Reducing Covid-19 Information Uncertainty Through Social Media
Descriptive Quantitative Study of Universitas Muhammadiyah Surakarta Students

Erika Fitriani[1], Dian Purworini[2*]

[1,2] *Communication Science Department, Universitas Muhammadiyah Surakarta*
[*]*Corresponding author. Email : dp151@ ums.ac.id*

ABSTRACT

Social media, one of the developing technologies, has an important role in information dissemination, especially information related to COVID-19. One of the media utilized as the fastest information source related to COVID-19 is Instagram. However, behind the advantages of access and rapid distribution of information, false information becomes easily spread, so COVID-19 misinformation to Instagram users is still common. For this reason, this study used descriptive quantitative research methods. This study attempts to analyze how the research sample strategy reduces the COVID-19 information uncertainty spread on Instagram. Sampling used a purposive sampling technique, with the criteria of the Universitas Muhammadiyah Surakarta students who had an Instagram account. The analysis in this study employed uncertainty reduction theory by focusing on three strategies: active, passive, and interactive. This study's results aim to provide an overview of strategies for how students use Instagram to reduce the COVID-19 information uncertainty on Instagram. Research revealed that reducing uncertainty during the COVID-19 pandemic can be minimized with a crisis communication strategy by utilizing Instagram as the information source.

Keywords: COVID-19, Instagram, Crisis communication, Uncertainty reduction

1. INTRODUCTION

1.1. Background

Technological developments are increasing over time, especially in information technology, after the emergence of social media [1]. Currently, information is not difficult to find. Even more, according to Kotler & Keller [in 2], social media is currently a tool needed for activities to channel various information in the form of text, images, videos, and audio, attached to one's life today.

More specifically, news related to COVID-19 is urgently needed in the current information age, making information dissemination very fast [3]. According to [4], people use social media to obtain and disseminate various information. Social media has become one of the tools used to spread information about COVID-19, with the rapid spread of information, so there are 14,479 articles containing COVID-19 as of May 19, 2020, on the PubMed page [5]. Unfortunately, in the conditions of the COVID-19 pandemic, the existence of social media further increases the risk of spreading misinformation in the community (Wilson Ceron, 2020) [6]. Various false

and inaccurate information creates uncertainty that needs to be responded to cross-check the facts before trusting the information.

The pandemic conditions also make uncertainty a concept or situation that is not easy for anyone, especially the health of victims, patients, and families. Thus, all uncertainties need to be managed through proper communication [7]. In this case, crisis communication is necessary, given the amount of confusing information and uncertainty of information circulating in the community, especially on social media. Exposure to disinformation related to insufficient information is more likely to avoid information and less likely to systematically process information [8]. The impact of information seeking and information avoidance has also become an important aspect of uncertainty research [9]. In addition, the uncertainty experienced by college students occurs when their crisis communication is low. To reduce uncertainty, crisis communication is needed.

According to Wardle [10], disinformation itself is defined as an encouragement to spread information to deceive. The existence of disinformation is caused by misinformation (information uncertainty), i.e.,

information that is objectively not supported by scientific evidence or expert opinion [10].

Because social media is the fastest unlimited means of spreading information, it makes false information easy to spread [4]. Moreover, in this current COVID-19 pandemic, much false information is widely circulated, causing individual information-seeking behavior to change [8]. In a journal, [8] also stated that sources of disinformation are more often disseminated than credible sources.

One of the social media easily contaminated with false information is Instagram. The Indonesian Telematics Society (MASTEL), in a journal [11], said that Instagram is one of the social media that has almost 90% of false information (hoax). Even more, Instagram has issued a policy to review content in up to 60 languages and label false information as an effort related to reducing the spread of false information [12]. However, the occurrence of COVID-19 misinformation to Instagram users is still happening. In a journal [13], five Instagram accounts, such as Narasi Newsroom, Tempo.co, Kumparan, IDNTimes, and CNN Indonesia, attempted to provide information related to a new virus variant that received negative responses from Instagram users. Most said that COVID-19 is just a conspiracy and a political tool of the government [13]. It is what causes uncertainty related to COVID-19 information to increase. Moreover, uncertainty can increase when information is ambiguous, complicated, and cannot be observed in the future; the information obtained is not available at any time or unstable; someone feels unsure about the knowledge or general information he gets [14].

Furthermore, this research is inseparable from previous studies, i.e., a previous study entitled "The Influence of Uncertainty Reduction Strategy over Social Network Sites Preference" obtained the results that uncertainty reduction in social networking sites in the context of communicating with people at home used WhatsApp [15]. Also, a prior study entitled "A Report on the Impact of Information Technology and Social Media on COVID-19" found that a mobile application called WhatsApp is one of the social media that has experienced the best increase during the pandemic as a means of information [4]. From the two studies, what distinguishes the current research is that this research focuses on how students reduce uncertainty in the information on Instagram. Researchers also attempt to examine how a person responds to the information uncertainty on social media, especially on Instagram. In addition, behind the much false information circulating on Instagram social media, Instagram is still the social media that ranks in the top three [16].

In addition, this study selected Universitas Muhammadiyah Surakarta (UMS) as the population because most of the students were teenagers and above, and this year, UMS is the third-best private university in Indonesia according to Unirank [17], and the geographical location of the researchers is in Surakarta so

that research can be carried out easily. In this study, Universitas Muhammadiyah Surakarta students became the samples. This research is crucial because the information uncertainty related to COVID-19 can cause various negative impacts. Thus, this study seeks to find a solution to overcome research problems related to a large number of circulating fake news that create fear amid the pandemic [18]. The results of this study are expected to measure how much the COVID-19 information uncertainty on social media Instagram among college students reduces.

1.2. Literature Review

1.2.1. Uncertainty Reduction Theory

Two types of uncertainty are seen in social situations: (1) cognitive uncertainty, which will arise from a person due to his beliefs in himself and others, and (2) behavioral uncertainty, which will later be present when a person is not sure about the actions of his or others [19]. Likewise, it is when the information on Instagram regarding COVID-19 is unconvincing.

In the uncertainty reduction theory, eight axioms must be accepted as valid. (1) Verbal communication: seeing the high uncertainty level that arises when someone meets for the first time, their amount of verbal communication increases, and their level of uncertainty decreases. (2) Non-verbal closeness: when non-verbal closeness increases, the level of uncertainty will decrease in the first meeting situation. In fact, if there is a decrease in the uncertainty level, it makes non-verbal closeness increase. (3) Information search: a high level of uncertainty causes a person to have a high desire to seek information. Therefore, when the uncertainty level decreases, the search for information decreases. (4) Self-disclosure: The high uncertainty level in a relationship reduces the intimacy in communication with each other. Conversely, if the uncertainty level in a relationship decreases, it makes the intimacy of communication increase. (5) Reciprocity: A high degree of uncertainty results in a high degree of reciprocity. Thus, a low level of uncertainty results in a low level of reciprocity. (6) Equality: similarity between individuals reduces uncertainty, while dissimilarity makes uncertainty increase. (7) Likes: the level of uncertainty increases makes liking decrease and vice versa. Finally, (8) shared networks: shared communication reduces uncertainty, while the lack of shared networks increases uncertainty [20].

This theory was originally an interpersonal communication framework, which was later adapted to design and evaluate crisis communication related to uncertainty [21]. In this case, the pandemic conditions make uncertainty a concept or situation that is not easy for anyone, especially the health of victims, patients, and families. For this reason, all uncertainties need to be managed through proper communication [7]. Also, crisis communication is very much needed, given the amount of confusing information and the information uncertainty circulating in the community, especially on social media.

Exposure to disinformation (information uncertainty) is associated with insufficient information, a greater tendency to avoid information, and a lower tendency to process information systematically [8]. In addition, the impact of information seeking and information avoidance has become an important aspect of uncertainty research [9]. Furthermore, the uncertainty experienced by students occurs when their crisis communication is low. To reduce uncertainty, crisis communication is needed.

In dealing with uncertainty, a strategy is also needed. In this theory, there are three strategies for reducing uncertainty: (1) passive strategies through observations and information obtained accidentally, (2) active strategies by doing something to obtain information without dealing directly with the intended person, and (3) interactive strategy through direct interaction and communication with the intended person [22].

2. METHOD

This type of research is descriptive quantitative. The researchers used quantitative because this type of research explains the problem with results that can be grouped and employed a descriptive survey method to calculate how Instagram users reduced the COVID-19 information uncertainty on Instagram. This research was conducted at Universitas Muhammadiyah Surakarta (UMS), and the population taken was all students at UMS.

This study utilized a non-probability sampling (not random) with a purposive sampling technique, i.e., only students who used Instagram could be this study's sample. Since the population was large and obtained from the population proportion, the number of samples was taken from the Slovin formula:

$$N = \frac{N}{1+Ne^2} = \frac{37000}{1+37000 \cdot (0.1)^2} = 99.73. \qquad (1)$$

From the PDDikti 2020 data, there were 36,435 active students. Valid data easily accessible were only on PDDikti page, so the calculation used data in 2020, and as an estimate of the total number of students, there were 37,000, and it is estimated that all students were Instagram users. With an error tolerance of 10%, the results obtained were 99.73 respondents and rounded up to 100 respondents.

The data were collected using a closed questionnaire data scale checklist, with points 1 as "Strongly Disagree", 2 as "Disagree", 3 as "Neutral", 4 as "Agree", and 5 as "Strongly Agree." It was given online to 100 students of Instagram users. The following questionnaire items were adopted from previous journals and were modified by the authors.

Table 1. Questionnaire table

	Active Strategy
X1	I asked friends on Instagram a question about COVID-19 information.
X2	I asked friends on Instagram about their behavior during the pandemic.
X3	I asked a question about what to do during a pandemic on Instagram.
	Passive Strategy
X4	I read a COVID-19 information post (accidentally) on Instagram.
X5	I read COVID-19 information in the comments column on posts on Instagram (accidentally).
X6	I saw an Instagram story related to COVID-19 information (accidentally).
	Interactive strategy
X7	I posted on Instagram about my behavior during the pandemic.
X8	I posted on Instagram what to do during a pandemic.
	Social Media Users
X9	I lingered on Instagram looking for COVID-19 information.
X10	I used Instagram to find information about COVID-19 as one social media.
X11	I used Instagram to communicate and discuss COVID-19 information during the pandemic with my friends.
	Low Uncertainty Level
X12	I had no doubts about using Instagram to find information on COVID-19 during the pandemic.
X13	I had no doubts about the COVID-19 information on Instagram.
X14	I did not doubt about my friends' posts regarding COVID-19 on Instagram
X15	I felt the COVID-19 information on Instagram is more accurate than other social media platforms.

Then, the validity test was carried out by calculating the corrected item-total correlation method utilizing the SPSS Statistics application version 23 for Windows. The data are declared valid or not through the r-count value or the corrected item-total correlation value; if the value of r-count > r-table product, the data are declared valid. Finding the r-table product was done through a lookup table using the DF formula, DF=N-2 (N as the number of samples) and then adjusted to a 5% significance in the SPSS application.

Furthermore, the reliability test was performed to measure the consistency and stability of the respondents. The reliability test can be done simultaneously with all the question items in the research questionnaire. To calculate the reliability level in this study, it was conducted using the Cronbach-Alpha formula in the SPSS Statistics 23 application for Windows. If the result

of Cronbach's Alpha value is >0.60, it can be stated that the data are reliable or consistent, and vice versa.

Since this study is a single variable, univariate analysis was used. With this analysis, the characteristics of the research variables will be explained and described. Before analyzing the data, a descriptive statistical test was conducted to make it easy to understand.

3. RESULTS AND DISCUSSION

3.1. Research Results

In this stage, an explanation of the results obtained from the distribution of questionnaires filled out by respondents willing to participate in this study is presented. Furthermore, the results obtained were analyzed with the Statistical Product and Service Solution (SPSS), presented in the form of a frequency table, so the data is easy to understand. This section also describes the analysis results in the form of testing the validity and reliability of the questionnaires distributed, including the analysis of the data obtained and the results of the research discussion.

3.1.1 Data Description

This research was conducted online on November 14, 2021. A sample of 100 respondents was involved, including active students at Universitas Muhammadiyah Surakarta who used social media Instagram. The sampling method employed purposive sampling, with a 10% Slovin tolerance formula to find the number of samples required.

Table 2. Respondent Demographics Results

	Frequency	Percentage
Gender		
Male	36	36%
Female	64	64%
Total	100	100%
Age		
18-22 years old	97	97%
Over 22 years old	3	3%
Total	100	100%
Qualification		
Double degree	1	1%
S1	98	98%
S2	1	1%
Total	100	100%

(Source: Processing results with SPSS statistics version 23)

From the results in Table 2, it was found that Instagram users at Universitas Muhammadiyah Surakarta were dominated by 64 women (64%), while men were only 36 people (36%). It is also seen that almost all the users were aged 18 – 22 years with a total of 97 people (97%) and currently taking an undergraduate degree with

a total of 98 people (98%). Others took double degrees and masters.

3.1.2 Validity

This stage is an analysis using the SPSS Statistics version 23 application. When the data has been obtained, the calculation of the questionnaire instrument is measured whether it is valid or not. It is declared valid or not through the r-count value or the corrected item-total correlation value; if the value of r-count > r table product, the data are declared valid. To find the r-table product, this study conducted a search table using the DF formula, DF=N-2 (N as the number of samples) and then adjusted for a 5% significance in the SPSS application. The results of the validity test data of the questionnaire distributed to 100 respondents with 15 question items and an r-table of 0.196 are as follows:

Table 3. Validity test results

Indicator	Number of items	r-count	r-table	Description
Active Strategy	X1	0.703	0.196	Valid
	X2	0.732	0.196	Valid
	X3	0.642	0.196	Valid
Passive Strategy	X4	0.460	0.196	Valid
	X5	0.634	0.196	Valid
	X6	0.505	0.196	Valid
Interactive Strategy	X7	0.518	0.196	Valid
	X8	0.715	0.196	Valid
Interactive Strategy	X9	0.738	0.196	Valid
	X10	0.701	0.196	Valid
	X11	0.683	0.196	Valid
Low Uncertainty Level	X12	0.602	0.196	Valid
	X13	0.369	0.196	Valid
	X14	0.355	0.196	Valid
	X15	0.447	0.196	Valid

(Source: Processing results with SPSS statistics version 23)

All questions were declared valid in this study because they were greater than the table calculation DF=N-2 or DF=100-2 with a significance of 5% or 0.05 of 0.196. Thus, all question items could be calculated for reliability.

3.1.3 Reliability

At this stage, the reliability test or measurement of the consistency and stability of the respondents was carried out. As the validity test continuation, the reliability test is only used on valid question items. All questionnaire items were tested for consistency in this study, and the Cronbach-Alpha value was 0.749.

Table 4. Case processing summary

Case Processing Summary		N	%
Cases	Valid	100	100.0
	Excludedª	0	.0
	Total	100	100.0

a. Listwise deletion based on all variables in the procedure.

Table 5. Reliability statistic

Reliability Statistics	
Cronbach's Alpha	N of Items
0.749	15

(Source: Processing results with SPSS statistics version 23)

The results from Table 5 show that Cronbach's Alpha value was 0.749. Because the calculation value was > 0.60, the data were declared reliable.

3.1.4   Data analysis

After the data were declared valid and reliable, the next step was a descriptive statistical test utilizing SPSS statistics version 23.

Table 6. Descriptive statistics test

	N	Minimum	Maximum	Mean	Std. Deviation
X1	100	1	5	2.36	0.110
X2	100	1	5	2.61	0.119
X3	100	1	5	2.21	0.113
X4	100	2	5	4.35	0.083
X5	100	1	5	3.57	0.108
X6	100	1	5	4.05	0.109
X7	100	1	5	2.03	0.111
X8	100	1	5	1.94	0.099
X9	100	1	5	2.37	0.109
X10	100	1	5	2.65	0.110
X11	100	1	5	2.29	0.109
X12	100	1	5	3.14	0.109
X13	100	1	5	2.91	0.092
X14	100	1	5	2.91	0.091
X15	100	1	5	2.54	0.96
Total	100			41.9	0.934
Valid N	100				

(Source: Processing with SPSS statistics version 23)

scores had a value of 1, except for item X2 with a minimum value of 2.

It can also be seen in the average value of items X1 to X12 and the total that had a value greater than the standard deviation. It means that all items had an even distribution, and all students did feel the information uncertainty on social media.

In the descriptive statistical test, if the skewness value (to measure the data skewness) and the kurtosis value (to measure the peak of the data distribution) is between -2000 to 2000 or close to zero, the data had both the data skewness and the peak of the data distribution.

Data on descriptive statistical tests in the form of values for maximum, minimum, mean or average, and standard deviations of data are used to make numbers into descriptions, making them easy to understand. The data distribution is even if the average value is greater than the standard deviation. Not only that, in the descriptive statistical test, there are skewness and kurtosis values to measure the data skewness and the peak of the data distribution.

Viewed from Table 6, of the 15 items tested, all items had a maximum value of 5, and almost all the minimum

Table 7. Descriptive Statistics Test

	Statistic	Std. Error	Kurtosis	
			Statistic	Std. Error
X1	.600	.241	-.160	.478
X2	.138	.241	-.960	.478
X3	.644	.241	-.511	.478
X4	-1.166	.241	.660	.478
X5	-.620	.241	-.193	.478
X6	-1.018	.241	.307	.478
X7	.923	.241	-.005	.478
X8	1.006	.241	.601	.478
X9	.461	.241	-.377	.478
X10	.267	.241	-.454	.478
X11	.577	.241	-.450	.478
X12	-.331	.241	-.575	.478
X13	.024	.241	-.102	.478
X14	.017	.241	.013	.478
X15	-.081	.241	-.601	.478
TOTAL	.083	.241	-.457	.478
Valid N (listwise)				

In this study, the skewness and kurtosis values can be seen in Table 7. From the values above on skewness, all items had values close to 0 or between -2000 to 2000. It proves that the data skewness was quite good. In addition, almost all items had a kurtosis value close to 0. It verifies that the peak of the data distribution was good.

3.2. Discussion

This study discusses how to reduce uncertainty carried out by Universitas Muhammadiyah (UMS) students. With the approach of uncertainty reduction theory, this research enters the realm of crisis communication, as in the research conducted (Grace & Jason, 2021) [21], showing that crisis communication during the COVID-19 pandemic is indispensable to reduce information uncertainty. These findings are also corroborated and adapted by theory to design and evaluate crisis-related communications and related data on uncertainty reduction during an unprecedented crisis [21].

The data results obtained through descriptive statistical tests from a questionnaire distributed with five

indicators with 15 question items are as follows: active strategy (X1, X2, X3), passive strategy (X4, X5, X6), interactive strategy (X7, X3). X8), social media users (X9, X10, X11), and low uncertainty level (X12, X13, X14, X15). The value of the data distribution was even and well distributed so that the data could be used as the basis for this research.

Further, active, passive, and interactive strategies indicators are obtained from the uncertainty reduction theory, i.e., strategies carried out as a form of reducing uncertainty. Mark V. Redmond (2015) asserted that an active strategy involves one's efforts to gather information, such as finding out on their own or asking others for help; passive strategies involve observing without direct interaction or accidentally finding out because of interest; meanwhile, the interactive strategy involves both, information seeking through direct target information.

Through the data obtained, the passive strategy indicator had the highest mean value among others. Item X4 had a mean value of 4.35, item X5 had a mean value of 3.57, and item X6 had a mean value of 4.05. It

indicates a lot of COVID-19 information uncertainty on Instagram by accident. Likewise, in the research conducted by Ismail Celik, Hanni, and Selcul entitled *"A model for understanding new media literacy: Epistemological beliefs and social media use"* [23], it is stated that someone who uses social media to communicate is more likely to question the information source so that people may check information on other sources or offer corrections for incorrect information when they communicate with close friends or relatives. It aligns with this current study that the research sample remained okay even though they accidentally saw information uncertainty.

In the indicators of social media users (X9, X10, X11), the highest mean value was in item X10, containing "I used Instagram to find information about COVID-19 as one of the social media," with a mean value of 2.37. It proves that Instagram remains a social media utilized to find information. Here, there are similarities with the research conducted by Gambo S. and Ozad entitled *"The Influence of Uncertainty Reduction Strategy over Social Network Sites Preference"* that social media creates and changes a person's characteristics and abilities and connections between one another to share knowledge and by including the motivation of users to continue to increase the use of social media [15].

In addition, a study conducted by Jiahui Lu, Meishan Zhang, Yan Zheng, and Qiyu entitled *"Communication of Uncertainty about Preliminary Evidence and the Spread of Its Inferred Misinformation during the COVID-19 Pandemic — A Weibo Case Study"* (2021) showed the results of communication uncertainty during a pandemic. There were 3439 posts and 10380 reposts related to misinformation from the transmission of COVID-19 through animals. The study also revealed that crisis communication is vital during a pandemic, given the high amount of misinformation growing on social media [24]. In the low uncertainty level indicators (X12, X13, X14, X15), one with a fairly large mean value was X12, with a value of 3.14. X13 and X14 got the same value of 2.91. Meanwhile, X15 obtained a value of 2.54. In other words, social media users did not hesitate to find out information on social media thanks to communication. Strengthened by research conducted by Kristen M., Julie A., and Nasia Safdar (2020), social media has proven to be the main supporter of what the public understands and the public's response to risk, especially in the conditions of the COVID-19 pandemic [25].

The low uncertainty level indicator also has similarities with the research conducted by Edson C. Tandoc and James Chong Boi Lee entitled *"When viruses and misinformation spread: How young Singaporeans navigated uncertainty in the early stages of the COVID-19 outbreak"* (2020), showing that adolescents in Singapore experienced uncertainty during the COVID-19 pandemic, and some of them used information search and scan or select information to respond to this crisis [14].

They also stated that COVID-19 is not a disease that threatens teenagers; they were more worried about their parents and family members to stay alert against the spread of the virus and misinformation. As is the case in the research of Dian Purworini, Dini Purnamasari, and Desy Puji (2019) [26], it is stated that in times of crisis like today, sometimes, encouraging a person, group, or organization to support each other is based on norms and traditions to get out of crisis conditions.

It is underlined in this study that young people, especially college students, responded to information uncertainty on Instagram with strategies from uncertainty reduction theory, i.e., active, passive, and interactive strategies, especially active and passive strategies that were more often used.

In this study, college students applied an active strategy by conducting information research or information seeking without fear of facing the risk of COVID-19 misinformation. Second, in the passive strategy, students seemed to be silent and not actively interacting and chose to carry out limited activities to observe COVID-19 information circulating on the Instagram social media platform. Third, the interactive strategy that students used was interaction to approach their connections on Instagram, who were looking for and processing COVID-19 information on the platform. Most students who had an Instagram account also more often applied active and passive strategies in processing information and reducing the COVID-19 information uncertainty spread on Instagram.

4. CONCLUSION

Reducing uncertainty during the COVID-19 pandemic can be done with various strategies. One of them is crisis communication. Among college students, considerable uncertainty reduction efforts were carried out during the COVID-19 pandemic crisis with Instagram social media, which remained a source of information with fast access and information circulation, so it was favored. The results also uncovered that although Instagram is a social media platform with a high risk of misinformation, students still use it as one of their information sources regarding COVID-19. It denotes that social media impacts influencing a person's characteristics to encourage motivation to share knowledge and use social media.

The limitation of this research is the limited number of older informants. It can be a recommendation for further research. Therefore, more in-depth information regarding their perception and involvement has not been fully identified. This study then opens up opportunities for further research to examine crisis communication aspects regarding uncertainty reduction, such as reducing uncertainty among older adults regarding ambiguous information. Given the ongoing crisis conditions, it is crucial to reduce risk more.

AUTHORS' CONTRIBUTION

ACKNOWLEDGMENT

REFERENCES

[1] Yuni Fitriani, "Analisis Pemanfaatan Berbagai Media Sosial sebagai Sarana Penyebaran Informasi bagi Masyarakat," *Paradig. - J. Komput. dan Inform.*, vol. 19, no. 2, p. 152, 2017, [Online]. Available: http://ejournal.bsi.ac.id/ejurnal/index.php/paradigma/article/view/2120.

[2] K. A. Sespiani and M. Apilia, "Teori Reduksi Ketidakpastian dalam Cyber Romantic Relationship," vol. 5, no. 1, pp. 52–71, 2021.

[3] R. Nurislaminingsih, "Layanan Pengetahuan tentang COVID-19 di Lembaga Informasi," *Tik Ilmeu J. Ilmu Perpust. dan Inf.*, vol. 4, no. 1, p. 19, 2020, doi: 10.29240/tik.v4i1.1468.

[4] R. Sathish, R. Manikandan, S. Silvia Priscila, B. V. J. Sara, and R. Mahaveerakannan, "A report on the impact of information technology and social media on Covid-19," *Proc. 3rd Int. Conf. Intell. Sustain. Syst. ICISS 2020*, pp. 224–230, 2020, doi: 10.1109/ICISS49785.2020.9316046.

[5] M. Gottlieb and S. Dyer, "Information and Disinformation: Social Media in the COVID-19 Crisis," *Acad. Emerg. Med.*, vol. 27, no. 7, pp. 640–641, 2020, doi: 10.1111/acem.14036.

[6] W. Ceron, M. F. de-Lima-Santos, and M. G. Quiles, "Fake news agenda in the era of COVID-19: Identifying trends through fact-checking content," *Online Soc. Networks Media*, vol. 21, 2021, doi: 10.1016/j.osnem.2020.100116.

[7] J. Koffman, J. Gross, S. N. Etkind, and L. Selman, "Uncertainty and COVID-19: how are we to respond?" *J. R. Soc. Med.*, vol. 113, no. 6, pp. 211–216, 2020, doi: 10.1177/0141076820930665.

[8] M. Montesi, "Human information behavior during the Covid-19 health crisis. A literature review," *Libr. Inf. Sci. Res.*, vol. 43, no. 4, p. 101122, 2021, doi: 10.1016/j.lisr.2021.101122.

[9] Y. Huang and C. Yang, "A Metacognitive Approach to Reconsidering Risk Perceptions and Uncertainty: Understand Information Seeking During COVID-19," *Sci. Commun.*, vol. 42, no. 5, pp. 616–642, 2020, doi: 10.1177/1075547020959818.

[10] H. K. Kim, J. Ahn, L. Atkinson, and L. A. Kahlor, "Effects of COVID-19 Misinformation on Information Seeking, Avoidance, and Processing: A Multicountry Comparative Study," *Sci. Commun.*, vol. 42, no. 5, pp. 586–615, 2020, doi: 10.1177/1075547020959670.

[11] D. Hardiansyah and I. Jamalludin, "Perancangan Kampanye tentang Bahaya Hoaks di *Instagram* bagi Generasi-Z Di Bandung Menggunakan Video Animasi 2D," *Kreat. (Jurnal Karya Tulis, Rupa, Eksp. dan Inov.*, vol. 01, no. 01, pp. 21–25, 2019.

[12] *Instagram*, "Pusat Bantuan *Instagram*," 2021. https://help.*Instagram*.com/1735798276553028/?helpref=hc_fnav (accessed Oct. 07, 2021).

[13] O. Prastiti, "How People on *Instagram* Tell Us about Variants of COVID-19," *Cent. Digit. Soc.*, 2021, [Online]. Available: https://cfds.fisipol.ugm.ac.id/2021/08/18/how-people-on-*Instagram*-tell-us-about-variants-of-Covid-19/.

[14] E. C. Tandoc and J. C. B. Lee, "When viruses and misinformation spread: How young Singaporeans navigated uncertainty in the early stages of the COVID-19 outbreak," *New Media Soc.*, vol. 2019, no. December 2019, 2020, doi: 10.1177/1461444820968212.

[15] S. Gambo and B. Özad, "The Influence of Uncertainty Reduction Strategy over Social Network Sites Preference," vol. 16, no. 2, pp. 116–127, 2021, doi: 10.4067/S0718-18762021000200108.

[16] Y. Dahono, "Data: Ini Media Sosial Paling Populer di Indonesia 2020-2021," *BERITASATU*, 2021. .

[17] UniRank, "Top Universities in Indonesia," *UniRank*, 2021. https://www.4icu.org/id/ (accessed Oct. 07, 2021).

[18] S. T. Cheng, "Will There Be a Silver Lining in the End? Lessons From and Reflections on the COVID-19 Pandemic in Hong Kong and Beyond," *Psychol. Trauma Theory, Res. Pract. Policy*, vol. 12, pp. 28–30, 2020, doi: 10.1037/tra0000926.

[19] S. W. Littlejohn and K. . Foss, *Encyclopedia of Communication Theory*. Thousand Oaks: SAGE Publications, 2009.

[20] C. R. Berger, "Interpersonal communication," *Interpers. Commun.*, pp. 1–616, 2014, doi: 10.1515/9783110276794.

[21] R. Grace and J. C. K. Tham, "Adapting Uncertainty Reduction Theory for Crisis Communication: Guidelines for Technical Communicators," *J. Bus. Tech. Commun.*, vol. 35, no. 1, pp. 110–117, 2021, doi: 10.1177/1050651920959188.

[22] C. Berger, *Interpersonal Communication*. DE GRUYTER, 2014.

[23] I. Celik, H. Muukkonen, and S. Dogan, "A model for understanding new media literacy: Epistemological beliefs and social media use," *Libr. Inf. Sci. Res.*, vol. 43, no. 4, p. 101125, 2021, doi: 10.1016/j.lisr.2021.101125.

[24] J. Lu, M. Zhang, and Y. Zheng, "Communication of Uncertainty about Preliminary Evidence and the Spread of Its Inferred Misinformation during the COVID-19 Pandemic — A Weibo Case Study," 2021.

[25] K. M. C. Malecki, J. A. Keating, and N. Safdar, "Crisis Communication and Public Perception of COVID-19 Risk in the Era of Social Media," *Clin. Infect. Dis.*, vol. 72, no. 4, pp. 697–702, 2021, doi: 10.1093/cid/ciaa758.

[26] D. Purworini, D. Purnamasari, and D. P. Hartuti, "Crisis communication in a natural disaster: A chaos theory approach," *J. Komun. Malaysian J. Commun.*, vol. 35, no. 2, pp. 35–48, 2019, doi: 10.17576/JKMJC-2019-3502-03.