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Enhancing Digital Literacy: An Analysis of Islamic Primary School Prospective Teachers' Competency in Navigating the Digital Era

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ABSTRAK

Era big data menuntut peningkatan kualitas sumber daya manusia dalam penguasaan keterampilan digital, termasuk literasi digital. Mahasiswa sebagai generasi muda perlu memiliki literasi digital yang baik untuk mendukung aktivitas akademik dan profesional. Penelitian ini bertujuan menganalisis kemampuan literasi digital mahasiswa Program Studi Pendidikan Guru Madrasah Ibtidaiyah (PGMI) melalui pendekatan kuantitatif dengan metode survei. Populasi penelitian ini berjumlah 801 mahasiswa, dengan sampel sebanyak 209 orang yang diambil menggunakan teknik stratified random sampling. Instrumen penelitian berupa kuesioner dengan skala Likert yang mencakup indikator Digital Skills, Digital Culture, Digital Safety, dan Digital Ethics. Hasil penelitian menunjukkan bahwa kemampuan literasi digital mahasiswa PGMI berada pada kategori "Baik" dengan persentase 77%. Secara rinci, Digital Skills memperoleh 85% (kategori "Sangat Baik"), Digital Culture 79,5% (kategori "Baik"), Digital Safety 75,2% (kategori "Baik"), dan Digital Ethics 68,8% (kategori "Baik"). Digital Ethics berkaitan dengan penggunaan media sosial secara etis, seperti menghindari penyebaran hoaks. Simpulan dari penelitian ini menunjukkan bahwa literasi digital mahasiswa PGMI sudah baik, namun masih diperlukan penguatan, khususnya pada aspek etika digital, untuk mempersiapkan mahasiswa menghadapi tantangan era digital.

ABSTRACT

The big data era demands an enhancement in human resource quality, particularly in mastering digital skills, including digital literacy. As part of the younger generation, university students must possess adequate digital literacy to support their academic and professional activities. This study aims to analyze the digital literacy proficiency of students in the Islamic Primary School Teacher Education (*PGMI*) program using a quantitative approach through a survey method. The study population consisted of 801 students, with a sample of 209 students selected using the stratified random sampling technique. The research instrument was a questionnaire with a Likert scale covering indicators of Digital Skills, Digital Culture, Digital Safety, and Digital Ethics. The findings indicate that the digital literacy proficiency of *PGMI* students falls within the "Good" category, with an overall percentage of 77%. Specifically, Digital Skills achieved a score of 85% ("Very Good"), Digital Culture 79.5% ("Good"), Digital Safety 75.2% ("Good"), and Digital Ethics 68.8% ("Good"). The aspect of Digital Ethics involves responsible social media use, such as avoiding the spread of misinformation or hoaxes. The study concludes that *PGMI* students possess a generally good level of digital literacy; however, further reinforcement is needed, particularly in the area of digital ethics, to better prepare them for the challenges of the digital era.

1. INTRODUCTION

The covid-19 pandemic has highlighted the significant disparities among Indonesians in accessing education. These disparities include limited space, varying human resource skills, and technology gaps, which create difficulties, especially in the 3T areas (frontier, remote, and disadvantaged) (Bagata, 2020; Yu et al., 2021). Education should provide equal opportunities without discrimination based on religion, ethnicity, or social status. Digitalization, in particular, is crucial in adapting to the changes brought by covid-19 (Almaazmi et al., 2021; Debora et al., 2022). Technology has become an essential medium for learning

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during the pandemic, enabling the continuation of the educational process (Chvala, 2020; Hamburg, 2021). Numerous studies conducted during the pandemic have shown that there is still a need for transformation in online learning, including improving technological readiness in education (Hill, 2021; D. N. Ningtyas & Sihombing, 2023).

The rapid advancement of technology has a significant influence on people's lives. In this context, technology serves as a catalyst for educational changes, leading to more advanced knowledge. The sophistication of technology is underpinned by the development of science (Aurum & Surjono, 2021; R. K. Ningtyas & Jati, 2018). Current advancements in science and information technology offer substantial benefits that can be utilized by various groups to meet their needs, including communication and information without spatial and temporal limits, online transportation, and e-commerce (Haldorai et al., 2021; Vhalery, 2024). From an educational perspective, technology supports the learning process across different locations and times, provides access to learning resources, facilitates evaluations, and meets other needs, thereby contributing positively to various aspects of life. However, despite the numerous benefits that technological advancements offer in facilitating human work, they can also have negative impacts, such as fraud, misinformation, pornography, and other harmful content. To mitigate these negative effects, 21st century learning emphasizes a set of competencies that individuals must possess. These competencies include language proficiency, socio-cultural awareness, creative thinking, critical thinking, work execution skills, and technological literacy (Garba et al., 2015; Kolesnikov et al., 2019). These abilities are as important as general knowledge.

The emergence of the big data era has prompted the government, particularly the Ministry of Education and Culture, to enhance the preparation of quality human resources capable of competing in digital literacy, as noted by other study skill is now considered essential (Friday & Japhet, 2020; Nurhikmah H; et al., 2021). Furthermore, the government aims to reduce unemployment by aligning educational outcomes with industry needs, ensuring that university graduates are immediately ready to enter the workforce according to their respective potentials (Ghaith, 2018; Hermann & Menzel, 2013). Students, particularly those studying to become *Madrasah Ibtidaiyah* (Islamic elementary school) teachers, are a crucial component of this initiative. They must master various literacies, including digital literacy, which is not only a necessity during their studies but also in their professional lives. For *PGMI* (*Pendidikan Guru Madrasah Ibtidaiyah*) students, these skills are vital. The knowledge and competencies they transfer to elementary school students form the foundation of these young learners' formal education, affecting their capabilities in daily life and future education (Hsiao et al., 2022; Suebsing & Nuangchalerm, 2021).

Moreover, digital literacy is seen as an innovative approach to learning, enhancing students' interest and fostering independent, active, and adaptive learning. Previous study also emphasizes the importance of digital literacy for both teachers and students in developing human resources that contribute positively to the advancement of education in Indonesia (Jaya, 2018; Lampropoulos et al., 2019). In response to the demands of the Industrial Revolution 5.0, the government, through *Kurikulum Merdeka* program, has revised the educational curriculum. This shift necessitates that teachers possess the potential and readiness to adapt to various situations. In this regard, the availability of information through various technologies can be utilized by *Madrasah ibtidaiyah* teacher education students as a resource for obtaining information to support the educational process. Preliminary data indicates that these students use information technology not only for social media but also as a means of facilitating the learning process. During the covid-19 pandemic, technology played a crucial role in ensuring that learning could continue without being constrained by space and distance (Armadani et al., 2023; Jamal, 2020). In the context of the teaching and learning process, technology accommodates digital platforms such as Zoom meetings, e-learning, WhatsApp groups, and other digital applications. Students and teachers use these tools for a variety of educational purposes, including attending classes, submitting assignments, and engaging in interactive learning activities. For instance, assignments are collected via email, Google Forms, and digital platforms like Instagram, Canvas, Classroom, and YouTube (Novawan et al., 2021; Perifanou, 2021). This integration of technology into education underscores its importance in modern learning environments and the need for teachers and students to be proficient in digital literacy.

The presence of information technology and various digital platforms provides significant benefits for *PGMI* (*Pendidikan Guru Madrasah Ibtidaiy*ah) students in accessing information, including those related to the government's *Merdeka Belajar* (Freedom to Learn) Curriculum program. Through digital literacy, *PGMI* students can gain a deeper understanding of the *Merdeka* Curriculum and current issues in education (Permatasari, 2019; Syamsi et al., 2022). Therefore, digital literacy skills should be cultivated during their college education to prepare them to become reliable and professional teachers (French & Campbell, 2019; Hanik, 2020). However, the positive impact of using digital platforms is highly dependent on students' ability to filter the vast amount of available information. This necessitates certain skills to minimize potential negative impacts. Director General Samuel Aptika highlighted four pillars of literacy—digital

skills, digital culture, digital ethics, and digital safety—as essential for supporting digital transformation. These pillars help increase students' understanding of the digital space, aiding in their overall educational transformation (Al Shammari, 2021; Pratolo & Solikhati, 2020). In the context of Society 5.0, advancing literacy is crucial for enhancing the quality of human resources. A nation's ability to excel globally, particularly in science and technology, relies on establishing a strong literacy ethos. The widespread adoption of digital technology is altering work habits and increasing the demand for complementary skills, emphasizing the importance of basic knowledge of the digital landscape, including the internet and cyberspace. Acquiring these competencies is vital for students in the Society 5.0 era, as their academic progression depends on their enthusiasm, ambition, and reading aptitude (Dopo & Ismaniati, 2016; Vieira et al., 2019).

The introduction to literacy skills should begin early, as establishing a literacy culture is a prolonged process that unfolds across various stages, each requiring careful evaluation of its effectiveness. Digital skills can be enhanced through digital culture. Basic knowledge of the values of Pancasila and Bhinneka Tunggal Ika forms the foundation of digital skills within the cultural, national, and state contexts (Afriliandhi et al., 2022; Robillos, 2022). Digital literacy activities are implemented before teaching and learning activities commence. These activities follow three stages of implementation: habituation, development, and learning. The key characteristic that distinguishes digital literacy activities from traditional literacy activities is the selection of reading sources. These activities exemplify the literacy culture that has been developed (Blumberg & Fisch, 2013; Zandkarimi., 2013).

In today's context, literacy culture is closely linked to the internet, which necessitates ethical considerations in digital literacy. There are concerns about inappropriate communication behavior, such as impolite interactions (Febriani et al., 2020; Rojas-Drummond et al., 2017). Communication ethics are often overlooked because they have not been established as fundamental aspects of societal and state life. Good communication ethics on social media include avoiding harsh, provocative, or offensive language; refraining from posting false information; not copying or using copyrighted material without permission; and providing relevant comments (Rawanoko et al., 2021; Syafganti, 2018). There is also a focus on basic knowledge of digital identity protection and personal data on digital platforms. Additionally, the human factor is a major concern in digital security. Human errors, such as using weak passwords or clicking on phishing links, can be entry points for cyberattacks. Therefore, user training and awareness are crucial to mitigating risks posed by human interactions in the digital ecosystem. This study presents a new perspective on how digital literacy is applied in a specific context, namely Islamic primary education (Primary Islamic Education) under the *Merdeka* Curriculum. Focusing on the *PGMI* study program in this context could be a point of novelty, considering the special challenges in integrating Islamic values with digital skills.

2. METHOD

This research is quantitative and uses the survey method. This method collects information from a group of respondents by asking several pre-compiled survey questions. The quantitative approach is employed to assess the digital literacy skills of *PGMI* students in using digital-based applications and social media to access information related to the "*Merdeka Belajar Kurikulum Merdeka*" (*MBKM*) and learning by utilizing social media. Additionally, it examines how actively and frequently students access information related to *MBKM* through their social media accounts (Margaretha et al., 2023; Vhalery et al., 2022). The study population consisted of 801 *PGMI* students. The sample was determined using proportionate stratified random sampling. Through this technique, 25% (209 students) of the total population were selected to participate in the study. Of the 209 samples, 16 were male and 193 were female, across different semesters, with an age range of 18-23 years. The research instrument was an online questionnaire distributed using a Google Form. Additionally, interviews were conducted with students, lecturers, and structural Prodi *PGMI* members. The development of the research instruments was based on the four pillars of digital literacy skills: digital skills, digital culture, digital safety, and digital ethics. The questionnaire grids can be seen in Table 1.

Table 1. Digital Literacy Skills Questionnaire Grids

Aspects	Indicators
Digital Skills	The ability to use hardware, and software, utilize the internet, be creative in presenting group materials using digital media, the ability to participate in digital spaces, be able to communicate through digital technology media, and the ability to search and select information, as well as being able to contribute and think critically when dealing with information.

Aspects	Indicators
Digital Ethics	Understanding of interactions that contain racial and ethnic groups, habituation to check data accuracy, understanding that not all information must be disseminated, scrutinizing and looking for supporting data before forwarding warning information, and understanding of the types of electronic interactions and transactions in the digital space.
Digital Culture	Understanding of social and cultural context.
Digital Safety	Understand safety when exploring, creating, and collaborating with digital technology

The data analysis technique involves the data coding stage, where each response obtained from the respondents is assigned a value according to a predetermined scale. The average score for each aspect is then calculated using the formula. The assessment category for each component of digital literacy skills is determined using criteria quoted from (Arikunto, 2009), as presented in Table 2.

Table 2. Grading Category

Interval	Grading Category
81 – 100	Very Good
61 – 80	Good
41 – 60	Average
21 – 40	Poor
0 - 20	Unsatisfactory

3. RESULT AND DISCUSSION

Result

Digital literacy plays a crucial role in enhancing the cognitive abilities of human resources, a skill that must be mastered by everyone, including students. These skills extend beyond merely operating a smartphone; individuals must be able to follow and adapt to the rapid changes brought about by digital transformation. When accessing information systems and using the internet from various sources, the majority of *PGMI* students (87.6%) use social media. Additionally, social media is also the most trusted information source for *PGMI* students, with 56% considering it their primary source. Conversely, print media, such as newspapers and magazines, is the least used source of information, with only 0.5% of students relying on it. The data is illustrated in Figure 1.

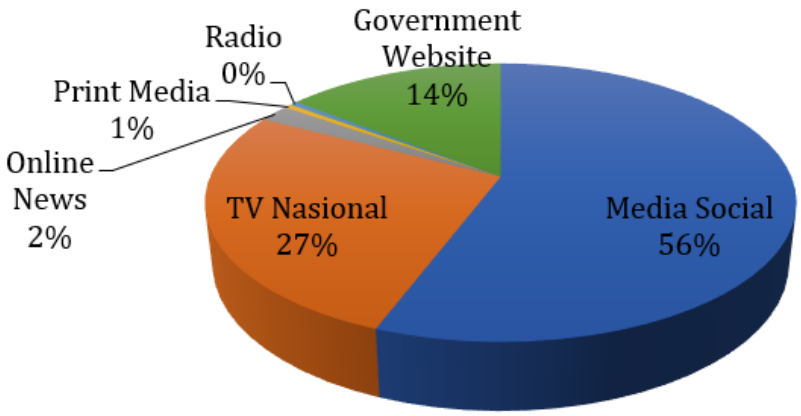

Figure 1. Sources of Information Most Trusted by *PGMI* Students

Based on Figure 1, it can be concluded that social media is the primary source for accessing information. Social media is the main source of information because it provides up-to-date and widely discussed content, whether from local areas or different countries. Additionally, *PGMI* students indicated that social media is the most trusted source for obtaining information. The social media platforms in question include WhatsApp, TikTok, Instagram, YouTube, and Twitter, with the following data as show in Figure 2.

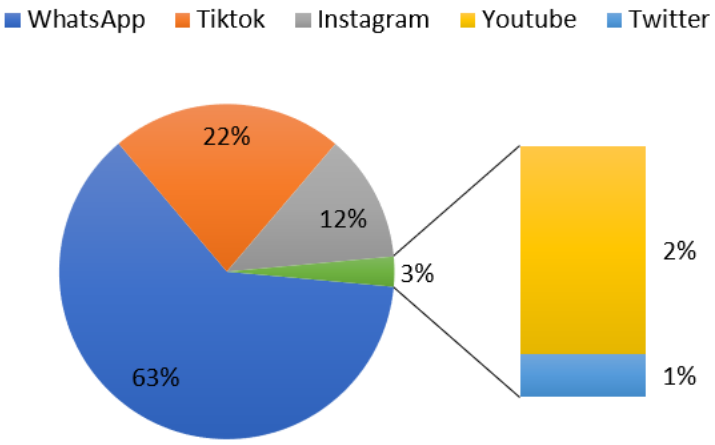

Figure 2. Use of Media Type

Based on Figure 2, *PGMI* students have several reasons for using social media, including: a) assisting with communication and interaction in everyday life; b) the majority of their friends or acquaintances use social media; c) Keeping up with the conditions, activities, and news from friends or acquaintances; d) The presence of interesting features. Of these reasons, the first statement is the most significant, with 79.4% of *PGMI* students using social media primarily to aid communication and interaction in their daily lives. Given the importance of digital literacy, students must master several skills related to digital skills, digital culture, digital safety, and digital ethics. The important aspects of digital literacy include information literacy, media literacy, and technological literacy. Especially in higher education, digital literacy has become an academic necessity as students often use search features on Google or social media instead of reading reference books.

Based on these results, the digital literacy of *PGMI* students falls into the "good" category with a percentage of 77%, detailed as follows: digital skills at 85%, digital culture at 79.5%, digital safety at 75.2%, and digital ethics at 68.8%. For a comparison of these digital literacy skills, refer to figure 3. The figure shows that the digital skills of *PGMI* students are in the very good category. While digital culture, digital safety, and digital ethics are in the "good" category. Digital literacy skills of *PGMI* students is show in Figure 3.

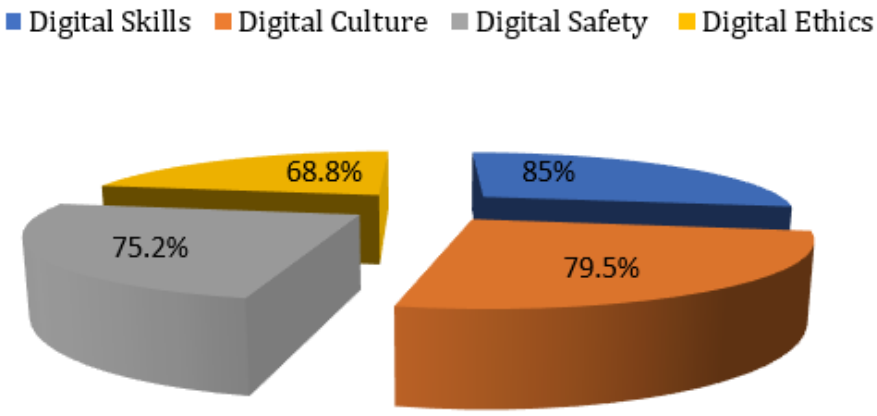

Figure 3. Digital Literacy Skills of *PGMI* Students

Digital skills refer to a person's ability to use computer tools to access various information in the digital space. According to the data, *PGMI* students demonstrate a very good ability to operate computers and effectively utilize digital literacy, with 85% falling into the "Very Good" category. The detailed percentages for each indicator are as follows: 77.7% of *PGMI* students can use web browsers such as Google Chrome, Mozilla Firefox, and Internet Explorer, including searching and downloading. 76.7% can search for and access data, information, and content on social media. 75.7% have the ability to store data, information, and content on digital media. 74.8% are capable of using various digital communication technologies. 79.1%

can create interactive learning media through digital applications. 76.5% can create communication materials by combining images, sound, video, and other media.

Digital culture refers to the ability to interact in the digital space while maintaining national insight. This includes attitudes and behaviors that uphold the values of *Pancasila* and Unity in Diversity. A successful and qualified nation is one that is cultured and dignified. Therefore, as the world transforms into a digital culture, it is crucial to foster individuals who embody these values, creating digital citizens who contribute to and strengthen the nation's culture and character. As discussed previously, the results show that the digital culture of *PGMI* students is in the "Good" category with a percentage of 68.8%. The following indicators were assessed: 74.2% always include the author's name when reposting content. 77.8% often share traditional and contemporary cultural arts digitally. 80.5% always consider the feelings of readers from other ethnic groups regarding posts or comments in digital spaces. 80% consider the feelings of readers from other religions. 85.5% always adjust their communication style to avoid offending or disrespecting others. 80.6% always consider and respect the cultural, religious, and age diversity of friends on social media when sharing messages or information. Additionally, the study found that 77.7% of *PGMI* students spend 15 minutes every day reading information related to the implementation of the independent curriculum from various trusted sources. Thus, it can be concluded that the respondents have good skills in harmonizing information in the digital space with cultural understanding, in line with the values of *Pancasila* and *Bhinneka Tunggal Ika*.

Digital safety encompasses preparing a secure device and adopting low-risk behaviors in digital media. Research shows that the digital safety of *PGMI* students is in the "good" category with a percentage of 72.2%. The detailed percentages for each indicator are as follows: 82% are accustomed to creating secure passwords by combining numbers, letters, and punctuation. 82.9% regulate who can see their posts on social media. 73.8% know how to "report abuse" on social networks. 59.4% know how to use applications to find and remove viruses. 69.4% can distinguish emails that contain spam, viruses, or malware. 80.5% always prioritize safety when exploring, creating, and collaborating with digital technology. 76.5% always limit discussion topics to information that is browsed or searched on social media. 77.7% re-evaluate the limits they have set when searching for information. Thus, it can be concluded that *PGMI* students have good abilities in exploring, creating, and collaborating with digital technology while maintaining digital safety. Although the percentage of *PGMI* students who know how to use applications to find and remove viruses is relatively low, this can be improved with more intensive education. Given the importance of finding and removing viruses, especially in preventing digital fraud such as file scams disguised as wedding invitations or PDF files, it is crucial to address this gap. Additionally, protecting our digital footprint can minimize unwanted occurrences. This includes taking the time to read the terms and conditions of any application, social media platform, or website that will be accessed.

Digital ethics is defined as a person's ability to adjust, be aware, think rationally, and prioritize ethics. The rapid development of technology has both positive and negative impacts, significantly influencing human behavior in interaction and communication. Research indicates that the digital ethics of *PGMI* students are in the "Good" category, with a percentage of 68.8%. The detailed percentages for each indicator are as follows: 85% will not invite people to comment negatively. 69% will refrain from commenting rudely if someone makes a negative comment. 57% always access all links shared by others on digital media. 81% make it a habit to seek other sources to verify the accuracy of any information obtained. 59% believe that all information must be disseminated. 65% always check the accuracy of information obtained on social media. 79.3% always thoroughly review and seek supporting data before forwarding or disseminating warning information. 53.9% do not know the types of electronic interactions and transactions in the digital space. Based on the data presented, it can be concluded that the average digital ethics skills of *PGMI* students are in a good category. However, there are still some respondents who misunderstand that every link or piece of information shared on social media must be accessed and disseminated. Enhancing digital ethics education can help address these misconceptions and further improve digital literacy.

Given the urgency of digital ethics in an era of increasingly sophisticated technology, several behavioral considerations need to be applied in the digital world. These considerations include awareness, responsibility, integrity, and good values, encompassing governance, interaction, participation, collaboration, and electronic transactions. Awareness in this context means understanding and being fully conscious of the goals to be achieved through digital media. Responsibility involves recognizing and accepting the consequences or risks associated with one's actions, indicating a willingness to bear the results of one's behavior in digital spaces. The value of kindness pertains to actions that benefit humanity and promote goodness, using digital media to enhance human connections. Integrity is the principle of honesty, which involves avoiding manipulation, cheating, lying, plagiarism, and other unethical behaviors when using digital media.

Discussion

The rapid advancement of technology has introduced several changes and challenges for society, including students. As agents of change, students must possess adequate digital literacy skills to effectively use information and communication technology for searching, evaluating, creating, and communicating information. This requires both cognitive and technical skills (Putri & Sari, 2020; Winarno et al., 2022). As prospective teachers who will lead the 21st-century learning process which emphasizes independent and collaborative learning, along with problem-solving, creative thinking, and innovation PGMI students must master digital literacy (A'yun et al., 2021; Shaleh Assingkily, 2020). This literacy goes beyond basic reading and writing skills to include other crucial competencies necessary for achieving educational goals previous study also notes that digital literacy skills can enhance academic performance. Additionally, digital literacy serves as an "umbrella" term for various educational practices that prepare individuals to function effectively in a digitally rich society (Alsulamy et al., 2020).

PGMI students are categorized as having very good digital skills, with a percentage of 85%. This assessment is based on several indicators, including the ability to use hardware and software, utilize the internet, be creative in presenting material using digital media, participate in digital spaces, communicate through digital technologies, search and select information, and contribute and think critically about information. Previous study found that students' digital literacy skills are influenced by their frequency of digital access, along with habituation, development, and learning (Khalid, 2011). Similar research examined digital skills among teachers and lecturers, revealing that teachers had a digital literacy percentage of 87%, while lecturers scored 88% (Smeda et al., 2014). The difference in digital skills between PGMI students and teachers/lecturers is only around 2-3%. This underscores the need for ongoing improvement in teacher digital skills to support the 21st-century learning process.

It is defined as the ability to interact in the digital space while maintaining national insight. The study results indicate that PGMI students have a "Good" level of digital culture literacy, with a percentage of 79.5%. This encompasses their understanding of social and cultural contexts, including sharing traditional and contemporary cultural arts digitally, considering the feelings of readers from different ethnic groups regarding posts or comments in the digital space, being mindful of the feelings of readers from different religions, communicating in a way that avoids offending or disrespecting others, and recognizing and respecting the cultural, religious, and age diversity of friends on social media when sharing messages or information (Adifta et al., 2022; Hau et al., 2020).

In today's world, where the internet dictates much of human interaction, it's essential that communication through digital spaces, particularly via gadgets, aligns with content that supports self-development, positive intelligence, and relationship building (Hsiao et al., 2022; Suci et al., 2019). As the world evolves into a digital culture, it is crucial to develop a culture that fosters individuals with character and digital citizens who uphold national values, thereby strengthening national culture and character. Digital communication tools are continually advancing, making studies on digital communication relevant to everyday life (Ozdamar-Keskin et al., 2020; Su & Yang, 2023). Additionally, social and cultural contexts vary by region. Thus, it can be concluded that PGMI students are proficient at integrating digital information with cultural understanding, reflecting the values of *Pancasila* and *Bhinneka Tunggal Ika*. Furthermore, literacy culture positively impacts student learning motivation (Aulia et al., 2021).

Digital Safety, with a percentage of 75.2% in the "Good" category, is assessed based on the following indicators: creating secure passwords by combining numbers, letters, and punctuation, regulating who can see posts on social media, knowing how to "report abuse" on social networks, using applications to find and remove viruses, distinguishing emails containing spam, viruses, or malware, prioritizing security when exploring, creating, and collaborating with digital technology, limiting discussion topics to information browsed or searched on social media, and re-evaluating limits set when searching for information. According to previous study knowledge of digital threats must be expanded and updated to create a solid foundation for preventing these threats (Jovanovic & Hartman, 2013). Additionally, digital security can be viewed in the context of the age of digital users. Research shows that university students, who are at a mature stage of digital literacy, are generally capable of using digital tools safely (Belshaw, 2012; Roll, 2021).

Digital ethics, with a percentage of 68.8% also in the "Good" category, is assessed using these indicators: not inviting others to make negative comments, avoiding rude comments in response to negative feedback, filtering links shared by others on digital media, verifying the accuracy of any information obtained, being prudent in disseminating information, always checking the accuracy of information on social media, scrutinizing and seeking supporting data before forwarding or disseminating warning information, and understanding various types of electronic interactions and transactions (Guillén-Gámez et al., 2023; Syafganti, 2018). Previous study suggest that ethical behavior in digital literacy can be gauged by the considerations taken when posting on social media, similar to communication norms in the offline

world, and the use of social media for positive activities (Sihabudin, 2021). Other study adds that digital technology and computers are tools that we control, not masters that control us, thus we should use them to maintain our human dignity (Dopo & Ismaniati, 2016; Udayani et al., 2022). This contrasts with findings from study where digital ethics literacy was only at 35.23%, influenced by the spread of hoax news and a lack of understanding of digital ethics concepts (Robinson, 2020).

The explanation above shows the category of the 4 pillars of digital literacy. The digital skills of PGMI students reached the excellent category, and 3 other skills consisting of Digital Culture, digital Safety, and digital Ethics reached the good category. For this reason, it can be concluded that the digital literacy skills of PGMI students can support obtaining information, especially in facing the independent curriculum being promoted by the government. referring to this description, there are at least several aspects of literacy that must be mastered by PGMI students as described by which include: information literacy, media literacy, and ICT literacy.

4. CONCLUSION

Digital literacy proficiency of Islamic Primary School prospective teachers is generally within the "Good" category, indicating a promising foundation for future educators to engage effectively in the digital era. Digital Skills are the strongest aspect, categorized as "Very Good," reflecting students' ability to operate digital tools and technologies efficiently. Digital Culture and Digital Safety also fall within the "Good" category, demonstrating students' awareness and understanding of the norms and practices needed to navigate digital environments safely and responsibly. However, Digital Ethics, while still rated "Good," shows a relatively lower percentage compared to other aspects, indicating a need for further reinforcement in fostering ethical behavior in digital interactions, such as avoiding the spread of misinformation and promoting responsible social media use. These findings suggest that while students possess a solid foundation in digital literacy, continuous efforts are required to enhance ethical awareness in the digital realm. Strengthening digital ethics is essential to prepare future educators for the challenges of an increasingly interconnected world, ensuring they can serve as role models in promoting positive and responsible digital engagement in both academic and professional settings.

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