

Engagement and the spread of fake news

Personality Trait as moderator

Gumgum Gumelar
Psychological Education Faculty
Jakarta State University
Indonesia
ggumelar @unj.ac.id

Zarina Akbar
Psychological Education Faculty
Jakarta State University
Indonesia
zarina_akbar @unj.ac.id

Erik
Psychological Education Faculty
Jakarta State University
Indonesia
erik@unj.ac.id

Abstract—The speed of news is no longer limited. Distance and time limits do not become an obstacle in the rate of news spread. Even though the access to the information, nowadays is more accessible and fast, but there are also many another adverse offer, such as spreading rumors and fake news. Individual engagement with high intensity and have personal meaning with their social media platform could meet their need to contribute, retrieve and explore the news content and also have tendencies to spread the fake news. Previous studies have shown that personality traits play a significant role in human behavior. This study aims to investigate the roles of personality in engagement and spreading fake news behavior. Furthermore, The purpose of this study is to offer a theoretical and empirical background to explain the psychological aspects of the issue of spreading the fake news. This study conceptualizes false news as a distorted signal inconsistent with the truth. Result of this study show that personality traits with extraversion characteristic moderate personal engagement to intention for spread fake news exposures.

Keywords—hoax; fake news; personality trait; engagement

I. INTRODUCTION

Globalization in the world has become part of Indonesia issue. Globalization has driven the latest technology and industry developments. The world is now entering the era of industrial revolution 4.0, which emphasizes everything on the internet (IoT) that emerge in disruptive innovation (<http://sumberdaya.ristekdikti.go.id/index.php/2018/01/30>). This era has effect in a human to change in communicating

The globalization and transition of communication and information society, driven by the accelerating convergence of digital communications technology through computer technology that bring clarity to the meeting to computers and communications [1], the pattern of communication in the form of the present one is now changed into a digital communication pattern. Through instant messenger applications with the internet, such as WhatsApp, messenger and other forms people

could communicate quickly in the form of sound, pictures, and videos.

The speed of news is no longer limited. Limitation in distance and time do not become an obstacle in the speed of news spread. News on the north end of the world in a short time can also be found in the southern hemisphere. This is an advantage of the industrial revolution era 4.0. namely, the ease of human access to information easily and quickly from around the world. New media radically solve the relationship between physical and social places, making the physical location much less significant to our social relations” [2].

Media is a tool or means used to convey messages from the communicator to the audience. The term “mass” refers to a collectivity without form. It makes difficult for us to distinguish from one another [3]. According to Wilson [3], mass media is used in mass communication by providing information and entertainment. Social media through internet networking potentially brings fundamental transformation by presenting a better form of journalism because it involves an audience that has been unsalted in conventional media. At the same time, however, the Internet also poses a threat to the value and standards of journalism, such as content authenticity, source verification, accuracy, and truth. Everyone can be a messenger globally; The ability is due to easy access and sophisticated devices.

Ease of access to this information not only facilitate us to get knowledge from all parts of the world but also can give unwanted effects. Ease of access to this information can also facilitate misleading information/news. Misleading news we call fake news, false news or hoax.

The shift from broadcasting news from print to digital media has created new credibility assessment issues, leaving many individuals unable to understand legitimate information from the unauthorized news. In the pre-digital era, journalism massively controls original reporting, writing, production, and delivery, making an evaluation of credibility audiences easier. Over time, technology companies such as Facebook and Apple

have become more dominant players in this online world, whether they are meant to be or not [4].

This transition has caused confusion of credibility among social media users, leading to the viral spread of fake and misleading news on various social media. Our desire spreads depending on how close and influential it is to us; this process is called engagement.

Several studies have shown that the perception of intense involvement is a key component of involvement, by increasing the passion, interest, and motivation of individuals to want to participate [5], [6].

Ray and colleague [5] examines the influence of community involvement on knowledge contribution in online communities and finds that greater involvement increases contribution intentions. The second component of user engagement, personal relevance, as the degree to which the user feels that he is fulfilling personal needs, values, and / or interests [7], [8]. Users who feel their involvement with high intensity and feel that the social media platform is personally meaningful in meeting their need to have a preference to contribute, retrieve and explore new content from mass media.

Engagement is significant in interpersonal communication because communication messages to be conveyed will be acceptable if people have a keen awareness in doing the communication. Human Engagement in social media is one way to facilitate interpersonal communication.

The easier the online media to access, making online media become one of the effective media to meet the needs of interaction between humans. Data users twitter and facebook are one of the real evidence of the existence of social media into the most essential human needs, interpersonal communication facilitated by the social media that is very effective to interact with each other.

Among the social media literature, much research is done on the dissemination of information, one of which is about personality trait as a predictor [9]. Trait Personality has been used in the science of psychology to identify different types of traits that influence behavior. A model used to examine differences in personality traits is a big five of personality taxonomy [10]. The big five of personality model has been used to determine personality traits with the scale of openness, conscientiousness, extraversion, agreeableness, and neuroticism [11]. these qualities come from studies of how individuals describe themselves and each other in the use of natural language [12].

The big five of personality model has proven to be robust in predicting individual life spheres. For example, positive and negative affects, marital satisfaction, career achievement, and lifespan [13] correlate with this personality model. Related to this research, Teresa Correa has connected social media with personality[14].

By investigating and the personality of the individual who can influence the intention to spread false news through the process of engage with the news, this research can expand the theory of engagement on fake news by providing empirical evidence to support the moderator elements of conceptual

attachment and behavioral intentions (behavior intention) in spreading the false news.

II. LITERATURE REVIEW

A. *Intention To Spread Fake News and Engagement*

Fake news, False News or Hoax, which is in some terms we use the terminology in Indonesia as "Berita bohong." Fake news is news content that intentionally and can be proved wrong, and can mislead the readers. This definition includes news articles that are deliberately created, as well as from articles derived from satirical sites but can be misunderstood as facts, especially if viewed separately on the news originating from Twitter or Facebook feeds. Some definitions of false news: 1) unintentional reporting errors; 2) rumors that do not come from specific news articles that have authority; 3) conspiracy theories (these, by definition, are difficult to verify as true or false, and they usually come from people who believe they are right); 4) satire that cannot be misunderstood as fact; 5) false statements by politicians; and 6) reporting that appears or is misleading but not entirely wrong [15].

Fake news articles come from several types of websites. For example, some sites are fully established to print articles that are purposefully created and misleading. The names of these sites are often chosen to resemble a legitimate news organization. Other satirical sites contain articles that may be interpreted as facts when viewed out of context. This site prints a mixture of genuine articles along with some fake articles. Websites that provide fake news tend to be short-lived and may disappear after being out of use, usually only during specific political activities.

There are two primary motivations for providing false news. First is money: news articles that become viral on social media can attract significant advertising revenue when users click on to the original site. This seems to have been a significant motivation for most manufacturers whose identities have been revealed. The second motivation is ideological. Some fake news providers are trying to advance candidates they like[16].

Social media through internet connections potentially brings fundamental transformation by presenting a better form of journalism because it involves an audience that has been installed in conventional media. At the same time, however, the Internet also poses a threat to the value and standards of journalism, such as content authenticity, source verification, accuracy, and truth. Because everyone can become a global publisher with the ease of access and communication tools are increasingly sophisticated. Social media studies vary widely in defining the notion of social media. The implications can lead to various connotations of a concept. This makes it even more challenging to create an understanding that can be used as a guide in research and theory development.

Communication experts claim that the various definitions of social media that exist today are so vast. This shows the complexity, the point of attention, and the ability applied outside the discipline of science owned. Some notions of social media have been formulated by various parties, both in communication studies and other studies. Carr and Hayes [17],

defines, "social media are internet-based, distained, and persistent channels of mass personal communication facilitating perceptions of interactions between users, deriving value primarily from user-generated content." This definition refers to (1) digital technology that emphasizes user-generated content or interaction (2) media characteristics, and (3) Social networks such as Facebook, Twitter, Instagram, and others as examples of interaction models.

Social media can be said as an online medium, where its users (users) through internet-based applications can share, participate, and create communication content in the form of blogs, wikis, forums, social networks, and virtual world space supported by high-speed multimedia internet technology.

Social media spread the word using publishing technology or apps, which are easily accessible or user-friendly. Users are familiar with technology for reading and sharing news, searching for the information they need. Popular social media such as Facebook, Instagram, Twitter, and LinkedIn, in the era of media applications, are very easy to get national and international news, which every day appears and easily accessed by smartphone users such as blackberry messenger, WhatsApp, or Facebook messenger.

As discussed earlier, user involvement is defined as an increased mental state, and is divided into two components: 1) individual involvement and 2) personal meaning. Research shows that the perception of intense involvement is a crucial component of involvement [5], [6], by increasing the passion, interest, and motivation of individuals to want to participate [5], [6], [18]. More recently, Ray and colleagues [5] examined the effect of community involvement on knowledge contribution in online communities and found that greater involvement enhanced contributing intentions. Personal meaning, the second component of user engagement, includes the personal relevance of social media platforms with individual users. Personal meaning is defined as the level at which the user feels that he is fulfilling personal needs, values, and / or interests [7], [8]. Users who feel their involvement with high intensity and feel that a meaningful private media platform to meet their needs will be more likely to contribute, retrieve and explore content.

B. Personality trait and intention to spread fake news

The spread of false news has increased worldwide. The people believe it is annoying and makes a scene; however, many people are still involved in the behavior of spreading the news. The science of psychology seeks to intervene in favor of behavioral changes that will degrade my behavioral changes.

A better understanding of the personality traits that correlate with attitudes and intentions spreading false news can help psychologists understand how to design filtering and behavioral modifications to make it easier for people to make better decisions in choosing the distribution of news they want to share.

Personality is used in psychology to identify different types of individual traits that influence behavior. A model used to examine differences in personality traits is the big five personality of the big five [10]. The five major personality

models are used to define personality traits with dimensions: Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. The properties of this dimension come from the study of how people describe themselves and each other in the use of natural or everyday language [19].

The personality traits of this big five personality have been shown to predict many areas of one's life. For example, positive and negative affection, life and marital satisfaction, career achievement, and lifespan [13] correlate with the personality of the top five. [20] relate the characteristics of agreeableness and conscientiousness to environmental concerns.

In this model, personality has five dimensions, namely extraversion, agreeableness, conscientiousness, neuroticism or emotional stability and openness to experiences [19]. (1) Extraversion, has the characteristics of spirit and enthusiasm. Individual extraverts are passionate in building relationships with others and actively seeking new friends. His enthusiasm is seen in the positive emotional jet. Individuals in this dimension are assertive and assertive. (2) Agreeableness, possessing the characteristics of sincerity in sharing, having a subtle feeling, and focusing on positive things on others. Individuals with this agreeableness have the kindness, trustworthiness and cooperation. (3) Conscientiousness, has a characteristic of sincerity in doing the task, responsible, reliable, disciplined, and likes regularity. This individual does the work thoroughly with discipline and timeliness. (4) Neuroticism has the characteristics of a worm and is identical with the presence of negative emotions such as worry, tension, easy nervousness and fear. This individual easily becomes angry when faced with situations that are not in accordance with what he wants. Neuroticism has the opposite character of emotional stability. (5) Openness or openness to experience, possessing characteristics with broad insights and ideas of originality. Those who are open are ready to accept the various inputs with an open perspective because their insights are broad and deep. They are happy with the new information, and learn something new.

III. METHODS

A. Sample and Procedure

160 participants have recruited online through random sampling from the faculty of psychology Universitas Negeri Jakarta and received a small monetary compensation (IDR50.000) for participating. Informed consent was obtained from all participants; Data were collected by Google questionnaires directly to their Whatsapp messenger.

This research begins by giving initial instruction in the research group. Whatsapp is given preliminary information that this study lasted for two days, it is expected that participants follow this series of studies to completion.

The study was divided into several days, for the first day participants were given the manipulation of news reviews (fake news), morning at 09.00 am-noon at 12.30 WIB, and afternoon at 16.00 WIB. The second day of the participants was given the manipulation of news commentary (fake news) at 09.00 am and noon at 12.30, after which participants were given research

instruments. Participants are asked to type the phrase "read" in the Whatsapp chat room when they have read the news.

After all, participants fill the given instrument; then the research has been completed, the researcher gives information to all participants to leave the chatroom. Then the results of research can be processed in accordance with the statistical techniques that have been determined by researchers.

B. Instruments

Four Manipulation used for this study using designed social media screenshot In order to produce a realistic Whatsapp experience in an experimental setting. Experimenter-generated this manipulation was created using Screenshot Apps to capture more natural elements of mobile social media behaviors.

The measurement of the personality dimension uses a questionnaire adapted from the Big Five Inventory based on John and Srivastava [21] research and translated by Ramdhani [22] in Indonesia language form consisting of 44 point statements. Big Five Personality inventory consisting of five dimensions, extraversion; agreeableness; conscientiousness; emotional stability; and openness to experience.

The engagement measurement, this research used The Transportation Scale-Short Form (TS-SF) from Markus Appel et al. [23] with 10 item and for Intention to spread the news we develop 4 item/

IV. RESULT

Table I present that the Adjusted $R^2 = 0.207 = 20.7\%$, its means dependent variable of engagement and big five personalities (OCEAN) influence intention for spread fake news and the rest influenced by other variables not included in the research.

In this table below shows that the value of $F = 7.921 > 2.16$ and $\text{sig} = 0.000 < 5\%$, so the Engagement and Big Five personality simultaneously have a significant effect on the dependent variable for the intention to spread fake news. In other words, independent variables Engagement and Big Five personality able to explain the amount of dependent variable intention to spread fake news.

The results of statistical tests on Engagement obtained $t = 3.448 > 1.98$ and the value of $\text{sig} = 0.000 < 0.05$. This means Engagement significant effect on intention.

In engagement and extraversion interaction obtained $t = -2.278 > 1.98$ and $\text{sig} = 0.024 < 0.05$. This means that engagement and extraversion interactions have a significant effect on the intention. So extraversion variables affect the relationship between the variables engagement with the intention. Thus extraversion can be regarded as a moderator variable.

In engagement and Agreeableness interaction obtained $t = 0.624 < 1.98$ and $\text{sig} \text{ value} = 0.534 > 0.05$. Interaction engagement and Consciousness obtained $t = -0.168 < 1.98$ and the value of $\text{sig} = 0.867 > 0.05$. This means that engagement

with agreeableness dan consciousness have no significant interaction effect on the intention.

TABLE I. MODERATION REGRESSION ANALYSIS RESULTS

Model	Unstandardized Coefficients		Standardized	t	Sig.
	B	Std. Error	Beta		
Constant	29.752	2.844		10.472	0.000
Eng	0.728	0.221	0.672	3.488	0.001
Eng*E	-0.006	0.002	-0.245	-2.278	0.024
Eng*A	0.002	0.004	0.096	0.624	0.534
Eng*C	0.000	0.003	-0.022	-0.168	0.867
Eng*N	-0.004	0.003	-0.188	-1.717	0.088
Eng*O	-0.001	0.002	-0.035	-0.315	0.753
R	0.487				
R ²	0.237				
Adjusted (R ²)	0.207				
F Count	7.921				
Significant of F	0.000				

Likewise with interaction engagement and neuroticism obtained $t = -1,717 < 1.98$ and $\text{sig} \text{ value} = 0.088 > 0.05$ and engagement and openness interaction obtained $t \text{ count} = -0.315 < 1.98$ and the value of $\text{sig} = 0.753 > 0.05$ shows that engagement with neuroticism and openness have no significant effect on the intention.

Based on the results of the above analysis, it can be concluded that there is influence between engagement to the intention of spreading false news. Effect of moderation [there is a relationship between engagement and intention to spread the false news on the big five personality variable that is on extraversion personality type, while for openness, Consciousness, Agreeableness, and Neuroticism do not have moderation effect.

V. DISCUSSION

The purpose of this study was to know how personality traits affect identifying and reacting to fake news and how they engage with that news in an effort to help understand the spread of fake news stories. Although not statistically all personality characteristic supported, the results imply some information. For example, no participants correctly identified the real news and fake news. It may take more attention to the significant flow of news in this era.

If this study is replicated in the future, it is suggested that a split is added in the survey to send participants who do not score high or low in openness, conscientiousness and agreeableness, neuroticism and openness in the personality test out of the survey. Although this would require a more significant number of participants, it would allow for better testing of personality's effect on sharing behaviors. Because only a small number of participants noticed any of this study's cues, more research on information intake and fast-paced news on social media should be pursued. For example, future studies

might test differences in the pace of scrolling and news intake to get time for the participant to engage with news.

Consideration about credibility from manipulation be useful for future research, perhaps it could have a different effect when the manipulation from the original media not from the experimenter. Media outlets are used to identify what credibility cues for markets online. Further research is also recommended for the news credibility index [24] used in this study.

REFERENCES

- [1] J. D. Straubhaar and R. LaRose, *Communications media in the information society*. Wadsworth Pub. Co, 1997.
- [2] D. Croteau and W. Hoynes, *Media society: industries, images, and audiences*. Pine Forge Press, 2003.
- [3] D. McQuail, *Mass communication theory: an introduction*. Sage Publications, 1994.
- [4] M. Barthel, A. Mitchell, and J. Holcomb, "Many Americans Believe Fake News Is Sowing Confusion | Pew Research Center," *Pew Res. Cent.*, pp. 2–6, 2016.
- [5] Ray, Soumya, Kim, S. Sung, Morris, and James, "The Central Role of Engagement in Online Communities," *Inf. Syst. Res. ; Linthicum*, vol. 25, no. 3, 2014.
- [6] J. L. Zaichkowsky, "Measuring the Involvement Construct," *J. Consum. Res.*, vol. 12, no. 3, p. 341, Dec. 1985.
- [7] J. Battista and R. Almond, "Psychiatry: Interpersonal and Biological Processes The Development of Meaning in Life," vol. 36, no. 4, pp. 409–427, 1973.
- [8] D. Louis Henri Maria, "University of Groningen Meaning in life On The Psychometric Properties Of The Life Regard Index (LRI): A Measure Of Meaningful Life."
- [9] G. A.-H. Y. Vinitzky, "Social network use and personality. Computers in human behavior," *Comput. Human Behav.*, vol. 26, no. 6, pp. 1289–1295, 2010.
- [10] O. P. John, A. Angleitner, and F. Ostendorf, "The lexical approach to personality: A historical review of trait taxonomic research," *Eur. J. Pers.*, vol. 2, no. 3, pp. 171–203, 1988.
- [11] P. Anusic, I. Schimmack, U., Pinkus, R. T., & Lockwood, "The nature and structure of correlations among Big Five ratings: The halo-alpha-beta model," *J. Pers. Soc. Psychol.*, vol. 97, no. 6, p. 1142, 2009.
- [12] P. Costa, R. R. McCrae, and P. T. Costa, "Personality Trait Structure as a Human Universal," 1997.
- [13] D. J. Ozer and V. Benet-Martínez, "Personality and the Prediction of Consequential Outcomes," *Annu. Rev. Psychol.*, 2006.
- [14] T. Correa, A. W. Hinsley, and H. G. de Zúñiga, "Who interacts on the Web?: The intersection of users' personality and social media use," *Comput. Human Behav.*, 2010.
- [15] M. Gentzkow, J. M. Shapiro, and D. F. Stone, "Media Bias in the Marketplace," 2015.
- [16] H. Allcott and M. Gentzkow, "Social Media and Fake News in the 2016 Election," *J. Econ. Perspectives*, vol. 31, no. 2, pp. 211–236, 2017.
- [17] C. T. Carr and R. A. Hayes, "Social Media: Defining, Developing, and Divining," *Atl. J. Commun.*, vol. 23, no. 1, pp. 46–65, Jan. 2015.
- [18] H. L. O'Brien and E. G. Toms, "What is user engagement? A conceptual framework for defining user engagement with technology," *J. Am. Soc. Inf. Sci. Technol.*, 2008.
- [19] R. R. McCrae and P. T. Costa, "Personality Trait Structure as a Human Universal," *Am. Psychol.*, 1997.
- [20] J. B. Hirsh, "Personality and environmental concern," *J. Environ. Psychol.*, 2010.
- [21] O. P. John and S. Srivastava, "The Big-Five Trait Taxonomy: History, Measurement, and Theoretical Perspectives," 1999.
- [22] N. Ramdhani, "Adaptasi Bahasa dan Budaya Inventori Big Five," vol. 39, no. 2, pp. 189–207, 2012.
- [23] M. Appel, T. Gnams, T. Richter, and M. C. Green, "The Transportation Scale–Short Form (TS–SF)," *Media Psychol.*, 2015.
- [24] A. J. Flanagin and M. J. Metzger, "Perception of internet information credibility," *Journal. Mass Commun. Q.*, vol. 77, no. 3, pp. 515–540, 2000.