The Ecological Impact of the Covid-19 Pandemic Infodemic Discourse in Social Media: Ecolinguistic Perspectives

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Abstract. Texts on social media often highlight the Covid-19 pandemic. The text influences the mindset and mode of the readers. The purpose of this study is to describe the potential ecological impacts of infodemics, both constructive and destructive for readers. Data sourced from social media (Facebook, Instagram, and Twitter). The method used in this research is a qualitative approach with descriptive methods. The results showed that the ecological impact of infodemic discourse, namely the constructive impact represented by the content, meaning or message can influence the mindset and attitudes of readers to participate in preserving the environment. Positive texts can change negative environmental ethics into positive ones. The destructive impact in the form of excessive use of text, and without clear sources, has an impact on the effects of distraction, mental health, panic buying, confirmation bias and echo chambers, and tends to refuse to protect oneself and heed health protocols, making it difficult to handle the outbreak. In addition, misinformation on health has an impact on exacerbating outbreaks of infectious diseases. Especially damaging advice as false information is crafted with no respect for accuracy and is often integrated with narratives framed by emotion or conspiracy. The text affects attitudes and mindsets so that it damages the environment.

Key words: Ecological Impact, Infodemic Discourse, Covid-19 Pandemic, Ecolinguistic Perspective

1 Introduction

Since December 2019, headquartered in Wuhan, China, an acute respiratory syndrome has emerged in humans caused by Corona Virus Disease 2019 or COVID-19 (Zhou, et al., 2020). COVID-19 has finally begun to spread and is increasingly spreading to various countries in the world. On January 13, 2020, Thailand became the first country outside China to detect a positive
case of COVID-19. In Indonesia alone, March 2020 was the beginning of the disclosure of two positive cases of COVID-19 (Ihsanuddin, 2020), because of the above, the Republic of Indonesia Presidential Decree Number 11 of 2020 regarding the determination of COVID-19 as a type of disease that causes a Public Health Emergency was issued. The decision considers Law Number 6 of 2018, which requires Indonesia to carry out health quarantine as an effort to prevent and prevent the exit or entry of disease.

The crucial issue facing the government and society is the spread and handling of the COVID-19 pandemic. The current issue of COVID-19 is not only struggling to deal with the virus, another obstacle that is no less important facing the community is fighting or overcoming infodemics. When COVID-19 broke out, an infodemic emerged around COVID-19. Infodemic is excess information about a problem, so that its appearance can interfere with the search for a solution to the problem. In other words, infodemics can simply be interpreted as information overload and cannot be traced to the truth, especially those circulating and developing during a health emergency situation.

Amount of information, whether accurate or not, regarding COVID-19, is spreading rapidly on social media. Thanks to internet technology, false information (misinformation) related to disease is spreading from the local level to the global and vice versa at an incredible rate. In Indonesia, for example, until mid-April the government had identified more than 500 hoaxes related to COVID-19 on social media. Director General of the World Health Organization (WHO) Tedros Adhanom Ghebreyesus called this phenomenon of health hoaxes an infodemic, which must be fought. Misinformation of this contagious disease has become a global problem because it can affect people's actions in the midst of a pandemic (https://theconversation.com/mengapa-infodemi-covid-19-begitu-cepat-menyebar-lewat-media-social-137715)

Infodemic in the form of narrative news about COVID-19 that is incitement and hoax, causing panic in the community. In addition, infodemics can also be fatal, causing casualties. Infodemics have a more harmful character and destructive impact on the public than fake news under ordinary circumstances. In mid-March 2020, hundreds of people in Iran who were terrified of being infected with COVID-19 died after receiving an infodemic that consuming ethanol can cure people of COVID-19. Fear and misinformation resulting from the spread of various forms of infodemics add to the threat to the psychology of a society that is already depressed by socio-economic conditions. This phenomenon often appears in society at the time of this pandemic. Such as incorrect information about an antidote to COVID-19 which makes people feel safe with the drug so that it ignores the recommended health protocol (https://kominfo.go.id/content/detail/25895/ancaman-infodemik-dapat-exacerbating-pandemic-COVID-19/ virus_corona, accessed April 19, 2020).

This is in line with research conducted by Jinling Hua and Rajib Shaw from Keio University (IJERPH, 2020). Concluding that the information and data released on time by the Chinese government have a positive correlation with the success of mitigation and handling of COVID-19, including in suppressing the spread of infodemics. This research also serves as a warning that infodemics are very easy to develop in societies that do not have a strong and credible source base to obtain important information, which is actually expected from public authorities. The implication is that people are looking for other sources that can be obtained more quickly and make sense, even though they are actually wrong. Social media is one of the solution options for people to get information other than mass media.
Language and environment are two things that cannot be separated like two sides of a coin. Language as one of the elements of culture (Kluckhohn, 1951) in its development is influenced by the dynamics of changing cultural environment prevailing in the area where language is used or produced. The relationship between language and environment is studied in ecolinguistics. The concept of ecolinguistics in this study uses the concept put forward by Alexander and Stibbe (2011), which defines ecolinguistics as a study of the impact of language use in survival that bridges the relationship between humans, other organisms, and the physical environment which is normatively oriented towards the preservation of relationships and life sustainable. This interdependence relationship is in line with Noam Chomsky's opinion that language, language speakers, and the environment have an independent relationship (Chomsky, 1979; 2002). A similar opinion was also expressed by Fill (1998, 2001, 2007) & Muhlhausler (1982) that nature and landscapes have a significant correlation to the formation of a discourse in a cultural manner. Next, infodemics on social media in the end have an impact on environmental changes that lead to constructive and destructive.

Based on these data, the problem is increasingly complicated and has the potential to cause ecological impacts, because the spread of massive infodemics is not only happening in Indonesia. This condition exacerbates the spread of infodemics in Indonesia because, via the internet, infodemics are very easy to access, including infodemics that appear automatically as suggestions through certain algorithms on the social media networks of users from outside Indonesia.

Based on the background description above, this research with the title of the ecological impact of infodemics on social media is important so that people are more careful and aware of media, especially social media. So that information circulating on social media does not actually have the risk of worsening the situation and conditions during this pandemic, because misinformation on health can exacerbate outbreaks of infectious diseases. Especially damaging advice. This has the potential to influence human risk-taking behavior and therefore the risk of contracting infection, especially as people on social networks who are observed are more likely to share bad advice.

2 Methods

This study aims to describe the potential impact of infodemic discourse on social media from an ecolinguistic perspective. Ecolinguistics studies environmental discourses and various forms of discourse and ideology concerning people and the environment. This research is a qualitative descriptive study. Data were collected using the observation method, with advanced techniques in the form of note-taking techniques, as well as literature study and documentation (Sudaryanto, 1993: 133; Mahsun, 2005: 133; Kesuma, 2007: 43). Data is collected from several social media, but the data is limited only to the issue of infodemics in the Covid-19 pandemic. The data of this research are text on social media infodemic discourse on Covid-19 taken from Facebook, WhatsApp, and Twitter. Then, the data were analyzed using the split method and the equivalent method with advanced techniques in the form of substitution and paraphrasing techniques. Then, the results of data analysis are presented informally. This study uses an ecolinguistic theoretical
framework as a data analysis tool. However, several relevant theories are also used so that the analysis results are more in-depth and comprehensive. Based on the data analysis, in the discourse text, it is found that the potential impacts both destructive and constructive.

The method used in this research is descriptive method. The descriptive method aims to describe the discourse on the infodemic and to explain the potential ecological impacts of the infodemic. This research technique consists of data collection techniques and data analysis techniques. The data collection technique used in this research is literature study. The data analysis technique used in this research is made in the following steps, namely (1) the discourse text is read repeatedly; (2) text is grouped according to data requirements; (4) the text is analyzed; and (5) conclusions are made.

3 Result and Discussion

The Corona case is a form of environmental health disaster. One of the preventive mitigations is cleanliness and environmental preservation. One aspect that can be optimized is the contribution of the social environment through social media. All parties and all important facilities are ecologically literate to ensure sustainable development and environmental preservation while mitigating the Corona outbreak.

This study looks at the ecological impact of infodemics in the Covid-19 pandemic on social media which can affect attitudes and mindsets from positive and negative sides. The ecological impact of infodemics in the Covid-19 pandemic can be divided into two, namely constructive (positive) impacts in the form of environmental preservation and negative impacts that lead to destructive (negative) traits. Environmental discourse always contains two previous things, namely constructive and destructive for the surrounding ecology.

3.1 Constructive Impact

The constructive impact of using infodemics is the impact of infodemics on environmental discourse aimed at preserving and preserving the environment. Sentences in constructive indicative mode usually have meanings or messages that can influence the mindset and attitudes of the reader to help preserve the environment. Positive texts can change negative environmental ethics into positive ones. In addition, constructive sentences can move the heart of everyone who reads to care and become environmental fighters. The simplest thing is when someone reads a text about 3M wearing a mask, washing hands with soap, and keeping a distance. 3M's prohibition and recommendation will have implications for the enforcement of health protocol rules, because it will receive fines from the government if it does not comply, the community will be able to change its mindset about health. The community will be wiser and have environmental ethics. The texts recommended by 3M have had a constructive impact on the environmental sustainability of the environment. From an unclean and unhealthy lifestyle to being clean and healthy to break the spread of the covid-19 virus chain.

Social Media Distancing
In addition to obeying government recommendations regarding physical distancing, staying away from crowds, and maintaining a healthy lifestyle, it is also necessary to restrict social media by not sharing information about Corona which has the potential to increase public panic. Social media is distorted can be a small effort to break the chain of spreading the Corona infodemic which is no less dangerous and unsettling than the Corona pandemic. In the midst of the Corona pandemic which has ended at some point, the public needs the quality of information more than the quantity. Information about Corona which is educational, enlightening and comes from reliable sources will be very useful for the public. On the other hand, an abundance of information that is not clear and comes from non-credible sources will actually give birth to an infodemic phenomenon that makes the public feel anxious, fearful and excessively panicked.

Mc Combs and Shaw (1972). Agenda Setting theory assumes that if the media puts pressure on an event, then the media will make the public consider the event important. In this case, the media have a very strong effect in influencing the assumptions of society. On the social media Facebook (FB) and WhatsApp (WA), the level of user trust in their position as consumers of information tends to be weak. Some of them believed it, and then acted actively to share it with other groups that they participated.

The assumption that what is considered important by the media will be considered important by the community, based on the agenda setting theory above, does not apply to social media, even though the intensity of information exposure is very fast and continuous. This may be influenced by the awareness of FB and WA users that those who send information are people who do not have competence in the quality of the information they share. Moreover, most of the users know each other more closely, related to background and identity.

This is in line with the research conducted by Cinelli et.el (2020) that understanding the social dynamics behind the consumption of social media content is an important subject, because it can help design more epidemic models that efficiently take social behavior into account and to implement more strategies. efficient communication during a pandemic.

3.2 Destructive Impact

Everyone’s view of the environment is influenced by many things, including reading about the environment. Someone who has good environmental ethics will have a more positive understanding of the environment. Someone who does not have and understand environmental ethics will be the opposite. Moreover, it is supported by materialistic, individual, and hedonism, of course it will cause negative motives to emerge from environmental-related reading that the person reads. This is the destructive impact of environmental discourse. A destructive impact is a negative impact that is destructive. The destructive ecological impact of this infodemic is the impact generated by information on social media which can trigger and encourage people to exploit and destroy the ecology. A text that is read a lot has weaknesses, for example it is not sourced, the information is redundant, and often misleading.

a. The negative impact is a distraction effect

Social media also has a negative side that has the potential to affect the quality of human life. Alex Soojung and Kim Pang (2010) in their book The Distraction Addiction state that one of the negative impacts of social media is that it causes a distraction effect. In simple terms, the effect of distraction can be eaten as a condition in which humans feel disturbed, distracted, and their concentration is hampered by something that has the power to entertain and control the human brain.
The effect of distraction cannot be underestimated because it has the potential to cause psychological turmoil and even neurosis, aka madness. The existence of social media which has become an important part of human life has undoubtedly taken the attention of most of the people in the world.

The Covid-19 pandemic has affected social media use. Social networking services have been used to disseminate information. Apart from being a global threat, COVID-19 is also known as an infodemic. Direct access to content via the platform leaves users vulnerable to rumors and dubious information. Social media has seen a sharp increase in use during the pandemic, in large part due to government-encouraged / recommended social distancing measures. People are asked to stay at home, mostly turning to social media to maintain social relations and access entertainment to kill time. In addition, social distancing has forced lifestyle changes for many people, which can be taxing on mental health. Therefore, many online counseling services using social media are emerging and gaining popularity, connecting mental health workers with those who need them. In the following data example, for example the circulating infodemic, a condition where humans feel disturbed, distracted, has the potential to cause psychological turmoil.

Fact Check Result of Natalia Kristian (Member of Commissariat MAFINDO University of Indonesia). The claim is not true, people who died in South Korea were not injected. A post from Yandri Al-genzi’s Facebook account is a narrative containing the claim that 48 people in South Korea died after receiving the COVID-19 vaccine. This post was posted on October 29, 2020 and has been liked 39 times. Based on the detik.com article, South Korea is conducting a free seasonal flu vaccine vaccination. As per November 1, 2020, it is known that 83 people have died after receiving the seasonal flu vaccine. South Korean health authorities emphasized that the cause of death was not directly related to the flu vaccine, and that the average person who died was elderly. The flu season in South Korea usually occurs in late November and December, while the flu vaccine takes 2 weeks for antibodies to develop in the body, so experts recommend getting a flu shot in mid-November. So far, out of 19 million people, around 60.9% or 11.5 million South Koreans have received the free flu vaccine. Judging from this explanation, the claim of 48 people in South Korea who died after receiving the COVID-19 vaccine is false and is included in Misleading Content. with

This phenomenon is clear that social media is also effective in shaping public opinion and mobilizing the masses to make changes. This phenomenon proves for the umpteenth time how social media has the power to influence people's mindsets, perceptions and even behavior.

b. Panic Buying Impact

Netizens who consume the distribution of information and news about Corona are unconsciously perceiving Corona as a scary thing. So, when the Corona virus spreads outside China and is even considered a global pandemic, the world community, including Indonesia, experienced tremendous panic. Especially when the first patient with the Corona virus was announced by the government, the public immediately responded with irrational and excessive actions. After the president announced that there were two positive patients with Corona, the community immediately rushed to the supermarket, buying up staple food stocks. Not only that, masks, hand sanitizers and even personal protective equipment, which were prioritized for use by medical personnel, suddenly became scarce from the market. Only two patients tested positive. However, the public is already imagining the worst conditions like what happened in Wuhan.

Videos and information spread on social media about the spread of the Corona virus have proven to be effective in triggering mass panic. As a result, the basic human instinct to defend oneself manifests itself in arrogant practices. One of them is in the form of panic buying. This condition is undoubtedly the distracting effect of social media. The contents that are scattered on social media, most of which are not necessarily true, have sometimes become a reference for information for the public. Consequently, the public is more concerned with what is presented on social media rather than thinking rationally and obeying government recommendations.

The continuing panic has led to the purchase of face masks and hand sanitizers. Crowds of people descended on supermarkets and big shops to prepare for the needs of the impact of Covid-19. This phenomenon in the research of Yap, A.J and Chen, an assistant professor at Nanyang, released at INSEAD, is categorized as a natural behavioral response to the loss of psychological behavior control (Chen 2019).

Social media also contributes to the spread of misinformation. In Wuhan, the Chinese panic has led to the spread of misinformation as well as the disease itself. Misinformation has spread in the form of reports that fireworks will kill airborne viruses, and vinegar and root indicowoad cures infections. This misinformation was spread via the messaging app WeChat. Citizens have also purchased excess materials and supplies, which have depleted the amount of supplies available to professionals. Old and unsubstantiated information has also been spread as fact, as evidenced by the increasing reported benefits of Hydroxychloroquine, even though WHO has ended trials around the product because it could increase the risk of patients dying from COVID-19.

c. Mental Health Impacts

There is extensive psychological research that shows that connectivity with other people develops a sense of belonging and psychosocial well-being, which improves mental health and reduces Allen's risk of anxiety and depression. Et.al. (2014). Information overload and continued use of social media have been shown to be positively correlated with increased depression and anxiety.
Incitement narratives of various narratives related to Covid-19 are abundant on social media. Including the type of narrative that instigates, while the information is fake, aka hoax. The false information that instigates between groups, agencies, individuals, countries or whatever actually causes panic in the community. The level of panic that emerged in the community also varied. It can be stress, depression, accusations and so on. This article was published on Kompas.com with the title “Expert Warns, Corona Hoax Information Can Result in Lives” (https://www.kompas.com/sains/read/2020/04/19/110100923/ahli-per-warn-informasi-hoaks-corona-could-result-in-death-victims?page=all).

d. Confirmation bias and echo chamber

The ease of accessing information through this technology makes many people inclined to read and disseminate the information they receive without checking the accuracy of the information and news being disseminated. Excessive information can overwhelm people processing that information. What usually happens is confirmation bias, a phenomenon where readers tend to sort information according to their beliefs. If someone believes that a certain strategy can ward off COVID-19 or certain herbal ingredients can cure this disease, then that person will have more confidence in the information that confirms that belief.

An example is the news of a COVID patient who recovered from drinking vitamin C and eggs and sunbathing for 15 minutes. Another example, said Bambang Priyambodo, UGM pharmacy practitioner, who guided the healing of his daughter’s COVID from afar. It is well known that these two stories are fake news. This confirmation bias can thrive on social media as false information, hoaxes, and misinformation circulate on this platform.

In Indonesia, there are many WA application users who are a vehicle for the dissemination of various messages and information through many WA groups. For good things like fundraising social media plays an important and good role. However, these groups can also be echo chambers. In this echo chamber, an opinion that is less credible or facts that are less accurate can be considered true because it is supported by repeated false information, making it difficult to obtain or accept other perspectives.

The above problems can be exacerbated by a lack of knowledge of the science of infectious diseases so that accurate information is ruled out. One example is the concept of “herd immunity”
or herd immunity, which was once echoed as a strategy to overcome the COVID-19 outbreak. Another example is shown in the data below.

Garlic is one type of healthy food that may have some antimicrobial properties. However, so far there is no evidence that eating garlic can protect people from being infected with the COVID-19 corona virus. So, consuming three or eight grains of garlic at a dose on issues that circulate, it has nothing to do with curing diseases caused by the corona virus. This article was published on Kompas.com with the title "Eating Garlic until the Lab Leaks, These Are 5 Hoaxes of Coron Virus" (https://sains.kompas.com/read/2020/01/31/193300223/makan-bawang-putih-to-leak-lab-this-5-hoax-virus-corona? page = all # page4.)

Cellular communication networks, cell phones, the internet, and various applications are vehicles as well as bridges that facilitate the dissemination of information, both accurate and hoax, from one person to another and to groups of people. At the same time there is a side effect of modern communication technology that allows anyone to produce and distribute content. In certain contexts, ordinary people also sometimes feel they are experts. Can easily create and package information and distribute it via social media. Unlike the mainstream mass media, which have a code of ethics, journalists and editors who verify information, social media does not have a “goalkeeper” that regulates the production and dissemination of information. Especially because groups on Facebook and WhatsApp are still difficult to control.

**Overcoming the COVID-19 infodemic**  
Credible information from experts and health authorities is needed and must be disseminated more widely than the scale of hoax spreading. The mainstream mass media must disseminate it and quickly fact-check the false information. Structurally, the government and health authorities must be more serious in dealing with this information. In Indonesia, the Ministry of Information and Communication apart from collecting and displaying a list of hoaxes on the ministry’s website, also releases them regularly in a pdf document distributed via WhatsApp. On the website of the Task Force for the Acceleration of Handling COVID-19, there is a Hoax Buster page that can be referred to for accurate information.

Individually, as members of society, we should have an ethical obligation to act wisely during this pandemic. One way to deal with infodemics is to train yourself to always be critical of the information you receive. Learn to reduce confirmation bias. Review news sources including authors and creators. Prioritize getting information from credible organizations and mass media. Look for balanced information by getting it from several sources. More important is how to fight the infodemic and get the right message across. In early April, WHO suggested four strategies to
deal with the coronavirus infodemic: identifying fake news, refuting these messages that are packaged in an easy and attractive way, spreading these accurate messages through social media and collaborating with many partners, and evaluating their impact regularly.


Because infodemics are so dangerous, WHO has launched a risk communication website with accurate information and advice that is easy for the public to understand (EPI-WIN). Through its official website and several social media accounts on Weibo, Twitter, Facebook, Instagram, LinkedIn, Pinterest, this organization has also denied some misinformation circulating on the internet. For example, on social media WHO has corrected misleading messages about the use of ultraviolet light, sunlight and consumption of disinfectants to protect against the dangers of COVID-19.

So, apart from facing the Corona pandemic, we (Indonesian people) are also facing the Corona infodemic which is no less dangerous. The Corona pandemic endangers human lives, while the Corona infodemic has the potential to damage human psychological conditions and damage social stability due to mass panic. To prevent the Corona infodemic from getting worse, we certainly need to take mitigation steps. The World Health Organization (WHO) as a world health institution has actually taken steps to prevent infodemics by launching an official information portal called EPI-WIN (WHO Network for Information in Epidemics).

On the official WHO portal, all kinds of information about the Corona pandemic can be justified. So, reading and spreading news about Corona only from trusted sources, especially from WHO is one step to prevent the increasingly acute phenomenon of the Corona infodemic. In addition, we also need to limit social media (social media distancing) to limit the distribution of information about Corona, which has flooded virtual spaces lately.

4 Conclusion

Social media is the choice of society to look for sources other than mass media, which can be obtained more quickly and makes sense even though it is actually wrong. Social media is also
effective in shaping public opinion and mobilizing the masses for change. Social media has the power to influence people's mindsets, perceptions and even behavior.

Misinformation of health can exacerbate outbreaks of infectious diseases. Particularly damaging advice could be classified as "Fake news", potentially influencing risk-taking behavior and even the risk of contracting infection, especially since people on social networks who were observed were more likely to share bad advice. The public should fight misinformation, reduce harmful advice from circulating information, reduce the influence of bad advice in the outcome of disease outbreaks, be "immune" to misinformation or control the spread of harmful advice. This has the potential to have an ecological impact. The ecological impact is the effects of distraction, mental health, panic buying, confirmation bias and echo space, as well as a tendency to refuse to protect oneself and heed health protocols, making it difficult to handle the outbreak.

References