

**Recognize Misinformation and Verify Before Sharing: A Reasoned Action
and Information Literacy Perspective**

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Abstract

The menace of misinformation online has gained considerable media attention and plausible solutions for combatting misinformation have often been less than satisfactory. In an environment of ubiquitous online social sharing, we contend that it is the individuals that can play a major role in halting the spread of misinformation. We conducted a survey (n = 396) to illuminate the factors that predict (i) the perceived ability to recognize false information on social media, and (ii) the behavior of sharing of information without verification. A set of regression analyses reveal that the perceived self-efficacy to detect misinformation on social media is predicted by income and level of education, Internet skills of information seeking and verification, and attitude towards information verification. We also found that sharing of information on social media without verification is predicted by Internet experience, Internet skills of information seeking, sharing, and verification, attitude towards information verification, and belief in the reliability of information. Recommendations regarding information literacy, the role of individuals as media gatekeepers who verify social media information, and the importance of independent corroboration are discussed.

Keywords: misinformation, self-efficacy, attitude, Internet skills, literacy, social media

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1. Introduction

Trust but verify (Доверяй, но проверяй, *Doveryai, no proveryai*) is a well-known Russian proverb that became famous in the English-speaking world when used by the American President, Ronald Reagan, during the cold-war. The need to verify information has gained renewed significance against the backdrop of fake news and the spread of misinformation, especially on social media. The advent of the Internet and the pervasive use of social media has given birth to new realities including a shift in power away from large media producers to individuals (Webster, 2014); online social sharing happening at an unprecedented scale (Karnowski, Leonhard, & Kümpel, 2018); and rising concerns about information credibility (Westerman, Spence & Van Der Heide, 2012). Widespread social media use translates into active and passive engagement by users (Khan, 2017). While users consume information on social media, they also play the role of sharing and producing content and have the means and the ability to spread information on social networks (Kovach & Rosenstiel, 2014).

Audiences increasingly rely on Internet sites such as Facebook, Twitter, and YouTube to get news and information in comparison with traditional media institutions (Shearer & Gottfreid, 2017). While social media has become a source of information, entertainment, and social interaction at a global scale, it has also been criticized for serving as a conduit of misinformation. Gallup and Knight Foundation research in 2018 revealed that there is widespread mistrust amongst Americans regarding media and especially news on social media is viewed as misinformation (Gallup Inc., 2018). The problem gets aggravated when social platforms “facilitate rapid information sharing and large-scale information cascades” (Vosoughi, Roy, &

Aral, 2018, p.1). Information can become viral within minutes when it is shared and re-shared on various social media platforms (Alhabash & McAlister, 2015; Iribarren & Moro, 2011). In fact, a study by Gabielkov, Ramachandran, Chaintreau, and Legout (2016) revealed that around 59% of links on Twitter were shared by users without even reading them.

Amongst a sea of information, it is often hard to recognize which information is accurate and which is not (Warner-Søderholm et al., 2018). When information is not accurate or is false, it may be referred to as misinformation. Misinformation may also be understood in the context of fake news, which has gained increased media attention due to its global implications. Nyhan and Reifler (2010) define misinformation as “cases in which people’s beliefs about factual matters are not supported by clear evidence and expert opinion” (p.305). It has also been defined as an “honest mistake in the spread of inaccurate information” (Kumar & Geethakumari, 2014, p.3). Others such as Tan, Lee, and Chae (2015) studied misinformation in addition to related terms where information is “unverified, speculative, vague, exaggerated, contradictory” (p.675). DiFonzo, Robinson, Suls, and Rini (2012) studied rumors that could include information which may or may not be true.

The spread of misinformation poses real threats to our societies. Misinformation in the form of false rumors have had economic consequences such as stock price fluctuations (Rapoza, 2017), health emergencies and crises such as Ebola (Oyeyemi, Gabarron, & Wynn, 2014), and political ramifications such as in 2016 US election (Allcott, & Gentzkow, 2017). The issue is of such grave importance that social media platforms such as Facebook and Google are seen to be making efforts to tackle fake news and misinformation on their sites (Akpan, 2016). With the help of program algorithms, there have been issues in terms of accuracy in identifying satire and fake news. Facebook also rolled out a button that would allow users to flag posts carrying

misinformation (Akpan, 2016). In other instances, there were efforts by Facebook in partnering with third-party fact-checkers such as Snopes, Facetcheck.org, Associated Press, and PolitiFact to control the spread of misinformation (Lyons, 2018). Despite these efforts, social media platforms have several weaknesses and that they have a long way to go in tackling misinformation online (Pourghomi, Safieddine, Masri, & Dordevic, 2017). Earlier in 2018, a Poynter article revealed that Google suspended its fact-checking feature over concerns about quality (Funke, 2018). Our research, therefore, lays emphasis on what individuals can do to tackle misinformation instead of solely relying on social platforms and their fact-checking systems.

In this study, our focus is two-pronged. Firstly, we are interested in understanding the factors that predict recognition or identifying of online misinformation. Secondly, we are interested in studying the factors that predict sharing behavior on social media without verification. At the micro level, users through information sharing behaviors (Koochikamali, & Sidorova, 2017), shoulder responsibility for spreading inaccurate or false information on social media either intentionally or unintentionally (Wu, Morstatter, Hu, & Liu, 2016). The sharing of misinformation by an individual could be driven by internal and/or external factors. The internal factors could be in the form of audience subjectivity and bias that later determine information preference (Bode & Vrada, 2017; Koochikamali & Sidorova, 2017). These internal factors are likely to interact with external factors that include social media algorithms which then determine the type of information a user encounters in his/her social feed, and thereby trap the user in a filter bubble (Pariser, 2011).

In the absence of journalistic gatekeeping functions and the reality of social media algorithms in the new media environment, individuals must depend on themselves and their

social networks in consuming and spreading information. Consequently, audience subjectivity and bias will determine how he/she interprets the information and later shares it on social media. This study is based on the premise that as long as individuals try to distinguish false or inaccurate information from accurate information, there is a lesser likelihood of them being misled (Fallis, 2004). In other words, individuals lie at the center of any efforts in tackling the spread of misinformation. This is because false information and news have been known to be shared, retweeted, and spread on social media by individuals without verification of information (Zubiaga & Ji, 2013).

The magnitude of user driven dissemination of information on social media is a ripe area of research. Various recent scandals such as the one involving Cambridge Analytica and Facebook (Granville, 2018) have compelled researchers to explore how and why misinformation can spread due to site-based algorithms as well as through actions caused by Internet users. Our study focuses on factors that can influence people perceived self-efficacy in recognizing misinformation as well as determine sharing behavior without verification. To understand these factors, we conducted a survey in the Indonesian context to measure beliefs, attitudes, and behaviors of social media users in terms of information sharing and recognizing false information. Our findings help us propose a framework on information literacy whereby individuals lie at the center of efforts in dealing with the spread of misinformation.

2. Literature Review

2.1. The Age of Social Sharing and the Role of Individuals

Online information sharing is happening at a massive scale. Social media platforms thrive when users engage with content and share and retweet information. People go online to share all kinds of information in the form of photos, videos, status updates, thoughts, ideas, and opinions,

and even emotions and views in the form of likes, comments, and shares (John, 2017; Khan, 2017). Amongst other things, online sharing of information is being done to spread news (Karnowski, Leonhard, & Kumpel, 2018), build communities and encourage charity (Khan, Zaher, & Gao, 2018), share tourism-related reviews (Munar & Jacobsen, 2014), and tweet television viewing experiences (Wohn & Na, 2011).

Sharing is so important that without users generating content and then sharing that content, social media platforms cannot survive. Gehl (2017) referred to sharing as “the keyword of our times” (p.3587). However, an issue associated with sharing is that due to the relative ease of sharing social information, users may end up sharing false information amongst their social networks. We are increasingly faced with the reality of misinformation, which is quite common on the Internet (Kumar & Geethakumari, 2014). Chen, Sin, Teng, and Lee (2015) found that 60% of university students in Singapore had shared misinformation. It has also been found that all types of false information, especially political news, spread significantly faster and farther on Twitter (Vosoughi, Roy, & Aral, 2018).

As misinformation increasingly takes center stage as a major issue, efforts are being made to deal with such challenges. Often the focus has been on social platforms to devise systems that rely on algorithms that may tackle the spread of misinformation. For example, Facebook has shown eagerness to identify disingenuous stories as misinformation (Mosseri, 2016). However, it has been noted that such efforts have proven difficult to implement and sustain. A case in point is the 2016 instance when Facebook’s “trending stories algorithm” was influenced to provide inaccurate political information (Thielman, 2016).

It can therefore be argued that individuals can be at the center of efforts to deal with misinformation. An experimental study by Bode and Vraga (2017) showed that in addition to the

platform-generated algorithms, “everyday users” have the power to reduce or mitigate the effects of health misperceptions on social media. Moreover, Bode and Vraga (2017) assert that “encouraging users to refute false or misleading health information clearly, simply, and with evidence, and providing them appropriate sources to accompany their refutation” (p.1), would prove more fruitful in tackling misinformation than solely relying on algorithms. Similarly, correcting misinformation could include brief practices that emphasize facts and rely on alternative accounts of information (Lewandowsky, Ecker, Seifert, Schwarz, & Cook, 2012). This requires information verification and advance Internet skills. However, we also believe that while the role of individuals remains central, individual efforts can be complemented with efforts by social platforms in tackling misinformation. Individuals are increasingly faced with challenges such as information overload and a rapid pace of news dissemination. For example, a study by Pourghomi et al. (2017) demonstrated that there was a threshold of around 30% needed for users to commit themselves to verify posts to stop the spread of misinformation.

Nevertheless, the role of individuals as gatekeepers of information sharing on social media cannot be underestimated. Literature in the field of psychology offers insight into behaviors that can address the spread of misinformation. Individual acts of information verification can be based on attitudes such as skepticism (Lewandowsky et al., 2012). An attitude of skepticism by social media users can potentially “reduce susceptibility to misinformation effects if it prompts people to question the origins of information that may later turn out to be true or false” (Lewandowsky et al., 2012, p.120). While it may be argued that human interactions online are based on the fundamental premise of trust, it is distrust that can often cause people to be more careful of their environment and thereby lead to positive outcomes (Schul, Mayo, &

Burnstein, 2008). A healthy sense of skepticism about what users encounter on social platforms can prove fruitful in dealing with misinformation (Lewandowsky et al., 2012).]

Kumar and Geethakumari (2014) argue in favor of having users make informed decisions and thus stopping the misinformation. The role of individuals has also been studied in contexts where the viral spread of misinformation can be dealt through interventions whereby counter campaigns of good or reliable information in the face of misinformation could limit the negative effects within a network (Nguyen, Yan, & Thai, 2013).

2.2. Assessing the Veracity of Information

In understanding the veracity of information, we can rely on the works of the Scottish philosopher, David Hume (1711-1776), who in his book *An Enquiry Concerning Human Understanding* (originally published in 1748), laid emphasis on empiricism and skepticism. In disciplines of psychology and philosophy, the acquisition of knowledge and the quest for trust have been examined under the domain of epistemology (an investigation that differentiates justified belief from the opinion) (Torres, Gerhart, & Negahban, 2018).

Situated in the works of David Hume and Alvin Goodman, Fallis (2004) devised four key areas that should be considered in verifying information: (i) authority (who is testifying, his/her characteristics), (ii) independent corroboration (how many testify, others who offer a similar account), (iii) plausibility and support (reasoning presented in support of information), and (iv) presentation (how they testify, characteristics of the medium). In this study we are concerned with the verification behaviors of individuals that relate to independent corroboration. In this study, independent corroboration signifies a person's effort to verify information through varying and disparate sources (Fallis, 2004; Torres, Gerhart, & Negahban, 2018). Independent corroboration forms the basis of this study's research model in which individuals need to verify

and corroborate social information online by searching and trying to find other versions of information.

Independent corroboration requires careful thinking and the presence of a specific set of Internet skills. Hume (2016) argued that real knowledge must come from abstract reasoning. However, it is commonly observed that individuals are not careful when seeking information (Connaway, Dickey, & Radford, 2011). A study by Kim, Sin and Yoo-Lee (2014) revealed that almost 60% of surveyed students who used social networking sites (SNS) never checked to see if sources were properly cited. The same study also revealed that in verifying information quality, participants were attentive to the author who provided the information and relied on the reactions of others to the information. Individuals are increasingly challenged by issues such as information overload and the fact that it is often not easy to distinguish legitimate information from false news especially in an environment where fake news sources are becoming more sophisticated. This brings into question the need and rationale for instilling critical evaluation of information and verification behaviors on social media.

Viewed from a theoretical lens, people's corroboration behavior, as well as their sharing of misinformation on social media, can be understood from understanding attitudes and its associated factors. The Theory of Reasoned Action (TRA; Fishbein & Ajzen, 1975) emerged as a result of focusing on attitudes. The following section explores how TRA can be useful in understanding how individuals can recognize misinformation and engage in online information verification behaviors.

2.3.Theoretical Framework

TRA was originally conceptualized to understand and predict behavior (Ajzen & Fishbein, 1980). Over the years, interest grew in the possible applications and adaptations of

TRA for designing behavioral interventions. In understanding human beliefs, attitudes, and behaviors, the TRA has been tested in multiple domains such as communication and journalism (Hoewe & Sherrick, 2015; Karnowski, Leonhard, & Kümpel, 2018), consumer behavior (Lada, Tanakinjal, & Amin, 2009; Yousafzai, Foxall, & Pallister, 2010), information systems (Leonard, Cronon, & Kreie, 2004), and health (Goldenberg & Laschinger, 1991; Manstead, Proffitt, Smart, 1983). Our study has adapted the original TPB/TRA model in light of our observations of information sharing and the spread of misinformation on social media. Focusing on information as the main factor, we used the TPB/TRA theory to guide our understanding of the information sharing behavior and perceived self-efficacy in recognizing misinformation.

Key components of this theory are personal attitudes, beliefs, social norms, and behavioral intention (Fishbein & Ajzen, 2010, p. 22). Social norms may be understood as the social pressures that are associated with behaviors (Marcketti & Shelley, 2009). However, a number of studies have demonstrated that attitudes towards behavior proved to be a greater predictor of behavior than the social norm, and that individual attitudes and characteristics played a larger role (Leonard, Cronon, & Kreie, 2004; Warshaw, 1980).

Belief. According to the TRA individuals evaluate the consequences of their actions or behaviors based on their beliefs to perform behaviors that lead to desirable outcomes. Beliefs are formed from considerations of potential consequences that people might have when conducting the behavior (Fishbein & Ajzen, 2010). Fishbein and Ajzen (1975) posit that individual behaviors are determined by the belief to execute that behavior.

Attitude. The outcomes of the consequences will influence people's attitude toward the behavior. To perform a behavior, a person must have the belief that the advantages of performing a behavior will compensate for the disadvantages (Fishbein & Ajzen, 2010). In other words, the

more favorable an attitude, the more likely he/she performs a behavior ((Fishbein & Ajzen, 2010, p. 21). In this study, we investigate the behavior of sharing information without verification, therefore attitude in this study was related to the importance of verifying online information.

TRA was related to voluntary behavior. However, later studies proved that behavior is not always voluntary. As a result, another factor, perceived behavioral control was added to create the Theory of Planned Behavior (TPB; Ajzen, 1991). Perceived behavioral control originates from the idea of self-efficacy (Bandura, 1977).

Perceived Self-Efficacy in Recognizing Misinformation (PSERM). Individual's belief and attitude will guide one's perception of the capacity to carry out a behavior. Referring to Bandura (1977)'s work, Ajzen & Fishbein (2005) called this perception as "self-efficacy" and personal agency. This addition of "self-efficacy" factor, also developed the TRA into the Theory of Planned Behavior (TPB; Ajzen, 1991), in which self-efficacy is coined as perceived behavioral control. Ajzen & Fishbein (2005) argue that individuals who believe they possess the competency and the means to implement a behavior will more likely have higher self-efficacy.

Bandura (1977) described self-efficacy as the conviction that it is possible to execute the behavior needed to generate the results or outcomes with success. Hocevar, Flanagin, and Metzger (2014), adapted Bandura's theory of self-efficacy to measure social media skill, ability to successfully find information online, as well as produce and consume content. Self-efficacy are expectations that people hold about their personal ability to perform a behavior (Tedesco, Keffer, & Fleck-Kandath, 1991); and concerned with the "capabilities to execute specific tasks, or courses of action" (Lane et al., 2004, p.249). The ability to evaluate online information and assess its reliability is important, and among other factors is determined by the content of the message (Vedder & Wachbroit, 2003). A study by Warner-Søderholm, et.al (2018) reveals that

people generally trust news from social media, although such trust varies by age, gender, and time spent on social media.

Hence, we hypothesize:

H1: Individuals' belief in information reliability will have a positive influence on perceived self-efficacy in recognizing misinformation (PSERM).

H2: Individuals' attitudes toward verification of information from social media will have a positive influence on perceived self-efficacy in recognizing misinformation (PSERM).

Behavior. Researchers posit that the relative influence of each behavior can vary in different situations and contexts in which the behavior is performed (Ajzen & Fishbein, 1980; Manstead, Proffitt, & Smart, 1983). Such attitudes may include the needed healthy skepticism of online information that could determine information verification behaviors. As such, we argue that perceived self-efficacy is an important factor that can impact behaviors associated with talking misinformation online. In this study, we include perceived self-efficacy in recognizing misinformation as a factor that helps us understand why individuals would share information on social media without verification. Hence, we assume:

H3: Individuals' perceived self-efficacy in recognizing misinformation (PSERM) will have a positive influence on sharing behavior without verification (SWV) on social media.

In our theoretical model we have not included intention as a variable because the TRA “seldom distinguish[es] between intention and behavior” (Ha, 1998, p.54). It is also known that individuals do not always act on their intentions (Schwarzer, 1992). According to a study by Greve (2001), it was argued that it may not be reasonable to consider intentions as a cause of actions, because actions are by definition a result of intentions. Furthermore, various research studies show a high correlation between intention and behavior (Lauper, Bruppacher &

Kaufmann-Hayoz, 2013; Payne, Jones, & Harris, 2002), whereby intention was excluded as a variable. This study followed the logic of TRA that stated beliefs and attitude will lead to sharing behavior without verification on social media. We therefore hypothesize that:

H4: Individuals' beliefs in information reliability will have a positive influence on sharing behavior without verification (SWV) on social media.

H5: Individuals' attitudes toward verification of information from social media will have a negative influence on sharing behavior without verification (SWV) on social media.

An individual's behavior is determined by his/her background, attitude, belief, and perceived ability.

Background Factors. In the schematic reasoned action model (Fishbein & Ajzen, 2010), beliefs are, in turn, based on *individual, social, and information* related background characteristics (p. 22). An *individual's* background could be personality, emotions, stereotypes, general attitudes, or previous behavior. *Social* background could be one's education, age, race, gender, income, religion, or culture. The *information* background is defined as knowledge or media intervention.

In the context of this study, *individual* background that we use to investigate sharing behavior of misinformation are past behavior related to *Internet experience* and *self-esteem*. Self-esteem refers to "an individual's sense of value or self-worth, or the extent to which people value, appreciate, or like themselves" (Lane, Lane, & Kyprianou, 2004, p.249). A study by Steinfield, Ellison, and Lampe (2008) revealed that self-esteem impacted social media usage. We believe that self-esteem as a background factor has the potential to impact individuals' self-efficacy and online sharing behavior. The *social* backgrounds in this research are age, gender, employment status, income, level of education, and social class. Findings of a study by Eastin

(2001) about assessing online health information suggested that demographic factors such as age and gender, besides knowledge of content affect perception of message credibility. Therefore, we propose the following hypotheses:

H6: Individuals' background factors will influence perceived self-efficacy in recognizing misinformation (PSERM).

H7: Individuals' background factors will influence sharing behavior without verification (SWV) on social media.

Lastly, the *information* related background in this study has been conceptualized as perceived Internet skills (general). In comparison with the basic Internet skills, more advance form of Internet skills (higher-order Internet skills or information literacy) could help us understand someone's knowledge about Internet and false information via online social media. Internet skills serve a vital factor that can predict a user's information sharing behavior. Based on a survey of 690 high school students, a study by Khan, Wohn, and Ellison (2014) found that among other factors, higher order Internet skills such as information seeking skills predict academic collaboration on Facebook.

2.4. Internet Skills and Information Literacy

Internet skills related variables are also important factors that can predict the perceived self-efficacy in recognizing misinformation (PSERM), as well as the sharing behavior without verification (SWV). We believe that it is vital for online users in today's media environment to be able to evaluate, analyze, understand, differentiate, verify, and use information to their advantage (Khan, Wohn, Ellison, 2014). Various scholars, especially in the communication and education disciplines, have studied Internet skills, which has led to the emergence of various

related concepts in the overall domain. It is therefore essential to understand the related concepts of online skills under the wider umbrella of Internet skills and information literacy.

Previous research literature offers interesting and varying insights into the concept of Internet skills (Hargittai 2010; Van Deursen & Van Dijk 2009); which have been referred to as digital literacy (Eshet-Alkali & Amichai-Hamburger, 2004; Livingstone, 2004), and competency (Spitzberg, 2006). Others, such as Warschauer and Matuchniak (2010), have defined Internet skills as “21st century skills” because of their significance in enabling a person to conduct everyday tasks in a social atmosphere. Skills have also been viewed under Bloom's taxonomy of learning objectives framework (ACRL, 2018), where they have been divided into higher and lower-order thinking skills. For example, skills that involve greater cognitive processing in the form of information analysis, evaluation, and synthesis are thought to be higher-order skills (ACRL, 2018; Warschauer & Matuchniak, 2010).

Initial conceptualizations of Internet skills were simpler and reflective of the rudimentary nature of the Internet. These involved basic skills, such as browsing Internet sites and downloading files (Hargittai, 2002). After the advent of social platforms and the more advanced Internet, the focus has shifted towards evaluating the integrity of online information and understanding the skills that enable efficient search for online information (Haythornthwaite, 2009). We believe that Internet-related developments especially in the form of social platforms which are vital sources of news and information (Anderson & Jiang, 2018), increasingly require the development of higher-order Internet skills. Moreover, individuals are dealing with problems of information overload and increasingly scarce time. We therefore focus on the encompassing concept of *information literacy* to understand factors that predict individual behaviors in being

able to sift through information to filter and differentiate misinformation from credible information.

Information Literacy. Various similar terms related to the digital, Internet, and information literacy have been plagued by definitional disparities and are often just a matter of semantics (Ward, 2006). Information literacy may be described as the capability to search and assess information (ACRL, 2013). It may also be defined as the ability to locate, distinguish, assess, and use information to explain a problem or an issue (ALA, 1989). Information-literate users evaluate available information critically and question its validity (Mardis, 2002), in addition to the ability to evaluate the quality and credibility of the message (Hobbs, 2006).

Being able to retrieve information (information searching), communicate it (information sharing), and critically evaluate it (information verification), are a set of vital competencies in the modern media environment (Bawden, 2001; Koltay, 2011). It may be argued that the presence of such competencies makes someone media or information literate. This is vital, since the Internet is a place where users may encounter biased and false information. Individuals need to be equipped with the ability to carefully filter, evaluate, and verify information to separate reliable content from wrong information. Such vital skills need to be grasped through practice and a mental frame of mind that is skeptical. At the very basic level, information literacy or digital skills in the form of information seeking and information sharing can prove instrumental in determining information verification behaviors (Kim, Sin, & Yoo-Lee, 2014).

It must be clarified here that the conceptualizations of skills in this study are self-assessments of a user's own skills. Khan, Wohn, and Ellison (2014) viewed Internet skills which we here refer to as *information literacy*, from an information seeking and information sharing angle. We extend that framework to include *information verification* as a form of information

literacy to understand factors that can influence people perceived ability to recognize misinformation. We believe that information seeking and information sharing factors are closely related and predictive of sharing behavior on social media. For example, an individual or an online user may seek health or politics related information by reading an article posted by someone, read social media comments, view images and videos. In other instances, online users may need to comment and share information in order to solicit advice and get a better understanding of some issue.

Information Seeking Skills. Wilson (2000) defined information seeking behavior as “the purposive seeking for information as a consequence of a need to satisfy some goal. In the course of seeking, the individual may interact with manual information systems (such as a newspaper or a library), or with computer-based systems (such as the World Wide Web)” (p. 49). Information seeking and search is a person’s activity to seek meaning and extend knowledge about a topic or a problem (Kuhlthau, 1991). To measure information literacy in terms of information seeking skills, we take a broader view and ask about a person’s ability to subtract important information through reading online comments and to learn advanced skills by watching YouTube videos. YouTube is a vital platform in the social media mix that also serves as one of the world’s largest search engine. Therefore, learning advanced skills through viewing YouTube videos is being considered as an important factor in the information seeking skill. The advent of YouTube has afforded users the opportunity to advance their skills by searching for and watching videos as well as reading comments on those videos, thereby enhancing their overall learning in a social setting. Social media consumption through reading comments needs abilities that allow users to filter and analyze information. We therefore hypothesize that such information access skills which are acquired through proficiency in Internet use and training in the form of information

literacy, will have a positive relationship with information sharing and verification behavior on social media. Hence, we propose the following hypothesis:

H8: Individuals' information seeking skills will have a positive influence on perceived self-efficacy in recognizing misinformation (PSERM).

H9: Individuals' information seeking skills will have a negative influence on sharing behavior without verification (SWV) on social media.

Information Sharing Skills. In addition to information seeking, we also believe that information sharing skills can prove vital for information literacy. Internet and social media users are likely to engage with content by writing comments, replying to posts, favoriting or “liking” content (Khan, 2017). Higher-order Internet skills can also include one's capability to reorient content and engage in an online discussion via writing comments. Furthermore, the ability to make valuable contributions to an online community via active engagement (Khan, 2017) can ultimately predict information verification behaviors. Information sharing survey items (see table 2) were adapted from former published research by Khan, Wohn & Ellison (2014).

Hence, we propose the following hypothesis:

H10: Individuals' information sharing skills will have a positive influence on perceived self-efficacy in recognizing misinformation (PSERM).

H11: Individuals' information sharing skills will have a negative influence on sharing behavior without verification (SWV) on social media.

Information Verification Skills. Online information has the potential to be less reliable because of a lack of professional information gatekeepers who monitor content (Flanagin & Metzger, 2007). We have conceptualized information verification as an information literacy based on two simple questions. One is about verifying social media information using an online

tool, and the other is about understanding what a search engine is for. Metzger (2007) referred to the use of a search engine to establish the credibility of information as “critical evaluation skills”. We hypothesize that when online users try to establish the veracity of information by searching for that information via a search engine they are more likely to recognize misinformation.

H12: Individuals’ information verification skills will have a positive influence on perceived self-efficacy in recognizing false information (PSERM).

H13: Individuals’ information verification skills will have a negative influence on sharing behavior without verification (SWV) on social media.

Our study’s research model is depicted in Figure 1, and it shows the relationship between the TPB/TRA factors (belief, attitude, Perceived self-efficacy, and behavior), as well as background factors and information literacy factors. We adapted the Fishbein and Ajzen (2010) model for TPB/TRA for our study.

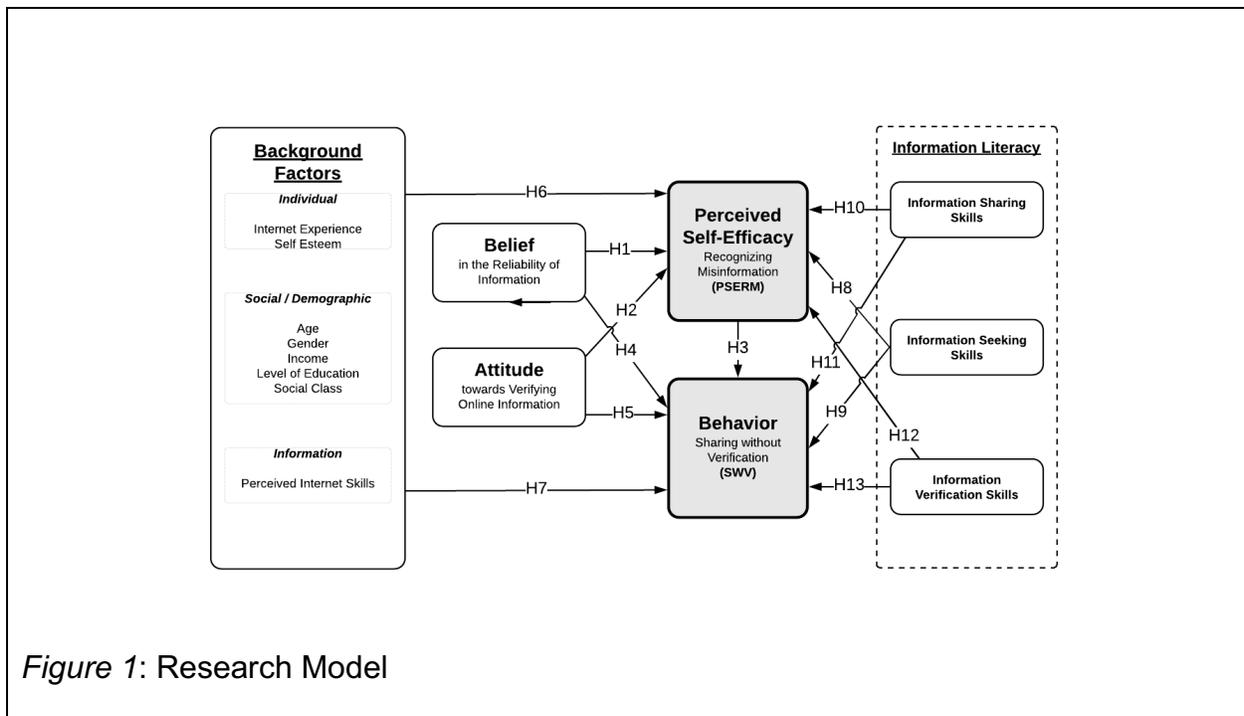


Figure 1: Research Model

3. Method

3.1.Data Collection

Indonesia is one of the largest social media markets in the world according to WeAreSocial and Hootsuite digital reports (Kemp, 2018). The country is also among the top five countries in the world with the largest users of Facebook, WhatsApp, Instagram, and Twitter (Herman & Mononimbar, 2017). The country has been struggling to fight fake news and hoaxes that have become worse during the election season, especially for the Jakarta gubernatorial election in 2017 (Tapsell, 2018). Therefore, a study of social media information sharing in the context of a non-Western country will shed light on the spread of misinformation phenomena in a country where social media sharing is quite pervasive.

An online survey directed at Indonesian Internet users was conducted. The online survey link was distributed via online social networks such as Facebook and Twitter, and snowball sampling was employed to gather data. At the beginning of data collection, we distributed the online survey link to students in three universities in Jakarta and asked them to help us further share the link via social media. At the end of the study, we gathered 396 respondents containing a healthy and diverse mix of university students, communication professionals, and ordinary citizens.

3.2.Operational Measures and Scale Reliabilities

Measures used in this study were adapted and incorporated according to well-established proprieties for TRA/TPB (Ajzen & Fishbein, 1980), self-efficacy (Bandura, 1977) and elements of information literacy (Khan, Wohn, & Ellison, 2014). Our focus is on the factors leading to sharing of unverified or false information. Data analysis was conducted using SPSS 25.0.

The information background was measured by *Perceived Internet Skills* ($M=3.91$, $SD=0.99$). This question gauged Internet skills at a general level and can be seen from the lens of lower-order Internet skills. The question inquired, “In terms of your Internet skills, do you consider yourself to be not at all skilled”, and was measured on a five-point Likert scale ranging from not very skilled (1) to expert (5).

We used *Internet experience* and *self-esteem* as the individual background that can influence attitude, belief, and behavior. To measure *Internet experience*, we asked, “How long you have been using the Internet?” and the answer was on a 5-point scale, where (1) Less than 6 months, (2) 6 months to 12 months, (3) 1 to 3 years, (4) 4 to 6 years, and (5) 7 years or more. The mean Internet experience was 4.76 indicating that most participants had been using the Internet for more than at least four years.

We asked survey participants to rate their self-esteem using the single-item Self-Esteem Scale by Robins, Hendin, and Trzesniewski (2001). Participants indicated the extent to which they agreed to the statement “I have high self-esteem” on a 5-point Likert scale from “strongly disagree” to “strongly agree” (1 = strongly disagree, 5 = strongly agree). Self Esteem was found to have a mean of 3.43.

TRA/TPB Factors. We surveyed users about their attitudes towards verifying online information, belief, and behaviors of sharing without verification. The variable measuring individuals' *belief* in the reliability of information included questions gauging an individual's sense of reliability and trust of social media information (see table 2). Following a descriptive and exploratory factor analysis, an alpha reliability analysis shed light on the appropriateness of scales. Scale reliabilities for the TPB/TRA variables were high and mostly above the acceptable

range: *belief* (Cronbach's $\alpha = .70$), *attitude* (Cronbach's $\alpha = .81$), perceived self-efficacy (Cronbach's $\alpha = .68$), and *behavior* (Cronbach's $\alpha = .71$).

According to Fishbein and Ajzen (2010), people's beliefs are first formed from the approval of important individuals or groups when they want to perform the behavior. To investigate the behavior of sharing information without verification (SWV), "belief" in this study was operationalized into reliability of information circulated on social media that is shared by friends from social network and social media influencers. In the Indonesian context, social media influencers were commonly known as social media buzzers (Lim, 2017). Hence, we operationalized "belief" into three statements depicted in table 1. The belief scale had an alpha of 0.70.

The variable of *attitude* towards information verification was adopted from Wardle's (2014). As depicted in table 1, to measure this variable, we asked about the respondents' attitude towards verifying online information. This included questions that gauged whether individuals checked the original source of information, the person who first uploaded it, when and where the information first created.

Table 1

Summary of Items measuring TPB/TRA factors: Belief, Attitude, Perceived Self-efficacy, & Behavior

	Mean	Loading	S.D.	α
Belief in Reliability of Information				0.70
The information I get from social media is reliable	2.91	.73	.821	
I can trust information that I got from social media buzzer	2.54	.79	.841	
I trust information from my social networks, thus I do not have to check it	2.20	.51	.878	
Attitude towards Verifying Online Information				0.81
It is important to check the original source of information	4.40	.69	.763	
It is important to check who first uploaded the information	3.86	.78	.925	
It is important to check when the information first created	4.03	.83	.811	
It is important to check where was the information first created	3.85	.76	.878	
It is my obligation to check the truth of information that I consume	4.34	.65	.776	
Self-Efficacy in Recognizing Misinformation (PSEEM)				0.68
I can easily detect false information when I read it on social media	3.43	.73	.762	
I can easily identify if someone is a social media buzzer	3.33	.77	.849	
I can easily identify an endorsement post on social media	4.05	.62	.731	
Whenever I get interesting information from social media, I am able to check it directly to the source	3.78	.49	.793	
Whenever I got information from social media I am able to check directly to other source if the information is true	3.74	.52	.878	
Behavior of Sharing without Verification (SWV)				0.71
In the last 3 days, at least once I shared information from social media without reading the whole article	2.35	.60	1.048	
In the last 3 days, at least once I shared information that later I found out as a hoax	2.12	.67	1.077	

One of the dependent variables in this study was the behavior of sharing misinformation on social media without verification. To measure the behavior of sharing information without verification (SWV), we asked the respondents whether in the last three days, they at least once shared information from social media without reading the whole article and shared information that later they found out as false. The scale is based on the factor analysis conducted via SPSS in which these two items hang together to inform us about participants sharing behavior (SWV). The dependent variable, the behavior of sharing misinformation on social media, was a two-item

scale. Because behavior was a two-item scale, we conducted the Spearman-Brown coefficient scale reliability analysis and found it to be at a satisfactory level of 0.714. The Cronbach's alpha for the two-item behavior scale was also 0.714. Spearman-Bowman is the most suitable coefficient for two-item scales (Eisinga & Grotenhuis, 2013).

Perceived Self-Efficacy Assessments. Another dependent variable was based on the scale, self-efficacy in recognizing false information. Self-efficacy can be understood as the confidence a person has in his/her ability to do certain actions (Bandura, 1977). This five-item scale includes questions that test a person's ability to detect false information on social media and to identify if someone is a social media buzzer. In Indonesian context, besides friends in the social network, information is also disseminated and amplified by social media influencers, also known as "social media buzzers" (Carr & Kumara, 2018; Paramaditha, 2013). As defined in Lim (2017), a social media buzzer is a netizen who spreads information about products, brands, or even political candidates usually for financial gains. Social media buzzers in Indonesia play a significant role in shaping public opinion and political conversation (Lim, 2017). Even though an individual's trust of social media buzzers is related to their political perspective, in this study we ask whether they can easily identify if someone is a social media buzzer. In this study, self-efficacy was related to someone's perceived ability to identify false information and was operationalized into five statements shown in table 1.

Information Literacy. Our main focus was on measuring the higher-order Internet skills which included information literacy variables (1) Information seeking skills (2) Information sharing skills, and (3) Information Verification Skills (see table 2). Higher-order skills were measured on a five-point Likert scale ranging from Not confident at all (1) to very confident (5).

Mean scores and standard deviations are also reported for each question in the three major information literacy skill types.

Table 2
Information Literacy

	Mean	S.D.
Information Seeking Skills		
Learn advanced skills by viewing YouTube videos	3.70	.94
Reading comments when I need help	3.57	.91
<i>Information Sharing Skills</i>		
Turning to an online discussion in the form of writing comments when I need help	3.37	1.0
Make valuable contributions to the online community	3.08	1.0
<i>Information Verification Skills</i>		
Using online tool to verify social media information	2.99	1.0
Understand what a search engine is for	3.52	.95

4. Results

A descriptive analysis was done to summarize the sample and observe emerging patterns in data. The study’s sample was balanced in terms of gender (52.3% female and 47.7% male). The majority of the respondents were between 18 to 24 years of age (47.3%), followed by 25 to 34 (36.6%), 35 to 44 (12.5%), 45-54 (2%), and less than 18 years old (1.3%). More than 50% of respondents had monthly income less than Indonesian Rupiah (Rp) 3,700,000 (approximately \$265 US Dollars), 16.1% had income between Rp.3,800,000 to Rp.5,000,000, and 16.7% had income between Rp.5,100,000 to Rp.10,000,000 (approximately \$715 US Dollars). Moreover, the majority of respondent’s education background was bachelor’s degree (48.2%), followed by high school (29.2%), some college (13.1%), and master’s degree (7.9%). More than a half of the respondents perceived that they were from the middle class (55.8%), while others were in the working class (20.7%) and lower middle class (15%).

Most of the respondents in this study had been using the Internet and social media for more than 7 years (76.3%). This helped us understand that respondents in this study are familiar and somewhat experienced with the Internet and social media. Regarding our survey question that inquired whether they have a high level of self-esteem, 8.4% of the respondents strongly agreed about having a high level of self-esteem and 46.6% agreed with having a high level of self-esteem.

For the *Perceived Internet skills* of a general nature, out of 396 respondents, about 70% were in the range of skilled to expert and 30% were in the range of fairly skilled to not at all skilled. When we asked about the confidence level for the *Information Literacy skills*, as depicted in table 2, the respondents apparently had the highest confidence level to learn advanced skills by viewing YouTube videos ($M=3.7, SD=0.939$), followed by turning to an online discussion in the form of reading comments when need help ($M=3.57, SD=0.910$), turning to an online discussion in the form of writing comments when need help ($M=3.37, SD=1.023$), and make valuable contributions to the online community ($M=3.08, SD=1.035$).

To know whether the study's data met the assumptions of multiple linear regression analysis, we tested for multicollinearity issues. The variance inflation factor (VIF) value was measured to identify the presence of multicollinearity, and it was not found to be an issue for any of the constructs explored in this study. The VIFs were well below 5.0 for all variables in the model (Steven, 2001).

We conducted Pearson correlations (see Table 3), which are from low to moderate between the various items. Coefficients close to 1.0 or 1.0 represent a strong relationship, between .3 and .7 a moderate relationship, and below .3 a weak relationship (Cronk, 2012).

Running Head: VERIFY BEFORE SHARING

Table 3 Correlations

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1.Age	1																		
2.Gender	0.051	1																	
3.Income	.500**	.122*	1																
4. Level of Education	.584**	-0.028	.325**	1															
5.Social Class	-.0048	0.002	0.000	-0.096	1														
6.Self-Esteem	.219**	.112*	.201**	.203**	-0.035	1													
7.Internet experience	.215**	-0.028	.110*	.183**	-0.015	.248**	1												
8.Perceived Internet skills	0.078	0.063	0.095	0.079	0.031	.226**	.122*	1											
9.Using online tools to verify SM info	.252**	0.065	.231**	.156**	-0.005	0.047	.106*	0.063	1										
10.Understand what search engine is for	.126*	0.072	.151**	.119*	-0.066	.149**	.185**	.299**	0.082	1									
11.Advance skills- YouTube	-.111*	0.064	-0.087	-.108*	0.021	0.060	0.088	.205**	0.013	.271**	1								
12.Reading comments	-.141**	0.002	-0.032	-0.069	0.041	.108*	0.045	.243**	0.077	.375**	.410**	1							
13.Writing comments in an online discussion	0.046	0.046	0.098	0.030	-0.003	.190**	0.047	.240**	0.092	.316**	.396**	.487**	1						
14. Contributions to the online community	0.078	0.026	0.094	0.076	-0.027	.207**	0.065	.203**	0.068	.392**	.221**	.294**	.457**	1					
15.Belief	-.324**	-0.021	-.179**	-.277**	.113*	-.307**	-.151**	-0.047	-.137**	-.121*	0.045	0.094	-0.018	0.079	1				
16.Attitude	.170**	-0.029	.162**	.138**	-0.030	.335**	.133**	.136**	.108*	.138**	0.013	0.032	.129*	.139**	-.208**	1			
17. Perceived Self-Efficacy	0.043	0.028	.126*	-0.008	-0.057	.192**	.159**	.194**	0.037	.273**	.115*	.227**	.125*	.172**	0.025	.358**	1		
18.Behavior-SWV	-.139**	0.009	-0.057	-.159**	0.060	-.190**	-.165**	-0.044	-0.095	-0.082	-0.015	0.036	0.020	.133**	.498**	-.216**	-0.052	1	

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

4.1. Perceived Self-Efficacy of Recognizing misinformation (PSERM)

Previous research indicates that beliefs and attitudes about news stories can influence readers' behaviors (Hoewe & Sherrick, 2015). Our first dependent variable was the perceived self-efficacy to recognize misinformation (PSERM). The regression model (table 4), shows that six variables were statistically significant in predicting PSERM in this study ($F(12,311)= 8.534$, $p < 0.001$), with an adjusted R^2 of 0.225, explaining 22.5 percent of the variance.

Table 4

Linear Regression predicting self-efficacy in recognizing misinformation (PSERM) and sharing behavior on social media without verification (SWV)

	PSERM		SWV	
	β	Sig.	β	Sig.
Background Factors				
Age	-.019	.774	.061	.357
Gender	-.004	.935	-.014	.786
Income	.124*	.039	.067	.258
Level of Education	-.140*	.019	-.048	.409
Social Class	-.069	.180	-.050	.319
Self Esteem	.103	.083	-.013	.820
Internet Experience	-.017	.757	-.116*	.028
Perceived Internet Skills (general)	0.97	.077	.073	.172
Information Literacy				
<i>Information Seeking</i>				
Learn advanced skills by viewing YouTube videos	-.019	.750	-.120*	.042
Reading comments when I need help	.131*	.046	.047	.460
<i>Information Sharing</i>				
Turning to an online discussion through writing comments	-.087	.192	-.032	.625
Make valuable contributions to the online community	-.004	.945	.149*	.014
<i>Information Verification</i>				
Using online tool to verify social media information	.207**	.001	.157**	.008
Understand what a search engine for	.181**	.003	.055	.368
TPB/TRA Variables				
Belief: Reliability of Information	.126	0.26	.415***	.000
Attitude: Information Verification	.270***	.000	-.130*	.021
Perceived Self-Efficacy in Recognizing Misinformation			-.102	0.75
Adjusted R-Square	0.22		0.26	

β = Beta, the standardized regression coefficient. * $p < .05$; ** $p < .01$; *** $p < .001$.

For the of background variables, individual's *income* ($\beta = .124, p < 0.05$), and *level of education* ($\beta = -.140, p < 0.05$) were significant in predicting PSERM. Amongst the information literacy variables, the information seeking skills of *reading comments when I needed help* ($\beta = .131, p < 0.05$), information verification skills of *using an online tool to verify social media information* ($\beta = .207, p < 0.005$) and *the Internet skill of understand what a search engine for is* ($\beta = .181, p < 0.001$), were significant positive predictors. From the TPB/TRA variables, only information verification *attitude* ($\beta = .270, p < 0.001$) was significant in the regression model. Hypotheses H1, H2, H6, H8, H10, and H12 concerned the PSERM dependent variable (table 4). H1 about the belief in information reliability having a positive influence on PSERM was not supported.

H2 about individuals' attitudes toward verification of information from social media having a positive influence on PSERM was supported ($\beta = .270, p < 0.001$), and stood as the strongest predictor for perceived self-efficacy in recognizing misinformation. H6 about individuals' background factors influencing perceived self-efficacy in recognizing misinformation (PSERM) only found positive support for income ($\beta = .124, p < 0.05$), and negatively for level of education ($\beta = -.140, p < 0.05$) factors. This implies that the higher the level of income, the greater the likelihood for perceived self-efficacy in recognizing misinformation. On the other hand, the level of education had an inverse relationship with PSERM, meaning that less educated respondents had more perceived self-efficacy in recognizing misinformation.

H8 about individuals' information seeking skills having a positive influence on perceived self-efficacy in recognizing misinformation (PSERM) was supported but only for the question about reading comments when help was needed ($\beta = .131, p < 0.05$). H10 regarding individuals'

information sharing skills having a positive influence on perceived self-efficacy in recognizing misinformation (PSERM) was not supported. Lastly, for the first regression model, H12 about individuals' information verification skills having a positive influence on perceived self-efficacy in recognizing false information (PSERM) was fully supported. Both variables/questions, using online tool to verify social media information ($\beta = .207, p < 0.05$), and understanding what a search engine is for ($\beta = .181, p < 0.05$), were positively predictive of PSERM. In other words, the higher the information seeking and verification skills, in addition to a positive attitude towards information verification, the greater the perceived self-efficacy in verifying misinformation.

4.2. Behavior of Sharing Without Verification (SWV)

To test the whether the respondent background, TPB/TRA variables, and information literacy skills can predict the behavior of sharing misinformation on social media without verification (SWV), we conducted another multiple linear regression (table 4). A statistically significant regression equation was found ($F(15,308) = 7.873, p < 0.001$) with an adjusted R^2 of 0.26.

Table 4 depicts that only six out of 17 predictors came out as significant in the second regression model. Hypotheses H3, H4, H5, H7, H9, H11 and H13 concerned the sharing without verification (SWV) dependent variable (table 4). H3 about an individual's perceived self-efficacy in recognizing misinformation (PSERM) having a positive influence on sharing behavior without verification (SWV) on social media was not supported. However, hypothesis four (H4) about an individual's beliefs in information reliability having a positive influence on sharing behavior without verification (SWV) on social media was supported, and stood as the strongest predictor in the model ($\beta = .415, p < 0.001$).

H5 about an individuals' attitudes toward verification of information from social media having a negative influence on sharing behavior without verification (SWV) on social media was supported ($\beta = -.130, p < 0.05$). As expected, this implies that not having an information verification attitude is likely to lead to sharing without verification. This also means that it is vital for individuals to possess an attitude that is centered in the need of verifying all information online.

H7 concerned an individuals' background factors influencing sharing behavior without verification (SWV) on social media. For the SWV regression model, background factors (age, gender, income, education level, social class, self-esteem, and perceived Internet skills) were not predictive of SWV except for Internet experience ($\beta = -.116, p < 0.05$). This implies that the greater the Internet experience, the lesser the likelihood of sharing without verification. It could also mean that more experienced Internet users are the ones less prone to sharing misinformation.

Hypotheses nine (H9), eleven (H11) and thirteen (H13) concerned information literacy skills. H9 was about an individuals' information seeking skills having a negative influence on sharing behavior without verification (SWV) on social media was supported for the question: learning advanced skills by viewing YouTube videos ($\beta = -.120, p < 0.05$). However, it was found that the hypothesis (H11) about individuals' information sharing skills having a negative influence on sharing behavior without verification (SWV) on social media was not supported ($\beta = .149, p < 0.05$). It could mean that people who felt confident in contributing to online communities are more likely to fall into the trap of sharing without verification. Lastly, H13 concerning an individuals' information verification skills having a negative influence on sharing behavior without verification (SWV) on social media was only supported for the question: using

online tool to verify social media information ($\beta = .157, p < 0.05$). This finding implies that those who felt confident in using online tools to verify social media information were more likely to share information without verification.

5. Discussion

This study is an effort in understanding the factors that predict (i) the perceived self-efficacy in recognizing misinformation, and (ii) the behavior of sharing information on social media without verification. Our research model is based on the simple understanding that individuals are at the center of any effort in dealing with the spread of any kind of information. We assert that recognizing false information is the first step in dealing with fake news and the spread of misinformation.

The first regression predicted the perceived self-efficacy of individuals in recognizing misinformation (PSERM). Only informed users who can decipher the right information from the wrong can serve as bulwarks in the face of rising misinformation in the society and the world at large. Our analysis revealed that income, education level, information seeking and verification skills, and attitude towards information verification were significant predictors of PSERM. On the other hand, Internet experience, information seeking, sharing, and verification skills, in addition to belief and attitude were significant for sharing information on social media without verification (SWV). PSERM did not stand to be a significant predictor of SWV. Detecting and identifying false information may be related to sharing on social media without verification but in the overall regression model the PSERM variable may have become less important against some demographic factors and information verification variables.

This study has at least five important findings to contribute to the information literacy policy or training material. First, the study found that from the social demographic background,

factors such as age, gender, and social class were not significant predictors for both dependent variables. Therefore, information literacy takes a center stage and such training and education need to be provided to individuals without differentiating on age, gender, and social class. Second, the education level was a negative predictor of PSERM, income was a positive predictor, and Internet experience was a negative predictor of SWV. Thus, in making information literacy interventions, it is better to first target people from lower education levels, lower income, and those that are new to the world of Internet. Third, since belief in the reliability of information is the strongest predictor of SWV, it is important for information literacy interventions to first emphasize the process of information production on social media and the quality of information circulated on social media before introducing other forms of knowledge. Fourth, attitude toward verifying online information was a significant predictor for both dependent variables, meaning that information literacy interventions should provide sufficient knowledge about the consequences of sharing misinformation. Finally, of all the three information literacy skills on social media, information verification skills came out as the most important skills. Therefore, in making information literacy interventions, verification skills need greater emphasis.

5.1. Education and Experience

Amongst the salient findings, our analysis revealed that the level of education negatively predicts PSERM. In other words, less educated individuals are likely to be self-efficacious in recognizing misinformation. This is an intriguing finding. It could mean that there is a difference between what individuals think they are capable of doing and what they are actually doing. It may be possible that those with a higher level of education may know more about the rise of fake news and may thus feel overwhelmed in dealing with it. On the other hand, lesser educated

individuals may know less about the major issues facing Internet users and the spread of misinformation.

Our findings also indicate that Internet experience was not a significant factor for PSERM, however, Internet experience was negatively significant in predicting sharing without verification (SWV). This finding shows that those who had lesser Internet use experience were likely to share unverified information on social media. As experience grows, it is possible for individuals to be more cautious in sharing. Earlier studies had shown that media use experience can positively impact individuals' self-efficacy (Eastin & LaRose, 2000).

5.2. Information Seeking, Sharing and Verification

Information literacy has also been described as a “set of modern skills needed to discover, access, verify, and correctly interpret information in an age of abundant misinformation on the internet” (Parrott, 2018, p.18). We support the assertion that information literacy is a multidimensional concept that includes maintaining and nurturing a positive attitude towards learning and assessing the veracity of information (Parrott, 2018). This further involves using appropriate employing appropriate techniques for finding accurate information and employing the latest technological tools.

The study's hypotheses revealed that questions from all three skills were significant predictors of sharing misinformation, but the general perceived Internet skill (lower-order Internet skill) was not a statistically significant predictor. For future research, these higher-order information literacy skills of seeking, sharing, and verifying could serve as more precise measurement tools for information literacy.

Previous research has revealed that a majority of Internet users are rarely attentive to checking for information accuracy online (Flanagin & Metzger, 2000). This could both be an

attitude issue or a lack of the required Internet skills in dealing with online information.

Although, there are signs that some institutions such as libraries have started to create standards and procedures for evaluating social media information (Bridges, 2012), the scale of such programs needs a significant boost. This study should serve as an effort to bring to attention need and the rationale to address the training of individuals to deal with prevailing misinformation online. It would be pertinent to devise mechanisms whereby Internet-related skills are imparted which also focus on the realization aimed at changing attitudes towards information verification.

Survey research by Flintham, Karner, Bachour, Creswick, Gupta, and Moran (2018) also argues in favor of empowering individual Internet users in dealing with misinformation. Viewed from an information literacy perspective, Flintham et al. (2018) state that “ideally, a tool to fight fake news would not simply label news as trustworthy or not but would offer the news consumer with links to alternate or perhaps further reading on a story they are currently viewing” (p.9). It is understandable that detecting misinformation on social media can prove to be a challenging task. However, the presence of information literacy skills that help individuals to seek, share, and verify online information can prove immensely beneficial in recognizing and ultimately limit or freeze the spread of misinformation. Information literacy programs should specifically emphasize understanding the characteristics of credible information sources. In this context, the proverb of ‘trust but verify’ is very relevant.

5.3. Attitude and Belief

From the TPB/TRA variables in our first regression model, only attitude positively predicted PSERM. Attitude has shown to impact consumer motivation to use and create user generated content (Daugherty, Eastin, & Bright, 2008), product purchase decisions (Lada, Tanakinjal & Amin, 2009), and decisions to buy non-counterfeit products (Marcketti, & Shelley,

2009), etc. An attitude that is directed at verifying online information based on a healthy sense of skepticism (Lewandowsky, et al., 2012) can prove useful in recognizing misinformation and mitigating its negative effects. This attitude and mindset that gives importance to verification may prove very impactful in dealing with the spread of misinformation and tackling problems associated with fake news. Anderson and Rainie (2017) from Pew Research also seem to be validating the key premise of this research, when they state that, “tech can’t win the battle. The public must fund and support the production of objective, accurate information. It must also elevate information literacy to be a primary goal of education” (p.6).

In addition to attitude, belief stood as a strong predictor in the second regression model measuring sharing without verifying behavior. This implies that when the belief in the reliability of information is high, individuals were more likely going to share social media content without even verifying it. According to Rubin, Conroy, and Chen (2015), being cognizant of the likelihood that information or news can be unreliable and erroneous can enhance a user’s media literacy.

Fallis (2004) argued that the issue of misinformation is analogous to a variety of other problems faced by individuals on a daily basis. For example, in dealing with currency, individuals need to make conscious verification decisions to distinguish real from counterfeit. Similarly, in the context of shopping, individuals make decisions that help them distinguish between low-quality products versus high quality (Baird, Gertner, & Picker, 1994). We therefore emphasize that in the marketplace of ideas, individuals also need to make informed sharing decisions whereby they rely on information verification before sharing anything online.

Limitations. There are several limitations of this study that need to be taken into account in the interpretation of results. Our study is based on a survey of individuals which is self-

reported data. Experimental research or server level data from the social platforms may prove to be more illuminating. Moreover, the generalizability of its findings is limited to the research context. The online survey data were obtained from users in Indonesia where users may already be adept at Internet and social media use and consequently more aware of the rise of misinformation and the ways to deal with it. We also believe that future studies can build upon our research to devise more complex and detailed models for measuring higher-order Internet skills. More specifically future research can measure actual skills instead of self-assessments of a user's own skills.

6. Conclusion

Based on the findings of this study, we recommend further research to understand the role of the individuals in dealing with misinformation. Specifically, research that delves into other factors besides information literacy and verification behaviors would be helpful in this regard. Findings from this study can serve as a base for informing further theory development and empirical research to understand the effects of misinformation on individuals across different domains such as health, advertising, politics, and crisis communication. Such future endeavors can inform potential strategies and policies shifts to mitigate adverse consequences of misinformation on social media.

Our study's findings can also have possible implications for the better design of online social media systems. For example, online systems can be designed in which individual users are able to flag content that they feel is erroneous or be able to assess the veracity of information or posted news through a third-party system within the site being used. Most importantly, since the emphasis is on the individual, verification tools can be devised and popularized to enable easy information verification. Such measures could help inhibit the spread of misinformation.

Keeping in view the severity of the situation concerning the spread of online misinformation, there may be a need for devising effective training programs related to information literacy skills. Such efforts could also involve or even an overhaul of our school curriculums that effectively address issues related to establishing the credibility of online information.

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