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THE EFFECT OF DEMONSTRATIVE AND INTERACTIVE LEARNING VIDEOS ON INSTAGRAM SOCIAL MEDIA ON DIGITAL LITERACY

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ABSTRACT

Technological advancements have had a broad impact, including in the field of education, where social media is increasingly used to implement microlearning. However, this progress also demands digital literacy skills from its users. This study was conducted to examine the effect of digital literacy videos uploaded on social media as a learning medium. The research aims to determine whether there is a difference in the level of digital literacy among students after being exposed to demonstrative and interactive videos uploaded on social media. The videos were designed based on microlearning principles, breaking down the learning material into smaller segments to enhance learner retention. This research employed a quantitative experimental design, with active university students in Jakarta as respondents. The results indicate that interactive videos significantly impact digital literacy levels, whereas demonstrative videos do not. Therefore, this study recommends educational institutions begin offering microlearning materials, especially through audiovisual media or videos

Keywords: Digital Literacy; Interactive Video; Demonstrative Video; Microlearning

INTRODUCTION

The current era is becoming increasingly advanced. Everything that previously had to be done manually can now be done automatically and quickly. The development of information, which previously moved slowly, can now be disseminated quickly. In the past, people had to wait for newspapers to find out the latest news, but now the latest news can reach the public in a matter of seconds. This is due to technological developments. One of the technological developments that has helped the development of information traffic is the internet (Rozan & Dewi, 2022). The internet (interconnection networking) is an open global communication network that connects many computer networks of various types and kinds, using communication types such as telephones, satellites, and so on (Mohammad, 2022). The presence of the internet has brought about significant changes in various aspects of human life. The internet has also given birth to a new world that has patterns, styles, and characteristics that are different from the real world (Mohammad, 2022). The development of communication technology has also significantly changed the way people communicate, interact, and access information. From improvements in telecommunications infrastructure to the explosion in the use of mobile devices and the internet, communication technology has certainly become an integral part of various aspects of life. Smartphones, social media, instant messaging applications, and various other applications have become an inseparable part of daily life for many people (Rabbani & Najicha, 2023).

Indonesia is one of the countries with the largest internet user population in the world. According to a report by We Are Social in early April 2025, the number of internet users has reached 5.64 billion, with a penetration rate of 68.7 percent. In information behavior practice, information needs often arise from knowledge gaps or uncertainty, which then trigger the information search process (Silalahi et al., 2024). To meet these needs, individuals must have the appropriate knowledge in the process of fulfilling information (Wicaksono & Retno, 2024).

Advances in digital technology and changes in modern lifestyles have significantly influenced consumption patterns, especially among Generation Z. Gen Z, generally defined as those born between 1997 and 2012, is a group that grew up in the digital age and is very familiar with the internet, social media, and advanced technological devices from an early age (Dewantoro et al., 2025). Social media platforms have become an integral part of the development of communication technology used in seeking information.

Social media platforms are used by users to share data, photos, and videos. Social networks are a modern medium for clients to interact, communicate, and build relationships with them (Kitsios et al., 2022). Social media helps drive and generate user content based on web understanding and technology (Purba & Irwansyah, 2022). Social media also allows users from various backgrounds to upload content for other users, commonly referred to as User Generated Content or UGC. User Generated Content is original contributions made by users, expressed in a number of different media (such as physical objects, sound recordings, computer code, and graphic design), and widely shared with other users and/or companies (Gautama, 2022). User-generated content is now increasingly common in the digital age, where individuals actively participate in creating and sharing content on various platforms.

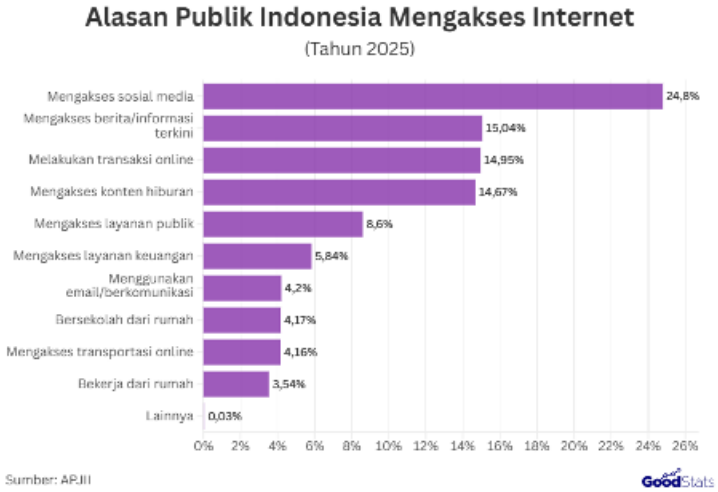

Figure 1. Reasons Users Access the Internet
Source: (Haq, 2025)

The majority of Indonesians use the internet primarily for social media activities, with a percentage of 24.8% as shown in Figure 1. This indicates that social media is still the main platform for many people to interact, share information, and build social networks online. In addition, the internet is also widely used to search for news or current information, which is the reason for access for around 15.04% of users. This indicates that the public also considers the internet an important source for obtaining various types of reliable and up-to-date information. The data also shows that users utilize the internet for learning (4.17%).

In the field of education, individuals who are already working and want to improve their skills through lifelong learning, as well as students at various levels, may find it difficult to find enough time or need learning support in their search for knowledge and development of valuable skills. In addition, it is important for individuals to remain motivated during the learning process and have access to as much relevant content as possible in order to meet their specific needs (Jing et al., 2023).

A viable strategy to facilitate learning is the implementation of microlearning. Microlearning aims to deliver short, self-contained, and focused content that is easy to understand and apply (Díaz Redondo et al., 2021; Haq, 2025). Microlearning can precisely target each learning objective with focused, direct, and concentrated content to effectively transfer knowledge and skills. In recent years, considerable attention has been given to online microlearning research to support efficient learning (Razak et al., 2020). Microlearning differs from traditional learning methods that present broad content through courses and long sessions lasting several weeks or months. This conventional method raises concerns because it has the potential to demotivate learners and hinder rapid knowledge acquisition, thereby affecting long-term knowledge retention. To overcome these challenges, microlearning is recommended for its ability to facilitate rapid and effective knowledge mastery and skill transfer (Alshammari, 2025). Microlearning can be presented independently to meet specific knowledge acquisition and skill development needs, or as supplementary material to complement formal courses.

In the digital age, online microlearning has gained significant attention as an instructional approach due to the ease of developing, maintaining, retrieving, and distributing learning content (Romanenko et al., 2023). Researchers have attempted to define microlearning, but a universally accepted definition has not yet been found (Denojean-Mairet et al., 2024). Nevertheless, there is widespread recognition that microlearning is distinguished by three main attributes: highly focused topics, shortened learning duration, and limited content. Many researchers also adopt the definition of microlearning introduced by Hug (2005). This definition is based on seven dimensions: content, curriculum, format, type of learning, media, process, and time (Alshammari, 2025). In their book, Torgerson and Iannone (2019) state that microlearning is short content that supports learning and meets the needs of students (Denojean-Mairet et al., 2024). Their definition of microlearning is “any learning content that can be completed in less than 10 minutes” (Torgerson & Iannone, 2019). The material can be in the form of videos, texts, micro-podcasts, blog posts, wikis, and short messages on social networks (Díaz Redondo et al., 2021).

Microlearning and social media for learning purposes can facilitate learning, maintain student engagement with learning materials, and improve knowledge retention. In fact, by repeating content repeatedly, microlearning can improve knowledge retention in learners (Shail, 2019). Microlearning can encourage and improve student learning when learning is transferred to the student's location and uses methods rooted in the theory of how the brain works in storing and retrieving information (De Gagne et al., 2019).

The use of social media in education and its benefits have been discussed in the literature. Student learning outcomes can be positively influenced by social media, and social media can be used without risk in educational settings (Denojean-Mairet et al., 2024). Social media as an educational tool can improve communication between learners and educators (Denojean-Mairet et al., 2024). In addition, social media can increase engagement and encourage collaboration (Faizi et al., 2013). When used creatively and student-centered in an educational environment, social media can help increase student engagement, motivation, interactivity, soft skills, communication, and collaboration (Denojean-Mairet et al., 2024). To facilitate learning, students can use social media to share learning resources. Real-time sharing of learning resources is facilitated by students' social media communication tools (Ansari & Khan, 2020).

The use of video as a microlearning medium also has many benefits. Based on research conducted by Nurdianingsih et al. (2021), it was found that the use of audio-visual media is significantly more effective than textbook-based learning methods in improving students' reading

comprehension. The data shows that students who learn using audio-visual materials experience an increase in reading comprehension scores of 25 points or 40.32%, while the group that uses textbooks only experiences an increase of 18 points or 30%. This significant difference confirms the powerful role of audio-visual elements in increasing student engagement, understanding, and retention of reading material (Nurdianingsih, 2021).

The use of video in the learning process can be divided into several types of videos, including demonstrative videos and interactive videos (Dahlan et al., 2023; Desai & Kulkarni, 2022). Demonstrative videos are videos that visually display practical processes or steps, serving to provide real examples and facilitate understanding of certain concepts or skills. These videos are usually one-way, showing the complete process without any active interaction from the audience during playback. On the other hand, interactive videos encourage viewers to actively participate, such as answering questions, taking quizzes, or choosing different storylines while watching. This feature increases engagement and learning experience because students do not only receive information passively but are also directly involved in the learning process (Yafie et al., 2025).

The benefits of these two types of videos in education are to improve understanding and retention of material. Demonstrative videos are suitable for explaining practical steps visually and efficiently, while interactive videos can increase motivation and engagement, as well as help students understand the material more deeply through direct experience (Yafie et al., 2025). Both types of videos have been proven to be effective in improving learning outcomes, especially when used together in microlearning, as they can meet diverse learning needs and adapt to students' learning styles (Yafie et al., 2025).

Based on the results of a literature review, microlearning has been proven to be effective in improving digital literacy, especially through the presentation of concise, focused, and easily accessible material. International studies confirm that microlearning, especially in video or interactive module formats, can facilitate faster and more practical understanding of digital concepts, while also increasing the engagement and knowledge retention of training participants (Romero-Rodríguez et al., 2023).

In the digital age, the development of digital literacy is very important because it encompasses various competencies in managing digital content (Anthonysamy & Sivakumar, 2024). Digital literacy is not limited to digital skills alone. As the information environment continues to change with technological developments, the definition of digital literacy also changes frequently; however, key elements such as the ability to understand and evaluate information before using it remain unchanged (Anthonysamy & Sivakumar, 2024). Anthonysamy & Sivakumar (2024) define digital literacy as a framework that encompasses various literacies, each of which has a specific role in the digital world. Digital literacy is the attitude, ability, and awareness to use digital technology appropriately in accessing, identifying, managing, analyzing, building, and communicating new knowledge in a digital environment. Digital literacy depends on the ability to assess online content from a trustworthy perspective. Similarly, according to an article in Forbes, a lack of digital literacy leads to the spread of fake news (Anthonysamy & Sivakumar, 2024). Individuals who are able to adapt to the digital world show a high level of motivation because they have the various literacies needed to navigate digital content with ease.

Therefore, based on the above explanation regarding the use of social media as part of microlearning, this study will use short videos about digital literacy uploaded on social media. This study has several objectives, as follows:

1. To measure the level of digital literacy before and after the treatment.
2. To measure whether there is a significant difference in digital literacy before and after the treatment.
3. To find out which treatment makes a significant difference in the level of digital literacy.

RESEARCH METHODS

This study is quantitative research with an experimental design in which the researchers manipulated video content about digital literacy to measure changes in digital literacy. An experiment is a study in which researchers manipulate one variable to observe the causal effects of two groups (Kinyua, 2023). This study measures the level of digital literacy possessed by respondents before and after being given video content about digital literacy. In the context of education, microlearning can be applied to short videos delivered through social media (Susantyo et al., 2023). The video content was divided into two types, namely demonstrative and interactive video content. Demonstrative videos

are videos in which the talent only provides one-way information about digital literacy. Meanwhile, interactive videos are made by involving many activities such as additional material links, quizzes, several questions related to the material, and games linked to links outside the video.

The population of this study is all active students at public and private universities in Jakarta. Students were chosen as the population because, from a developmental perspective, students are in a phase called emerging adulthood or a transition period from adolescence to adulthood (Wang et al., 2025). During this period, individuals explore possible life paths, make independent decisions, and form healthy relationships with others (Wang et al., 2025). This period is also characterized by an increase in risky behavior. Therefore, this age group was selected to receive educational video treatment in the form of digital literacy to help guide good decisions or behavior. Then, Jakarta was chosen as the location because it is the capital city of Indonesia, where data from BPS (2019) shows that DKI Jakarta has the largest number of internet users compared to other regions in Indonesia. Due to the unknown population size, the sample was selected using non-probability sampling with purposive sampling technique. The sample consisted of active students at public/private universities in Jakarta. The sample was filtered by asking the question, “Are you an active student at one of the universities in Jakarta?” The total number of samples obtained was 242 respondents, consisting of 81 respondents for the demonstration video treatment group, 83 respondents for the interactive video treatment group, and 78 respondents for the control group treatment. This study collected data using a survey method conducted at a specific time, thus categorized as a cross-sectional survey design (Thomas & Zubkov, 2023). Data collection was conducted from August 1, 2025 to September 22, 2025. The survey was conducted online by distributing questionnaires via Google Forms. The questionnaire consisted of five sections: filter questions, respondent profiles, digital literacy pre-test, video treatment, and digital literacy post-test. The digital literacy questionnaire was adopted from Rodríguez-de-Dios & Igartua (2016), which consists of six dimensions: technological skills, personal security skills, critical skills, device/tool security skills, information skills, and communication skills. The questionnaire consists of 29 statements answered using a Likert scale from 1 strongly disagree to 4 strongly agree.

Based on the pre-test results, item validity analysis using Pearson's correlation showed that most items had a significant relationship with the total score, with a significance level of $p < 0.05$ to $p < 0.01$. The correlation between items and total scores ranged from $r = -0.227$ to $r = 0.636$, indicating that most items contributed positively to the measured construct. In detail, the majority of items had a positive and fairly high correlation ($r \geq 0.3$) with the total score, so they could be categorized as valid. Thus, based on the results of this pre-test, the majority of the instrument items were proven to meet the validity criteria and could be used as the basis for collecting primary data in the study. Based on the validity test results using Pearson Correlation analysis on post-test data with 241 respondents, the correlation value (calculated r) between each statement item (P1–P29) and the total score (TOTAL) was obtained, most of which showed a positive and significant r value at the 0.05 and 0.01 levels. This indicates that most of the statement items have a significant relationship with the total score.

The reliability test results using Cronbach's Alpha showed a score of 0.827 for the demonstrative variable, 0.826 for the interactive variable, and 0.848 for the control variable. All of these values are above the minimum reliability threshold of 0.70, indicating that all three variables have a good level of internal consistency. Thus, the instruments used for the demonstrative, interactive, and control variables are declared reliable and suitable for use in the next stage of analysis in this study.

RESULTS AND DISCUSSION

Based on the objectives mentioned earlier, the following is a presentation of the research results, beginning with a descriptive explanation of the respondent profile as follows.

The chart in Figure 2 shows the results of the gender category questionnaire distribution from all 318 respondents. With 100% of the data obtained, 96 respondents (30.2%) were male and 222 respondents (69.8%) were female. Therefore, based on the data obtained, it can be concluded that this study was dominated by female respondents, numbering 69.8%.

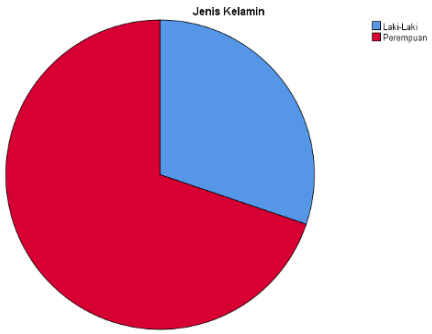

Figure 2. Pie Chart of Respondent Gender Data
Source: Researcher's compilation, 2025

The chart in Figure 3 shows the results of the questionnaire distribution by age category for all respondents, totaling 318 people with 100% data. The data shows that 22people with a percentage of 6.9% being 18 years old, data of 103 people with a percentage of 32.4% being 19 years old, data of 95 people with a percentage of 29.9% being 20 years old, data of 45 people with a percentage of 14.2% being 21 years old, data of 25 people with7.9% were 22 years old, 14 people with4.4% were 23 years old, 4 people with1.3% were 24 years old, 6 people with1.9% were 25 years old, 1 person with a percentage of 0.3% are 26 years old, data on 1 person with a percentage of 0.3% are 27 years old, and data on 2 people with a percentage of 0.6% are of unknown age. Therefore, from the data obtained, it can be concluded that this study is dominated by respondents aged 19 years, amounting to 32.4%.

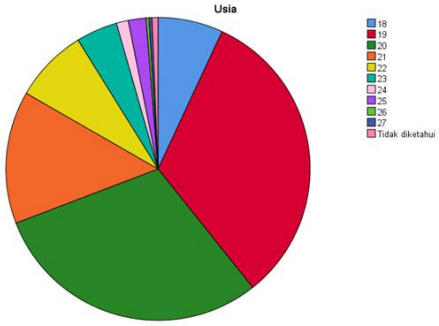

Figure 3. Pie Chart of Respondent Age Data
Source: Researcher's processing, 2025

This study has three main objectives. The first is to measure the level of digital literacy before and after the treatment. To answer the first objective, the results of the study can be seen in Table 1. Based on the Descriptive Statistics table above, we can see an overview of the results of the study before and after the treatment in each group, namely Demonstrative, Interactive, and Control. In the Demonstrative group, the mean score increased from 88.84 in the pre-test stage to 90.00 in the post-test stage. This indicates an increase in scores after the demonstrative method was applied. In the Interactive group, the mean score also increased from 88.78 in the pre-test stage to 90.18 in the post-test stage. This increase indicates that the interactive learning method also had a positive effect on the participants' learning outcomes.

Table 1. Descriptive Statistics

Categories	Types of Tests	Mean ± SD
Interactive videos	Pre-test	88.78 ± 7.88
	Post-test	90.18 ± 7.77
Demonstration videos	Pre-test	88.84 ± 7.51
	Post-test	90.00 ± 7.96
Control videos	Pre-test	87.73 ± 7.28
	Post-test	89.49 ± 7.00

Source: Researcher's analysis, 2025

Meanwhile, in the Control group, the average score increased slightly, from 87.73 to 89.49. Although there was an increase, the change was not as significant as that which occurred in the two previous treatment groups. In addition, the Standard Deviation values in the three groups showed a relatively uniform level of data dispersion, ranging from 7 to 8, which means that the research data had a fairly consistent distribution among respondents. Overall, these descriptive results illustrate that there was an increase in average scores after treatment, especially in the groups that used demonstrative and interactive methods compared to the control group.

To measure whether there was a significant difference in digital literacy levels before and after treatment, this study used a paired t-test, as shown in Table 2. Based on the results of the Paired Sample t-Test analysis, it was found that in the Demonstrative group, the Sig. (2-tailed) value of 0.083 (> 0.05) indicated that there was no significant difference between the pre-test and post-test results. This means that the demonstrative learning method did not have a significant effect on improving participants' learning outcomes. In the Interactive group, the Sig. (2-tailed) value was 0.037 (< 0.05). This indicates that there was a significant difference between the pre-test and post-test results. Thus, the interactive learning method was proven to have a significant effect on improving learning outcomes. Meanwhile, in the Control group, the Sig. (2-tailed) value of 0.004 (< 0.05) also indicates a significant difference between the pre-test and post-test scores. Overall, the test results show that the interactive learning method has a significant effect on improving learning outcomes, while the demonstrative method does not show a significant difference.

Table 2. Paired Simple Test

	Mean ± SD	Sig. (2-tailed)
Demonstrative Group	-1.160 ± 5.95	.083
Interactive Group	-1.398 ± 6.01	.037
Control Group	-1.756 ± 5.19	.004

Source: Researcher's Compilation, 2025

The results show that teaching digital literacy through videos improves knowledge overall. Integrating visual and auditory components into the learning process creates a more interactive and stimulating environment, which is very beneficial for students who have difficulty with conventional reading methods. The visual and auditory components in videos target the senses of hearing and sight, which have been shown to improve student retention (Agustiningsih, 2015). These findings are in line with previous studies that support the effectiveness of audiovisual media in various subjects, including language learning (Nurdianingsih, 2021). Educational videos can effectively facilitate the delivery of learning content and enhance student engagement (Zolkwer et al., 2023).

The treatment provided was an application of microlearning, where the treatment video was broken down into smaller parts to deliver material on digital literacy. The results of this study support (Fitria, 2022), which states that the human brain generally finds it easier to remember or understand material that is delivered in short bursts. Breaking down the material into small parts reduces excessive cognitive load and student burnout syndrome (Fitria, 2022). Furthermore, short instructions can encourage students to review the material provided several times and, of course, improve retention or the ability to store and remember information (Taylor & Hung, 2022).

This study also shows that interactive videos have a significant effect on increasing knowledge about digital literacy compared to demonstrative videos. These results are in line with research by (Desai & Kulkarni, 2022), which shows that interactive videos improve conceptual understanding and learning outcomes through cognitive management via engagement in interactive learning. Interactive videos engage students through quizzes, additional materials, and polls, thereby enhancing the learning experience.

CONCLUSIONS

This study shows an increase in average digital literacy after being given interactive and demonstrative videos. The results of the paired t-test show that there is a significant difference in digital literacy levels in the group that was given interactive videos, while the group that was given demonstrative videos did not show a significant difference. Based on these findings, it is recommended that the education sector optimize the use of interactive videos in microlearning, especially since this format has been proven to be more effective in improving students' digital literacy. In addition, it is important for educators to continue to actively engage students, both in

online and face-to-face learning, so that the learning process is more participatory and has a deeper impact on understanding.

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