Measuring Basic Capabilities of Adolescents Digital Literacy in Medan to Prevent Fake News Exposure

Mengukur Kemampuan Dasar Literasi Digital Remaja Kota Medan dalam Mencegah Paparan Berita Bohong

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Abstract

The aim of this study is to measure basic digital literacy skills for adolescents in Medan. The basic digital literacy skills include analyzing, verifying, and finding information obtained. Quantitative method is used in this study to analyzed the findings descriptively. The research design is applied in the form of an online survey. The population used in this study was a group of middle-aged adolescents (15-18 years) in Medan. Taro Yamame formula is used to determine the sample size of this study. Due to Taro Yamame formula, the sample size involved in this study was 300 respondents, with a margin of error of 5.76%. The results shows that teenagers in Medan generally have basic digital literacy skills to ward off fake news at a capable and very capable level. However, there are some records where teenagers are still not very able to implement the ability to analyze and find the information they get from online media.

Keywords: *fake news, digital literacy competency, Medan City, middle teenagers*

Abstrak

Penelitian ini hendak mengukur kemampuan dasar literasi digital remaja di Kota Medan dalam memilih, menganalisis, memverifikasi, dan mengevaluasi informasi yang diperoleh. Metode penelitian yang digunakan dalam penelitian ini adalah kuantitatif dan menganalisis hasil temuan secara deskriptif. Desain penelitian yang diterapkan berbentuk survei, dengan menyebarkan kuesioner secara daring. Populasi yang digunakan dalam penelitian ini kelompok remaja menengah (15-18 tahun) di Kota Medan. Besaran sampel yang terlibat dalam penelitian ini sebanyak 300 responden, yang ditentukan menggunakan rumus Taro Yamame dengan margin of error sebesar 5,76%. Hasil penelitian yang diperoleh adalah remaja yang berstatus remaja menengah di Kota Medan secara garis besar memiliki kemampuan dasar literasi digital dalam menangkal berita bohong pada taraf mampu dan sangat mampu. Namun, ada beberapa catatan di mana remaja masih belum terlalu mampu untuk mengimplemenatasikan kemampuan menganalisis dan mengevaluasi informasi yang mereka peroleh dari media daring.

Kata kunci: *berita bohong, kompetensi literasi digital, Kota Medan, remaja menengah*

INTRODUCTION

Indonesia's digital literacy capabilities, which are not yet classified as good, still have various potential threats, one of which is fake news or hoaxes. The Ministry of Communication and Informatics of the Republic of Indonesia and the Katadata Insight Center in the 2021 Indonesia Digital Literacy Index Survey found at least 10,9% to 69,3% of respondents claimed to have been exposed to hoaxes. Still, from the same data, it is said that the highest hoax spread comes from Facebook and WhatsApp, 62.6% from social media Facebook, and 20.5% from WhatsApp (Ameliah, Negara, and Rahmawati 2022). In line with these findings, the Ministry of Communication and Information (2022) released results of 5,433 hoax issues on social media for the last two years, of which 4,730 came from the social media platform Facebook.

The Indonesian Telematics Society or Masyarakat Telematika Indonesia (2019) has noted that the intensity of Indonesian people receiving hoaxes is also reasonably high, namely 14.7% more than once per day, 34.6% every day, and 32.5% once a week, and only 18.2% who receive hoaxes once a month. The relatively high number of hoax receipts is not accompanied by the implementation of the digital literacy capabilities of the Indonesian people. The Indonesian Telematics Society (2019) found that 37.7% of people were reluctant to check the truth of hot news because they didn't want to know or didn't want to be bothered. In addition, it was also found that there were several reasons why people had difficulty checking the truth of the news, of which 56.2% had slow internet access, 27.4% did not know-how, and 16.4% did not have a quota.

This threat certainly cannot be underestimated by the Indonesian people, considering that Indonesia also still has cybersecurity that is not too high. It was revealed through the Global Cyber-Safety Index findings, which placed Indonesia in position 46 out of 94, with a score of 6.31 (Varga 2021). Even though it is still higher than Malaysia and Thailand, which are ranked 51 and 60, respectively, public participation in countering cyber crimes such as hoaxes is still low, and many do not know and understand the indicators of cybercrime (Nurlatifah 2019, 53).

The General Election Supervisory Agency (Bawaslu) once noted that at least 12 provinces in Indonesia are prone to spreading fake news or hoaxes, one of which is North Sumatra Province (Antara 2018). It is also inseparable from the large number of internet users in North Sumatra Province, which reached 11,720,332 internet users, with a penetration of 4.3% of the population. The survey conducted by the Indonesian Internet Service Provider Association (APJII) in 2020 also placed North Sumatra Province as the most significant internet user on the island of Sumatra (Asosiasi Penyelenggara Jasa Internet Indonesia 2020). In addition, through the Indonesian Telecommunications Statistics 2020, it is clear that the population of North Sumatra aged five years and over who use the internet has grown to 48.05% of the region's population. This percentage has increased from 2016, which only touched a rate of 20.41% (Badan Pusat Statistik 2021).

Problems and opportunities in the digital world or the internet are widely open, along with the interaction of digital communities in cyberspace (Syafganti 2018, 104). Each social group and generation must get a different method, considering that each generation group has other characteristics. Digital literacy efforts in countering cybercrime, especially hoaxes, must consider each generation's differences and unique factors (Susilo, Yustitia, and Afifi 2020, 59–60). Several studies have shown that Generation Z is less likely to be interested in hoaxes, and the generation group dominated by teenagers has positive cognitive abilities to distrust fake news (Susilo, Yustitia, and Afifi 2020, 60; Mansur et al. 2021, 37–38).

This condition implies a much higher demand for digital literacy in the use of new media than conventional media, considering that credibility in traditional mass media is almost entirely irrelevant when talking about new media (Rianto 2016, 95). Digital literacy skills acquired by the community can also be a form of community participation in fighting fake news, both formally and informally (Fardiah, Darmawan, and Rinawati 2021, 182). In addition, people living in the digital era still need various socialization related to positive content and the concept of digital literacy in general so that this idea can become a mainstream discourse in society (Rahmawan, Mahameruaji, and Anisa 2019, 41).

This taxonomy makes it clear that digital media are filled with complex misinformation. Most of the seven types of inappropriate content have elements of truth mixed with elements of falsehood. So that the information then gives a solid confusion to the audience (Susman-Peña, Druckman, and Oduro 2020, 4–5). Wardle (2017) considers that digital literacy efforts, in this case, seek to be able to deal with the diverse ecosystem of false information. What can implement these efforts by inviting the audience to understand and examine the various types of content being created and shared, the motivation of the content creator in framing the information, and how the content is disseminated.

METHOD

The research conducted by the researcher was carried out with a descriptive method, with the research design using survey research. Survey research provides a numerical description of the attitudes or opinions of a population by studying the samples obtained, using a questionnaire as a data collection medium (Creswell and Creswell 2018, 206).

The population used in this study was middle school adolescents in Medan City, which high school students dominated. The middle teenager is an age group in the range of 15-18 years (Mönks, Knoers, and Haditono 2014, 262). Based on the Basic Data for Primary and Secondary Education in the odd 2021/2022 semester, the total number of high school students in Medan City was 125,167 people, consisting of 70,128 senior high school students and 55,039 vocational students (Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi 2022). The study's sample determination was based on the Taro Yamane formula (Sugiyono 2019, 137), with a sampling error rate of 5.76%.

Data collection in this study used a questionnaire whose questions were limited to specific conditions according to the survey conducted (Grønmo 2019, p. 233), in this case, related to digital literacy competence in warding off fake news. The answers in each question item using a Likert Scale have gradations, ranging from very positive to very negative (Sugiyono 2018, 152–53). This study applies a digital literacy scale designed by Japelidi, with a score range of 1-5 for each competency (1= Very Low, 2 = Low, 3 = Enough, 4 = High, and 5 = Very High) (Gelgel et al. 2021).

The quantitative data analysis technique also used in this research is descriptive analysis. The descriptive statistical analysis describes the sample data applicable to the population in which the sample is obtained. This analysis provides an overview of each data obtained and is presented as a histogram image of group data or the frequency distribution of group data (Samsu 2017, 151–52).

RESULT AND DISCUSSION

Characteristics of Respondents

This study involved 300 middle school adolescent respondents, explicitly targeting the high school student population in Medan City. This study involved students from 19 SMA and SMK in Medan City. The students are spread across 12 of the 21 sub-districts in Medan City. Below are some of the characteristics of the respondents involved in the research.
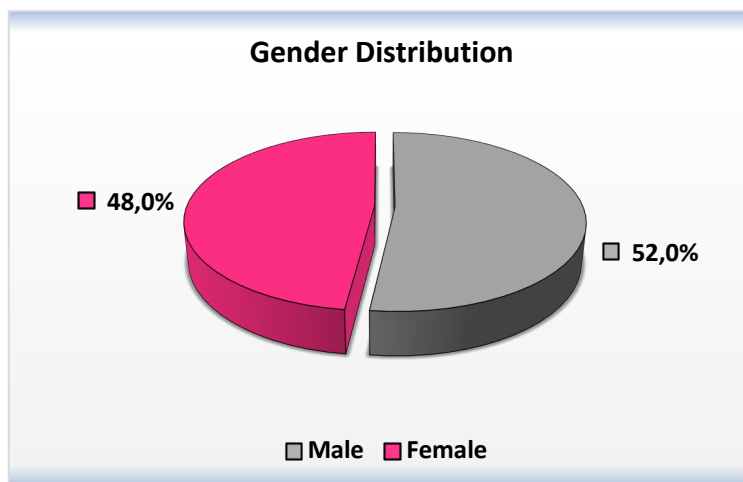

Figure 1. Gender Distribution of Respondents (Source: Data Analysis Results)

Suppose we look at the characteristics based on gender. In that case, the majority of respondents are dominated by male students, with the percentage of respondents being 52%, while female respondents involved in this study are 48%. Male dominance in research findings is in line with internet users in Indonesia, whose male groups dominate (Kemp 2022).
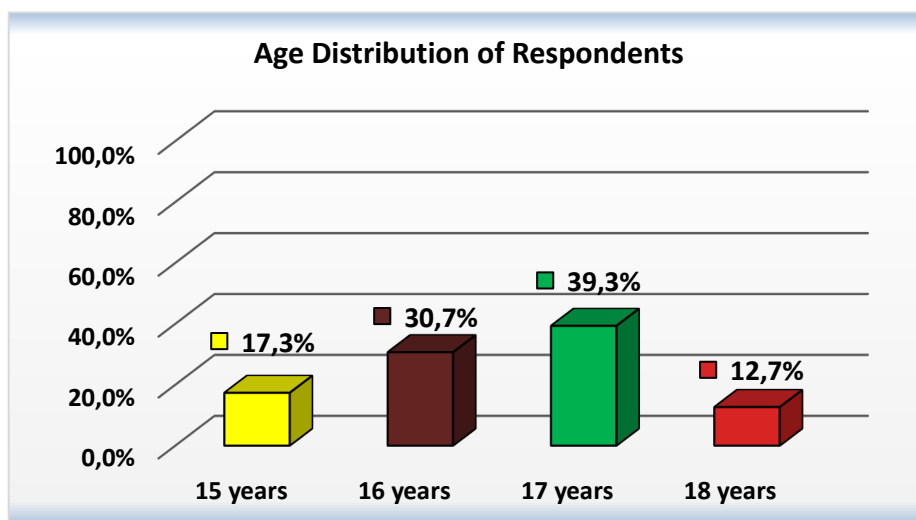

Figure 2. Age Distribution of Respondents (Source: Data Analysis Results)

This study follows the prerequisites of the targeted respondents, namely adolescents aged 15-18 years. The picture above shows that the adolescent group of 17 years dominated this study with a percentage of 39.3%. Furthermore, 30.7% of respondents are from the age group of 16 years, 17.3% from the age group of 15 years, and 12.7% from the age group of 18 years.
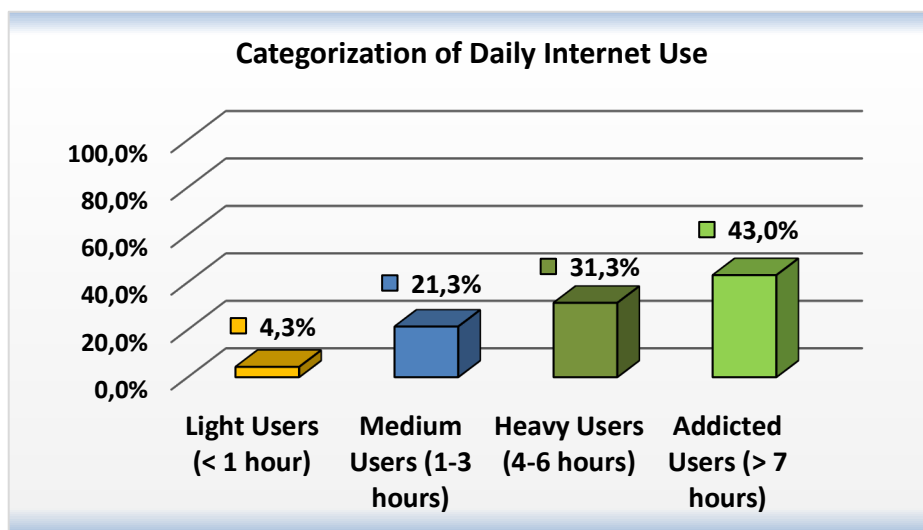
Figure 3. Categorization of Daily Internet Use (Source: Data Analysis Results)

The following respondent's characteristic measures middle-aged teenagers' categorization of internet use in Medan City. The categorization of internet time usage was adapted from the internet usage scale compiled by the Alvara Research Center (Alvara Research Center 2020, 7). The results showed that the majority of internet use by teenagers was at the level of addicted users, with a percentage of 43%, followed by teenagers at the level of heavy users at 31.3%. Meanwhile, teenagers at the medium user level are 21.3%, and the last one is at the light user's level, which only consists of 4.3% of teenagers. The results obtained are not much different from the findings of the Alvara Research Center (2020, pp. 6–7), which states that most of the internet use by the Indonesian people is at the addicted level.
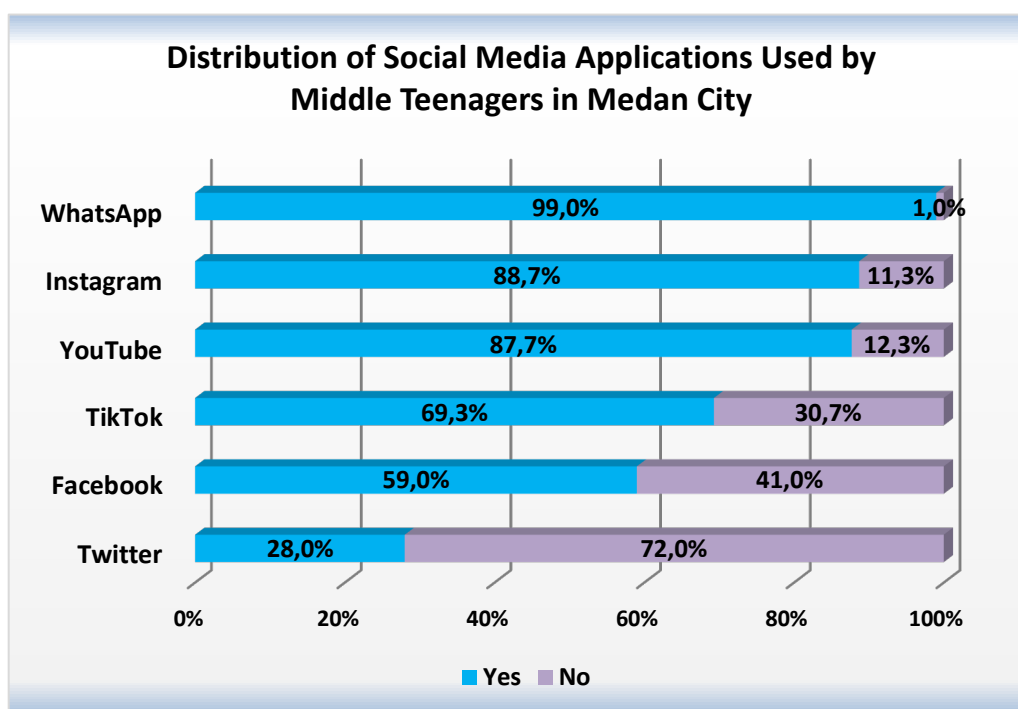

Figure 4. Distribution of Social Media Applications Used by Middle Teenagers in Medan City (Source: Data Analysis Results)

The use of social media applications by 300 adolescent respondents is valuable research finding to map the characteristics of adolescents in accessing digital space. The results showed that WhatsApp was the most widely used social media application by teenagers, with a percentage of 99%. Furthermore, Instagram and YouTube are respective social media applications teenagers use; 88.7% use Instagram, and 87.7% use YouTube.

It is in line with the findings from We are Social and Kepios (Kemp 2022, 54), making WhatsApp the most widely used social media for Indonesians. However, what makes the difference between middle-aged adolescents in Medan City and Indonesian society lies in the second and third-social media. If you look at We are Social and Kepios data (Kemp, 2022, p. 54), Indonesians place Instagram and Facebook as the most accessed social media. Meanwhile, for middle-aged teenagers in Medan City, the YouTube application is the second-highest entertainment media, followed by Instagram. In fact, what is interesting about the findings of this study is that TikTok users among teenagers in Medan City are much higher than Facebook users, which is contrary to We are Social and Kepios.

Basic Competencies in Preventing Exposure to Fake News

The ability to understand the symbols obtained from information becomes one of the indicators to assess a person's technical ability when receiving information. The sign in question can be punctuation marks, emoticons, and the like. The findings in this study indicate that most students are at avery high level in this ability, with 42%. This finding is in line with the knowledge of middle-aged adolescents, all of whom study Indonesian subjects, which talk a lot about how to use certain symbols in a sentence.
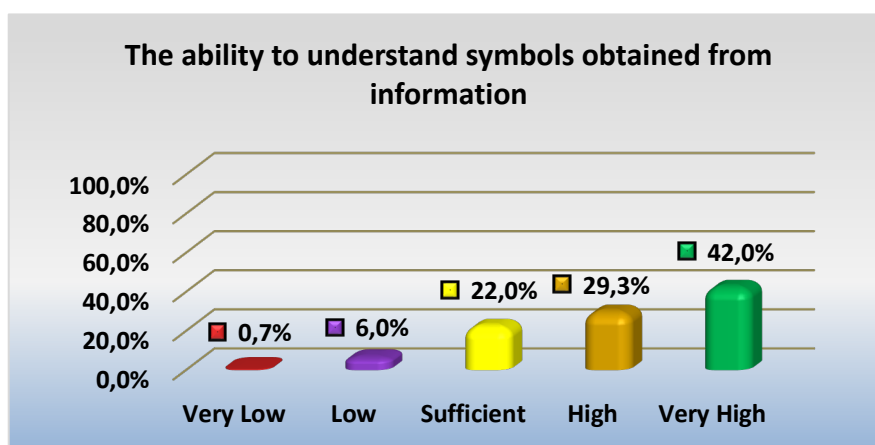

Figure 5. The ability to understand symbols obtained from information (Source: Data Analysis Results)
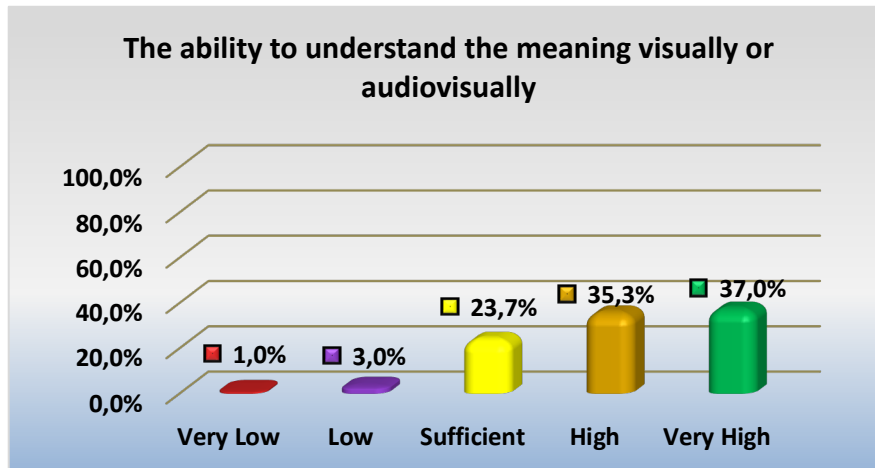
Figure 6. The ability to understand the meaning visually or audiovisually (Source: Data Analysis Results)

Understanding visual or audiovisual meanings is the ability to determine how teenagers can counter the fake news they receive, especially those related to photos or videos. Most middle-aged adolescents in Medan City are capable of giving meaning when receiving information. It was recorded that 37% of adolescents were at the very high level, and 35.3% were at the high level. It shows that when they receive information in visual or audiovisual form, they can distinguish whether or not the gesture or framing is implied in the news.
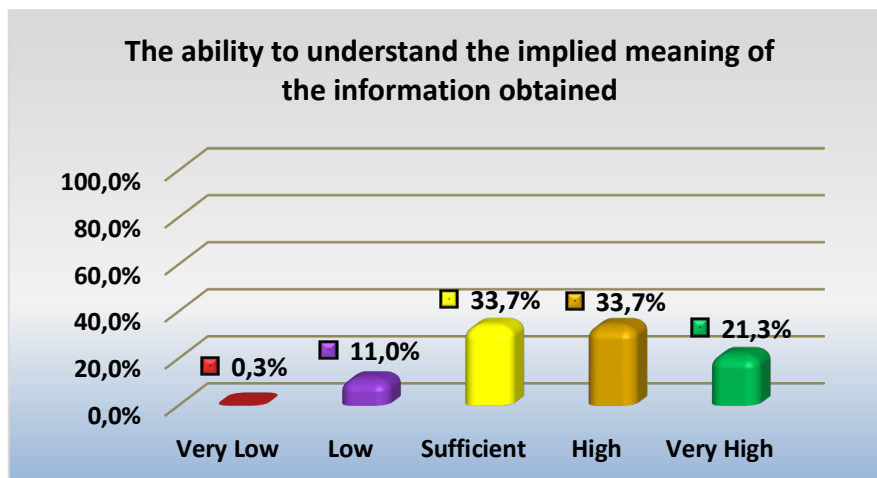

Figure 7. The ability to understand the implied meaning of the information obtained (Source: Data Analysis Results)

The ability to understand the implied meaning of the information obtained talks about how someone can understand the message in writing and contextually and interpret the hidden message. If we look at the survey findings, it shows that middle-class teenagers in Medan City are sufficient and high level, with the same large percentage, which is 33.7%. It is a sign that the tendency of middle-class teenagers in Medan City still has difficulties and limitations in interpreting the implied information they receive. However, their competence which is quite good, can help them prevent the impact of news that is still questionable.

The ability to relate the relationship of information to the purpose of the message maker
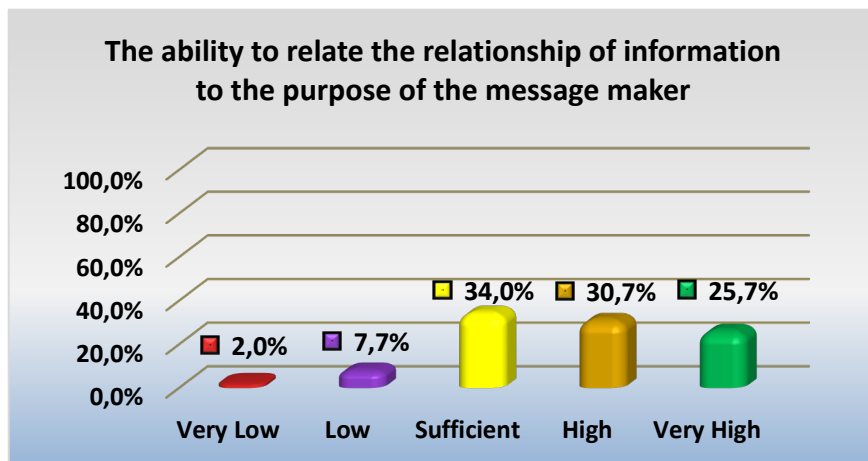
Figure 8. The ability to relate the relationship of information to the purpose of the message maker (Source: Data Analysis Results)

The ability to relate the relationship of information to the purpose of the message maker is one of the abilities where someone can see whether there is a bias or special message in the news they receive. In this competency, most middle-aged adolescents are at the sufficient level of competing with a percentage of 34%. This condition implies that middle-class teenagers still have some shortcomings in interpreting news framing by news writers. Even so, most middle-class teenagers in Medan City can anticipate some suspicious information that may be the origin of the message maker is unknown and potentially lead them to believe the info without re-checking it.

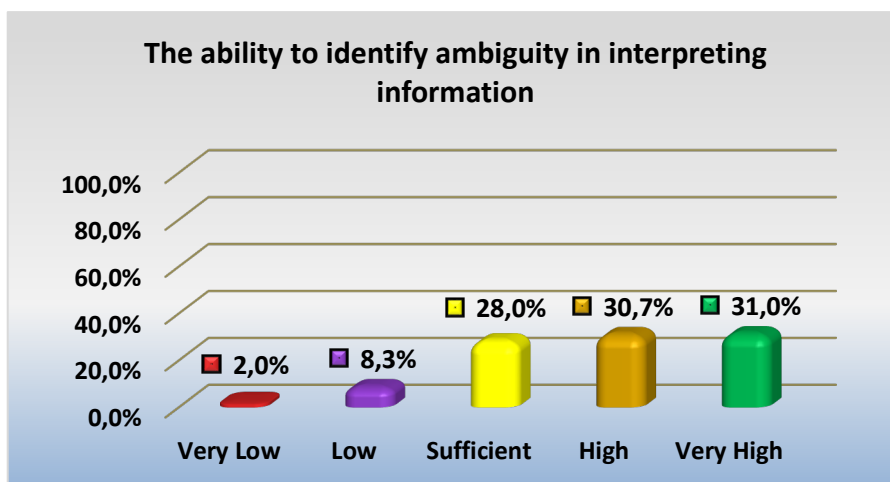**The ability to identify ambiguity in interpreting information**

Figure 9. The ability to identify ambiguity in interpreting information (Source: Data Analysis Results)

The ability to identify ambiguity in interpreting information that is difficult to understand makes the ability to identify ambiguity in interpreting information essential to measure for middle-class teenagers in Medan City. The ambiguous information here ranges from invalid input to writing errors to the use words that should not be placed in the published data. The results show that most middle-aged adolescents are at a very high level with 31%, followed by a high level with a rate of 30.7%. These results indicate middle-aged adolescents' tendency to investigate errors and ambiguities in information.
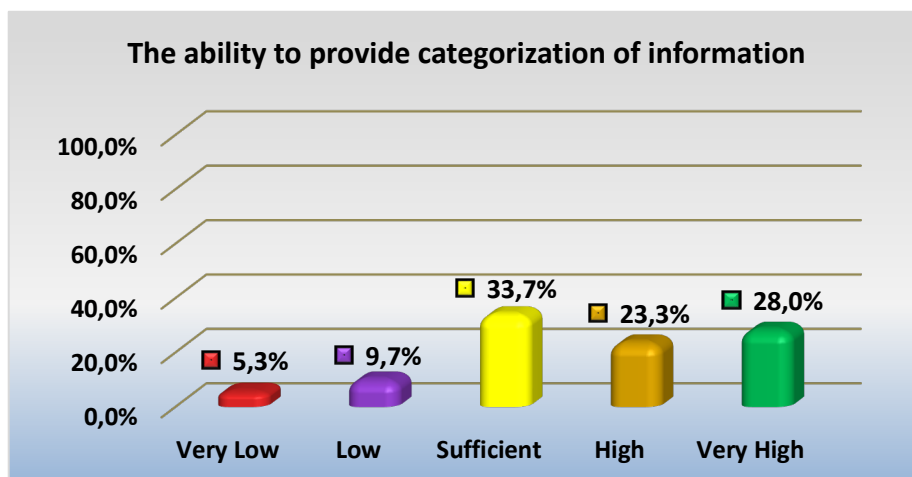
Figure 10. The Ability to Provide Categorization of Information (Source: Data Analysis Results)

The ability to provide categorization of information represents how one can distinguish between soft news and hard news (such as the difference between infotainment news and political news). The results of this study showed that 33.7% of middle-aged adolescents were at a sufficient level to distinguish the labeling of information. The understanding that is still at a sufficient level indicates that there is a tendency for the majority of middle-class teenagers in Medan City to be still unable to differentiate contextually the classification of news spread in cyberspace based on the content of the message.
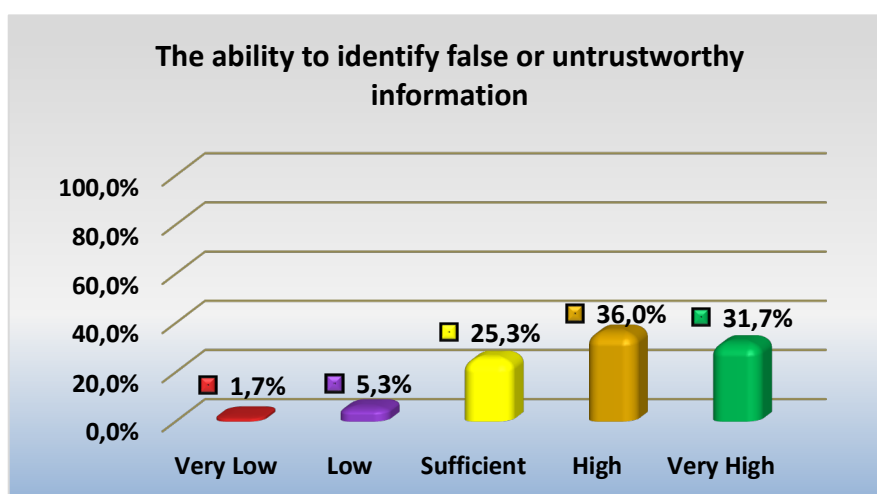

Figure 11. The Ability to Identify False or Untrustworthy Information (Source: Data Analysis Results)

Identifying false or untrustworthy information is one of the basic skills that are no less important about the rise of fraudulent news in the digital space. The findings of this study note that most middle-class adolescents in Medan City are at a level of being able to identify incorrect or untrustworthy information. It was noted that 36% of middle-aged adolescents were at high level, and another 31.7% were at the very high level. It is a good signal that most middle-class teenagers in Medan City can counter the spread of fake news well in cyberspace.

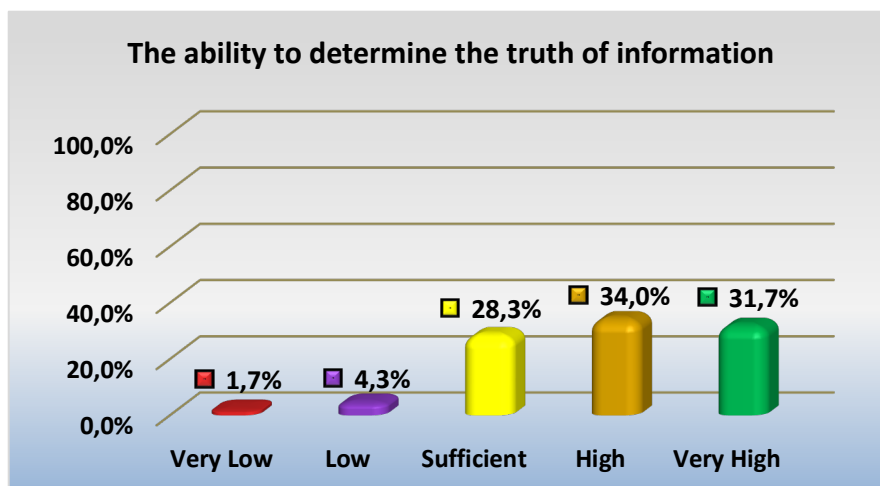**The ability to determine the truth of information**

Figure 12. The Ability to Determine The Truth of Information (Source: Data Analysis Results)

The ability to determine the truth of information talks about how a person's cognition can strengthen belief in the reality of the information he receives. Middle-class teenagers in Medan City, most of them can decide the truth. The figure above shows that 34% of adolescents in the high level, and 31.7% said they were at a very high level. However, this ability will be beneficial if accompanied by a good understanding.

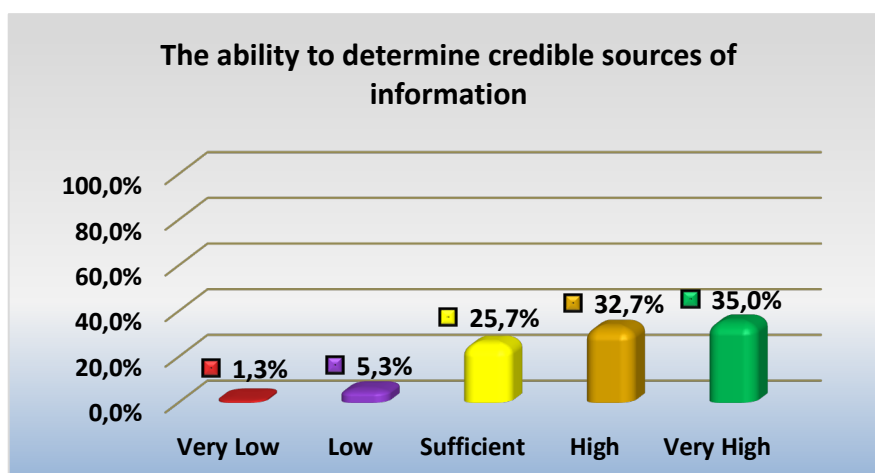**The ability to determine credible sources of information**

Figure 13. The Ability to Determine Credible Sources of Information (Source: Data Analysis Results)

The ability of adolescents to determine credible sources of information or media is the essential ability of teenagers to recognize various verified sources of information, both by government agencies (such as the local Communications and Information Office) and credible press organizations such as the Press Council, the Indonesian Broadcasting Media Association. Based on the survey, 35% of middle-class adolescents in Medan City are already at the very high level, and 32.7% are at the high level. It shows that they know and can determine which media are considered credible and which are not.
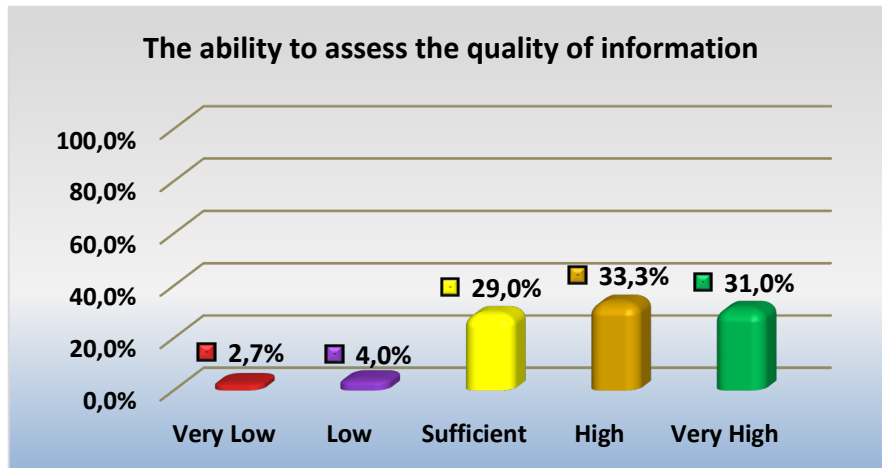
Figure 14. The Ability to Assess The Quality of Information (Source: Data Analysis Results)

The ability to assess the quality of information aims to measure how a person can provide criticism or opinions on a news presentation. In this context, there is a tendency where someone will give an assessment based on their subjectivity. However, it is not uncommon for someone to criticize the technical part of writing, the agenda-setting in the information, and several other things related to the technical presentation of information. Findings on middle-class adolescents in Medan City show that most middle-aged adolescents are at the high level, with a percentage of 33.3%, followed by a very high level of 31%. It indicates that middle-aged adolescents can provide quality assessments of information, both technical assessments and/or subjective preferences.
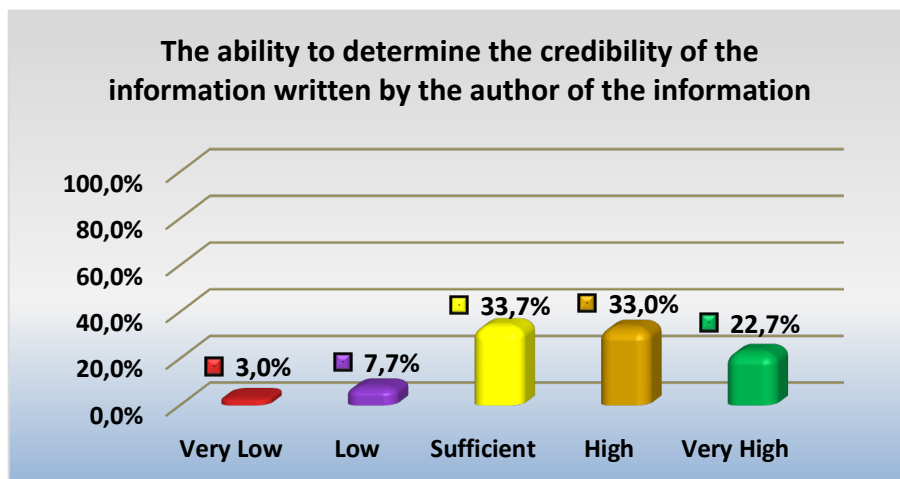

Figure 15. The Ability to Determine The Credibility of The Information Written by The Author of The Information (Source: Data Analysis Results)

The ability to determine the credibility of the information written by the author of the information becomes the last essential parameter to measure a person's ability to anticipate the spread of fake news. The credibility referred to here is how middle-aged teenagers see if there is an author's alignment with the flow, organization, and other things that will affect the information presented. If Figure 13 describes the ability of middle-aged teenagers to determine the medium/channel, then in Figure 15, teenagers want to measure their ability to examine the

author's writing style and the author's profile. Most middle-class teenagers are at the sufficient level, with a percentage of 33.7%. It is a sign in some areas in determining the credibility of information. Some teenagers tend to have limited access to the background of the creator of the message/information.

Discussion

Middle teenagers in Medan City have a very high intensity, namely at the level of addicted users (above 7 hours). This condition is complemented by the application they use, which is the social media that is most vulnerable to the spread of hoaxes. Social media's intensity and use also intersect, as explained by the Media System Dependency Theory. It is considered relevant to the development of digital technology, accompanied by the tendency of people to need a lot of information to meet their needs. It will encourage the individual to use media more often that meets his needs (Mehrad and Yousefi 2018).

Melvin Defleur and Sandra Ball-Rokeach argue that the Media System Dependency Theory is a theory that pushes the media to become more influential whenever there is a significant disruption in the social world. When social change happens so fast, and the people we usually ask for opinions don't understand the problem, we tend to rely more on the media for information about it. When we receive information presented through the media, the opportunities to influence our beliefs and opinions increase (Kim & Jung 2017; Littlejohn & Foss 2009, p. 812).

The level of addiction to accessing this information has the potential for exposure to false news by middle-class teenagers. Some of the abilities to be measured represent how middle-class teenagers respond to the widespread dissemination of unfiltered information in the digital space. These competencies broadly want to see how teenagers can understand, analyze, verify, and evaluate the information they get, with the condition that their dominant internet use intensity is very high.

The understanding competency is one of the basics of digital literacy in warding off false news in middle-class teenagers in the city of Medan. The competence to understand is reflected in several statements, such as 1) The ability to understand symbols obtained from information; and 2) The ability to understand the meaning visually or audiovisually. In some abilities, middle-aged adolescents are at an able level in this competency. This competency demands teenagers' ability to change visualizations or visible texts into signs and markers that they understand. This competence is also related to some subjects they have or are currently taking in school, from making long stories/sentences to how to explain a figure. This condition finally gives a positive assessment of this ability.

Next is the analyzing competency, one of the competencies that expect digital media users to dissect new media content and then read it more comprehensively from many angles. This competency outlines how the level of the critical power of digital media users. This competence is shown in several survey statements, including 1) The ability to understand the implied meaning of the information obtained; 2) The ability to relate the relationship of information to the purpose of the message maker; 3) The ability to identify ambiguity in interpreting information.

However, most middle teenagers have difficulties understanding the implied meaning of the information they get. This condition certainly has implications for how they interpret the information. The lack of education in media, of course, can cause them to still not fully understand several things related to the signs and markers of the information they receive. There is the potential for bias or understanding that is not too deep or just understanding the information and not the context.

It is, of course, a note that, in general, middle-class teenagers in the city of Medan still do not fully understand the process of analyzing information. They both still have the potential to make mistakes in interpreting some of the problem contexts. For example, they know that information is classified as fake news. However, they did not analyze further where the error lies in the information, where this also applies to credible news, both hard news and soft news.

Then there is the verifying competency, which is a competency that expects digital media users to be able to perform a meta-analysis, compare various sides of the truth presented by the media, and search for information to get a synthesis. This competency represents several abilities that are asked in the draft survey questions, namely 1) The ability to provide categorization of information; 2) The ability to identify false or untrustworthy information; 3) The ability to determine the truth of information. Most middle-aged adolescents in Medan City are at an able level in this competency, but one of the abilities, namely providing categorization of information, is at a sufficient level.

This competence is considered better and is at the level of being able. Nevertheless, this competency needs to be improved again like the previous competencies, considering the many cases of spreading false news or mistakes caused by errors from the author when he wanted to inform. The critical and thorough side in examining this matter is considered to still need to be strengthened again among middle-class teenagers in the city of Medan. In the end, this leads to an ability where these students can become pioneers of verification/verifier of fake or false news. This improvement can be represented by various journalistic training or fact-checkers so that they can verify at a very good level for themselves and the wider community.

The evaluating competency as the last competency is one of the competencies that require digital devices to always be critical of media content, including media credibility. The abilities that become parameters in this competency are 1) The ability to determine credible sources of information; 2) The ability to assess the quality of information; 3) The ability to determine the credibility of the information written by the author of the information.

Based on the findings of this competency evaluation research, it shows that the ability of middle-class adolescents in Medan City is broadly qualified to assess the quality of information. The critical and appreciative side of the youth is also seen here, where this competency is still continuous with the competence to understand, analyze, and verify. However, in the case of determining the credibility of the information written by the information writer, they still keep records, like some abilities in analytical competence, considering that, in general, they do not understand the deepening of information as practiced in journalistic work.

As with previous research in Medan City, teenagers tend to understand more contextually how the basics of applying digital literacy are compared to groups of generations above them(Sitepu and Rajagukguk 2022). It is also proven in detail based on the capabilities described in the *Basic Competencies in Preventing Exposure to Fake News* subsection. However, several obstacles will be experienced by middle-aged youth and other age groups. Sitepu et al. (2021) stated that the residents of Medan City tend to be exposed to fake news because the news is spread by trusted people who think the information is valuable and believe the report is accurate.

With basic abilities that can be said to be good, it can be one of the advantages of the middle age group of teenagers to represent well in their environment. However, some abilities still need to be given special attention, considering that teenagers tend to not fully understand the meaning of the practical application of etiquette and rules in social media (Sitepu 2017). The development of innovation in educating young people's technological abilities needs to be improved in various ways. It can implement the movement in digital literacy in multiple ways,

ranging from various talk shows, socialization, and religious lectures, to seminars, either face-to-face or online(Kurnia and Astuti 2017).

CONCLUSION

The results obtained by the researchers found that the ability of middle-aged adolescents in Medan City was at the level of being able and very capable. However, there are several findings, specifically in analyzing and evaluating the information received by adolescents. It is undoubtedly a note preventing false information from circulating in the country.

The development of digital literacy programs, specifically in countering fake news, cannot depend on just one actor, so it is necessary to increase socialization with stakeholders through digital literacy movement programs. The mapping carried out by researchers can be a reference for policymakers to formulate regulations and pay attention to the condition of digital literacy, which is still experiencing inequality, especially between disadvantaged and urban areas. Practically, the implementation can be in the form of designing a digital literacy curriculum at the school level, campaigns for the importance of digital literacy, and other things that can accommodate implementation at the grassroots level, especially for teenagers.

The hope for further research is that measurements are not only based on mere parameters. Research needs to provide several case studies related to the way teenagers deal with fake news, provide choice questions related to the selection of credible and questionable media, as well as various statements and questions that can be experimental. This effort can aim to find out how teenagers' abilities are practically and not just theoretical.

ACKNOWLEDGMENT

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