Incidental news exposure and opinion leader's role in spreading climate change information and environment-friendly behavior on social media

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Abstract

Social media is the primary medium for disseminating information, including global topics such as climate change. The topic of climate change is related to the community's application of environmentally friendly habits. Social media and social media users have their characteristics in disseminating information about climate change compared to other media. Social media allows a user to be accidentally exposed to the information referred to as incidental news exposure. In addition, in disseminating information, opinion leaders have a role in disseminating information to social media users. This study aims to determine the role of opinion leaders and incidental news exposure in disseminating information about climate change. This research is a case study involving fourteen participants divided into two Focused-Group Discussion (FGD) groups. After carrying out the FGD, the results of the participants' discussions were analyzed using the diffusion of innovation theory, in which there are elements of the spread of an innovation consisting of the innovation, communication channel, time, and social system. The study results show that incidental news exposure and opinion leaders play a role in disseminating information about climate change and environmentally friendly habits. Incidental news exposure and opinion leaders can be part of disseminating information with the diffusion of innovation theory approach.

Keywords: *incidental news, opinion leaders, diffusion of innovation, social media, climate change*

INTRODUCTION

Climate change is one of top ten global problems, according to the United Nations. This environmental problem can cause other problems, such as rising global temperatures, rising sea levels, natural disasters, and human health problems (Filipenco, 2022). In Indonesia, climate change effects are already being felt, such as an increase in average temperature compared to previous years (BMKG, 2023). With the importance of the impact of climate change on human life, many responses are developing in society. Based on a survey conducted by Litbang Kompas in 2022, most respondents, or as many as 61% of the total respondents, said they believed in and were worried about climate change issues (Budianto, 2023).

However, in responding to climate change, people also have various responses. Another survey conducted by the YouGov Cambridge Globalism Project in 2020 found that most respondents from Indonesia did not believe in climate change compared to other countries. As many as 21% of Indonesian respondents admit that they do not believe in climate change, and if climate change does occur, then it is not caused by humans (Kamaliah, 2022). From the two surveys, it can be understood from the difference, climate change informations is essential to reach a wider audience on social media.

In terms of information dissemination, social media is the primary medium for information dissemination. Searching for information is the activity that most Indonesian people do when accessing the Internet. Social

media is the most accessed media compared to other types of media on the Internet (Kemp, 2023). Thus, disseminating information about climate change can also be disseminated through social media to reach a more significant number of audiences.

There are several ways that social media users can get information. Previously, the uses and gratifications theory explained that four factors influence someone to get information from the media, such as motivational, situational, individual, and structural. Several studies have studied human habits in seeking information with this theory in the mainstream media (Bergström & Jervelycke Belfrage, 2018). However, there are similarities and differences in getting information on social media. The motivational and situational aspects of searching for information on social media differ from conventional media. Social media users can unintentionally be exposed to information while accessing social media for other purposes, such as privately communicating with friends or family. This unintentional exposure to information is called incidental news exposure.

Incidental news exposure is not something new. In conventional media, information can be obtained incidentally. For example, when someone is watching television, they change the channel randomly to find another exciting program. When changing the channel, one can be exposed to information from a news program, advertisement, or other types of program (Ahmed & Gil-Lopez, 2022; Park & Kaye, 2020). On social media, incidental news exposure results from a "checking cycle," a habit of social media users to keep updated with what is happening around them. For example, someone will always want to know the latest news from their family and friends (Bergström & Jervelycke Belfrage, 2018). The habit is something that is done ritualistically. A social media user also often accesses social media platforms without a specific reason or motivation. For example, while waiting in a queue or just filling in spare time (Park & Kaye, 2020).

In new media, the features of social media are able to support the dissemination of information incidentally. Considering user interface design and social media algorithms, social media users can accidentally be exposed to information. Social media features, such as likes, shares, comments, and recommended content make social media users get information unintentionally. For example, the News Feed algorithm on Facebook prioritizes content interacting with accounts that a social media user follows (Park & Kaye, 2020). Based on these facts, incidental news exposure is essential in the dissemination of information on social media.

In the context of information about climate change, social media also plays an important role. For climate change information to be more widespread, many institutions or institutions use social media with specific strategies. Research by León et al. (2022) found that social media has a major role in disseminating climate change information to public awareness. Social media allows information about climate change to be displayed in various ways according to the social media platform used. By maximizing visual, audio, and textual, or combining them, social media is considered adequate for disseminating information about climate change (León et al., 2022).

In addition, the use of social media to spread information about climate change is also supported by the fact that social media also allows social media users to speak out privately. Social media can connect many users worldwide, including opinion leaders. Opinion leaders can provide awareness for media users and influence social users that environmental change is essential, and humans need to implement habits or activities that can hold back the pace of environmental change (Bimo & Safrina, 2021). Opinion leaders are people who have expertise in their fields and are able to influence other people, such as academics, researchers, or someone who is considered an expert in their field. Opinion leaders can be individuals, groups, or organizations (Su, 2019).

In addition to understanding climate change, opinion leaders can also provide examples of habits that can be implemented to halt the pace of climate change. Several studies have shown that using social media can provide an understanding to the public to carry out environmentally friendly habits. Research by Rapada et al. (2023) explained that social media users connected to the pro-environmental community and interacting with opinion leaders in the forum admit that they have also changed their behavior to make it more environmentally friendly (Rapada et al., 2023).

This research uses the theory of innovation diffusion, a development of the two-step flow communication theory. In the two-step flow communication theory, information diffusion occurs in two stages. Information

is published through the media, then disseminated by opinion leaders to broader society. In the diffusion of innovation theory, information is spread involving four factors. The first factor is the innovation itself. Then communication channels usage also contributes how an information could be disseminated. The third factor istime, and the fourth is social system (Littlejohn et al., 2017; Rogers, 1983).

In the context of the diffusion of innovation theory, the role of opinion leaders is essential in terms of social system factors. Opinion leaders, who can be individuals, groups, or organizations, have a social position that is reckoned with and relied on in society because they are considered to have specific abilities and expertise. Similar to the two-step flow communication theory, opinion leaders are also included in the concept of the diffusion of innovation theory (Littlejohn et al., 2017).

Opinion leaders can create or share information about climate change on social media. As previously explained, social media features and technology allow content to be spread to their followers and people who are in contact with them. This study aims to determine the role of incidental news exposure and opinion leaders in disseminating information about climate change on social media.

LITERATURE REVIEW

Diffusion of Innovation Theory

The diffusion of innovation theory has been widely used in various studies to discover how new ideas and information can be disseminated through the media. Everett M. Rogers developed this theory in 1983. This theory departs from criticism and gap of the theory of two-step flow communication that information diffusion occurs in two stages. Previously, the theory was developed by Paul Lazarsfeld in 1944. Diffusion is communicating an innovation with specific channels and times within a social system. It is a particular type of communication because the messages are related to new ideas (Rogers, 1983). Based on that, innovation in this theory includes information, ideas, ideas, or technology considered new.

The term "new" is said because the intended innovation can also be accompanied by uncertainty. Uncertainty is the extent to which several alternatives or other opinions respond to innovation. The "new" aspect of innovation can be expressed in the form of knowledge, persuasion, or the decision to adopt. Therefore, information is one way to reduce that uncertainty (Rogers, 1983). In the context of this study, uncertainty is evident from the different views of the public on climate change, which have been explained in the introduction. There are four elements of the spread of innovation in the diffusion of innovation theory.

a. *The Innovation*

The term "innovation" can be an idea or something perceived as new by an individual or groups of people. Novelty in innovation involves more than just new knowledge. A person may have known about innovation, but have not yet intention to adopt or making decission to support or disapprove of it. An innovation's "new" aspect can be expressed in the form of knowledge, attitude, or decision to adopt (Rogers, 1983).

There are five characteristics of innovation based on the level of its application: (a) Relative advantage, namely the extent to which an innovation is considered better than the idea it replaces; (b) Compatibility is the extent to which existing values, norms, or laws consider an innovation; (c) Complexity, namely, easy or difficult for an innovation to be implemented; (d) Trialability is the extent to which an innovation can be tried in stages; and (e) Observability, an idea will be more acceptable if the results can be seen relatively easier and quickly. (Rogers, 1983).

b. *Communication Channel*

The third element of the Rogers model is the communication channel. The types of channels available and used can affect the diffusion of innovations. Channels include interpersonal communication, mass media, and social media. For example, early adopters become agents of change by talking to others on their social networks (Littlejohn et al., 2017).

Mass media channels are often the most rapid and efficient means of informing potential adopters about innovation, i.e., creating knowledge awareness. On the other hand, interpersonal channels are more effective in persuading individuals to adopt new ideas, especially if the interpersonal channels connect two or more close individuals (Rogers, 1983).

c. Time

The time dimension is involved in the diffusion. First, in the innovation-decision process by which individual moves from first knowledge of innovation through its adoption or rejection. Second, in the innovativeness of an individual or other adoption unit—that is, the relative speed/delay of an innovation being adopted—compared to with other members of the system. And third, in the rate of adoption of innovations within a system, usually measured as the number of members of the system that adopt innovations in a given period.

d. Social System

The social system consists of several elements. Elements are considered to have influence in a social system, for example someone who is considered to have influence and ability. In this case, opinion leaders have an important role in disseminating information and influencing others. (Littlejohn et al., 2017).

Opinion leadership is the extent to which an individual can influence other individuals' attitudes. That leadership has an informal type, not a function of an individual's formal position or status in the system. Leadership opinion is earned and maintained by individual technical competence, social accessibility, and conformity with system norms. The opinion leader's interpersonal network allows him or her to function as a social model whose innovative behavior is emulated by many other system members (Rogers, 1983).

Social Media and Incidental News Exposure

Social media is a web-based service that allows it's user as indivual, groups or communities, and organizations to build a community and interact to each other, by making it possible to engage with contents on social media (McCay-Peet & Quan-Haase, 2017). Social media has different tools to facilitate activities like personal storytelling, for example, "walls" on Facebook, "timelines" on Twitter, "stories" on Instagram, and "pins" on Pinterest. Activities on social media include interaction between users and sharing information and content on various topics in everyday life (Lipschultz, 2018).

In the distribution and consumption of information, the information dissemination mechanism on social media differs from other media. Social media has certain technologies to maximize user experience, such as maximizing interface designs for comfortable use and using algorithmic technology to recommend content to social media users. This allows a social media user to experience incidental news exposure (Park & Kaye, 2020).

Tewksbury (2001) explains the definition of incidental news exposure, which is most commonly understood as finding news without a specific purpose for searching for it. This definition was based on incidental exposure to information in various media (Schäfer, 2023). In particular, incidental news exposure in the context of social media describes how users find news without a specific intention to search. Newsgathering can be considered a by-product of other activities, something that occurs with the habit of using certain media (Bergström & Jervelycke Belfrage, 2018).

Based on this explanation, incidental news exposure can occur with two factors. Information is obtained unintentionally when using social media or while doing other activities. Technology supports incidental news exposure, for example, recommendations based on algorithms and layout designs that allow users to be accidentally exposed to information.

METHOD

This research is a case study to determine the role of opinion leaders and incidental news exposure in disseminating information about climate change and environmentally friendly habits on social media. Data were collected by conducting Focused-Group Discussion (FGD). FGD is a method of collecting data that is suitable in

discussing a particular and specific problem. In the FGD, there were discussions between participants, where the discussions' results could also influence each participant's opinions (Irwanto, 1998).

Fourteen FGD participants were divided into two groups. Fourteen FGD participants are active social media users with an age range of 24 to 39 years. This age range was chosen because, based on a survey conducted by Kompas Research and Development in 2022, respondents with that age range have the percentage of respondents most concerned about climate change (Budianto, 2023). Participants also actively donate plastic waste to plastic waste processing service companies (e.g., Waste4Change, Rekosistem, Rebricks, and other companies), assuming these participants have adopted environmentally friendly habits.

Each group discussed the activity of using social media to seek information, how they got information about climate change and environmentally friendly habits on social media, how opinion leaders or influential people with climate change information influenced their opinions about climate change and green habits, and their attitudes and decisions towards the information they get on social media.

RESULTS AND DISCUSSION

After carrying out the FGD with the participants, the discussion results from the participants were analyzed using the diffusion of innovation theory. As explained in the Introduction, climate change still receives different views in Indonesian society. So, the results of the discussion of this study were analyzed with elements of the spread of innovation in the diffusion of innovation theory.

a. The Innovation

Innovation is an idea, practice, or object considered new by someone (Rogers, 1983). In the context of this research, innovation is an idea of climate change and environmentally friendly habits. Based on the explanation in the literature review, there are five characteristics of innovation based on the level of its application.

Relative advantage

Ideas or information about climate change are considered important by the FGD participants. Being aware of climate change is something good for the participants.

> I believe climate change information is important because the evidence is everywhere. For example, the sea level is rising. For example, in Demak, there is already a village submerged in seawater (Participant 6, Group 1).
> Knowing climate change is better than nothing. At least now we can do prevention, whether in what form. If we scroll through social media, there will be people who will tell us examples (Participant 12, Group 2).

In addition to the general idea of climate change, the participants also thought that knowing information about climate change would encourage them to adopt more environmentally friendly habits. For them, this habit is considered better than before learning about climate change.

> I started an eco-friendly habit from information on social media. Until now, I have continued to do what I learned from social media (Participant 10, Group 2).
> Now I can save electricity more often after learning from social media that electrical energy usage is also impacting the environment (Participant 2, Group 1).

Compatibility

The participants generally considered that information about climate change and adopting environmentally friendly habits did not contradict values, norms, or laws. For some participants, understanding climate change supports religious values.

> In Islam, humans are assigned to take care of the earth. So knowing about climate change, then taking action means that we are following religious practice (Participant 11, Group 2).

Complexity

Climate change is information that is easy for participants to understand. Meanwhile, implementing environmentally friendly habits for the participants in general was considered easy despite specific challenges.

> I think we can implement environmentally friendly habits, unfortunately, other people do not want to. For example, they still rely on plastic to buy food, which might be reduced (Participant 4, Group 1).

> Maybe there should be a system that regulates. For example, the government's plastic ban policy. I think that's very encouraging for environmentally friendly habits (Participant 11, Group 2).

Trialability

According to the participants, they prefer information about environmental changes on social media that is presented concisely and clearly. Information about environmental changes is obtained little by little but frequently. As with implementing environmentally friendly habits, participants prefer to do it gradually.

> I started bringing Tumblr with me, then I started using other eco-friendly things, like menstrual cups. Because on social media it also became a trend (Participant 7, Group 1)
> If you want to make significant changes right away, it seems impossible. But gradually first (Participant 1, Group 1).

Observability

For the participants, implementing environmentally friendly habits can only directly show results on the problem of climate change if only a few more people adopt the new habits. There needs to be a rule that makes many people apply that habit. For many people who want to do this habit, more information about environmental issues, climate change, and related issues must be disseminated more through social media.

> I think it's because more people haven't adopted the habit (environmentally friendly habits), so the information should be even more intense. If many people do it at the same time, the results will be more visible (Participant 9, Group 2).
> Maybe it's because many don't know why the climate is changing, so what small things can we do? So it is difficult to see the current results (Participant 7, Group 1).

b. Communication Channel

In obtaining information about climate change, participants often use social media to obtain information compared to other media. When using social media, participants often get information about climate change and environmentally friendly habits on social media. The participants also often get accidental information when interacting with other social media users on social media. The participants also agreed with one of the statements, which said that information on social media comes by itself to social media users.

> Sometimes I get information about that (climate change) from what people I follow share. At first, there was no intention to seek information, but we often got (information about climate change) (Participant 5, Group 1).
> I usually get information from the main timeline on Instagram. Apart from the people we follow, the main timeline will also show topics that interest us. So, the information seemed to come by itself (Participant 13, Group 2).

Then, information obtained through social media accidentally on climate change and environmentally friendly habits is necessary for the participants. They end up reading or watching content that contains information until it has finished. The information obtained is often something that is considered to have novelty value. Thus, it can be understood that incidental news exposure plays a role in providing information to participants and updating what has been previously understood.

Incidental news exposure also occurs to participants with the support of algorithms and features on social media that allow for such exposure. For example, participants said that the retweet and quote retweet features on Twitter's social media made them accidentally get information about climate change when accessing Twitter for

other purposes.

Based on that, it can be understood that two significant factors support the incidental news exposure experienced by participants. First, the participants received information accidentally from other social media users. Second, the participants felt that social media features supported them in unintentionally getting information about climate change.

One of the facts found in the FGD activities was that the primary device used by the participants was a smartphone. The practical use of a smartphone can support incidental news exposure because it can be used anywhere. Smartphones support users to carry out a "checking cycle" and check social media regularly because they are easy to carry and use.

c. Time

Through social media, information is obtained in a relatively short time. However, information about climate change and environmentally friendly habits they get may take time to adopt in everyday life. For the participants, it took them only a short time to understand the issue of climate change from social media. That is because social media can display audio, visual, textual features, or a combination of these three aspects.

> Pieces of information on social media are often interesting, especially on Instagram... A lot of content is designed attractively. There are examples too... So, I do not need more effort to understand environmental change and why it is happening (Participant 1, Group 1).
> I like watching short videos on Instagram about zero waste. In my opinion, it is more satisfying, and I am often motivated to adopt that behavior (Participant 10, Group 2).

Moreover, the participants said that social media has made it easier for them to learn about climate change and implement environmentally friendly habits. For the participants, compared to other media, information obtained through social media was easier to apply.

d. Social System

In the context of the social system, participants are also affected by the social system when they receive information. The participants were more interested in accessing information about climate change and environmentally friendly habits from people or organizations with expertise. FGD participants considered opinion leaders in the form of organizations more valid because the information provided was usually more detailed and updated with the latest environmental issues.

> I followed Greenpeace on Instagram and Facebook. I think their account has much information about climate change... and the information is legit (Participant 14, Group 2).
> I have more confidence in blue-ticked social media accounts, for example. The blue-ticked accounts are usually organizations or NGOs (Participant 1, Group 1).
> I prefer to follow environmental figures or groups with a reputation in the environmental field. Usually, they give examples of what habits should be done to maintain the environment (Participant 8, Group 2).

FGD participants also stated that apart from opinion leaders, they also follow influencers on social media who are interested in adopting environmentally friendly habits. The influencers referred to by the participants have many followers and can attract the attention of many social media users. Influencers are considered capable of providing interesting information about implementing environmentally friendly habits. For FGD participants, content uploaded by opinion leaders or influencers was more often recommended to them.

After discussing the results of the FGD with the diffusion of innovation theory, several findings related to the role of opinion leaders and incidental news exposure can be discussed. First, the dominant incidental news exposure occurs based on communication channel elements in the diffusion of innovation theory. Participants accidentally found information through social media while not trying to find it. FGD participants also said that information seemed to come by itself to social media users.

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In their research, Bergström and Jervelycke Belfrage (2018) explained that the notion of "news finds me" on social media occurs due to algorithmic features and the ease of sharing information on social media. Someone feels that they no longer need to seek information so that also results in the consumption habits of other media to seek information. Because information needs have been met on social media, social media users no longer access other media to seek information (Bergström & Jervelycke Belfrage, 2018). That statement was also expressed by the FGD participants, who said that social media was their primary medium for obtaining information on social media compared to other media.

The second discovery is that incidental news consumption allows information to be conveyed partially to social media users. That activity is because the attention of social media users to content usually needs to be more cohesive and expansive (Boczkowski et al., 2018)particularly among young people. Previous studies have characterized what the main dimensions and effects of this phenomenon are. In this article, we complement that literature by looking at how this phenomenon unfolds. Inspired by practice theory, we aim to answer two questions: (1. The features brought by social media also affect this. Short videos, such as reels on Instagram and shorts on YouTube, allow a social media user to get limited information.

Furthermore, the third finding is that opinion leaders have a role in disseminating information on climate change and an environmentally friendly lifestyle. In the context of the diffusion of innovation theory, the role of opinion leaders lies in the elements of the social system. According to the participants, the dominant opinion leaders followed by the participants were NGOs. NGOs have specific expertise for the participants and can explain climate change issues in more detail. Research conducted by Greenspan et al., (2022) explains that NGOs have characteristics such as being able to represent certain groups, being able to discuss important issues with particular expertise, and having the capacity to contribute to change at various scales (Greenspan et al., 2022; Vu et al., 2019)the forms of nongovernmental organization (NGO.

Opinion leaders play important role to influence how other people's behavior and perception. Sometimes they formed as formal leaders, and sometimes they are informal leaders. Organizations have an important role in adopting innovation because having a culture of creativity and openness to innovation has a positive influence in encouraging its members to adopt innovation (Littlejohn et al., 2017).

Another finding in the discussion results is that participant users follow more than just opinion leaders who are considered to have expertise in the field of environment or climate change. The participants also follow influencers, namely public figures or artists who they think have the same interests as them, namely adopting an environmentally friendly lifestyle.

Research conducted by Wasike (2023) found that influencers influence their followers. Influencers encourage followers to engage with their content actively. This exposure and the resulting engagement enhance knowledge acquisition. This activity indirectly positively affects online and offline social interactions with others (Wasike, 2023).

CONCLUSIONS

The diffusion of innovation theory can explain the dissemination of information about climate change and environmentally friendly behavior on social media. Based on the elements of innovation, climate change and environmentally friendly habits have five characteristics of innovation: relative advantage, compatibility, complexity, trialability, and observability. Then on the communication channel element, information about climate change and environmentally friendly habits is spread on social media with the role of incidental news exposure to social media users. Furthermore, on the time element, information becomes easier to reach users with social media. Finally, on the social system element, opinion leaders play a role in disseminating information and perceptions of social media users about climate change and environmentally friendly habits. Both opinion leaders and incidental news exposure play a role in disseminating climate change information separately or in combination.

This research also found several things. Incidental news exposure makes users prioritize social media over other media to seek information. In addition, incidental news exposure is more likely to provide information to social media users partially. Regarding opinion leaders, NGOs are opinion leaders more likely to be followed by FGD participants. In implementing eco-friendly habits and lifestyles, the participants also follow influencers, famous people on social media who are interested in that topic.

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