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Public MTs Students Engagement with Digital Media: Are They Really Competent?

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ARTICLE INFO	A B S T R A C T
	Digital literacy is one of the essential skills for students in this digital age to improve their academic performance. Digital media can be used to support learning in daily school life, so both of teachers and students must be competence in the digital world. Even mobile/digital games can be used as one of the learning tools. The Ministry of Communication and Information Technology and the Ministry of Religious Affairs have joined hands to improve the digital literacy of students, especially in madrasas. However, there are no previous studies that provide us with the digital literacy of madrasa students. The aims of this study are to find out and analyze the digital literacy index of madrasa students and also their engagement with digital media. The research was conducted in MTsN in Semarang using an offline survey and the result is analysed using descriptive quantitative method. The result shows that their digital literacy is at high/good level. Students are involved in the digital world because their daily activities can't be separated from technology and digital media. The result reflects that today's students are considered as digital native generation whose their life development is highly influenced by digital world. In this case, knowing the digital literacy index becomes an urgent and fundamental matter.

INTRODUCTION

Digital literacy skills are becoming a very important need in today's digital era (Aboobaker & KA, 2021; Oguguo et al., 2021). The era that requires the use of digital instrument/media in daily activities, also for students. Many scholars stated that education in the digital era needs to be supported with digital literacy skills and abilities so that students can improve and maximise their academic achievement (Chiu, 2021; Churiyah et al., 2020; Gil-Flores et al., 2017; Røkenes & Krumsvik, 2014). This condition shows the importance of measuring student's digital literacy index.

Several survey institutions have conducted surveys on digital literacy. In 2020, based on IMD (*Institute Management Development)* record, Indonesia ranked 56th among 63 surveyed countries, and this result makes Indonesia as if a backward country (Oktari, 2020). The Indonesian government through the Ministry of Communication and Information Technology (MCIT) admits that the digital literacy of Indonesian society has become a special challenge that needs to be solved (Evandio, 2021). Based on Indonesia Digital Literacy Survey in 2020 and 2021, which was conducted by MCIT, it is found out that digital literacy in Indonesia is not good enough. In 2020, the digital literacy score was 3.47 and in 2021, it increased to 3.49, but both are them are categorised in medium (Ameliah et al., 2022; Katadata Insight Center, 2020).

In 2019, as much as 73.7% of Indonesia's population is reported to be internet users and as much as 41.7% is dominated by the Javanese island population (APJII & Indonesia Survey Center, 2020). Internet penetration is dominated by the 15-19 age group (91%) and 20-24 age group (88.5%), while social media use is dominated by the millennial generation (25-34 years old age group), followed by the 18-24 age group and 13-17 age group (Hootsuite, 2020). This means that high school students play a significant role as the most internet and social media users. But, with such a high penetration level, why can't Indonesia's digital literacy level reach the **good/high** category?

The National Digital Literacy Program was launched by MCIT on 20 May 2021 to support digital transformation in Indonesia. The program was then followed by with collaboration between MCIT and other ministries or institutions, one of which is the Ministry of Religious Affairs (MoRA/*Kementerian Agama/Kemenag*). MoRA oversees hundreds of students attending madrasas and other religious educational institutions. On 4 August 2021, MCIT and MoRA were working together to improve the digital literacy of madrasa students (Setu, 2021). According to the General Director of Information Technology Application in MCIT, Semuel Abrijani Pangerapan, one

of the aspects that determines the success or failure of the digital transformation process is the human resources aspect, including madrasa students.

The General Director of Islamic Education in MoRA, Ali Ramdhani, stated that in an online learning process during the Covid-19 pandemic, all madrasa elements must be friendly with the internet and technology (Setu, 2021). Madrasa students should strengthen their digital literacy in order to create a healthy and good digital culture. Digital media is urgently needed as a learning resource and must be designed to develop student's digital literacy (Buckingham, 2015; Ryberg & Georgsen, 2010).

So, what is the digital literacy portrait of madrasas in Indonesia? The survey conducted by MCIT provides description of the general Indonesian population, not describing the digital literacy of students or even madrasa students. Mustolehudin once wrote a study on media literacy in *pesantren*-based *madrasa aliyah.* The results show that internet use in school is very limited and can only be done under the supervision teachers or boarding school assistant (Mustolehudin, 2020). Apart from this research, no studies, where found that specifically explore the digital literacy of madrasa students, have been found.

The digital literacy of *madrasah tsanawiyah (MTs)* students is important to study because based on Kaspersky Lab's research it is found that the changing of online activity actually happened during the junior high school (MTs) age group. Kaspersky Lab found that most of children's online activity is playing online games, watching videos/movies, and chatting on social media platforms (Whatsapp, Instagram, Youtube, Twitter, etc). The highest percentage of online activity for children aged 8-10 years and 11-13 years is playing online games, while children aged 14-16 years prefer to use internet for social networking and chatting. MTs students are in transitional period of this online activity, so it is interesting study this. By starting to be active on social media networks, the opportunity to get hoax content may be even greater (Triastuti et al., 2017).

To date, there have been quite a few studies on digital literacy have been conducted before, namely by: Adiarsi, et al. (2015), Kurniawati & Baroroh (2016), Kurnia & Astuti (2017), Samputri (2019), Irhandayaningsih (2020), Kurnia & Wijayanto (2020), Liestyasari et al. (2020), and Oktavia & Hadinata (2021). Nowadays, social media has taken over the daily of children (Liestyasari et al., 2020). Some of the previous researches studied the digital literacy level of university and senior high school students (Kurniawati & Baroroh, 2016; Oktavia & Hardinata, 2021). Samputri's research result stated stated about the relationship of digital literacy level of public senior high school with academic achievement, gender, and motivation which show no difference (Samputri, 2019)

The internet, computer games, digital video, mobile phones, and other modern technologies provide new ways of communicating, representing, and communicating the world (Buckingham, 2015). They need to be used appropriately in school life (Erstad et al., 2021; Ryberg & Georgsen, 2010). Even video game technologies can be used as one of the learning systems in schools (Gee, 2006). Therefore, it is important to conduct some studies about digital

literacy and students, how they grow up and learn digitally in today's era (Lankshear & Knobel, 2015). A good model of media literacy can be used to prevent social conflicts among students (Kunandar, 2014) and giving knowledge to the public, not only to students (Sanityastuti, 2014). Ottestad et al. (2014) has proposed three dimensions of digital literacy for teachers, namely: generic, didactic, and professional oriented but no dimensions were proposed for student's literacy.

A previous study on digital literacy was conducted by Candrasari et al. (2020) which concluded that young women's digital literacy is not good enough. They lack the ability to use the internet and its responsibility and also their management of information. The benefits of digital literacy have been studied by Mustika & Mudjiyanto (2020) which mentioned that ICT training has been proven to improve the self-efficacy of people with disabilities. While Setyo et al. (2020) concluded that media literacy for teachers can be used as early prevention of extremism and radicalism in schools.

Among the above studies, research about the digital literacy among students of MTs (both public and private MTs) has never been done before. In other words, the digital literacy problems of public MTs students have not been properly mapped. The void and scarcity of existing literature will be provided with this study. The aim of this study is to find out and analyse the level of digital literacy of student's and how their engagement with digital media.

Communication through digital media enables people to keep in touch with others and share information from all over the world. The development of digital media in the world of communication has a positive impact. The telephone, internet, wearable technology, virtual reality (VR), and 5G are some of the technology development and it needs to be used wisely to prevent miss-communication. (Asemah et al., 2022; Rogers, 2019)

Based on the above paragraph, it is important to study more about digital literacy competence, especially in educational settings. The concept and component of digital literacy used in this article is based on MCIT, Siberkreasi, and Deloitte. When they conducted survey on 2020, they proposed 4 digital literacy competencies, namely: digital skills, digital culture, digital ethics, and digital safety/security (Adikara et al., 2021). From these 4 competencies, it was then extracted to 4 subindexes and 7 pillas. The 4 subindexes are: data information and data literacy, communication and collaboration, security/safety, and skills in using technology (Katadata Insight Center, 2020).
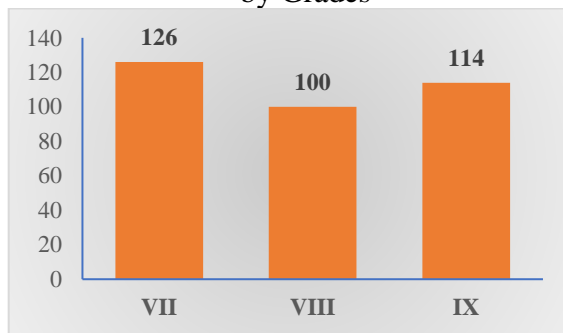
METHODOLOGY

This paper departs from the quantitative approach by using survey research with the population of students in grades 7-9 of MTsN (public *madrasah tsanawiyah*) in Semarang City. There are only 2 MTsN in Semarang, which are MTsN 1 and MTsN 2. The number of students in the academic year 2021/2022 in MTsN 1 is 1,009 while in MTsN 2 is 988 students. Thus, the total population of both madrasas was 1,997. From this number, we then calculate the sample size using the Slovin formula with a sampling error 5% and then we get 333 students as the sample. In order to fulfil the sample,

340 students were taken from 2 madrasas. The number of samples in each madrasa was calculated proportionally. The sample size in MTsN 1 was approximately about 172 students while in MTsN 2 it was 158. Then a random sampling technique was used to select the name of respondent in each madrasa. The questionnaire was printed, so that each respondent has to fill it directly during school hours.
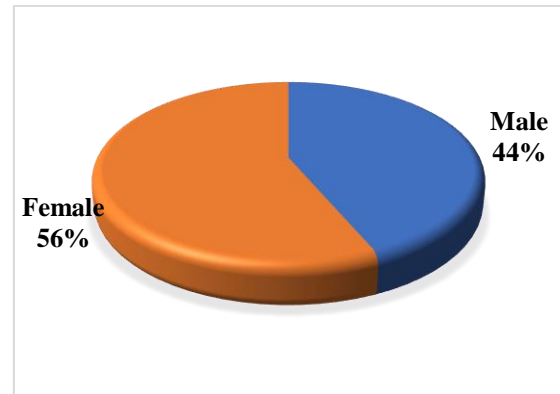
The research was conducted in November 2021 when the madrasa had already resumed the offline learning process again. Out of 340 samples, as many as 126 students were in grade 7, 100 were in grade 8, and the rest were in grade 9 (see **Fig. 1**). About 148 samples are male students and 192 are female students (see **Fig. 2**). If we look at the age of all respondents, it will be found that they were in the range 11-16 years old (see **Fig. 3**), so they belong to the generation Z category (Bencsik et al., 2016).

Source: Research Data Processing (2021)
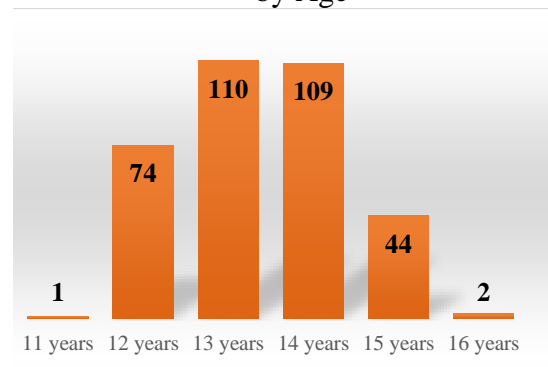
Figure 3. Number of Respondents by Age

Source: Research Data Processing (2021)

By referring to some of the literatures on the characteristics of Generation Z in terms of technology mastery, it is hoped that the respondents will have a good level of digital literacy. This part will be discussed in the next section. About 64.41% of the respondents were in the age range of 13-14 years old and there were only 3 respondents who were 11 years and 16 years old.

The questionnaire also asked whether the respondent lived at home with their parents or not. If they lived at home with their parents, it was hoped that there would be more support when children were using digital media. The survey found that 325 respondents lived

Figure 1. Number of Respondents by Grades

Source: Research Data Processing (2021)
Figure 2. Percentage of Respondents by Gender

at home with their parents. Only a small proportion of respondents, 15 students, did not live with their parents. Based on the variety of answers given by the respondents, it was found that those who do not live with their parents, actually only live with their older brother, grandmother/grandfather, aunt/uncle, in an Islamic boarding school, and in an orphanage (see **Fig. 4**).

Figure 4. Percentage of Respondents by Residence
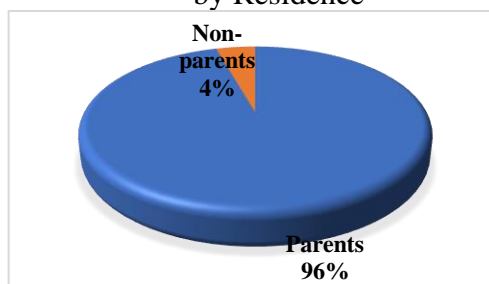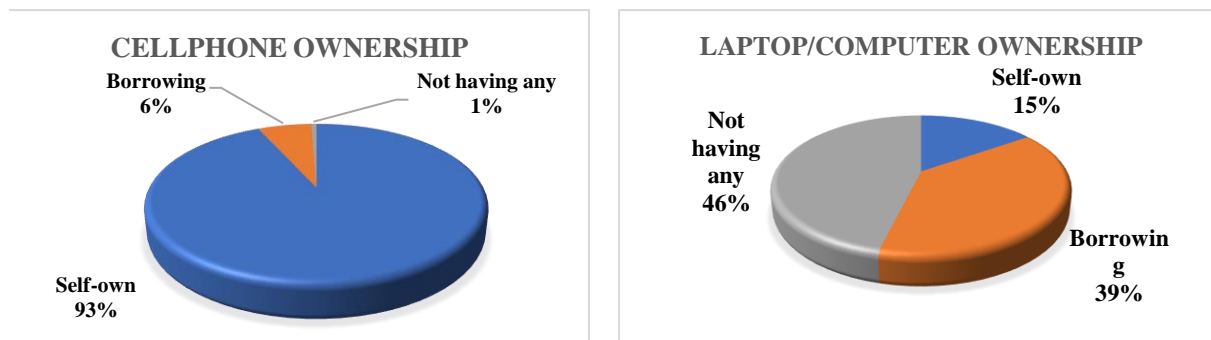

Source: Research Data Processing (2021)

RESULTS AND DISCUSSIONS

Engagement of MTsN Students in Semarang with Digital Media

The survey was designed to find out about of MTsN students engagement with digital media. In the first item, they were asked about their ownership of cellular phone/mobile phone and laptop/computer. This question is important to ask because it is related to the indicators of digital literacy competencies. Based on the survey, it can be seen that 99% of the samples have cellphones even though it's not their own. There were 2 students who didn't have cellphone at all, but there was no further interview so we don't know how both of them are studying during the Covid-19 pandemic. Meanwhile, 54% respondents claimed that they have laptop/computer. (see **Fig. 5**)

Figure 5. Percentage of Respondents' Cellphone and Laptop/Computer Ownership

Source: Research Data Processing (2021)

Figure 5 above shows that 93% of the sample already have their own cellphones. This means that the parents or guardians of the students have made it easier for their children to study online. By giving them their own cellphones, when learning online, they do not need to borrow or exchange cellphones with their parents or siblings when they study online. Students who do not have a cellphone borrow from their parents or their siblings. On the other hand, it turns out that as many as 39% of respondents already have their own laptop/computer,

while 15% of the sample borrow a laptop/computer from their parents, siblings, relatives, or orphanage where they live. There are still many students who don't have laptops/computers because maybe these tools are not considered as primary needs at their age. For daily needs and schools, cellphone is considered adequate.

Based on the Cambridge International survey through the Global Education Census, it is believed that Indonesian students are very familiar with technology and are the highest users in the education world (Harususilo, 2018). This Cambridge survey shows several ranks of Indonesian students in term of digital media, namely: 1) the highest computer users in the world (40%), the second highest desktop computer users (54%), and 3) the second highest laptop users for doing homework in the world (84%). Given that this study was published in 2018, it is possible that the use of digital media by the students is currently increasing, given that during the pandemic period, students studied online using cellphones, laptops, or computers.

Ependi and Sopiah (2015) mentioned that cellphone is no longer a secondary need, but has turned into a primary need. Beginning to spread and develop in Indonesia in 1985-1992 (Anwar, 2010), nowadays cellphone are already owned by most of Indonesian population. Based on data from Hootsuite, around 96% of the Indonesian population aged 16-64 years have a cellular phone (Hootsuite, 2020). The data is apparently not much different from the results of this survey, were 99% of MTsN students have cellphones, even though this condition is influenced by pandemic conditions that require students to study online from home.

The next data revealed is the availability of internet signals for surfing in cyberspace. According to Figure 6 below, 94% of respondents say that the internet signal is already available and easy to get in the place where they live. The remaining 6% of the samples state that they have difficulty in getting an internet signal in the location where they lived in. In the digital literacy survey conducted by the MCIT in 2020 and 2021, different results were obtained. In the 2020 survey, it was stated that 96.5% of respondents found it easy to get a cellphone signal, while in 2021 there was a considerable increase, where 99.7% of respondents stated that it was easy to get a cellphone signal around their residence (Ameliah et al., 2022; Katadata Insight Center, 2020).

**Figure 6.** Percentage of Internet Access Availibilty in Respondents' Residence
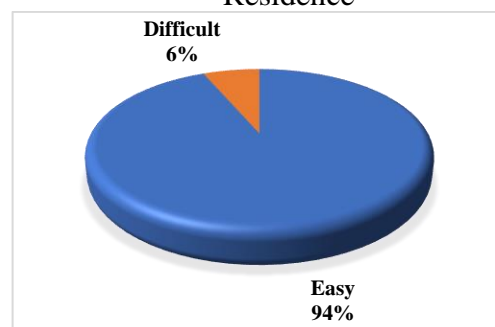
Source: Research Data Processing (2021)

Easy internet access does not mean the network is always stable. Question number 8 asks about the most common problems encountered when accessing the internet. Respondents were asked to choose two obstacles they had experienced when accessing the internet. Most of the answers indicate that the two most common problems experienced by respondents are unstable network (79.4%) and limited quota (44.4%). A

total of 4.7% of respondents state that they have no problems at all when accessing the internet. In the digital literacy survey in 2021, it was also stated that an unstable network that causes disconnections is the highest obstacle in internet access (88.9% of respondents) although they are already being helped by the availability of internet signals in different regions (Ameliah et al., 2022). (see **Fig. 7**)

**Figure 7.** Respondents Difficulty Reasons in Accessing Internet
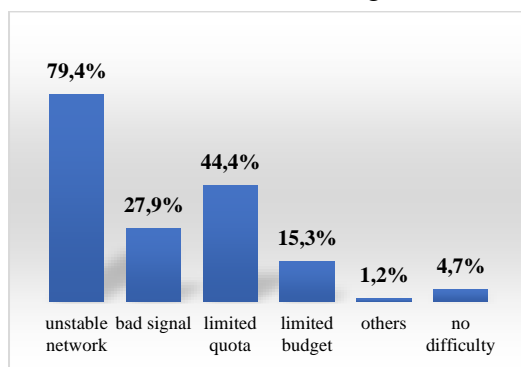
Source: Research Data Processing (2021)

The variety of answer choices for obstacles often experienced when accessing the internet is adapted from the results of the MCIT's Digital Literacy Status Survey (Katadata Insight Center, 2020). The results of the survey above are not much different from the survey of the MCIT, in which the most frequent obstacle experienced when accessing the internet is an unstable internet network. 94% of respondents state that it is easy to get an internet signal at their residence. The limited data package quota is the second choice is related to the fourth option, which is a limited budget. Madrasa-aged students still depend on their parents or guardians to purchase internet data packages. Therefore, budget constraints will also affect the internet data package subscriptions they will use.

For the other answer choices, four students fill it with *ngelag*. *Ngelag* is a term that comes from English, lag, which means jammed or broken. This term is currently frequently appearing and used in online games. Lagging can be caused by an unstable internet signal or because the cellphone or laptop is not compatible with the specifications needed to play games. Online games usually require high cellphone or laptop specs and a strong internet signal. Thus, the other answer choices by the respondents could be related to an unstable internet network.

**Figure 8.** Percentage of Estimated Internet Access Cost in a Month
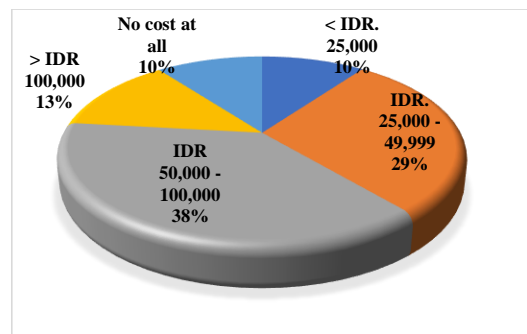
Source: Research Data Processing (2021)

In Figure 8, the percentage of respondents of internet access cost per month is presented. The researcher adapted this question item from the MCIT survey but changed the answer range because the respondents are a student with a limited pocket money from their parents or guardians. As many as 38% turn out to spend around IDR 50,000 – IDR 100,000 to buy internet data packages per month and the second most is the data package subscription fee of IDR 25,000 – IDR 49,999. There were also respondents who spent more than IDR 100,000 to buy internet quota and this cost is quite expensive for students in their early teens. This cost allocation is in

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line with the 2021 digital literacy survey involving respondents from the age of 13-70 years, i.e. they spend an average of IDR 50,000 – IDR 100,000 per month to buy internet quota (Ameliah et al., 2022).

The students did not use the data packages provided by the Ministry of Education and Culture and MoRA. Some of them said that they never received the internet quota assistance from the government during Covid-19 pandemic, but some said that they got a new number and internet quota at the beginning of online learning. After the internet data package ran out, they no longer used the government-given cellphone number. The students prefer to use their old number or buy a new number that is only used to subscribe to internet packages. Some students who stated that they did not spend any money at all. When asked further, they gave various answers. They said that when at home they use wi-fi, the others said they never take their cellphones when they leave the house, and others said that they will activate the internet just when they go to places that provide free wi-fi. Some go out of the house then connect internet by tethering a data package from their brother. Those who do not spend any costs because they borrow their parents' or siblings' cellphones or laptops so that they do not need to purchase internet data packages.

Figure 9. Percentage of the Most Accessed Social Media
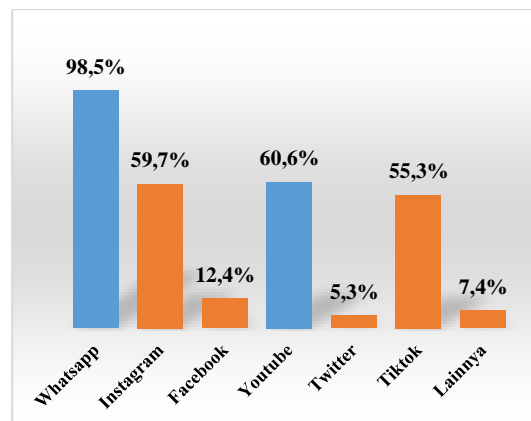
Source: Researh Data Processing (2021)

Figure 9 shows that the three social media most frequently accessed by MTsN student respondents are Whatsapp (98.5%), YouTube (60.6%), and Instagram (59.7%). TikTok occupies in fourth place with a voter percentage of 55.3%, not much different from those who chose Instagram and Youtube. Facebook (FB) and Twitter do not seem to be an option for Generation Z who are the respondents of this study. According to the survey, FB is frequently accessed by 12.4% of respondents and Twitter by 5.3% of respondents. In this question, respondents were asked to choose 3 answer options and some respondents chose other answers. Other social media that respondents also accessed are Telegram, online novels, and *Wattpad*. Reading novels online can be included in social media because in this application, readers and novel writers can communicate through the messaging facilities provided.

**Figure 10.** Percentage of Internet Use Purpose
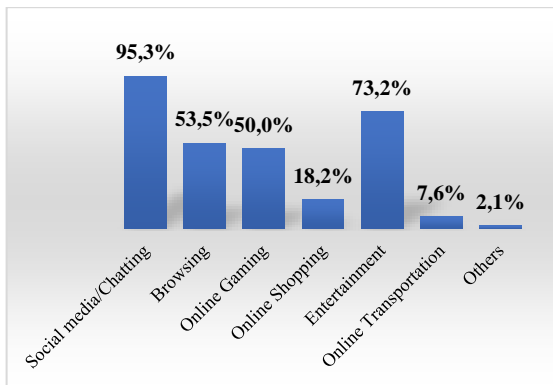
Source: Research Data Processing (2021)

One of the questions included in the questionnaire is whether MTsN students access the internet for purpose other than online schooling. Based on Figure 10 above, the two main purposes for which respondents access the internet are to surf social media (chat/messaging) (95.3%) and entertainment (73.2%). There is no doubt that the first highest choice is to use social media, as social media currently considers a "primary need" when surfing the internet. The second most popular choice is an entertainment. Entertainment meant here is to watch videos or listen to music through various digital platforms or applications that have been provided and are easy to access.

The 3rd and 4th places to access the internet are occupied by browsing information and online games. Both are chosen with almost the same percentage of voters, namely 53.5% and 50% of the total number of respondents. Accessing website, for example through Google, has become a major need for citizens when they want to find out information. Therefore, it is not surprising that browsing is still one of the goals of high internet access among MTsN students.

Online games are ranked as the fourth purpose for internet use. A total of 170 respondents choose online games as their internet access purpose, and it turns out that 62% of the voters are male (see **Fig. 11**).

Figure 11. Percentage of Respondents Who Choose Online Games as a Purpose in Accessing Internet Based on Gender
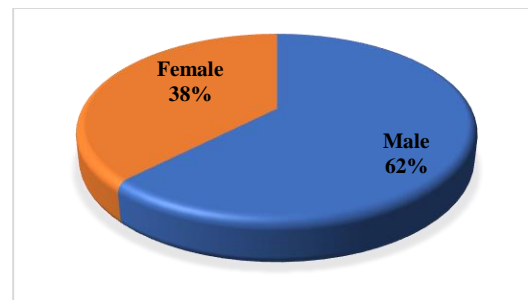
Source: Research Data Processing (2021)

Digital Literacy Competence for MTsN Students in Semarang City

In the questionnaire completed by the respondents, there are 4 sub-indexes, 7 pillars, and each of which contains 4 statement items. Respondents must choose the conditions that best suit themselves by choosing one of the 5 response options that have been prepared, namely Strongly Disagree (SD), Disagree (D), Neutral (N), Agree (A), and Strongly Agree (SA). Each of the answer choices is rated on a scale of 1-5. Thus, the SD option has a value of 1 and the SA option has a value of 5. Then, to determine the normalization of the results of the digital literacy component data processing, the class interval division formula is used. Determination of class intervals can use the total score per respondent or with the mean score for every one of the respondents. The calculation of the class range when using the score or value of each of the respondents is as follows:

$$R = \frac{possibly\ highest\ score - possibly\ lowest\ score}{the\ number\ of\ classes}$$
$$= \frac{140 - 28}{3} = 37.33$$

$$R = \frac{highest\ mean - lowest\ mean}{the\ number\ of\ classes} = \frac{5 - 1}{3} = 1.33$$

R is the range of scores in the class interval. The possibly highest score is obtained from a score of 5 (voting Strongly Agree) which is multiplied by the number of statement items as many as 28. The possibly lowest value is obtained from a score of 1 (voting Strongly Disagree) which is multiplied by the number of 28 statement items. The number of classes has been determined as many as 3, divided into high, medium, and low. The class range with this calculation is 37.33. If it is calculated using the mean score, then the range of values for each of the classes is 1.33. Thus, the class categorization can be seen in **Table 1** below.

Table 1. Categories and Class Intervals for Digital Literacy Level

| Total Score Calculation		Total Mean Score Calculation	
Class Interval	Category	Class Interval	Category
28 – 65,33	**Low**	1 – 2.33	**Low**
65.34 – 102.67	**Medium**	2.34 – 3.67	**Medium**
102.68 – 140	**High**	3.68 – 5	**High**

Based on the results of data processing, both through the calculation of the total score and the mean total score, the same results are obtained. In the results of this study, digital literacy level categories will be presented using the calculation of the mean score. Researcher conducted data processing on the digital literacy level of each of the respondents, the digital literacy level based on 7 pillar indicators, the digital literacy level based on 4 sub-indexes, the digital literacy level based on gender, and the overall digital literacy level. The digital literacy level of

340 respondents is presented in **table 2** and **figure 12** below.

Tabel 2. Digital Literacy Level of Each Respondents

Total Score Calculation		Total Mean Score Calculation	
Class Interval	Total	Class Interval	Total
28 – 65.33	0	1 – 2.33	0
65.34 – 102.67	115	2.34 – 367	115
102.68 – 140	225	3.68 – 5	225

Figure 12. Percentage of Digital Literacy Level of Each Respondents
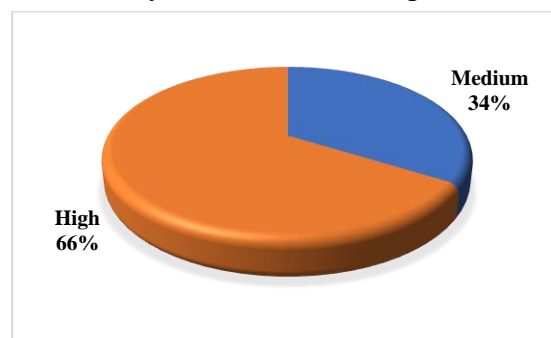
Source: Research Data Processing (2021)

Table 2 and figure 13 presents that among 340 respondents, 66% of the respondents are in the high category and 34% of the respondents are in the medium category. There are pleasantly no respondents in the low digital literacy category. However, if it is broken down again in each of the pillars, then there are still some respondents who are in the low category. As presented in table 3, in every of the pillars there are always respondents who are in the low category. The two pillars that have the highest number of respondents in the low category are critical thinking (19 respondents) and device security (14 respondents). These two pillars also have the largest number of respondents in the moderate/medium category, namely 174 respondents (critical thinking) and 156 respondents

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(device security). The two pillars with the highest number of respondents in the high category are the pillars of information and data literacy and the ability to use technology. As many as 78.82% of respondents fall into the high category for information and data literacy, while on the pillar of ability to use technology there are 82.35% of respondents who are classified as high. This calculation is done using the mean score of each of the respondents. The complete categorization and results are presented in table 3 below.

Table 3. Digital Literacy Level of Each Respondents Based on Digital Literacy Pillars

No.	Digital Literacy Pillars	Number of Respondents per Category		
		1- 2.33 Low	2.34- 3.67 Medium	3.68- 5 High
1.	Information & data literacy	5	67	268
2.	Critical thinking	19	174	147
3.	Communication skill	2	88	250
4.	Ethics in technology	2	93	245
5.	Personal safety	9	118	213
6.	Device security	14	156	170
7.	Skill to use technology	1	59	280

Based on table 3, then the mean score of each of the pillars for all respondents is calculated. The result is as shown in Figure 13. Two pillars are in the medium category and 5 pillars are in the high category. Two pillars in the moderate/medium category are critical thinking (3.46) and device security (3.57). The pillars with high category are information and data literacy (3.94), communication skills (3.93), ethics in technology (3.96), personal safety (3.84), and the skill to use technology (4, 13). To sum up, the MTsN students in Semarang City have the best skill in using technology of all the pillars. (see **Fig. 13**)

Figure 13. Digital Literacy Level Based on Each Pillar
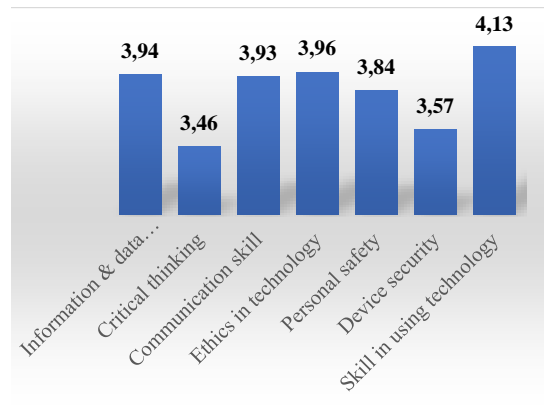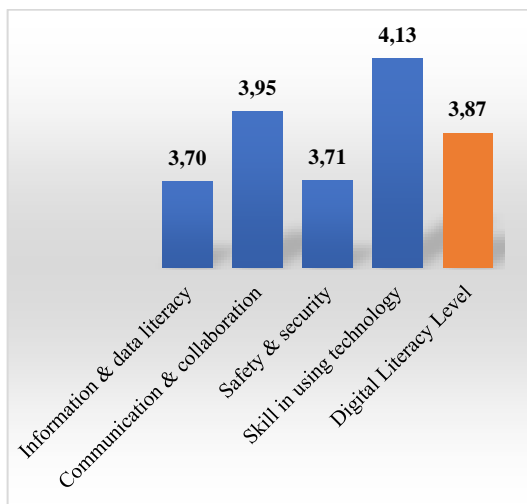
Source: Research Data Processing (2021)

The digital literacy level was then processed based on four digital literacy competency sub-indexes. The scores for the four sub-indexes were collected from the scores of the 7 pillars as presented in table 4. The results are quite exciting because the number of respondents who fall into the low category is not more than 2%. Based on the calculation of the data, it turns out that there are still quite a lot of respondents getting the medium category, namely 46.2% for the data information and literacy sub-index. The ability to use technology is the sub-index that has the highest number of respondents in the high category.

Table 4. Digital Literacy Level Each Respondents Based on 4 Subindexes

No.	Digital Literacy Sub-indexes	Number of Respondents per Category		
		1 – 2.33 Low	2.34 – 3.67 Medium	3.68 – 5 High
1.	Information & data literacy	2	157	181
2.	Communication & collaboration	0	95	245
3.	Safety and security	7	148	185
4.	Skill in using technology	1	59	280

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From table 4, the mean score of each the sub-indexes for all the respondents was calculated. The results are quite encouraging, because it turns out that the four sub-indexes are in the high category. The data information and literacy sub-index and safety sub-index are in the medium and high category thresholds, the mean score of which are 3.70 and 3.71 respectively. Meanwhile, the communication and collaboration sub-index has a score of 3.95, and skill to use technology sub-index is 4.13. (see **Fig. 14**)

Figure 14. Digital Literacy Level of MTsN Students in Semarang City Based on Each Sub-indexes

Source: Research Data Processing (2021)

From the results presented in Figure 14, the calculation of the digital literacy score of MTsN students in Semarang City is **3.87** which is included in the **high** category. At first glance, these results are quite encouraging, but the levels of digital literacy per pillar and per sub-index need further attention.

Overall, the digital literacy competence of MTsN students in Semarang included in the high category is presumably encouraging. In fact, Indonesia's Digital Literacy Index in 2020 and 2021 still show a score at a medium level (Ameliah et al., 2022; Katadata Insight Center, 2020). School students, including madrasas, in 2020 were required to study online since the Covid-19 pandemic. Because of these demands, students who may have been familiar with the digital world before become even more familiar when studying online from home. Not only are learning processes conducted online, but assignments are also given and submitted online with various types such as papers, documents, videos, pictures, etc (Ahmad et al., 2021; Sihombing & Fatra, 2021). Under such situation, students have to improve their knowledge independently or by accessing some websites that can be accessed freely. Generation Z has a high ability to access information so that the opportunity for self-development is widely open (Mukhlis, 2015).

MTs students are categorized as generation Z so they also have typical-Gen-Z characteristics. Generation Z tends to access the internet longer than other generations (Subowo, 2021; Wijoyo, 2020). They access social media such as Instagram, YouTube, and TikTok (besides WA) where all three are visual-based social media pages (images and videos). It is understandable that social media is the main goal of most respondents when accessing the internet because social media is an important part of Gen-Z's life. Technology and Gen-Z will coexist and cannot be separated, so it is not surprising that research respondents have high digital literacy competence (Gaidhani et al., 2019; Kaur & Kauts, 2019; Wijoyo, 2020).

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CONCLUSION

Digital literacy is an important programme that the world, including Indonesia, is promoting. The government continues to encourage people to be smart in digital media. There are four areas of digital literacy competence that the government is working on, i.e. ability or skills, culture, ethics, and digital media security/safety. This study provides new information that has never been studied before, that is MTs student's engagement with digital media and their competence in using digital media. *Based* on the results of the survey conducted in MTsN Semarang in November 2021, the students' digital media literacy is in high category (score 3,87). This status does not necessarily relieve the policy makers relieved because individually, there are still quite a lot of respondents whose competence is still at a moderate level. The government, schools, and parents need to work closely together to ensure that the next generation of Indonesian will be competent and digitally literate. The data on student's engagement can also be used to propose a new learning model to be implemented in the madrasa using technology development.

CREDIT AUTHORSHIP CONTRIBUTION STATEMENT

Nur Laili Noviani: Writing-Conceptual Draft, Methodology, Data curation, and Editing. **Nur Laili Mardhiyani**: Writing, Data curation, Methodology, and Analysis. **Adison Adrianus Sihombing:** Writing Literature Review and Reviewing. **Moch. Lukluil Maknun**: Analysis, Reviewing, and Editing. **Girindra Putri Ardana Reswari**: Editing and Proofreading

DECLARATION OF COMPETING INTEREST

We certify that there is no conflict of interest with any financial, personal, or other relationships with other people or organizations related to the material discussed in the manuscript.

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REFERENCES

Aboobaker, N., & KA, Z. (2021). Digital Learning Orientation and Innovative Behavior in the Higher Education Sector: Effects of Organizational Learning Culture and Readiness for Change. *International Journal of Educational Management*, *35*(5), 1030–1047. https://doi.org/10.1108/IJEM-09-2019-0345

Adiarsi, G. R., Stellarosa, Y., & Silaban, M. W. (2015). Literasi Media Internet di Kalangan Mahasiswa. *Humaniora*, *6*(4), 470–482.

Adikara, G. J., Kurnia, N., Adhrianti, L., Astuty, S., Wijayanto, X. A., Setyaningsih, F. D., & Astuti, S. I. (2021). *Modul Aman Bermedia Digital* (G. J. Adikara & N. Kurnia (eds.)). Direktorat Jenderal Aplikasi Informatika.

Ahmad, Hasnawati, Mulyadi, Apriyanto, M., Oklianda, A., Putra, D. D., & Warmi, A. (2021). Student Responses during Online Learning in the Covid-19 Pandemic Period. *Journal of Physics: Conference Series*.

https://doi.org/10.1088/1742-6596/1764/1/012125

Ameliah, R., Negara, R. A., & Rahmawati, I. (2022). *Status Literasi Digital di Indonesia 2021* (S. Limuria & V. Zabkie (eds.)). Kementerian Komunikasi dan Informatika dan Katadata Insight Center.

Anwar, I. (2010). *Menelusuri Perkembangan Ponsel di Indonesia*. https://tekno.kompas.com/read/2010/04/01/18352875/Menelusuri.Perkembangan.Ponsel.di.Indonesia

APJII, & Indonesia Survey Center. (2020). *Laporan Survei Internet APJII 2019-2020 (Q2)*.

Asemah, E. S., Nwammuo, A. N., & Nkwam-Uwaoma, A. O. A. (2022). *Theories and Models of Communication (Second Edition)*. University of Jos Press.

Bencsik, A., Horváth-Csikós, G., & Juhász, T. (2016). Y and Z Generations at Workplaces. *Journal of Competitiveness*, 8(3), 90–106. https://doi.org/https://doi.org/10.7441/joc.2016.03.06

Buckingham, D. (2015). Defining Digital Literacy - What Do Young People Need to Know About Digital Media? *Nordic Journal of Digital Literacy*, 10(Jubileumsnummer), 21–35. https://doi.org/https://doi.org/10.18261/ISSN1891-943X-2015-Jubileumsnummer-03

Candrasari, Y., Permata, S., Rachmania, A., & Claretta, D. (2020). Young Women Digital Competence in Using the Internet in Surabaya. *Profetik: Jurnal Komunikasi*, 13(2), 310–324. https://doi.org/https://doi.org/10.14

421/pjk.v13i2.1875

Chiu, T. K. F. (2021). Student Engagement in K-12 Online Learning Amid COVID-19: A Qualitative Approach from a Self-determination Theory Perspective. *Interactive Learning Environments*, 31(6), 1–14. https://doi.org/10.1080/10494820.2021.1926289

Churiyah, M., Sholikhan, S., Filianti, F., & Sakdiyyah, D. A. (2020). Indonesia Education Readiness Conducting Distance Learning in Covid-19 Pandemic Situation. *International Journal of Multicultural and Multireligious Understanding*, 7(6), 491. https://doi.org/10.18415/ijmmu.v7i6.1833

Ependi, U., & Sopiah, N. (2015). Aplikasi Media Belajar Matematika Berbasis Android. *Prosiding Seminar Nasional Teknologi Informasi*.

Erstad, O., Kjällander, S., & Järvelä, S. (2021). Facing the Challenges of "Digital Competence": a Nordic Agenda for Curriculum Development for the 21st Century. *Nordic Journal of Digital Literacy*, 16(2), 77–87. https://doi.org/https://doi.org/10.18261/issn.1891-943x-2021-02-04

Evandio, A. (2021). *Kominfo: Literasi Digital Masyarakat Masih Jadi Tantangan*. https://teknologi.bisnis.com/read/20210318/101/1369062/kominfo-literasi-digital-masyarakat-masih-jadi-tantangan

Gaidhani, S., Sharma, B. K., & Arora, D. (2019). Understanding the Attitude of Generation Z Towards

Workplace. *International Journal of Management, Technology, and Engineering*, *IX*(I), 2804–2812.

Gee, J. P. (2006). Are Video Games Good for Learning? *Nordic Journal of Digital Literacy*, *1*(3), 172–183. https://doi.org/https://doi.org/10.18261/ISSN1891-943X-2006-03-02

Gil-Flores, J., Rodríguez-Santero, J., & Torres-Gordillo, J. J. (2017). Factors That Explain the Use of ICT in Secondary-education Classrooms: The Role of Teacher c Characteristics and School Infrastructure. *Computers in Human Behavior*, *68*, 441–449. https://doi.org/10.1016/j.chb.2016.11.057

Harususilo, Y. E. (2018). *Wah, Siswa Indonesia Pemakai Teknologi Tertinggi Dunia! Ini 7 Faktanya*. Kompas.Com. https://edukasi.kompas.com/read/2018/12/11/08143651/wah-siswa-indonesia-pemakai-teknologi-tertinggi-dunia-ini-7-faktanya?page=all

Hootsuite. (2020). *Digital 2020: Indonesia*.

Irhandayaningsih, A. (2020). Pengukuran Literasi Digital Pada Peserta Pembelajaran Daring di Masa Pandemi COVID-19. *Anuva*, *4*(2), 231–240.

Katadata Insight Center. (2020). *Status Literasi Digital Indonesia: Survei di 34 Propinsi*.

Kaur, A., & Kauts, A. (2019). The Teacher of the Generation Z. *International Journal of Applied Research*, *5*(8), 438–440.

Kunandar, A. (2014). Model Literasi Media Pada Anak dalam Mencegah Konflik Sosial. *Profetik: Jurnal Komunikasi*, *7*(1), 87–99. https://ejournal.uin-suka.ac.id/isoshum/profetik/article/view/1117/1030

Kurnia, N., & Astuti, S. I. (2017). Peta Gerakan Literasi Digital di Indonesia: Studi tentang Pelaku, Ragam Kegiatan, Kelompok Sasaran, dan Mitra. *Informasi: Kajian Ilmu Komunikasi*, *47*(2), 149–166.

Kurnia, N., & Wijayanto, X. A. (2020). Kolaborasi sebagai Kunci: Membumikan Kompetensi Literasi Digital Japelidi. In *Kolaborasi Lawan (Hoaks) Covid-19: Kampanye, Riset, dan Pengalaman Japelidi di Tengah Pandemi* (pp. 1–34). Japelidi dan Siberkreasi.

Kurniawati, J., & Baroroh, S. (2016). Literasi Media Digital Mahasiswa Universitas Muhammadiyah Bengkulu. *Jurnal Komunikator*, *8*(2), 51–66.

Lankshear, C., & Knobel, M. (2015). Digital Literacy and Digital Literacies:-Policy, Pedagogy and Research Considerations for Education. *Nordic Journal of Digital Literacy*, *10*, 8–20. https://doi.org/https://doi.org/10.18261/ISSN1891-943X-2015-Jubileumsnummer-02

Liestyasari, S. I., Nurcahyono, O. H., Astutik, D., & Nurhadi. (2020). Literasi Penggunaan Media Sosial Sehat bagi Forum Anak Surakarta. *Dedikasi: Community Service Report*, *2*(2), 58–65. https://doi.org/https://dx.doi.org/10.20961/dedikasi.v2i2.37834

Mukhlis, H. (2015, November). Pahami Remaja Generasi-Z. *AF Magazine*, 4–6.

Mustika, R., & Mudjiyanto, B. (2020). Self Efication of People with Disabilities in Improving Digital Literations (Study in Jayapura City, Papua Province). *Profetik: Jurnal Komunikasi*, *13*(1), 87–101. https://doi.org/https://doi.org/10.14421/pjk.v13i1.1832

Mustolehudin. (2020). Praktik Literasi Keagamaan Pada Siswa Madrasah Aliyah Berbasis Pesantren. In A. Sofanudin & A. Muntakhib (Eds.), *Literasi Keagamaan dan Karakter Peserta Didik* (pp. 17–48). Diva Press. https://books.google.co.id/books?hl=en&lr=&id=tc4LEAAAQBAJ&oi=fnd&pg=PA3&ots=0agILq6NDG&sig=FzTPHFWveYHXNJP_qVgbLLQqe78&redir_esc=y#v=onepage&q&f=false

Oguguo, B. C. E., Nannim, F. A., Agah, J. J., Ugwuanyi, C. S., Ene, C. U., & Nzeadibe, A. C. (2021). Effect of Learning Management System on Student's Performance in Educational Measurement and Evaluation. *Education and Information Technologies*, *26*(2), 1471–1483. https://doi.org/10.1007/s10639-020-10318-w

Oktari, R. (2020). *Indonesia Makin Melek Literasi Digital*. https://indonesiabaik.id/videografis/indonesia-makin-melek-literasi-digital

Oktavia, R., & Hardinata, A. (2021). Tingkat Literasi Digital Siswa Ditinjau dari Penggunaan Teknologi Informasi sebagai Mobile Learning dalam Pembelajaran Biologi Pada Siswa Menengah Atas (SMA) Kecamatan Kuala Nagan Raya. *Bionatural*, *VII*(2), 26–34.

Ottestad, G., Kelentrić, M., & Guðmundsdóttir, G. B. (2014). Professional Digital Competence in Teacher Education. *Nordic Journal of Digital Literacy*, *9*(4), 243–249. https://doi.org/https://doi.org/10.18261/ISSN1891-943X-2014-04-02

Rogers, S. (2019). *The Role of Technology in the Evolution of Communication*. Forbes.Com. https://www.forbes.com/sites/solrogers/2019/10/15/the-role-of-technology-in-the-evolution-of-communication/?sh=763a3be4493b

Røkenes, F. M., & Krumsvik, R. J. (2014). Development of Student Teachers' Digital Competence in Teacher Education - A Literature Review. *Nordic Journal of Digital Literacy*, *9*(4), 250–280. https://doi.org/https://doi.org/10.18261/ISSN1891-943X-2014-04-03

Ryberg, T., & Georgsen, M. (2010). Enabling Digital Literacy: Development of Meso-Level Pedagogical Approaches. *Nordic Journal of Digital Literacy*, *5*(2), 88–100. https://doi.org/https://doi.org/10.18261/ISSN1891-943X-2010-02-02

Samputri, F. H. (2019). *Tingkat Literasi Digital Siswa Ditinjau dari Prestasi Belajar, Jenis Kelamin, dan Motivasi Belajar*. Universitas Sanata Dharma Yogyakarta.

Sanityastuti, M. S. (2014). Literasi Media: Upaya Menyikapi Tayangan Televisi. *Profetik: Jurnal Komunikasi*, *7*(2), 25–32. https://ejournal.uin-suka.ac.id/isoshum/profetik/article/view/1110

Setu, F. (2021). *Siaran Pers No. 263/HM/KOMINFO/08/2021*

tentang Sinergitas Kominfo dan Kemenag Siapkan Pelajar Madrasah Makin Cakap Digital. https://kominfo.go.id/content/detail/36151/siaran-pers-no-263hmkominfo072021-tentang-sinergisitas-kominfo-dan-kemenag-siapkan-pelajar-madrasah-makin-cakap-digital/0/siaran_pers

Setyo, B., Witriani, & Qibtiah, A. (2020). Media Literacy for Teacher: Preventing Extrimism and Radicalization in Schools. *Profetik: Jurnal Komunikasi*, *13*(2), 356–367. https://doi.org/https://ejournal.uin-suka.ac.id/isoshum/profetik/article/view/2374/1774

Sihombing, A. A., & Fatra, M. (2021). Distance Learning During The Pandemic Era: Online Learning Experiences of State Madrasah Tsanawiyah Students During Covid-19 in Indonesia. *Analisa: Journal of Social Science and Religion*, *06*(01), 95–112. https://doi.org/https://doi.org/10.18784/analisa.v6i01.1235

Subowo, A. T. (2021). Membangun Spiritualitas Digital bagi Generasi Z. *DUNAMIS: Jurnal Teologi Dan Pendidikan Kristiani*, *5*(2), 379–395. https://doi.org/10.30648/dun.v5i2.464

Triastuti, E., Prabowo, A. I., & Napis, H. V. (2017). *Peta Jalan Perlindungan Anak Indonesia di Internet (Sebuah Pengantar)* (I. Banyumurti (ed.)). Kementerian Komunikasi dan Informatika dan Komisi Perlindungan Anak Indonesia.

Wijoyo, H. (2020). *Generasi Z & Revolusi Industri 4.0*. CV Pena Persada.

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