JOURNAL OF INFORMATION TECHNOLOGY & POLITICS
https://doi.org/10.1080/19331681.2021.1945988

Routledge
Taylor & Francis Group

"*Who is gullible to political disinformation*?" : predicting susceptibility of university students to fake news

Rex P. Bringula[a], Annaliza E. Catacutan-Bangit[b], Manuel B. Garcia[c], John Paul S. Gonzales[a], and Arlene Mae C. Valderama[d]

[a]University of the East, Manila, Philippines; [b]National University, NU, La Jolla, United States; [c]FEU Institute of Technology, FEU, Manila, Philippines; [d]Jose Rizal University, JRU, Mandaluyong, Philippines

ABSTRACT

This study determined the items that could predict university students' susceptibility to disinformation (e.g., fake news). Toward this goal, randomly-selected students from the four private universities in Manila answered a content-validated and pilot-tested survey form. Through binary logistic regression analysis, it was found that frequent visits to Instagram, sharing a political post of a friend, and liking a post of a political party could increase the susceptibility of students to fake news. On the other hand, sharing the post of a political party, and seeking the opinion of experts could decrease the susceptibility of students to fake news. Of these items, liking a post with a similar opinion of a political party – a confirmation bias – had the highest contribution to fake news susceptibility of students. It is worth noting that the most reliable source of information, i.e. the library, is the least utilized fact-checking resource. It can be concluded that technological, internal, and external factors contribute either positively or negatively to the susceptibility of students to fake news. Implications to combat fake news are offered.

KEYWORDS

Confirmation bias; disinformation; ICT; social media; trust

Introduction

False information denotes untrue information that is categorized based on its intent (e.g., misinformation, disinformation) or knowledge (e.g., fake reviews, hoaxes) (Kumar & Shah, 2018). Disinformation is a societal problem because it is a "deliberate (often orchestrated) attempt to confuse or manipulate people through delivering dishonest information to them" (Ireton & Posetti, 2018, p. 7). Disinformation is different from misinformation since the latter has no manipulative or malicious intent (Ireton & Posetti, 2018). People spreading disinformation has a deliberate intention of creating and sharing false information. Lewandowsky, Stritzke, Freund, Oberauer, and Krueger (2013) pointed out that disinformation is disseminated for propagandistic purposes and the false information may be identifiable as false later on. It was reported that political parties are hiring fake account operators to manipulate systematically the political discussions on social media or to "rebrand" the image of politicians (Ong & Cabañes, 2018). Meanwhile, misinformation refers to information that was believed to be true but turns out to be false, and the person who disseminates it believes it is true (Lewandowsky et al., 2013; Wardle & Derakhshan, 2018). It establishes a false connection (i.e., headlines, visuals, or captions are not congruent with the content) and contains misleading content (i.e., misleading use of information to frame issues or personalities by cropping photos or using quotes or statistics which are taken from a different context) (Wardle & Derakhshan, 2018).

Disinformation is not a new phenomenon but it significantly proliferates because of the advancement of Information and Communication Technologies (e.g., computers, mobile phones, the Internet) (Burkhardt, 2017). Recently, social media platforms have become the vehicle of propagating disinformation with political content (Benkler, Faris, & Roberts, 2018; Burkhardt, 2017). The purpose of political information through social media is to sway the opinion of the masses (Spohr, 2017) or malign the character of a political opponent (Pate & Ibrahim, 2019). This can damage the beliefs of the people as well as it can harm the security and democratic process of a country (Belova &

CONTACT Rex P. Bringula rex_bringula@yahoo.com University of the East 2219 CM Recto Avenue Sampaloc, Manila 1008, Philippines

Georgieva, 2018; Lee, 2019). Pate and Ibrahim (2019) reported that a data analytics company used the data of 50 million Facebook users to create fake news about a political personality. This was allowed so that a certain politician would have a competitive advantage over its political opponent. The propaganda videos circulated during the campaign period were claiming a certain politician was promoting sectional violence and hate toward non-Muslims. This fake news created confusion, hate, and undermined trust toward the candidate. Thus, fake news has an impact on the individual, societal, and national levels.

One form of disinformation is fake news. It aims to undermine the "credibility of information which does indeed meet the threshold of verifiability and public interest – i.e. real news" (Ireton & Posetti, 2018, p. 7). Fake news has many forms including news satire, news parody, news fabrication, photo manipulation, dubious advertising and public relations, and propaganda (Tandoc, Lim, & Ling, 2017). Researchers acknowledge the need to reduce the spread of fake news through technical and non-technical means. Sharma et al. (2019, p. 12) enumerated the list of existing automated fake news detection (e.g., deep-learning, linguistic analysis, cue and feature methods, temporal pattern analysis, mitigation analysis, etc.). In terms of non-technical ways to suppress fake news, media literacy, psychological awareness, information literacy (Burkhardt, 2017), news literacy (Luhtala & Whiting, 2018), practicing analytical thinking (Pennycook & Rand, 2019), and self-censorship (Egelhofer & Lecheler, 2019) were proposed.

The capability of social media platforms enables its users to create and share content conveniently that could reach a wide range of people. It has become a very popular choice of information dissemination tool. It is well known that people are engaged using social media platforms. As of January 2020, there are 3.80 billion social media users in the world (Kemp, 2020). Because of its popularity and ability to reach people without the boundaries of time and space, social media platforms have been utilized by legitimate news media outlets (Kümpel, Karnowski, & Keyling, 2015; Paulussen & Harder, 2014). However, these capabilities are also used to spread fake news (Burkhardt, 2017). Fake news intensifies false beliefs and deceives people away from the truth. Informing social media users regarding the susceptibility of social media to fake news is an essential step to thwart the proliferation of fake news. Understanding the susceptibility of social media to fake news may increase the awareness of people of the proliferation of fake news within social media. This would, in turn, help them practice self-censorship.

Unfortunately, only a few studies on the susceptibility of social media users were conducted (Shen et al., 2019). Hoang and Lim (2012) investigated the susceptibility of Twitter users to advertised items. It was found that teenagers and young adults were the most susceptible Twitter users. In a similar study, Wagner, Mitter, Körner, and Strohmaier (2012) identified susceptible Twitter users when social bot attacks. Social bots are automatic or semi-automatic computer programs that behave as if they were humans in online social networks. Wagner et al. (2012) found that susceptible users are those who tend to use Twitter for conversational purposes, to be more open and social with other Twitter users, to use more social words, and to display more affection than those who are non-susceptible users. In another study, Shen et al. (2019) showed that susceptibility to fake news is correlated with user account characteristics (e.g., number of followers, friends, lists, statuses, etc.), linguistic content (e.g., latent emotions, punctuation usage, etc.), and network traits (e.g., cluster features, the closeness of users, etc.). Pennycook and Rand (2019, p. 39) concluded failure to think critically is a primary reason why people fall for false news.

Prior studies measured the susceptibility or acceptance to the fake news of students (e.g., Rampersad & Althiyabi, 2020; Syam & Nurrahmi, 2020) but did not attempt to identify the items that determine university students' susceptibility to fake news. Considering the susceptibility of the students to fake news (Mayorga et al., 2020; Syam & Nurrahmi, 2020), it is fitting to identify the characteristics of susceptible students and to propose mitigating measures based on these characteristics. This study aimed to fill in this research gap through binary logistic regression that would determine the items that could predict fake news susceptibility of university students (subsequently referred to as students).

Research questions and null hypotheses

Information and communication technology access and fake news

Fake news can be traced back as early as the pre-printing area (Burkhardt, 2017; Posetti & Matthews, 2018). Fake news proliferated as the computing power to collect and to analyze data of modern computers increased and as people became more virtually connected through the World Wide Web (Burkhardt, 2017). Furthermore, mobile devices allowed easy access to unlimited types of information (Siau & Shen, 2003) – including those that were not true. Information and Communication Technology (ICT) further democratized politics and it has become a tool to spread fake news (Pate & Ibrahim, 2019). For example, it was shown that Facebook was the platform of choice for spreading fake news during the American election campaign in 2016 (Guess, Nyhan, & Reifler, 2018). In this study, ICT is defined as access to devices, and the type and access location of Internet connectivity. Thus, this study aimed to answer this question:

Research Question (RQ) 1: What is the students' ICT access in terms of

(a) device ownership,
(b) type of Internet access, and
(c) Internet access location?

It is hypothesized that

Hypothesis 1 (H1): Students' ICT access in terms of (H1a) device ownership, (H1b) type of Internet access, and (H1c) Internet access location do not predict susceptibility to fake news.

Fake news exposure and perceived prevalence of fake news

Social media platforms such as Facebook, Twitter, Instagram, YouTube, etc. have become venues to spread fake news (Burkhardt, 2017; Hussain, Tokdemir, Agarwal, & Al-Khateeb, 2018; Pennycook, Cannon, & Rand, 2018). Algorithms that collect data from users can become the target of personalized political propaganda (Vasilkova & Legostaeva, 2019). People may still be exposed to fake news as people from their networks may share or like false information (Friggeri, Adamic, Eckles, & Cheng, 2014; Kumar, West, & Leskovec, 2016). These behaviors can spread fake news easily (Lazer et al., 2018). Repeated exposure to fake news is a threat to society because it becomes factual pieces of information to readers (Fielden, Grupac, & Adamko, 2018; Pennycook et al., 2018).

Grinberg, Joseph, Friedland, Swire-Thompson, and Lazer (2019), citing the studies of Allcott and Gentzkow (2017), and Guess et al. (2018), reported the prevalence of fake news. Grinberg and colleagues said that the average American adult recalled fake news stories during the 2016 election in the US and 27% of people even visited these sites before the election. In a similar study, Fielden et al. (2018) showed that 30% of the 3,700 respondents of their research believed that they saw more than one fake news article a day. In another study, Guess, Nagler, and Tucker (2019) showed that politically-motivated articles originate from fake news domains and these articles are re-shared online. The study of Budak (2019) provided empirical evidence to conclude that the prevalence of fake news increased over time. Thus, this study sought an answer to this question and tested its corresponding hypothesis:

RQ2: How can we describe the students' fake news exposures in terms of

(a) frequency of Facebook visit,
(b) frequency of Instagram visit,
(c) frequency of Twitter visit,
(d) frequency of YouTube visit,
(e) frequency of social media usage for politics updates,
(f) satisfaction from the information received, and
(g) perceived prevalence of fake news?

H2: Students' fake news exposures in terms of
(H2a) frequency of Facebook use,
(H2b) frequency of Instagram use,
(H2c) frequency of Twitter use,
(H2d) frequency of YouTube visit,
(H2e) frequency of social media usage for politics updates,
(H2f) satisfaction from the information received, and
(H2g) the perceived prevalence of fake news do not predict students' susceptibility to fake news.

Political awareness and fake news

From its initial purpose of sharing photographs online, social media has expanded its political context both by citizens and political parties (Stieglitz & Dang-Xuan, 2013). For political parties, social media is a vehicle to inform the public about their political positions and candidates to build a community of supporters and voters (Stieglitz & Dang-Xuan, 2013). Hence, social media users may be exposed to political advertisements and may be informed about the political issues of their country (Rainie, Smith, Schlozman, Brady, & Verba, 2012). Political awareness is "the extent to which an individual pays attention to politics and understands what he or she has encountered" (Zaller, 1992, p. 21). It enables people to gain knowledge about politics (Amer, 2009). It is important because it affects the citizens' political attitude, consistency of political ideologies, and voting behavior (Pasek, Kenski, Romer, & Jamieson, 2006). It was disclosed that people with high media exposure have high political awareness (Amer, 2009) and are more likely to receive more messages with political content (Claassen, 2011). It was also found that individuals who are highly engaged with political news are most likely to engage with fake news sources (Grinberg et al., 2019). Thus, this study aimed to answer the question and tested its corresponding hypothesis below:

RQ3: What is the students' level of awareness on national political issues in terms of

(a) knowledge,
(b) perceived importance, and
(c) amount of time dedicated?

H3: Students' level of awareness on political issues in terms of (H3a) knowledge, (H3b) perceived importance, and (H3c) amount of time dedicated does not predict students' susceptibility to fake news.

Confirmation bias, trust, fact-checking strategies and fake news

There is a body of research that establishes the link between confirmation bias and fake news acceptance. Confirmation bias is a behavioral tendency to accept evidence that conforms to the existing beliefs, expectations, or hypotheses of a person (Nickerson, 1998). When people are offered new information, people tend to resist information that is incongruent to their predispositions or beliefs (Claassen, 2011). Conversely, articles that conform to their existing beliefs are easily accepted as factual and shared easily on social media without verifying their authenticity. This leads to selective exposure to information deemed true and rejection of other information (Spohr, 2017; Westerwick, Johnson, & Knobloch-Westerwick, 2017). For instance, Guess et al. (2019, p. 1) found that people with a strong political group affiliation were more likely to share fake news articles. Furthermore, it was disclosed that confirmation bias had a positive and significant effect on the believability of news articles (Kim & Dennis, 2019). Finally, as people tend to believe the news articles are true, it is more likely that they will read, like, comment, and share the article (Kim & Dennis, 2019; Kim, Moravec, & Dennis, 2019). Even though fact-checking approaches are in place, Murungi, Yates, Purao, Yu, and Zhan (2019) doubted the effectiveness of these approaches because of confirmation bias. Thus, this study aims to answer the question and test its corresponding hypothesis below:

RQ4: How can we describe the confirmation bias of the students in terms of

(a) sharing the posts of their friends,
(b) liking the posts of their friends,
(c) reacting to the posts of their friends,
(d) sharing the posts of unknown people,
(e) liking the posts of unknown people,
(f) reacting to the posts of unknown people
(g) sharing the posts of political parties,
(h) liking the posts of political parties, and
(i) reacting to the posts of political parties?

H4: Students' confirmation bias do not predict susceptibility to fake news in terms of

H4a: sharing the posts of their friends,

H4b: liking the posts of their friends,

H4c: reacting to the posts of their friends,

H4d: sharing the posts of unknown people,

H4e: liking the posts of unknown people,

H4f: reacting to the posts of unknown people

H4g: sharing the posts of political parties,

H4h: liking the posts of political parties, and

H4i: reacting to the posts of political parties?

Any content may be posted on social media as long as it conforms to the ethical standards set forth by social media sites. Nonetheless, contents that are posted within the set of standards are not validated nor monitored by experts in the field (Li & Suh, 2015). Thus, social media users may only accept (or reject) information that they may deem credible (or not credible). Prior research investigated the credibility of the media source (Kim & Dennis, 2019) and the characteristics of the article (e.g., interactivity, medium transparency, medium credibility, etc.; Li & Suh, 2015), but not the actual source (e.g., person, organization, or political entity). Sterrett et al. (2019, p. 10) addressed this gap in the literature. They disclosed that social media articles are more trusted if they are shared by a public figure they trust. Furthermore, they discovered that information from an unknown source will be treated as if they are from a trusted one. This can be explained because people accept some level of tolerable risks (Becker, 1996). In general, Sterrett et al. (2019) showed a news sharer has a much stronger and more consistent trust in the news on social media than the news reporting source. This is consistent with the source credibility theory proposed by Hovland, Janis, and Kelley (1953) that people are more likely to be persuaded by people they believe are credible, expert, or trustworthy.

Thus, this study aimed to answer the question and tested its corresponding hypothesis below:

RQ5: What is the students' level of trust towards news sharers, such as a political post of friends, a respected person, political parties, and an unknown person?

H5: Students' level of trust toward news sharers, such as political posts of (H5a) friends, (H5b) a respected person, (H5c) political parties, and (H5d) an unknown person does not predict susceptibility to fake news.

Some people exert effort to check the authenticity of social media articles. Fielden et al. (2018, p. 54) found 67% of the 3,700 respondents of their study said they always check articles mostly through Google, scholarly articles, books, interviews, and other search engines. Other researchers reported the use of fact-checkers (e.g., Snopes, Storyful, Factcheck.org, Hoax-Slayer, Politifact, Washington Post Fact Checker, Politifact, Fullfact, ARD Faktenfinder, Correctiv, Mimikama, Guardian, and Die Presse Faktencheck) and verifier systems (e.g., Google Image, TinEye, FotoForensics) (Brandtzaeg, Følstad, & Chaparro Domínguez, 2018; Humprecht, 2020). Other researchers used experts' opinions rating as a means to fact-check online materials (Kim et al., 2019). Thus, this study aimed to answer the question and tested its corresponding hypothesis below:

RQ6: How can we describe the fact-checking strategies of the students to invalidate fake news in terms of

(a) searching the Internet through Google,
(b) seeking the opinion of teachers,
(c) seeking the opinion of experts,
(d) seeking the opinion of authorities,
(e) seeking the opinion of friends,
(f) seeking the opinion of family members,
(g) searching for materials in the library,
(h) consulting print newspapers,
(i) consulting online newspapers, and
(j) consulting fact-checking websites

H6: Fact-checking strategies of the students in terms of

(H6a) searching the Internet through Google,
(H6b) seeking the opinion of teachers,
(H6c) seeking the opinion of experts,
(H6d) seeking the opinion of authorities,
(H6e) seeking the opinion of friends,
(H6f) seeking the opinion of family members,
(H6g) searching for materials in the library,
(H6h) consulting print newspapers,
(H6i) consulting online newspapers, and

(H6j) consulting fact-checking websites do not predict their susceptibility to fake news.

Figure 1 Shows the items of the factors that could influence susceptibility to fake news.

Methodology

Students of four universities in Manila participated in this study. There was almost an equal number of male (n = 361, 52%) and female (n = 332, 48%) participants. They were enrolled in various programs, namely: Computer Studies/Information Technology (n = 326, 47%), Health (n = 119, 17%), Business (n = 106, 15%), Engineering (n = 83, 12%), Education (n = 25, 4%), and Arts and Sciences (n = 22, 3%). However, twelve (12) students did not indicate their degree programs. The students were from diverse income groups, with a monthly income of at least Php 10,000 (approximately US 200 USD).

This study utilized a research questionnaire that served as the research instrument. The researchers-made questionnaire based on the concept of prior

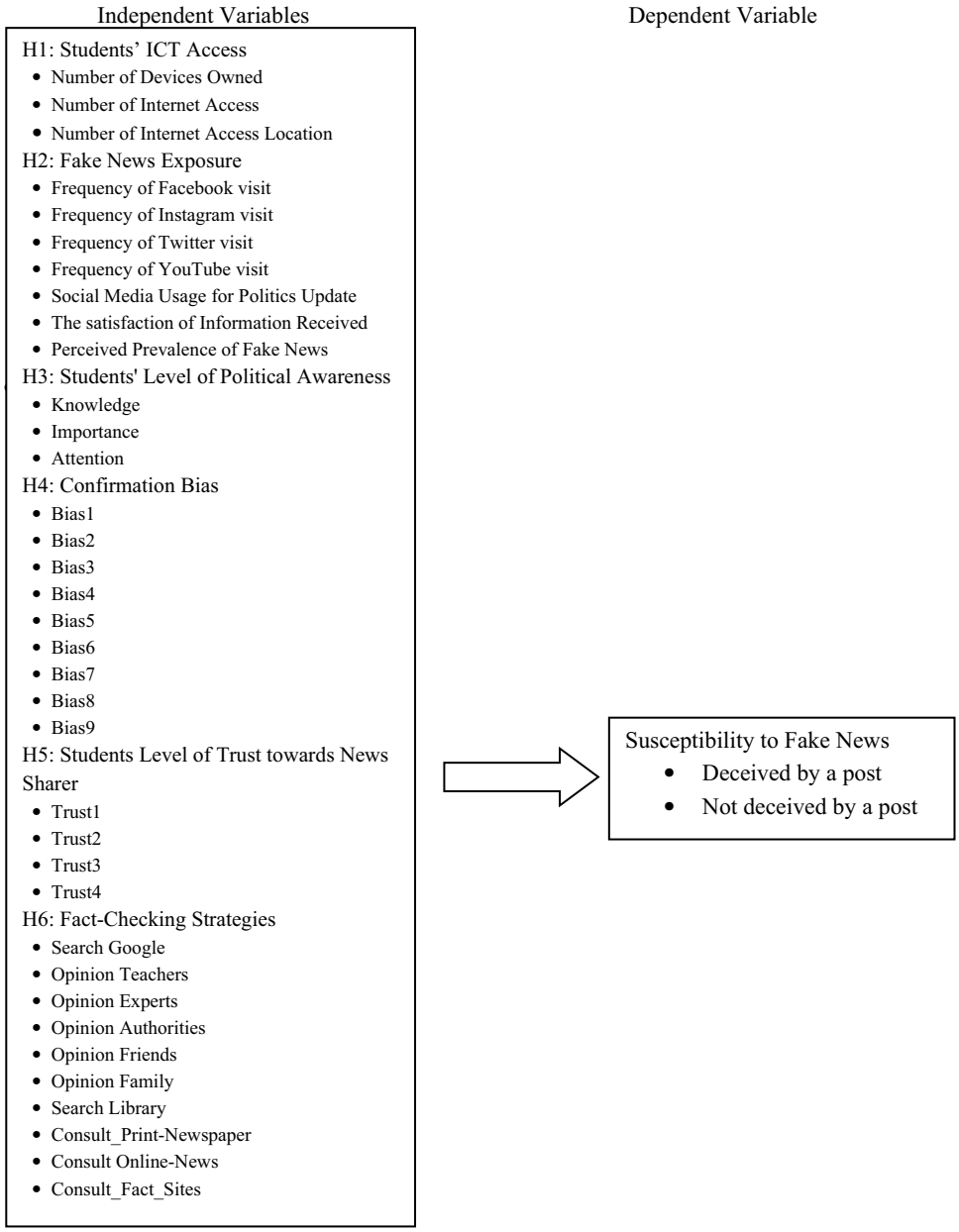

Figure 1. Conceptual framework.

studies presented in the previous sections was pilot-tested to 43 students who were excluded from the study. Modifications (e.g., inclusion and/or exclusion of confusing, vague, leading, or irrelevant questions) were done based on the feedback of the students and on the results of pretesting. The questionnaire consisted of five parts. The first part addressed the ICT access of the students. It was measured in terms of the number of devices owned, the number of types of Internet access, and the number of Internet access locations. The second part gathered information about the political awareness of the students. Political awareness was measured in terms of knowledge of national political issues, the importance of knowing national political issues, and the amount of attention dedicated to knowing the national political issues.

The third part queried social media usage (i.e., frequency of visit in a day and satisfaction with the information received from social media) and perceived prevalence of fake news (i.e., chances of seeing a fake news post). The fourth part measured the confirmation bias and trust toward a news sharer. Confirmation bias in this study is defined as the agreement of a person by sharing, reacting, or liking the post of another person. It consists of nine items. The items were found valid (factor loading ≥ 0.50) and reliable (Cronbach's alpha = 0.87). Trust toward news sharers (subsequently referred to as trust) has four items regarding their tendency to believe to post with the political context of their friends, respected person, political party, or unknown person. The items are valid (factor loading ≥ 0.50) and reliable (Cronbach's alpha = 0.896).

The last part of the questionnaire determined the susceptibility of the students to fake news. It solicited responses if the students were deceived by fake news, i.e., they believed a political post was true but eventually determined it was not. This consisted of a single item that asked "Have you ever believed a political news post to be true only to learn it was fake news?." Students may discern if they had been deceived by fake news since there are fact-checking and scientific organizations reports (e.g., VeraFiles, Rappler, etc) that debunk dubious posts. If a student was tricked by fake news, the response was coded as 1; otherwise, the response was coded as 0.

A Likert scale of 1 to 5 (where 1 indicated the most negative response and 5 indicated the most positive response) was used to measure the frequency of visit, satisfaction, the prevalence of fake news, political awareness, confirmation bias, and trust. Table 1 shows the variables, the Likert scale, mean range, and its corresponding verbal interpretation. Using Raosoft (2004) sample size calculator with a 10% margin of error, 95% confidence interval, 50% response distribution, and 6,000 students' population size, the sample size computed was 95 students. Programming teachers were requested to distribute Google survey forms during their laboratory sessions. There were 121 survey forms retrieved from School A, 163 from School B, 297 from School C, and 124 from School D. A total of 715 students participated in the study. However, only 693 survey forms were used because of missing responses in some items.

Logistic regression analysis with a 0.05 level of significance was used to determine which of the items could predict students' susceptibility to disinformation. The study utilized the SPSS statistical analysis program to develop the logistic regression model. A 0.05 level of significance was selected to determine the significance of the findings.

Results

This section reports the results of the analyses employed on the gathered data. It presents the results of each research question (RQ) and the acceptance or rejection of the hypotheses.

RQ1: students' ICT access

More students own cellphones rather than desktop/laptop (Table 2). Almost all of them own a mobile phone. Students have access to the ICT device since all of them have at least one device to use. The majority of the participants access the Internet through their WiFi at home or through mobile data. All of the participants reported they have access to the Internet. The Internet is usually accessed at home, in schools, or through their devices. More than one-third of the respondents reported that they have a single Internet access location.

Table 1. Likert scale, mean range, and its verbal interpretation.

Rating	Mean Range	Variables							
		Freq/Fact	Satisfaction	Confirmation	Trust	Prevalence	Knowledge	Importance	Attention
1 Not at all	1.00–1.50	Never important	Very Not at all			dissatisfied	Strongly disagree	Strongly disagree	Not probable
2	1.51–2.50	Rarely	Dissatisfied	Disagree	Disagree	A little chance	Little knowledge	Of little importance	Very little attention
3 Of	2.51–3.50	Sometimes average	Neutral	Slightly agree	Slightly agree	Most probably there is importance	Quite Some of my attention		knowledgeable
4	3.51–4.50	Most of the time	Satisfied	Agree	Agree	Highly probable there is	Knowledgeable	Important	Much of my attention
5 Very	4.51–5.00	Always important	Very satisfied All of my attention	Strongly agree	Strongly agree	Very highly probable	Very		knowledgeable

Legend:
Freq – Frequency of visit
Fact – Fact-checking strategies
Satisfaction – Satisfaction on information received from social media platforms
Confirmation – Confirmation bias
Trust – Trust toward news sharers
Prevalence – The perceived prevalence of fake news
Knowledge – Knowledge of national political issues
Importance – Importance of knowing national political issues
Attention – Amount of attention dedicated to knowing national political issues

RQ2: fake news exposure and RQ3: level of national political awareness

Facebook and YouTube are the most popular social media platforms for this set of respondents (Table 3).

Table 2. ICT access of students.

ICT Access	frequency	Percentage
Device Ownership		
• Desktop/Laptop	538	78
• Cellphone	678	98
• Tablets	158	23
Number of Devices Owned		
• One device	160	23
• Two devices	384	55
• Three devices	144	21
• Four devices	5	0.7
Type of Internet Access		
• Wired	101	15
• WiFi installed at home	540	78
• Mobile data	487	70
• Pocket WiFi	51	7
Number of Internet Access		
• One type of access	303	44
• Two types of access	304	44
• Three types of access	74	11
• Four to five types of access	12	2
Internet access location		
• At home	611	88
• In school	523	75
• In a coffee shop	120	17
• In a mall	166	24
• Through my mobile data	503	73
Number of Internet Access Location		
• One access location	115	17
• Two access locations	165	24
• Three access locations	247	36
• Four access locations	83	12
• Five to six access locations	83	12

Occasionally, social media are used to keep the students updated on national political issues. They tend to be neutral in terms of the quality of information they get from social media. They believe that when they visit their social media account, it is probable they will see fake news articles. Students are somewhat knowledgeable on the national political issues and they dedicate a portion of their time to be aware of these issues. They perceive that being aware of national political issues is necessary. The majority of the participants (n = 436 or 61%) admitted they were deceived by fake news at least once.

Table 3. Fake news exposure and level of awareness.

Fake News Exposure	Mean	Verbal Interpretation
Social Media Usage		
• Frequency of Facebook use	4.13	Most of the time
• Frequency of Instagram use	3.27	Sometimes
• Frequency of Twitter use	3.25	Sometimes
• Frequency of YouTube use	4.07	Most of the time
• Frequency of visit for Politics Update (Politics_Update)	3.14	Sometimes
Overall mean	3.57	Most of the time
Satisfaction	3.34	Neutral
Prevalence of Fake News	2.97	Most probable there is
Level of Awareness		
Knowledge	3.07	Quite knowledgeable
Importance	4.12	Important
Attention	3.20	Some of my attention

Table 4. Confirmation bias and trust toward news sharers.

Confirmation Bias	Mean	Verbal Interpretation
When I see a post of a friend about politics which is similar to my opinion, I tend to share it. (Bias1)	3.09	Slightly agree
When I see a post of a friend about politics which is similar to my opinion, I tend to hit the like button. (Bias2)	3.35	Slightly agree
When I see a post of a friend about politics which is similar to my opinion, I tend to hit the react button. (Bias3)	3.30	Slightly agree
When I see a post of an unknown person about politics which is similar to my opinion, I tend to share it. (Bias4)	2.81	Slightly agree
When I see a post of an unknown person about politics which is similar to my opinion, I tend to hit the like button. (Bias5)	2.95	Slightly agree
When I see a post of an unknown person about politics which is similar to my opinion, I tend to hit the react button. (Bias6)	2.89	Slightly agree
When I see a post of a political party about politics that is similar to my opinion, I tend to share it. (Bias7)	2.73	Slightly agree
When I see a post of a political party about politics that is similar to my opinion, I tend to hit the like button. (Bias8)	2.92	Slightly agree
When I see a post of a political party about politics that is similar to my opinion, I tend to hit the react button. (Bias9)	2.88	Slightly agree
Overall mean	2.99	Slightly agree
Level of Trust		
When I see a political post of a friend, I tend to believe it. (Trust1)	2.58	Slightly agree
When I see a political post of a respected person, I tend to believe it. (Trust2)	2.91	Slightly agree
When I see a political post of a political party, I tend to believe it. (Trust3)	2.62	Slightly agree
When I see a political post of a person I do not know, I tend to believe it. (Trust4)	2.39	Slightly agree
Overall mean	2.63	Slightly agree

Table 5. Fact-checking strategies.

Strategies	Mean	Verbal Interpretation
Searching Google (Search_Google)	3.88	Most of the time
Seeking the opinion of teachers (Opinion_Teachers)	2.90	Sometimes
Seeking the opinion of experts (Opinion_Experts)	3.07	Sometimes
Seeking the opinion of authorities (Opinion_Authorities)	3.00	Sometimes
Seeking the opinion of friends (Opinion_Friends)	3.51	Most of the time
Seeking the opinion of family members (Opinion_Family)	3.58	Most of the time
Searching materials in the library (Search_Library)	2.51	Sometimes
Consulting print newspapers (Consult_Print_Newspaper)	2.67	Sometimes
Consulting online newspapers (Consult_Online_News)	3.25	Sometimes
Consulting fact-checking websites such as VeraFiles, Poynter, etc. (Consult_Fact_Sites)	3.03	Sometimes

RQ4: confirmation bias, RQ5: trust toward news sharers, and RQ6: fact-checking strategies

Students are in slight agreement on all items regarding their biases and trust toward news sharers (Table 4). Liking a similar post of a friend got the highest mean rating indicating students are more likely to like a similar post of a friend. Sharing a political post of a political party got the lowest mean rating. Although they agree to a lesser extent, there is a tendency for the students to believe a post from a person they respected. Students react, like, and share political posts from people that they do not know personally.

Google is the most utilized platform to verify the posts (Table 5). Students perceive that the opinion of friends and family members matter when validating social media posts. Experts in the field are not one of the top choices of the students as they are only consulted on an occasional basis. It is worth noting that library materials are the least utilized source of information despite having access to library materials in their schools. Four-hundred and thirty students (or 62%) reported that they never or seldom visit the library to check its collections as a fact-checking strategy.

Logistic regression analysis was performed to determine the items that contribute to the fake news susceptibility of students (Table 6). It is shown that the beta coefficients of Instagram visits ($\beta = 0.26$), sharing the post of a friend ($\beta = 0.273$), and liking a post of a political party ($\beta = 0.536$) are all positive. This means that an increase in the frequency of visiting Instagram, sharing the post of a friend, and liking posts of a political party increases the probability of students' susceptibility to fake news. On the other hand, sharing the post of a political party ($\beta = -0.376$) and seeking the opinion of experts ($\beta = -0.412$) reduce the risk of being deceived by fake news. The odd ratios (OR) (OR(Instagram) = 1.30; OR(Bias1) = 1.31, OR (Bias7) = 0.69, OR(Bias8) = 1.71, and OR (Opinion_Experts) = 0.66) show that liking the post of a political party has the strongest contribution to fake news susceptibility. When all variables are held constant, students are 1.71 times more likely to be deceived by fake news when they like the post of a political party.

The model has an accuracy rate of 64%. This means the significant variables can predict 64% of the cases correctly. In other words, the significant variables can predict with 64% accuracy whether a student could be susceptible to fake news or not.

Table 6. Logistic regression analysis of susceptibility of students on fake news.

Variables	β	*p*-value
Intercept	−0.949	0.178
Number of Devices Owned	0.079	0.575
Number of Internet Access	−0.015	0.912
Number of Internet Access Location	0.019	0.807
Facebook	0.042	0.680
Instagram	0.260	0.001
Twitter	−0.028	0.680
YouTube	−0.074	0.448
Knowledge	0.000	1.000
Importance	−0.023	0.831
Attention	−0.028	0.852
Bias1	0.273	0.043
Bias2	−0.057	0.672
Bias3	0.006	0.968
Bias4	0.201	0.153
Bias5	−0.160	0.338
Bias6	−0.023	0.891
Bias7	−0.376	0.022
Bias8	0.536	0.005
Bias9	−0.240	0.223
Trust1	0.232	0.134
Trust2	0.121	0.369
Trust3	−0.254	0.131
Trust4	0.025	0.851
Politics_Update	0.016	0.881
Satisfaction	−0.065	0.528
Prevalence	−0.019	0.812
Search_Google	0.134	0.154
Opinion_Teachers	0.114	0.282
Opinion_Experts	−0.412	0.000
Opinion_Authorities	0.215	0.056
Opinion_Friends	−0.007	0.945
Opinion_Family	0.009	0.922
Search_Library	−0.035	0.734
Consult_Print_Newspaper	−0.040	0.708
Consult_Online_News	−0.055	0.561
Consult_Fact_Sites	0.093	0.238

Model accuracy: 64%; Cox & Snell $R^2 = 0.08$; Nagelkerke $R^2 = 0.11$

Furthermore, Cox & Snell R^2 and Nagelkerke R^2 suggest that 8 to 11% of the variation of the susceptibility of fake news is accounted for the significant variables.

Discussion

This study attempted to determine the items that could influence the susceptibility of students to fake news. A validated questionnaire was distributed to 693 students to gather data on students' ICT access, possible fake news exposure in social media, level of national political awareness, confirmation bias, their trust toward news sharers, and their fact-checking strategies. In terms of ICT access, gathered data revealed that students do not experience barriers in accessing ICT. This means they can access their social media accounts with ease. All access Facebook, Instagram, Twitter, and YouTube but Facebook and YouTube are the most popular social media platforms for the respondents. They used their accounts to stay updated on the national political issues only occasionally. This is not surprising since the initial primary purpose of social media platforms is to connect with family and friends (Cartledge, Miller, & Phillips, 2013).

Students have the notion that social media platforms are venues to distribute fake news as there is a high likelihood of seeing these articles in their accounts. This is consistent with the study of Fielden et al. (2018) and Budak (2019). Students have a neutral opinion when they are asked if they are contented with the use of social media as a vehicle to distribute national political issues. There is still a balance between the social and political aspects of the use of social media. Students believe it is important to be well-versed in the political issues of the country. Hence, they do not mind if they see political posts on their social media accounts.

The students' self-reports on their confirmation bias show that they only exhibit this behavior to a moderate degree. They also tend to trust news sharers to a moderate extent. They regulate these behaviors because they are aware of the prevalence of fake news; however, there are students in this study who once believed in fake news. To verify the authenticity of news articles, students use technology and consult people's opinions. Also, they search using Google, the most sought-after fact-checking tool. This is consistent with the findings of Fielden et al. (2018). Meanwhile, other students consult the two persons closest to them – their family members and friends. The ease of access to these fact-checking resources makes them the most preferred verification resources.

This study extended the prior work of Murungi et al. (2019). It is not only confirmation bias but also the inherent limitation of the technology that hinders the effectiveness of technology-based verification tools. For instance, even though students use Google to check the validity of the news, they may end up with multiple web pages rereading the same article, which in turn, increases its believability as a legitimate article (Fielden et al., 2018; Pennycook et al., 2018).

While family members and friends offer the most convenient source of information, it must be noted

that only pieces of opinion are gathered from them and may not be from hard facts. Thus, it is recommended that another layer of the verification process be done to fully trust their pieces of advice. Further reliable information can be sought in the library, which is the least consulted venue to check facts. This finding suggests that library materials are not fully utilized to combat fake news even though all materials are accessible to students. Further investigation is suggested to determine why students do not prioritize using the library to validate news articles.

Binary logistic regression analysis shows that ICT access does not contribute to the susceptibility of students to fake news. Thus, all hypotheses under H1 are accepted. Meanwhile, logistic regression analysis confirms that the frequency of visits to their Instagram account increases the chances of susceptibility. Thus, students who used Instagram were deemed to be more susceptible to fake news. For this reason, only H2b is rejected. This study does not claim that Instagram is a purveyor of fake news. Instead, the lack of fact-checking mechanisms makes their users vulnerable.

Confirmation bias in terms of sharing a post of a friend and liking a post of a political party increases the likelihood of fake news susceptibility (H4a) but sharing it has a reverse outcome (H4g). Another item that increases vulnerability is liking a political post of a political party (H4h). Thus, H4a, H4g, and H4h are all rejected. Liking a political post is the strongest predictor of fake news susceptibility (H4h). This finding is in agreement with Kim and Dennis (2019), Kim et al. (2019), and Guess et al. (2019). This finding is similar to these studies because it denotes similar behavior to fake news. Hitting the like button validates the pre-conceived political beliefs which, in turn, increase the conception of the truthfulness of a post. In other words, liking a post feeds the political biases of a person. With a set of strong personal beliefs, the person may reject verification (Spohr, 2017; Westerwick et al., 2017). This implies that students with a strong confirmation bias toward a political post are the most susceptible to fake news.

Sharing a political post of a political party, though a form of confirmation bias, decreases the impact on fake news susceptibility. This finding lends credence to prior research finding that social media users tend to share articles that are similar to their opinion (Guess et al., 2019; Kim & Dennis, 2019). The results of the study emphasized that this behavior decreases fake news vulnerability. Sharing opinion from a political party, unlike liking, is open to verifications from online friends. Sharing would enable their online friends to verify the authenticity of the post and may provide comments if needed. This also explains why sharing a post of a friend increases the susceptibility to fake news. Outside validation is no longer necessary since the students and their friends are both sharing the same opinion pieces.

None of the students' level of political awareness (H3) and trust variables predicts susceptibility to fake news (H5). Meanwhile, seeking opinions of experts in the field lessens the risk of fake news susceptibility. Hence, only H6c is rejected. This is expected since experts may provide reliable and better quality information when information is not widely understood (Kim et al., 2019; Marconi, 2019). However, identifying legitimate experts in the field can be a challenge since there are self-proclaimed experts (Marconi, 2019). Thus, academic, scientific, and scholarly organizations play an important role in combating fake news. For example, academic, scientific, and scholarly organizations may post a bulletin of information on the academic backgrounds and qualifications of the academics, scientists, and experts. Collaborative efforts of these institutions through rigorous and constant information campaigns (e.g., forums, conferences, panel discussions, and symposiums) are desired to inform students of the right people to consult for an expert opinion. These institutions may also utilize the social media platform to initiate this information campaign. The results of the study could serve as a basis for the content of the information campaign.

In summary, students who share a post of a friend, like the post of a political party, and are exposed to fake news are susceptible to fake news. On the other hand, sharing a post of a political party and consulting the opinion pieces of experts lessen the risk of being deceived by fake news. In other words, internal (e.g., liking a post, sharing a post), external (e.g., seeking the opinion of

experts), and technological factors (e.g., fake news exposure) could contribute positively or negatively to fake news susceptibility.

Conclusion and recommendations

This study determined the items that could contribute to the fake news susceptibility of students in private universities in Manila. It is found that students have high ICT access and social media usage. They perceive that fake news is prevalent in social media. They perceive political awareness important and they dedicate a portion of their time and knowledge to be updated on the political issues of the country. They are exposed to fake news articles shared on social media. More than half of them report being once deceived by fake news. They exhibit a lesser degree of confirmation bias and level of trust toward news sharers. They check the authenticity of fake news through technology (i.e., Google search) or human judgments (e.g., family and friends) because of their accessibility. However, the place with a wealth of verifiable knowledge, i.e. the library, is the last place students go to, to look for reliable materials. Further research is important to shed light on this research gap. The results of future studies may serve as a basis for the libraries of higher education institutions to formulate strategies and programs to encourage students to use library materials.

Only five null hypotheses (H2b, H4a, H4g, H4h, and H6c) stated in this study are rejected. It is concluded that internal, external, and technological factors could contribute positively or negatively to fake news susceptibility. The results of the study provide practical implications to reduce fake news susceptibility. The results suggest that students should always doubt political posts on social media, even if they are shared by their friends. While liking may be construed as a harmless behavior, the findings of the study show otherwise. Hence, doubting the posts of a friend and recognizing bias toward a political party are the first steps to combat fake news susceptibility. Consulting experts' opinions and sharing the post of a political party to solicit different opinion pieces from the online network are desirable social media behaviors. In short, skepticism, self-awareness, and external validation are suggested means to reduce fake news susceptibility.

Theoretically, the study implies that confirmation bias can have a negative or positive impact on fake news susceptibility, depending on whether the students communicate their biases through sharing the post (positive effect) or they affirm through liking a political post (negative effect). Furthermore, it suggests that research is necessary to understand what pushes students to like or share political posts. Similarly, more studies are needed to understand fake news susceptibility. The effects of political affiliation on fake news susceptibility, perceived believability of the source, perceived believability of the article, nonuse of library materials, items that influence liking or sharing political posts, perceived risk when liking or sharing posts, and the attributes of likable and shareable political posts are still unknown. These variables might increase the predictive power and accuracy of the model. Finally, this study calls for the cooperation of the scientific community, educators, librarians, scholarly organizations, and professional societies to educate the youth to lessen their susceptibility to fake news.

Acknowledgments

The authors are indebted to the participants of the study.

Disclosure statement

The authors declare no conflicting interest in this study.

Funding

This study is partially funded by the affiliations of the authors.

Notes on contributors

Rex P. Bringula is a professor at the University of the East (UE) College of Computer Studies and Systems. His publications are in computer science/IT education, mobile learning, intelligent tutoring systems, Internet studies, cyber-behavior, e-commerce, web usability, and environmental issues.

Annaliza E. Catacutan-Bangit is an Information Technology Faculty under the College of Computing and Information Technologies at National University, Manila. Her research interests are in the field of social sciences, education

technology, disaster risk and management, and health information systems.

Manuel B. Garcia is a licensed professional teacher and a professor of information technology at FEU Institute of Technology, Philippines. His research interests include topics that, individually or collectively, cover the disciplines of education and information technology.

John Paul S. Gonzales is a management employee of the University of the East holding the position of Program Assistant at the Office of Curriculum Development and Instruction. His research interests are in the field of social sciences and educational technology.

Arlene Mae C. Valderama is a full time faculty at Jose Rizal University since 2005. She was the Chairperson of the IT Department from 2006 to 2015. As an IT educator, she maintains her craft with training attendances, speakerships, and participation in research paper presentations on e-learning, LMS, and lean based systems.

ORCID

Rex P. Bringula http://orcid.org/0000-0002-1789-9601

References

Allcott, H., & Gentzkow, M. (2017). Social media and fake news in the 2016 election. *Journal of Economic Perspectives*, *31*(2), 211–236. doi:10.1257/jep.31.2.211

Amer, M. (2009). Political Awareness and its implications on participatory behaviour: A study of Naga women voters in Nagaland. *Indian Journal of Gender Studies*, *16*(3), 359–374. doi:10.1177/097152150901600303

Becker, L. C. (1996). Trust as noncognitive security about motives. *Ethics*, *107*(1), 43–61. doi:10.1086/233696

Belova, G., & Georgieva, G. (2018). Fake news as a threat to national security. In *International Conference Knowledge-based Organization* (Vol. 24, No. 1, pp. 19–22). Sciendo.

Benkler, Y., Faris, R., & Roberts, H. (2018). *Network propaganda: Manipulation, disinformation, and radicalization in American politics*. New York: Oxford University Press.

Brandtzaeg, P. B., Følstad, A., & Chaparro Domínguez, M. Á. (2018). How journalists and social media users perceive online fact-checking and verification services. *Journalism Practice*, *12*(9), 1109–1129. doi:10.1080/17512786.2017.1363657

Budak, C. (2019). What happened? the spread of fake news publisher content during the 2016 us presidential election. In *The World Wide Web Conference* (pp. 139–150). San Francisco, CA, USA.

Burkhardt, J. M. (2017). *Combating fake news in the digital age* (Vol. 53, 8, pp. 5–9). Chicago, Illinois: American Library Association.

Cartledge, P., Miller, M., & Phillips, B. (2013). The use of social networking sites in medical education. *Medical Teacher*, *35* (10), 847–857. doi:10.3109/0142159X.2013.804909

Claassen, R. L. (2011). Political awareness and electoral campaigns: Maximum effects for minimum citizens? *Political Behavior*, *33*(2), 203–223. doi:10.1007/s11109-010-9129-6

Egelhofer, J. L., & Lecheler, S. (2019). Fake news as a two-dimensional phenomenon: A framework and research agenda. *Annals of the International Communication Association*, *43*(2), 97–116. doi:10.1080/23808985.2019.1602782

Fielden, A., Grupac, M., & Adamko, P. (2018). How users validate the information they encounter on digital content platforms: The production and proliferation of fake social media news, the likelihood of consumer exposure, and online deceptions. *Geopolitics, History and International Relations*, *10*(2), 51–57.

Friggeri, A., Adamic, L. A., Eckles, D., & Cheng, J. (2014). Rumor cascades. *Proceedings of the 8th International Conference on Weblogs and Social Media* (pp. 101–110). Michigan, USA: ICWSM.

Grinberg, N., Joseph, K., Friedland, L., Swire-Thompson, B., & Lazer, D. (2019). Fake news on Twitter during the 2016 US presidential election. *Science*, *363*(6425), 374–378. doi:10.1126/science.aau2706

Guess, A., Nagler, J., & Tucker, J. (2019). Less than you think: Prevalence and predictors of fake news dissemination on Facebook. *Science Advances*, *5*(1), eaau4586. doi:10.1126/sciadv.aau4586

Guess, A., Nyhan, B., & Reifler, J. (2018). *Selective exposure to misinformation: Evidence from the consumption of fake news during the 2016 U.S. presidential campaign*. Retrieved from www.dartmouth.edu/~nyhan/fake-news-2016.pdf

Hoang, T. A., & Lim, E. P. (2012). Virality and susceptibility in information diffusions. *The Sixth international AAAI conference on weblogs and social media*. Dublin, Ireland.

Hovland, C. I., Janis, I. L., & Kelley, H. H. (1953). *Communication and persuasion*. New Haven, CT: Yale University Press.

Humprecht, E. (2020). How do they debunk "fake news"? A cross-national comparison of transparency in fact checks. *Digital Journalism*, *8*(3), 310–327. doi:10.1080/21670811.2019.1691031

Hussain, M. N., Tokdemir, S., Agarwal, N., & Al-Khateeb, S. (2018). Analyzing disinformation and crowd manipulation tactics on YouTube. *2018 IEEE/ACM International Conference on Advances in Social Networks* Analysis *and Mining (ASONAM)* (pp. 1092–1095). Barcelona, Spain: IEEE.

Ireton, C., & Posetti, J. (2018). *Journalism, fake news & disinformation: Handbook for journalism education and training*. France: UNESCO Publishing.

Kemp, S. (2020). *Digital 2020: 3.8 billion people use social media*. Retrieved from https://wearesocial.com/blog/2020/01/digital-2020-3-8-billion-people-use-social-media#:~:text=Worldwide%2C%20there%20are%203.80%20billion,percent)%20over%20the%20past%20year .

Kim, A., & Dennis, A. R. (2019). Says who? The effects of presentation format and source rating on fake news on social media. *MIS Quarterly*, *43*(3), 1025–1039. doi:10.25300/MISQ/2019/15188

Kim, A., Moravec, P. L., & Dennis, A. R. (2019). Combating fake news on social media with source ratings: The effects of user and expert reputation ratings. *Journal of Management Information Systems*, *36*(3), 931–968. doi:10.1080/07421222.2019.1628921

Kumar, S., & Shah, N. (2018). False information on web and social media: A survey. *arXiv preprint*, arXiv, 1804.08559.

Kumar, S., West, R., & Leskovec, J. (2016). Disinformation on the web: Impact, characteristics, and detection of Wikipedia hoaxes. *Proceedings of the 25th International Conference on World Wide Web, Geneva, Switzerland*.

Kümpel, A. S., Karnowski, V., & Keyling, T. (2015). News sharing in social media: A review of current research on news sharing users, content, and networks. *Social Media+ Society*, *1*(2), 1–14.

Lazer, D., Baum, M., Benkler, Y., Berinsky, A., Greenhill, K., Menczer, F., & Zittrain, J. (2018). The science of fake news. *Science*, *359*(6380), 1094–1096. doi:10.1126/science.aao2998

Lee, T. (2019). The global rise of "fake news" and the threat to democratic elections in the USA. *Public Administration and Policy: An Asia-Pacific Journal*, *22*(1), 15–24. doi:10.1108/PAP-04-2019-0008

Lewandowsky, S., Stritzke, W. G., Freund, A. M., Oberauer, K., & Krueger, J. I. (2013). Misinformation, disinformation, and violent conflict: From Iraq and the "War on Terror" to future threats to peace. *American Psychologist*, *68*(7), 487–501. doi:10.1037/a0034515

Li, R., & Suh, A. (2015). Factors influencing information credibility on social media platforms: Evidence from Facebook pages. *Procedia Computer Science*, *72*, 314–328. doi:10.1016/j.procs.2015.12.146

Luhtala, M., & Whiting, J. (2018). *News literacy: The keys to combating fake news*. Santa Barbara, California, USA: ABC-CLIO.

Marconi, D. (2019). Fake news, the crisis of defense, and epistemic democracy. In A. Condello & T. Andina (Eds.), *Post-truth, philosophy, and law* (pp. 86–92). New York, NY: Routledge.

Mayorga, M. W., Hester, E. B., Helsel, E., Ivanov, B., Sellnow, T. L., Slovic, P., & Frakes, D. (2020). Enhancing public resistance to "fake news": A review of the problem and strategic solutions. In H. Dan O'Hair, M. J. O'Hair, E. B. Hester, & S. Geegan, (Eds.),*The handbook of applied communication research* (pp. 197–212). Hoboken, NY, USA: John Wiley & Sons.

Murungi, D., Yates, D., Purao, S., Yu, J., & Zhan, R. (2019). Factual or believable? Negotiating the boundaries of confirmation bias in online news stories. *Proceedings of the 52nd Hawaii International Conference on System Sciences, Hawaii, USA*.

Nickerson, R. S. (1998). Confirmation bias: A ubiquitous phenomenon in many guises. *Review of General Psychology*, *2*(2), 175–220. doi:10.1037/1089-2680.2.2.175

Ong, J. C., & Cabañes, J. V. A. (2018). Architects of networked disinformation: Behind the scenes of troll accounts and fake news production in the Philippines. *Architects of Networked Disinformation: Behind the Scenes of Troll Accounts and Fake News Production in the Philippines*, *74*, 1–74.

Pasek, J., Kenski, K., Romer, D., & Jamieson, K. H. (2006). America's youth and community engagement: How use of mass media is related to civic activity and political awareness in 14-to 22-year-olds. *Communication Research*, *33*(3), 115–135. doi:10.1177/0093650206287073

Pate, U. A., & Ibrahim, A. M. (2019). Fake news, hate speech, and Nigeria's struggle for democratic consolidation: A conceptual review. In A. M. G. Solo (Ed.), *Handbook of research on politics in the computer age* (pp. 89–112). Hershey, Pennsylvania, USA: IGI Global.

Paulussen, S., & Harder, R. A. (2014). Social media references in newspapers: Facebook, Twitter and YouTube as sources in newspaper journalism. *Journalism Practice*, *8*(5), 542–551. doi:10.1080/17512786.2014.894327

Pennycook, G., Cannon, T. D., & Rand, D. G. (2018). Prior exposure increases perceived accuracy of fake news. *Journal of Experimental Psychology: General*, *147*(12), 1865–1880. doi:10.1037/xge0000465

Pennycook, G., & Rand, D. G. (2019). Lazy, not biased: Susceptibility to partisan fake news is better explained by lack of reasoning than by motivated reasoning. *Cognition*, *188*, 39–50. doi:10.1016/j.cognition.2018.06.011

Posetti, J., & Matthews, A. (2018). *A short guide to the history of fake news' and disinformation*. International Center for Journalists.

Rainie, L., Smith, A., Schlozman, K. L., Brady, H., & Verba, S. (2012). Social media and political engagement. *Pew Internet & American Life Project*, *19*, 2–13.

Rampersad, G., & Althiyabi, T. (2020). Fake news: Acceptance by demographics and culture on social media. *Journal of Information Technology & Politics*, *17*(1), 1–11. doi:10.1080/19331681.2019.1686676

Raosoft. (2004). *Sample size calculator*. Retrieved from http://www.raosoft.com/samplesize.html

Sharma, K., Qian, F., Jiang, H., Ruchansky, N., Zhang, M., & Liu, Y. (2019). Combating fake news: A survey on identification and mitigation techniques. *ACM Transactions on Intelligent Systems and Technology (TIST)*, *10*(3), 1–42. doi:10.1145/3305260

Shen, T. J., Cowell, R., Gupta, A., Le, T., Yadav, A., & Lee, D. (2019). How gullible are you? Predicting susceptibility to fake news. In *Proceedings of the 10th ACM Conference on Web Science* (pp. 287–288). Boston, MA, USA.

Siau, K., & Shen, Z. (2003). Mobile communications and mobile services. *International Journal of Mobile Communications*, *1*(1–2), 3–14. doi:10.1504/IJMC.2003.002457

Spohr, D. (2017). Fake news and ideological polarization: Filter bubbles and selective exposure on social media. *Business Information Review*, *34*(3), 150–160. doi:10.1177/0266382117722446

Sterrett, D., Malato, D., Benz, J., Kantor, L., Tompson, T., Rosenstiel, T., … Loker, K. (2019). Who shared it?: Deciding what news to trust on social media. *Digital Journalism*, *7*(6), 783–801. doi:10.1080/21670811.2019.1623702

Stieglitz, S., & Dang-Xuan, L. (2013). Social media and political communication: A social media analytics framework. *Social Network Analysis and Mining*, *3*(4), 1277–1291. doi:10.1007/s13278-012-0079-3

Syam, H. M., & Nurrahmi, F. (2020). "I don't know if it is fake or real news" How Little Indonesian University students understand social media literacy. *Jurnal Komunikasi: Malaysian Journal of Communication*, *36*(2), 92–105.

Tandoc, E. C., Lim, Z. W., & Ling, R. (2017). Defining "fake news". *Digital Journalism*, *6*(2), 137–153. doi:10.1080/21670811.2017.1360143

Vasilkova, V. V., & Legostaeva, N. I. (2019). Social bots in political communication. *RUDN Journal of Sociology*, *19*(1), 121–133. doi:10.22363/2313-2272-2019-19-1-121-133

Wagner, C., Mitter, S., Körner, C., & Strohmaier, M. (2012). When social bots attack: Modeling susceptibility of users in online social networks. In # *MSM* (pp. 41–48). Lyon, France.

Wardle, C., & Derakhshan, H. (2018). Thinking about 'information disorder': Formats of misinformation, disinformation, and mal-information. *Ireton, Cherilyn; Posetti, Julie. Journalism, 'Fake News' & Disinformation. Paris: Unesco*, 43–54. https://en.unesco.org/sites/default/files/f._jfnd_handbook_module_2.pdf

Westerwick, A., Johnson, B. K., & Knobloch-Westerwick, S. (2017). Confirmation biases in selective exposure to political online information: Source bias vs. content bias. *Communication Monographs*, *84*(3), 343–364. doi:10.1080/03637751.2016.1272761

Zaller, J. R. (1992). *The nature and origins of mass opinion*. Cambridge: Cambridge University Press.