



# Analysis of Digital Literacy and the Use of Social Media on Flood Disaster Information Response in Jakarta Senior High School Students

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**Abstract.** This study aims to analyse digital literacy and the use of social media in flood disaster information response among high school students in Jakarta. The method used was a quantitative approach with descriptive analysis techniques, and data was collected through a questionnaire distributed to 79 high school students in SMA YMIK 2 Jakarta and SMAN 37 Jakarta. The results of the study show that social media, especially TikTok, is the main source of information for students in obtaining information about flood disasters. In addition, the majority of students also use platforms such as Twitter and WhatsApp to get information related to disasters. The study also revealed that most students do not verify the information they receive before sharing it. Few students verify the information through official websites or confirmation with authorities.

**Keywords:** Digital Literacy, Social Media, Flood Disaster Preparedness, High School Students, Jakarta.

## 1 Introduction

Indonesia is a disaster-prone country with various types of disasters that can occur in almost all of its regions. Earthquakes, fires, floods, landslides, tsunamis are some of the types of disasters that can occur in Indonesia [1]–[4]. Floods are one of the disasters that often occur in Indonesia, especially in the Jakarta Special Region area [1], [5], [6]. The special area of Jakarta is a low-lying land area with the shape of an alluvial fan with an altitude of – 2 to 50 meters with an average height of 8 meters above sea level [7]. In addition, this area is also passed by 13 rivers that empty into the north sea of Jakarta, with one of them being Ci Liwung [1], [7].

Ci Liwung is one of the rivers that has a downstream in the Special Region of Jakarta and often overflows, especially during major floods that hit Jakarta such as in 2007, 2013, 2014, 2017, and 2020, as well as the latest flood events in 2021, 2022, 2023 and 2024 [1], [7], [8]. Ci Liwung passes through several areas in Jakarta such as Lenteng Agung, Tanjung Barat, Cawang, Tebet, Kampung Melayu, and is divided in Manggarai

and often experiences floods [9]–[11]. Floods that occurred in the Jakarta Special Region area and especially around Ci Liwung caused many losses such as damage to buildings, economic losses, damage to public facilities, the onset of diseases and even fatalities [5], [8]. Floods themselves are known as the most destructive disasters because the intensity of their occurrence can be more frequent than other disasters and their impact can be felt widely [12]–[14].

As a step in overcoming the flood disaster, many steps have been taken by both the government and the community, such as dredging the riverbed, normalizing the area around the river, prohibiting garbage disposal, and building sodetan [5], [15]. In addition to using these steps, increasing community preparedness in dealing with flood disasters is also carried out through socialization activities and disaster mitigation training. Socialization and disaster mitigation training is one of the communication steps aimed at increasing public knowledge in dealing with flood disasters [6], [16]. However, disaster mitigation socialization and training activities cannot always be carried out at all times, an innovative step is needed to be able to continue to improve public knowledge in dealing with flood disasters that occur.

Ease of access to communication and information in terms of disaster mitigation is an important step that must be taken by every individual [17]. Good disaster management can be formed if access to communication and information can be established properly. Communication can be one of the supporting media for the creation of disaster risk reduction [6]. Social media is an effective form of communication that can be used to spread information quickly and widely [18]. Social media is an online application, platform and media aimed at facilitating interaction, communication, collaboration, and sharing content or information in the wider community connected to the internet network [6], [16]. Social media users in Indonesia currently reach 170 million users who have penetrated to various levels of society [19], [20]. The use of social media as a means of disseminating information, including in disaster mitigation, will certainly have a positive impact on society [6], [18]. However, every information reception must of course be checked for certainty and correctness first [21]. Good and correct information can make disaster management efforts more effective, precise and efficient [17].

The use of social media as a means of disseminating information must certainly be accompanied by an increase in literacy attitudes in the community. Ease of access to information that is not accompanied by an increase in literacy attitudes can have a bad impact, because people will become more vulnerable to believing in fake news and hoaxes [22], [23]. Increasing literacy attitudes, especially in terms of disasters, will certainly have a positive impact on increasing knowledge and minimizing trust in fake news [24]. Students as one of the members of the community who are vulnerable to disasters and hoax news must have disaster mitigation knowledge accompanied by literacy skills [21]–[23]. Disaster mitigation knowledge makes students better prepared to deal with flood disasters that occur while insights prevent students from easily believing fake news [4], [5]. Schools, as one of the educational institutions, certainly have a role to create a generation that has broad insights, is resilient to disasters and is intelligent. Instilling digital literacy among students can be one of the strategic steps that schools can take to achieve this goal. Digital literacy not only helps students in understanding and utilizing information technology wisely, but also improves their ability to

evaluate the validity of the information they receive [21], [23], [25], [26]. Based on the background that has been discussed, this study will analyse how the use of social media in receiving flood disaster information for school students at SMA YMIK 2 Jakarta and SMAN 37 Jakarta.

## **2 Method.**

This study uses a quantitative approach with a descriptive analysis technique where the results in the form of numbers that have been calculated will be explained descriptively, so that it can make an explanatory picture of the numbers in question [27]. Data collection was carried out using a 20-item questionnaire containing statements about media usage and respondents' responses to flood disaster information. The sample in this study consisted of 79 students from SMA YMIK 2 Jakarta and SMAN 37 Jakarta.

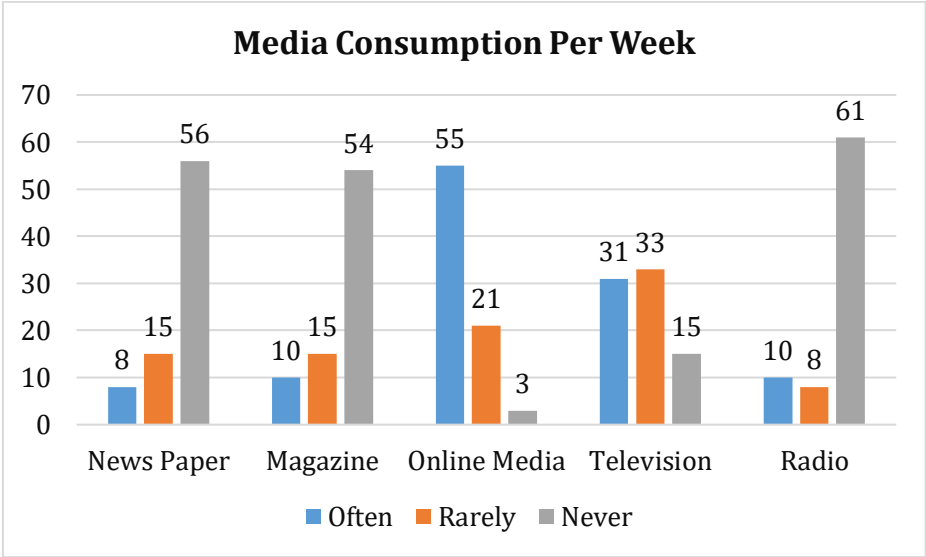
## **3 Results and Discussion**

Currently, information has an important role in various aspects of life such as decision-making, increasing knowledge, or solving a problem. Information formed from a data set obtained from various sources is processed so that it can be used for a specific purpose [6]. Information can come from various sources such as books, articles, the internet, social media, family or an individual's personal experience [28]–[30]. Information has an important role in various aspects of life such as in decision-making, increasing knowledge, or solving a problem. In the context of disasters, information has a role in helping an individual or community so that they can prepare and respond quickly and appropriately when a disaster will or has occurred [17]. The ease of obtaining disaster information will have a positive impact on the better reduction of disaster risk in the community.

The use of various media in the process of obtaining information for various purposes is increasingly frequent, because the need for fast and accurate information is urgently needed. Various means such as television, radio, newspapers, magazines, and even online media are the means used to obtain the information needed. Indirectly, media consumption is currently a thing that is needed by various groups of people [19]. The more often an individual uses the media, of course, the more time will be spent consuming the media.

The results of filling out the questionnaire on the 79 respondents divided into two schools show that the current media consumption pattern has undergone many changes from conventional methods to high-speed and low-cost (internet-based) methods (Figure 1). A total of 73 respondents spent more time on online media compared to other media. Meanwhile, television ranks second in the media that is still often used, with 37 respondents. Newspapers, magazines and radio became the media with the lowest consumption, namely only 8 respondents, 10 respondents and 9 respondents. The increasing access to technology and the use of the internet has made it easy for people to access

information through various devices that can be carried around such as smartphones, tablets, and computers [16]. This convenience certainly causes a significant change in the pattern of media consumption found in the community, in the past people would use more conventional media such as television, radio, newspapers, magazines, and newspapers, but now the media consumption pattern in the community has changed to the use of internet-based media [31].



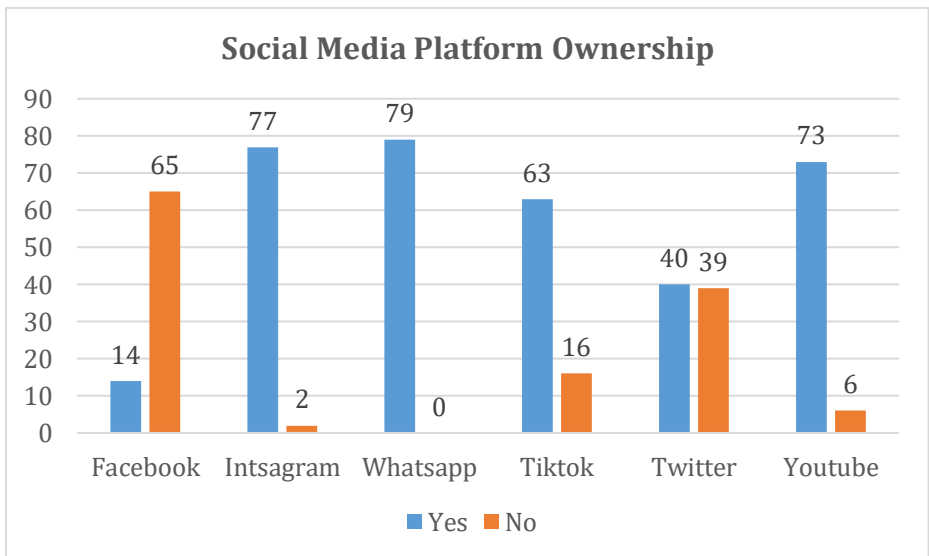
**Fig. 1.** Respondents' Answers on Media Consumption Per Week

The previous data shows the consumption patterns and media use of each respondent in this study. The change in consumption patterns from the use of conventional media to internet-based media is inseparable from the advancement in the field of technology and information in Indonesia. Based on data obtained from We Are Social's report, the number of internet users in Indonesia as of February 2022 is 204.7 million people, with the number of active social media users in Indonesia being 191.4 million users [30]. Meanwhile, based on information obtained through the slice.id web page, it shows that Indonesian people spend an average of 7 hours and 38 minutes every day accessing the internet, with an average of 3 hours and 11 minutes per day used to access social media. The data indirectly shows that most of online media consumption is used to access social media.

Social media is a form of development in the world of technology and information that makes it easy to obtain information and send messages. The results of processing social media ownership data owned by each respondent of this study show that all respondents have active social media that they use in their daily lives, such as Facebook, Whatsapp, Instagram, Tiktok, X (formerly Twitter), and Youtube. (Figure 2). Social media ownership in each respondent has a diverse number of responses with Whatsapp being the social media with the most ownership, namely 79 respondents, then Instagram

with 77 respondents, Youtube with 73 respondents, then Tiktok in third place with 63 respondents and Twitter in fourth place with 40 respondents.

Meanwhile, Facebook is a social media that is very minimally owned by the respondents, namely only 14 respondents have it. Social media such as Instagram and Whatsapp are currently owned by many Indonesian people because of their easy-to-use and efficient nature. Other studies show that Whatsapp is an efficient communication medium in conveying and exchanging information [5], [17], [18]. Meanwhile, Instagram is more widely used for conveying information in the form of visuals, or audiovisuals in the form of photo, image, infographic and video content that allows the delivery of information to be more interesting [19], [31]. Social media ownership in each respondent is then depicted in the Distribution Diagram of social media ownership on each platform.

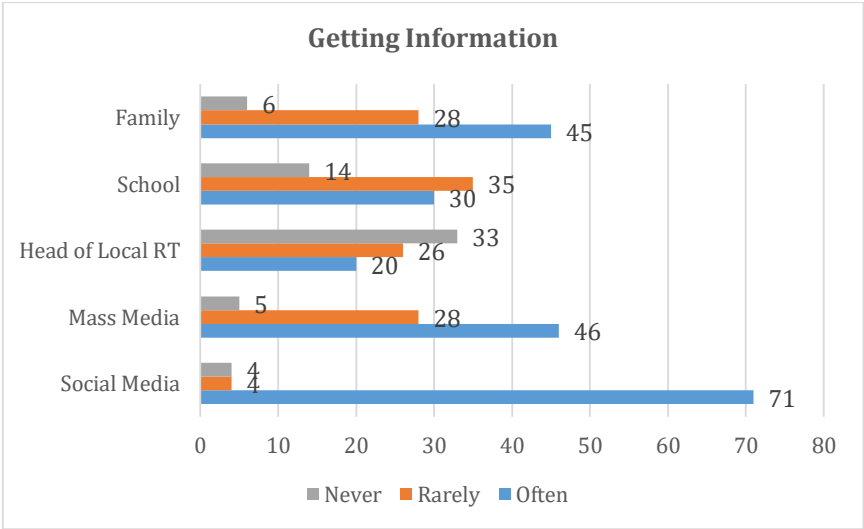


**Fig. 2.** Respondents' Answers about Social Media Platform Ownership

Social media ownership can facilitate access to obtain information needed by the public and facilitate communication activities. Social media is a platform that is in great demand by the public in obtaining information because social media has clear and complete information and values [32]. Social media itself is widely used for various purposes such as communication, improving the image of an institution, marketing activities and even the delivery of flood disaster information [6], [33]–[35]. The results of the data in this study also show that many respondents get disaster information, especially on flood disasters through their social media. Based on the results of filling out the questionnaire, it was found that as many as 71 respondents received flood disaster information through social media compared to other sources. A total of 55 respondents also stated that in addition to getting flood disaster information from their social media,

they also got it from their families Meanwhile, as many as 30 respondents and 20 respondents got flood information from schools, and also the head of the RT where they lived. (Figure 3)

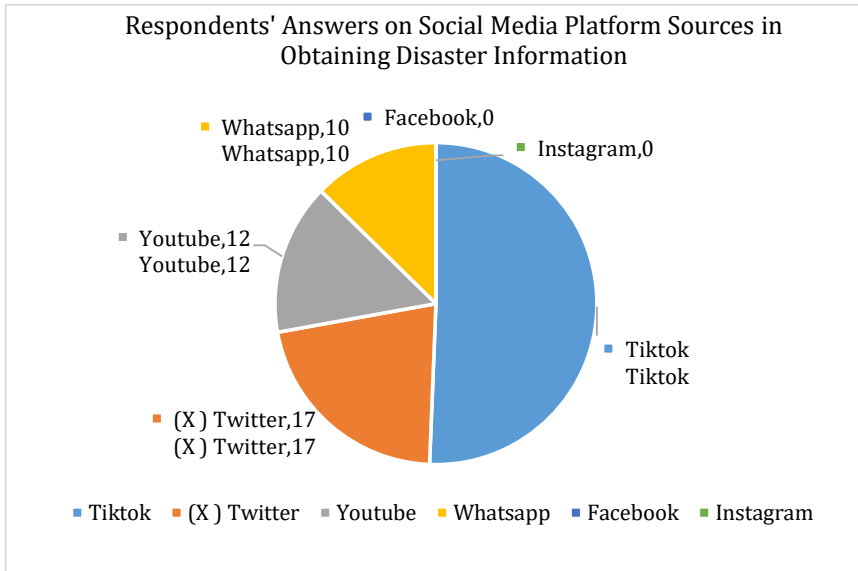
The source of disaster information obtained through the head of the RT is the least approved source of information by the respondents. Flood disaster information obtained from the RT chairman can only be obtained when the area where they live is included in the area that is prone to flood disasters, while if the area where the respondent lives is not a vulnerable area, flood disaster information is almost unavailable. Several other research results show that people living in flood-prone areas will get information shared through mosque speakers or go around using speakers [5], [30], [36]. However, the results of other studies show that the head of the RT does not provide information, but directly informs the public through the Whatsapp social media network to make it faster and more efficient [5], [18]. On the Whatsapp platform owned by the head of the local RT, there will usually be a Whatsapp group containing representatives of each family, so that through this it will facilitate the transfer of information from the head of the RT to the residents.



**Fig. 3.** Respondents' Answers about Getting Information about Flood Disaster

Various social media platforms are used to disseminate disaster information to the entire community. Social media is one of the most widely used platforms in obtaining disaster information by the public at this time [22], [31]. Several platforms such as Twitter (X), and Instagram have been used in efforts to disseminate some disaster information [31], [33], [35]. Based on the results of data processing, each respondent showed a difference in the platform used in obtaining information related to the flood disaster (Figure 4). Tiktok is the most used social media platform in obtaining flood

disaster information, with as many as 40 respondents using this platform. Other research results also show that Tiktok is the most widely used social media by the public to find information [17], [26], [32].

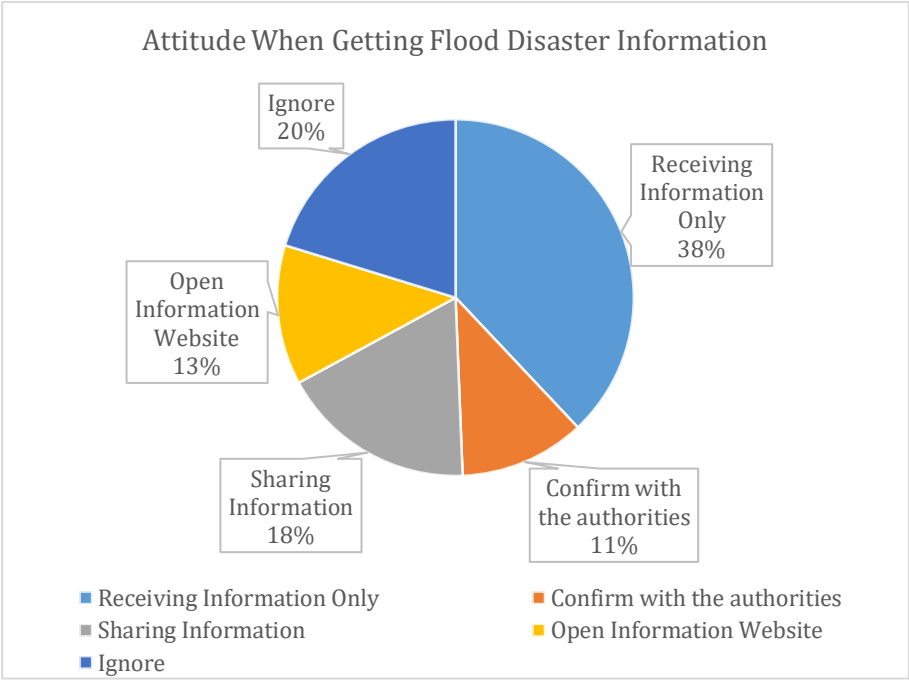


**Fig. 4.** Respondents' Answers on Social Media Platform Sources in Obtaining Disaster Information

Furthermore, the (X) Twitter platform became the second most used platform by respondents with 17 respondents getting flood disaster information from the platform. Then Youtube and Whatsapp were also used by several respondents, namely 12 and 10 respondents respectively, while the social media platforms Facebook and Instagram were not used at all in obtaining or looking for flood disaster information. Obtaining information using social media platforms has become easier to do anytime and anywhere. However, the process of spreading information more easily does not always have a good impact on people's lives. The spread of fake news such as hoaxes can have a negative impact. The negative impact caused by the easy circulation of hoax information is that there will be anxiety and anxiety among the public because the information obtained is not clear about the truth and can even cause conflicts and uproar [23]. Social media is one of the platforms that can be easily used as a medium for spreading hoaxes because of the information transfer process that runs so quickly [21], [22]. As a step to handle the spread of fake news or hoaxes, it can be done in several ways such as increasing literacy in the community and the existence of ethical guidelines in the dissemination of information [21], [23], [37].

Based on the results of data processing, it was shown that respondents had different attitudes when obtaining information related to flood disasters that they obtained through internet platforms or social media. In Figure 5, it can be seen that as many as

38% of respondents will only receive the information they get without any follow-up to find out the truth of the information Furthermore, 20% of respondents will just ignore the information they get, this is related to when they get the information they will immediately ignore it without looking at the content of the information. Then as many as 18 respondents will reshare the news either on the platform they were using at that time or to other social media platforms. Furthermore, the remaining 26 respondents will follow up on the information they get such as opening a website to check its authenticity or conducting confirmation communication to the authorities. In several other studies, disaster institutions such as BMKG, BPBD and BNPB have social media accounts that they use to provide disaster information to the wider community, where when posting related information, some people will be found asking about the detailed information of the news [6], [33], [35].



**Fig. 5.** Respondents' Answers on Attitude When Getting Flood Disaster Information

Literacy has a very important role in shaping disaster mitigation knowledge and critical attitudes in obtaining information in the community. Currently, literacy skills are very important to be possessed by everyone, including students. Literacy contains a series of abilities in reading, analyzing, filtering, and processing information [23]. Literacy can make an individual more critical and insightful, so that it cannot easily trust unclear sources of information [22]. Literacy also makes an individual wiser when getting information.



Based on the results obtained in this study, it can be seen that social media plays an important role in disseminating information about flood disasters among high school students in Jakarta. The most widely used social media by respondents to get flood disaster information is TikTok, followed by Twitter and WhatsApp. This shows that students tend to rely more on internet-based platforms to obtain information compared to other platforms. However, when it comes to the information received, most students do not always verify the correctness of the information they receive before resharing it. Only a small percentage verify through the official website or confirm with the authorities. This habit has the potential to spread inaccurate information or hoaxes, which can cause panic and confusion in the community. This indicates the need to improve literacy skills, especially in digital literacy, especially related to disaster information, so that students can be more critical and wise in managing the information they receive and share.

## 4 Conclusion

This study concludes that social media is the main source of information for high school students in Jakarta in obtaining information about flood disasters. However, there is an urgent need to improve digital literacy among students. This increase in literacy is important so that they can verify and confirm information correctly before sharing it, so that it can reduce the spread of hoaxes and increase preparedness in dealing with flood disasters. Steps that can be taken include the implementation of training and socialization on digital literacy and disaster information management, both by schools and by related agencies. Thus, students can become more responsive and wise in using social media to obtain and disseminate information, especially information related to disasters.

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