on their prior knowledge or educated guesses.

Finally, this study only focused on the audience-centered approach, largely disregarding other solutions for fighting fake news. It should be noted that an undue emphasis on audience education may oversimplify the issue, leading people to think that ill-informed citizens should be responsible for the current fake news phenomenon (Mihailidis & Viotty, 2017). In programming effective literacy interventions, it is essential to recognize the limits of users’ cognitive ability and resources.

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ORCID iD

S. Mo Jones-Jang  <https://orcid.org/0000-0003-3935-7421>

Note

1. The panel of SSI is drawn from more than 3,400 sources using numerous targeted approaches, such as email, online invitations, search links, banner ads, and co-registration. SSI uses assorted data validation methods, including comparing respondent characteristics with multiple data vendors and databases to personal identifying information. The debate concerning the validity of the nonprobability national sample is still under way. However, a growing number of studies in communication and social science fields have benefited from national volunteer samples (e.g., Iyengar & Westwood, 2015). The current study sample somewhat underrepresents minority race groups but, overall, reflects demographical characteristics from other probability surveys.

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Author Biographies

S. Mo Jones-Jang is an assistant professor at Boston College's Department of Communication. His research focuses on the flow of digital information and public opinion about controversial social/political/environmental issues.

Tara Mortensen is an associate professor at the University of South Carolina's School of Journalism and Mass Communication. Her research explores the impact of nonprofessional visual communications in the news sphere.

Jingjing Liu is an assistant professor in the School of Library and Information Science at the University of South Carolina. Her research interests include information retrieval, human information behavior, human-computer interaction, and evaluation of information systems.