



Analysis of Digital Literacy Through the Quizizz Application in Civic Education Course

Ni Putu Candra Prastya Dewi^{1*}, Gusti Agung Ayu Wulandari², Made Sri Astika Dewi³, Ni Putu Juni Artini³, I Gusti Ayu Putu Novita Sari Paragae¹, Putu Gede Asnawa Dikta⁴

¹Sekolah Tinggi Agama Hindu Negeri Mpu Kuturan, Indonesia

²Universitas Pendidikan Ganesha, Indonesia

³Universitas Triatma Mulya, Indonesia

⁴Institut Agama Hindu Negeri Gde Pudja Mataram, Indonesia

*Correspondence to: pendidikan.dasar500@gmail.com

Abstract: In the 21st century, students have not utilized technology well. They are used to using cell phones primarily for entertainment, such as playing online games. They have not fully utilized technology for education, which can develop their digital literacy. Thus, they lack digital literacy. This study aimed to analyze digital literacy using an educational application named “Quizizz” in the Civic Education course. The respondents were 106 1st-semester students taking the Civic Education course. The data were obtained using a questionnaire containing 20 written statements and responses via Google Forms. The average and the AAL (Average Achievement Level) were calculated and categorized according to the category table for data analysis. This study revealed that the total average of 4 digital literacy competencies was 4.37 with an AAL of 87.4%, which was categorized as good. This shows that using Quizizz in the Civic Education course can positively affect the digital literacy of the Elementary School Teacher Education Study Program of STAHN Mpu Kuturan. This research contributes knowledge about using technology-based learning to improve students' digital literacy.

Keywords: civic education course; digital literacy; quizizz application

Recommended citation: Dewi, N. P. C. P., Wulandari, G. A. A., Dewi, M. S. A., Artini, N. P. J., Paragae, I. G. A. P. N. S., & Dikta, P. G. A. (2025). Analysis of Digital Literacy Through the Quizizz Application in Civic Education Course. *Journal of Innovation in Educational and Cultural Research*, 6(1), 164-175.

INTRODUCTION

A country's education quality significantly influences the quality of its human resources (HR) (Iqbal et al., 2023; Amjad et al., 2021). Education is a conscious effort to improve the quality of a person by providing a specific learning environment that enables the students to develop their character, competencies, and potentials needed by them as individuals as well as a part of society or nation (Widyanti et al., 2020; Munna & Kalam, 2021). Since 2020, the Ministry of Education, Culture, Research and Technology of Indonesia has released an independent curriculum, namely the Merdeka Curriculum (Ndari et al., 2023; Syahrir et al., 2024), which has impacted the quality of education, covering the learning strategies, learning administration, and student learning processes (Diez et al., 2020). The curriculum encourages Indonesian students to behave and have global competence following the values of Pancasila, which are elaborated in the Pancasila Student Profile and stated in the curriculum (Nurjannah, 2024). The Pancasila Student Profile is one of the most prominent components of its implementation to make the students have noble morals, think critically, become autonomous, become imaginative, become collaborative, and become famous throughout the world (Zakso et al., 2022; Widana et al., 2023; Hamdi et al., 2024; Vebrianto et al., 2024). Those six things indicate the Pancasila Student Profile (Rusmini et al., 2021). The Pancasila Student Profile is not only applied to national education policies but is also intended as a guideline for learning in smaller learning environments (Jaya, 2023; Sobirin et al., 2023; Zuriah et al., 2024). It provides autonomy in learning based on preferences and areas of interest while maintaining a focus on character education (Zuhroh, 2023; Dewi et al., 2024; Wahyuningsih et al., 2024).

The 2018 Programme for International Student Assessment (PISA) study report released in March 2019 revealed that Indonesian education has led to the low ability of students in reading skills, science, and mathematics. Indonesia scored relatively low, placed 74th out of a total of 79 countries assessed. Meanwhile, based on the United Nations Educational, Scientific and Cultural Organization (UNESCO) report in 2016, from 61 countries, Indonesia was placed in the 60th rank (Solihin, 2020). Based on the survey conducted by the Ministry of Communication and Digital Republic of Indonesia (Ririen & Daryanes, 2022). Indonesia's digital literacy skills received a moderate score of 3.47. If viewed more specifically for each sub-index, information and data literacy, communication and collaboration, security, and technological capabilities are still below 4 (good

category). The research results of [Ririen and Heriasman \(2021\)](#) revealed that technology, especially smartphones, has been used for non-educational purposes, such as playing games or browsing social media, for an average time of more than 5 hours a day. They also use social media irresponsibly by sharing their personal information, sharing and receiving hate speech, as well as getting hoax news. In addition, it is also difficult for them to manage the information on social media. In addition, [Nahdi and Jatisunda \(2020\)](#) found that sources from the internet were used as references for academic assignments without paying attention to the sources. Several studies also have been conducted on students' digital literacy, who studied prospective biology teachers' digital literacy, found that it was classified as moderate, while the level of student ability was low for the indicator of utilizing technology in distinguishing valid or invalid sources. [Nahdi and Jatisunda \(2020\)](#), through their study, showed that students' internet skills were categorized as basic. Although they can search, retrieve, and use information from the internet effectively, they still cannot identify the information types. Some research also reported that as internet users, students do not possess good abilities in processing and sorting the information they get. These data show that Indonesia has a low level of literacy awareness. Technology in the 21st century has not been utilized well by the students. They are used to using cell phones primarily for entertainment, such as playing online games. They have not fully utilized technology for education, which can develop their digital literacy. Thus, they lack digital literacy. Nowadays, much information is available online, especially regarding science information. However, due to the low ability of students to learn digital literacy, they cannot utilize the technology optimally. Using digital platforms is essential for them to develop their skills and abilities regarding digital literacy. Technological developments make students think creatively and critically and access learning content to support the learning process so that the learning goals can be achieved.

Digital literacy is the understanding and ability to utilize digital media and networks, create information, evaluate, find, and utilize it appropriately ([Nasrullah et al., 2017](#); [Intaniasari & Utami, 2022](#)). Digital literacy is using and understanding the information presented in digital sources and utilizing digital media information technology effectively and efficiently in academics and everyday life ([Saputra & Siddiq, 2020](#)). Digital literacy is the ability possessed by individuals to use technology or access information through electronic devices, as well as write clear information on digital platforms ([Syah et al., 2019](#); [Rina et al., 2020](#)). It can increase individual knowledge and skills to write, read, count, speak, or solve problems at school or in their daily lives by utilizing available technology ([Rizal et al., 2019](#); [Santoso et al., 2019](#)). It is crucial in 21st-century education ([Hufad et al., 2019](#)) and needs to be possessed by students ([Putra et al., 2023](#)). To enhance digital literacy, students must be critical in consuming digital information concerning the rapid development of information on the internet ([Syah et al., 2019](#); [Anggini & Rodliyah, 2020](#)). Digital literacy is crucial to counteracting fake news and supporting positive changes in beliefs, actions, and thoughts regarding social media use ([Rusydiyah et al., 2020](#); [Nurfauziyah et al., 2023](#)).

The mastery of digital literacy is also required in the Civic Education course. Since this subject prepares the students to comprehend the rights and obligations of citizens of the nation and global citizens by presenting knowledge of global issues, culture, institutions, and international systems, technology is crucially needed in presenting information on this subject. Technology provides various platforms and tools, such as social media, educational applications, and other online resources, to make civic education materials more interactive and engaging ([Saputra, 2022](#); [Khairunisa et al., 2024](#)). Using digital technology, students can access information quickly and easily and engage in broad civic discussion. However, the use of technology in civic education also brings challenges. According to [Ahyati and Dewi \(2021\)](#), the digital divide can hinder students' access to quality learning resources, while the abundant online information is often inaccurate or misleading. Therefore, citizenship education must integrate digital literacy and critical thinking skills into its curriculum. Students must be trained to analyze information critically and understand internet ethics to participate actively and responsibly in the digital society ([Fadilah et al., 2024](#); [Wulandari et al., 2023](#); [Fahmi et al., 2024](#)).

Observations and interviews with students of the Elementary Teacher Education Study Program at STAHN Mpu Kuturan found that they often search for information when there are assignments from lecturers. Through digital media, they often obtain information whose truth is not yet known and hoax information that is considered to be able to destroy the sense of unity and integrity of the Indonesian nation. So, a challenge must be faced, namely having to be careful in seeking and obtaining information, and it is hoped that it can minimize the spread of hoax news. The sophistication of technology has caused many PGSD students to prefer foreign cultures over local Balinese culture. The trend of foreign cultures that are currently viral on social media tends to be followed by students, while local Balinese culture is less prevalent. This shows the decreasing sense of love for the homeland. Thus, digital literacy can be used in civic education to enhance students' love for the homeland and responsibility for their obligations as good citizens. There are several factors influencing the low level of digital literacy possessed by students, such as limited access to technology, lack of formal education in digital literacy, and minimal awareness of the importance of digital literacy in everyday life ([Erdem et al., 2023](#); [Awalyah et al., 2024](#)). Various parties, such as government, educational institutions, and society, must collaborate to overcome this problem. Educational institutions are also crucial in developing students' digital

literacy (Nasar et al., 2024; Latuheru et al., 2024). By integrating digital literacy learning into the curriculum, students must understand and use information and communication technology responsibly (Yassen & Danani, 2023; Sari et al., 2024). One way to instill digital literacy in education is to implement technology-based applications. This study will apply the Quizizz application in the Civic Education course to students of the Elementary School Teacher Education Study Program, STAH Negeri Mpu Kuturan Singaraja. Quizizz is a game-based software that provides interactive learning, which leads to an enjoyable learning experience for students (Zhao, 2019; Rahimah & Amatillah, 2024). Integrating technology, information technology, science, and games creates an engaging situation for the students (Asyifa et al., 2024; Elsani & Fahriany, 2024). Using this application, the students can have exercises on the material they learned in a quiz format. This application provides a leaderboard to present students' ranks lively, which makes the game more fun for the students. It also presents a picture indicating the correctness of students' answers at the end of the game to give the students' reflection of their learning (Purba, 2019; Mohamad, 2020). On the other hand, it also enables the teacher to track students' progress during the game and download the final result to evaluate students' learning results (Fadhilawati, 2021; Nashar et al., 2021).

This application is very applicable to students and teachers. Quizizz is a useful and entertaining application for students to manage self-access learning. In self-access learning, the students assess their progress and define a suitable way to follow their learning styles. It can provide feedback for the students to reflect on their learning. In addition, using technology such as Quizizz can also develop students' communication skills (Darmawan et al., 2020; Karim et al., 2023). For the teachers, it can be adapted to any material. They can use the quiz developed by other teachers or the quiz they develop themselves. Thus, sharing material happens among teachers, that decreases teachers' workload. It also provides some types of questions, including multiple-choice, fill-in-the-blanks, and open-ended that can be adjusted to the need of the teachers and students (Degirmenci, 2021; Wang et al., 2024). Using this application as an educational application can encourage lecturers to be sensitive to technology (Rahmad et al., 2019; Otlu et al., 2023). Some research has been conducted on Quizizz and revealed that the use of Quizizz with paper mode has been proven to increase students' learning motivation in the Pancasila Education Subject (Khasanah et al., 2023; Müller et al., 2021). The results of other studies also state that using Quizizz can be a solution for providing fun evaluations to students because the evaluation is carried out in a fun way without pressure (Abadi et al., 2023; Lim & Yunus, 2021). The use of Quizizz has also been proven to improve students' language skills because learning is designed based on technology rather than using boring traditional methods (Lim & Yunus, 2021; Mohamad, 2020). Using Quizizz also has many advantages over just using PowerPoint as usual, such as students can compare their abilities with other students so that motivation to compete arises (Yong & Rudolph, 2022; Widyanti et al., 2020).

METHODS

This study used a quantitative descriptive research method. According to (Arikunto, 2014), descriptive research is used to observe a condition, situation, or activity. The descriptive research method aims to describe the object being studied according to what is happening in the field without making general conclusions. Furthermore, the quantitative approach applies the process of transferring numerical data, especially those concerning the attributes and qualities of the subject. Data collection was carried out by distributing questionnaires using Google Forms. It consisted of 20 statements, which were responded to with a Likert scale of 1-5. The digital literacy competencies measured were 1) Access, 2) Selection, 3) Comprehension, and 4) Distribution. These competencies were divided into 11 digital literacy indicators presented in Table 1.

Table 1. Digital Literacy Competence

Competencies	Indicators
Access	Using digital media devices
	Using search engines
	Using various applications
Selection	Selecting information according to needs
	Ignoring information that does not meet the needs
	Deleting information that does not meet the needs
Comprehension	Understanding written information according to the language
	Understanding the symbols used
	Understanding videos
Distribution	Disseminating information according to the message target
	Adjusting the message to the media application

Before the instrument was distributed, a validity and reliability test was conducted first. The validity test

result showed that all statements had $r_{count} > r_{table}$. The r_{table} was 0.2072. Then, the results of the reliability test showed that $r_{1.1} = 0.77$, which indicated a reliable instrument with a high category. This shows that all statements were suitable for use as instruments to measure the students' digital literacy. Data analysis was carried out qualitatively and quantitatively. The qualitative analysis was conducted by explaining the use of Quizizz in the Civic Education course and interpreting the average results of the digital literacy scores of Elementary School Teacher Education students. The quantitative analysis was carried out by calculating the average, finding the AAL (Average Achievement Level) presentation, and categorizing it according to the category table. After obtaining the AAL, the results are categorized according to the respondents' achievement level. Average achievement levels can be categorized as follows: 90%-100% very good, 80%-89% good, 65%-79% enough, 55%-65% poor, 0%-54% very poor.

RESULT AND DISCUSSION

The result of this research was that the Quizizz application was used to evaluate the Civics Education course for 1st-semester students of the Elementary School Teacher Education study program. Students formed several groups to create papers and power points to be presented, then continued with a discussion, and ended with giving questions about the material presented by the presenter group to friends in class through the Quizizz application. The students who answered correctly and quickly were at the top. The following is documentation of the implementation of Civic Education instruction and the Quizizz application at the end of learning. The students got a code to enter the Quizizz application to be able to answer the questions. The presenter group that creates questions on Quizizz waited for all students to join. After all the students joined, the operator clicked the start button on the Quizizz application to start the game. After that, the students started answering questions on the Quizizz application. The students could use cell phones or laptops to open the application. After students answered the questions, a scoreboard appeared to monitor student rankings. The student rankings on the Quizizz scoreboard followed each other. Purple or green indicates the level of correct answers to questions that have been answered, while red indicates the level of incorrect answers to questions that have been answered. Students obtained the top 3 rankings after answering questions through the Quizizz application. The evaluation activities at the end of each Civic Education instruction using Quizizz reveal that the activities are also related to students' Digital Literacy. The results of distributing the Digital Literacy questionnaire to 106 first-semester students are presented in the following table.

Table 3. Students' Digital Literacy Results Using The Quizizz Application

Competencies	Indicators	Mean	AAL	Note
Access	Using digital media devices	4,25	85%	Good
	Using search engines	4,6	92%	Very Good
	Using various applications	4,3	86%	Good
	Total	4,38	87,7%	Good
Selection	Selecting information according to needs	4,54	90,8%	Very Good
	Ignoring information that does not meet the needs	4,13	82,6%	Good
	Deleting information that does not meet the needs	4,07	81,4%	Good
	Total	4,25	84,9	Good
Comprehension	Understanding written information according to the language	4,57	91,4%	Very Good
	Understanding the symbols used	4,23	84,6%	Good
	Understanding videos	4,7	94%	Very Good
	Total	4,5	90%	Very Good
Distribution	Disseminating information according to the message target	4,56	91,2%	Very Good
	Adjusting the message to the media application	4,15	83%	Good
	Total	4,36	87,1%	Good
Total Average of 4 Digital Literacy Competencies		4,37	87,4%	Good

Based on Table 3, it can be seen that there are three indicators of access competence. Firstly, the indicator of using digital media devices has an average of 4.25 and an AAL of 85%, which is categorized as good. This indicator was obtained from a questionnaire about students' ability to operate the Quizizz application. The second indicator uses a search engine with an average of 4.6 and an AAL of 92%, categorized as very good. This was obtained from a questionnaire about students' ability to search for information on Google applications and other similar types of applications regarding how to use Quizizz. This very good result indicates that almost all students were very good at using search engines to search for information regarding Quizizz. Using various applications, the third indicator obtained an average of 4.3 with an AAL of 86%, categorized as good. This indicator was obtained from a questionnaire about using various applications that support using Quizizz, such as sharing Quizizz links on WhatsApp groups or sharing Quizizz codes in chat rooms during Zoom meetings. Students' total average access competence was 4.38, with an AAL of 87.7%, and they were

categorized as good. This shows that using the Quizizz application improves students' ability to access information on digital media. The second digital literacy competency is selection, with three indicators: choosing information according to needs, ignoring information that does not meet needs, and deleting information that does not meet needs. In the first indicator, the results obtained were an average of 4.54 with an AAL of 90.8%, which is categorized as very good. This is gained from the questionnaire results about students' ability to choose appropriate material in the Civic Education course to be used as questions on Quizizz. The result shows that almost all students were very good at choosing appropriate Civics material. This is because each student in a group received one material that had to be presented, and Quizizz questions were created based on those materials. In the second indicator, the results obtained were an average of 4.13 with an AAL of 82.6%, categorized as good. This result was obtained from the questionnaire distributed to students regarding students' ability to ignore information unrelated to how to use Quizizz. Most students had been able to ignore information that was not needed, but there were still some students who did not ignore it. In the third indicator, the average result was 4.13, with an AAL of 82.6%, categorized as good. This was obtained from the results of the questionnaire distributed to students regarding students' ability to delete unnecessary information when looking for the use of the Quizizz application. Most students could delete information, but some students still stored the information. The total average competency of the student selection was 4.25, with an AAL of 84.9, categorized as good. This shows that the Quizizz application improved students' ability to select information obtained on digital media.

The third Digital Literacy Competency is comprehension with three indicators: understanding written information according to the language, the symbols used, and the videos. The first indicator obtained an average score of 4.57 with an AAL of 91.4%, categorized as very good. This is obtained from the results of the questionnaire distributed to students regarding their understanding of information read on Google or the Internet regarding how to operate the Quizizz application. Almost all students were very good at understanding the written information read. The second indicator obtained an average score of 4.23 with an AAL of 84.6%, categorized as good. This indicator was obtained from the results of the questionnaires distributed to students regarding using symbols in the Quizizz application. This result indicates that most students could understand the symbols used in the Quizizz application well. The third indicator obtained an average score of 4.7 with an AAL of 94%, categorized as very good. This is known from distributing questionnaires to students regarding students' ability to understand videos watched on YouTube about how to operate the Quizizz application. This result shows that almost all students understood the video watched on YouTube about how to operate Quizizz very well. The total average competence of students' understanding is 4.5 with an AAL of 90%, categorized as very good. This shows that the use of the Quizizz application was very good in improving students' understanding of the use of digital media.

The fourth digital literacy competency is distribution, with two indicators: disseminating information according to the target message and adjusting the message to the media application. The first indicator's average score was 4.56, with an AAL of 91.2%, categorized as very good. This was obtained by distributing questionnaires to students regarding the ability to provide Quizizz questions to friends in class according to the material obtained. Almost all students have been very good at providing questions on Quizizz based on the material they have obtained. This is also because the material has been divided evenly among each group so that no one asks questions outside the material. In the second indicator, the average score was 4.15, with an AAL of 83%, categorized as good. This was obtained from distributing questionnaires to elementary school teacher education students regarding the entry of questions about the material on the Quizizz application in the form of multiple choice questions. Most students could answer multiple-choice questions on Quizizz well, but some students have not been able to answer good ones on Quizizz. The total average distribution competency in digital literacy of elementary school teacher education students was 4.36%, with an AAL of 87.1%, and it was categorized as good. The graph of digital literacy of Elementary School Teacher Education students after Following the Civic Education Course with the Quizizz Application is presented in Figure 1.

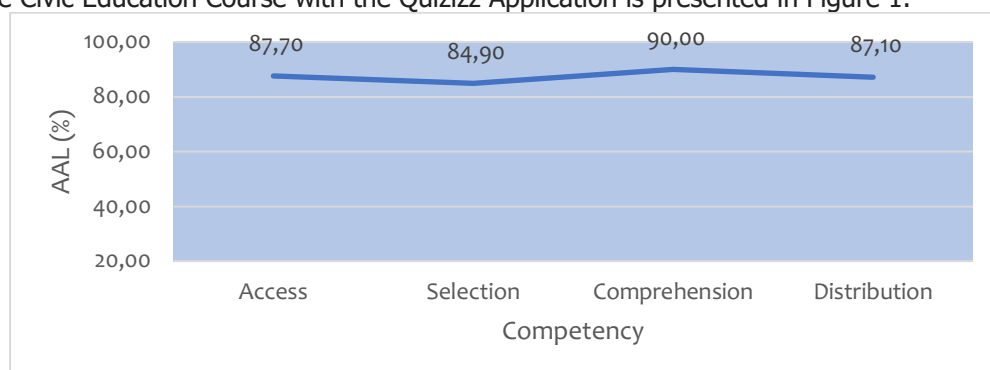


Figure 1. Digital Literacy of Elementary School Teacher Education Students after Following the Civic Education Course with the Quizizz Application

Based on the results of the study conducted on 106 first-semester students of the Elementary School Teacher Education Study Program at STAH Negeri Mpu Kuturan, it was found that students had good digital literacy competencies with the use of the Quizizz application in the Citizenship Education course. The digital literacy competencies possessed by these students include the ability to access, select, comprehend, and distribute. The data obtained shows that students' access competence is categorized as good. This is supported by students' ability to use digital media devices, search engines, and various applications well. In line with the results of this study, [Batubara et al. \(2023\)](#) also stated that students' skills in accessing information needed in learning through social media are in a good category. One of the obstacles for students in accessing information is finding locked information and using language that is difficult to understand ([Sumardin et al., 2022](#); [Svensson et al., 2022](#)). Students have been able to use digital devices such as laptops and cell phones in the Civic Education lecture process. Students are also fluent in using Google as an information search engine that helps them get the information they want. Students have also been able to use various other applications such as Canva to create presentations, Zoom meetings for online learning discussions, Quizizz for learning evaluations, and WhatsApp to communicate. Thus, using the Quizizz application can improve students' ability to access information on digital media.

The data shows that students' competence in selecting is categorized as good. This is supported by students' ability to select information according to their needs, which is very good, ignore information that does not suit their needs adequately, and delete information that does not suit them properly. [Yuliana et al. \(2023\)](#) stated that the ability to select information, store information, and collect relevant quotations has the highest value. Meanwhile, [Kurnia \(2021\)](#) stated that students' ability to find information from the right sources and compare the information obtained is still lacking. Students in semester 1 are generally very good at selecting the information needed according to their needs in Civic Education instructions. Students only choose information related to the topic of the material they get. Students have also been able to ignore and even delete information that does not suit their needs. Thus, using the Quizizz application can improve students' ability to select information obtained on digital media.

The data shows that students' comprehension competence is very good. This is supported by students' ability to understand written information according to their language, understand the symbols used well, and understand videos well. In line with this study, [Bilharits et al. \(2020\)](#) stated that using the Quizizz application in the learning process can increase students' desire to learn actively and creatively to improve their ability to understand reading results. Likewise, [Huda et al. \(2024\)](#) stated that students already have digital literacy skills in the good or mastery category. Understanding digital literacy is necessary to complete the tasks given in lectures or students' final assignments ([Liu et al., 2020](#); [Yu, 2022](#)). Students understand the information they find online or reading books ([Tejedor et al., 2020](#); [Udeogalanya, 2022](#)). The information they get is poured into writing in papers, and they convey it verbally in presentations. Students understood the symbols in the Quizizz application well through the information they had learned with their group members. Students understood the YouTube video very well, which showed the steps for using the Quizizz application. Thus, the use of the Quizizz application can be said to be very good in improving students' understanding of the use of digital media.

The data shows that students' competence in distributing is categorized as good. This is supported by the ability of students to disseminate information according to their message targets very well, adjusting the message to the media application well. [Yanti et al. \(2021\)](#) stated that students are accustomed to carrying out daily activities related to their high level of digital literacy. The current learning process must use technology that is related to their needs in order to be able to develop themselves and increase their insight without being limited by space and time ([Rapanta et al., 2020](#); [Menendez et al., 2020](#); [Archambault et al., 2022](#); [Akbar et al., 2024](#)). In line with this opinion, [Anggraeni and Sari \(2022\)](#) also stated in their research that Quizizz can be used as an interactive learning and assessment media because it can be well received by students where it is effective, feasible, and easy to use and increases their motivation in learning ([Aini et al., 2024](#); [Nuary et al., 2024](#); [Balqis & Andriani, 2024](#)). Students have been able to present papers that are assignments from the Citizenship Education course to other groups. In addition, the questions created in the Quizizz application have also been adjusted to the material they get. This shows that students have been able to disseminate the information they get to their colleagues very well. Students have also been able to create multiple-choice questions according to the assigned material using Quizizz application. Thus, the use of Quizizz application can be said to be good in improving students' distribution competencies related to the use of digital media.

Based on the analysis, the results of digital literacy possessed by 1st-semester students of the Elementary School Teacher Education Study Program at STAH Negeri Mpu Kuturan through the use of the Quizizz application in the Citizenship Education course can be said to be very good for understanding competencies and good for access, selection, and distribution competencies. This is in line with the results of

research conducted by (Ervianti, 2024; Hanif et al., 2023; Hermawansyah et al., 2024), which states that the use of Quizizz application in the learning process can improve students' digital literacy skills and has a positive impact on student motivation in solving questions. Digital literacy in learning not only adds technology to the learning process but can also be utilized in various needs to improve the quality of learning itself (Jiemsak & Jiemsak, 2020; Forsling, 2023; Ciampa et al., 2023). Digital literacy is very important for students to design, implement, and evaluate the learning that is carried out (Bakhri et al., 2023; Nguyen & Habók, 2023; Quraishi et al., 2024). This is in line with Sujana and Rachmatin (2019), who stated that digital literacy is important for elementary school teacher education study program students, which can be used when learning and applied in the implementation of learning in elementary schools. Therefore, this study found that using Quizizz in Civic Education courses positively affects the digital literacy of Elementary School Teacher Education Study Program students at STAH Negeri Mpu Kuturan Singaraja. This study implies that the Quizizz application can be applied in civics courses by lecturers to students to increase students' digital literacy.

CONCLUSION

Based on the results and discussion, it can be concluded that the digital literacy of Elementary School Teacher Education Study Program students at STAH Negeri Mpu Kuturan after using Quizizz application in Civic Education course, can be measured from 4 digital literacy competencies, namely access, selection, understanding, and distribution skills. The ability to access technology obtained an average of 4.38 with an AAL of 87.7%, which is categorized as very good. The ability to select information obtained an average of 4.25 with an AAL of 84.9%, which is categorized as good. The ability to understand information obtained an average of 4.5 with an AAL of 90%, which is categorized as very good, and the ability to distribute information obtained an average of 4.37 with an AAL of 87.4%, which is categorized as good. The total average of 4 digital literacy competencies is 4.37, with an AAL of 87.4%, categorized as good. Based on these results, the findings in this study are that the use of Quizizz in Civic Education courses has a positive effect on the digital literacy of Elementary School Teacher Education Study Program students at STAH Negeri Mpu Kuturan Singaraja. This study implies that the Quizizz application can be applied in civics courses by lecturers to students to increase students' digital literacy. Therefore, it is suggested that lecturers implement digital technology-based learning to improve students' digital literacy. In addition, other researchers are expected to conduct research with other variables related to using Quizizz to develop knowledge.

REFERENCES

- Abadi, I., Afrizal, A. F., & Wahyuni, N. I. (2023). Kepraktisan penggunaan aplikasi Quizizz paper mode sebagai media dalam evaluasi pembelajaran pendidikan Pancasila kelas V di SD Negeri Lemahireng 05. *Madani: Jurnal Ilmiah Multidisiplin*, 1(10), 493–499.
- Ahyati, R., & Dewi, S. (2021). Tantangan kesenjangan digital dalam pendidikan kewarganegaraan di era digital. *Jurnal Ilmu Sosial*, 10(1), 25–34.
- Aini, S. N., Ardah, F. K., Mahendika, D., Intes, A., & Amir, H. S. (2024). Impact of Quizizz learning media in increasing interest and motivation for learning in early childhood education students. *Journal International of Lingua and Technology*, 3(1), 175–189.
- Akbar, I. N., Weurlander, M., & Barman, L. (2024). Teaching-learning in virtual learning environments: A matter of forced compromises away from student-centredness? *Teaching in Higher Education*, 29(8), 2095–2111.
- Amjad, F., Abbas, W., Rehman, M. Z., Baig, S. A., Hashim, M., Khan, A., & Rehman, H. (2021). Effect of green human resource management practices on organizational sustainability: The mediating role of environmental and employee performance. *Environmental Science and Pollution Research*, 28(1), 28191–28206.
- Anggini, C. P., & Rodliyah, R. S. (2020). ESP students' digital literacy needs: The teachers' perspectives. *The 4th International Conference on Education and Multimedia Technology*, 69–72.
- Anggraeni, N. K. P., & Sari, R. K. (2022). Pandangan mahasiswa terhadap pemanfaatan Quizizz sebagai media pembelajaran bahasa Inggris. *Research and Development Journal of Education*, 8(2), 762–770.
- Archambault, L., Leary, H., & Rice, K. (2022). Pillars of online pedagogy: A framework for teaching in online learning environments. *Educational Psychologist*, 57(3), 178–191.
- Arikunto, S. (2014). *Prosedur penelitian*. Rineka Cipta.

- Asyifa, A. K., Widyarani, A. S., & Qurniawan, S. (2024). The advantages and disadvantages of using Quizizz in English learning as an assessment tool based on students of UIN SAIZU's perception. *Conference on English Language Teaching (CELTI)*, 32–41.
- Awalyah, T. I., Magfiroh, D. N., & Rahman, I. F. (2024). Faktor-faktor yang menyebabkan rendahnya tingkat literasi di kalangan remaja. *Cendikia: Jurnal Pendidikan dan Pengajaran*, 2(5), 329–339.
- Bakhri, S., Turoya, N. H., & Pratama, Y. (2023). Development of learning media with QuickAppNinja Android-based (Guess Image & Find Words) to increase elementary school teachers' digital literacy. *Journal of Research in Science Education*, 9(7), 4879–4884.
- Balqis, A. S., & Andriani, A. E. (2024). Development of learning evaluation based on automatic assessment through Quizizz paper mode to improve students' natural and social sciences learning outcomes. *Journal of Research in Science Education*, 10(6), 3357–3366.
- Batubara, Karim, A., & Deni, I. F. (2023). Kemampuan literasi media mahasiswa ilmu perpustakaan dalam menanggulangi berita hoaks di media sosial. *Komunida: Media Komunikasi dan Dakwah*, 13(1), 1–22.
- Bilharits, R., Sobari, T., & Permana, A. (2020). Penggunaan aplikasi Quizizz untuk meningkatkan keterampilan membaca siswa. *Parole: Jurnal Pendidikan Bahasa dan Sastra Indonesia*, 6(4), 379–384.
- Ciampa, K., Wolfe, Z. M., & Bronstein, B. (2023). ChatGPT in education: Transforming digital literacy practices. *Journal of Adolescent & Adult Literacy*, 67(3), 186–195.
- Darmawan, M. S., Daeni, F., & Listiaji, P. (2020). The use of Quizizz as an online assessment application for science learning in the pandemic era. *Unnes Science Educational Journal*, 9(3), 144–150.
- Degirmenci, R. (2021). The use of Quizizz in language learning and teaching from the teachers' and students' perspectives: A literature review. *Language Education & Technology*, 1(1), 1–11.
- Dewi, N. P. C. P., Mariamah, Sudarsini, N. N., Sutrisna, I. P. E., Dikta, P. G. A., & Dananjaya, I. N. H. M. (2024). Pancasila student profile values based on local wisdom in Hindu elementary school. *Mimbar PGSD Undiksha*, 12(2), 270–281.
- Diez, F., Villa, A., López, A. L., & Iraurgi, I. (2020). Impact of quality management systems in the performance of educational centers: Educational policies and management processes. *Heliyon*, 6(4), 1–7.
- Elsani, E., & Fahriany. (2024). Teachers' perspective integrating Quizizz as an e-assessment ICT technique to deliver English grammar. *3rd Annual International Conference on Islamic Education and Language (AICIEL)*, 501–512.
- Erdem, C., Oruç, E., Atar, C., & Bağcı, H. (2023). The mediating effect of digital literacy in the relationship between media literacy and digital citizenship. *Education and Information Technologies*, 28, 4875–4891.
- Ervianti. (2024). Penggunaan Quizizz dalam pembelajaran untuk meningkatkan literasi digital mahasiswa. *Jurnal Kependidikan Media*, 13(1), 1–8.
- Fadhilawati, D. (2021). Using Quizizz application for learning and evaluating grammar material. *JOSAR: Journal of Student Academic Research*, 6(1), 65–74.
- Fadilah, N., Syahriani, D., & Hudi, M. (2024). Pentingnya literasi digital dalam pendidikan kewarganegaraan di era digital. *Jurnal Kewarganegaraan*, 5(1), 12–20.
- Fahmi, M. A., Mujidan, Saputro, W. A., & Amir, D. R. (2024). Pendidikan kewarganegaraan di era digital. *Prosiding Nasional Pendidikan: LPPM IKIP PGRI Bojonegoro*, 6(1), 1–12.
- Forsling, K. (2023). Collegial learning and digital literacy education in a Swedish preschool. *Early Childhood Education Journal*, 51, 139–148.
- Hamdi, S., Murdiyani, N. M., Fauzan, M., Djidu, H., Chrisdiyanto, E., & Zafrullah. (2024). Developing an assessment instrument for strengthening the Pancasila student profile in web-based middle school mathematics teaching. *Jurnal Elemen*, 10(3), 479–500.
- Hanif, A., Herman, Mudinillah, A., & Rahmi, P. W. L. (2023). Development of the Quizizz platform as an interactive quiz-based learning media for Arabic language lessons at Madrasah Ibtidaiyah. *International Journal of Membrane Science and Technology*, 10(2), 372–384.
- Hermawansyah., Suwarni., Mesterjon., Ruslimi, D., Supama, Sahil, A., & Dali, Z. (2024). Effectiveness of the

- use of Quizizz media on students' learning interest. *Futurity Education*, 4(2), 245–262.
- Huda, N., Adyatma, S., & Hastuti, K. P. (2024). Kompetensi literasi digital mahasiswa program studi pendidikan geografi FKIP Universitas Lambung Mangkurat. *Jurnal Publikasi Berkala Pendidikan Ilmu Sosial*, 4(1), 1–12.
- Hufad, A., Purnomo, Sutarni, N., & Rahmat, A. (2019). Digital literacy of women as the cadres of community empowerment in rural areas. *International Journal of Innovation, Creativity and Change*, 9(7), 276–288.
- Intaniasari, Y., & Utami, R. D. (2022). Menumbuhkan budaya membaca siswa melalui literasi digital dalam pembelajaran dan program literasi sekolah. *Jurnal BASICEDU*, 6(3), 4987–4998.
- Iqbal, S., Litvaj, I., Drbúl, M., & Rasheed, M. (2023). Improving quality of human resources through HRM practices and knowledge sharing. *Administrative Science*, 13(10), 1–15.
- Jaya, I. K. A. (2023). Implementation of independent learning according to the views Ki Hadjar Dewantara in establishment Pancasila student profile. *International Journal of Social Science Humanity & Management Research*, 2(2), 106–112.
- Jiemsak, N., & Jiemsak, R. (2020). The effectiveness of the Quizizz interactive quiz media as an online self-assessment of undergraduate students to improve students' learning outcomes. *5th International STEM Education Conference (ISTEM-Ed)*.
- Karim, M. S., Bali, A. O., & Rached, K. (2023). Online education via media platforms and applications as an innovative teaching method. *Education and Information Technologies*, 28(1), 507–523.
- Khairunisa, N., Muyasaroh, M., & Najicha, A. (2024). Dampak digitalisasi pada pendidikan kewargaan. *GARUDA: Jurnal Pendidikan*, 2(2), 38–45.
- Khasanah, I., Anggraeni, N. N. H., & Chotimah, U. (2023). Meningkatkan motivasi belajar peserta didik kelas VII.2 dalam pembelajaran pendidikan Pancasila melalui penggunaan media Quizizz paper mode di SMPN 33 Palembang. *EDUKASIA: Jurnal Pendidikan dan Pembelajaran*, 4(2), 765–770.
- Kurnia, M. D. (2021). Kompetensi literasi digital mahasiswa dalam menulis artikel opini. *Prosiding Seminar Nasional Pascasarjana*, 175–179.
- Latuheru, M. S., Manuputty, F., & Angkotasana, S. (2024). Interactions between generations in digital literacy education: A case of millennial families in Suli, Central Maluku. *Baileo: Jurnal Sosial Humaniora*, 1(2), 141–154.
- Lim, T. M., & Yunus, M. M. (2021). Teachers' perception towards the use of Quizizz in the teaching and learning of English: A systematic review. *Sustainability (Switzerland)*, 13(11).
- Liu, Z. J., Tretyakova, N., Fedorov, V., & Kharakhordina, M. (2020). Digital literacy and digital didactics as the basis for new learning models development. *International Journal of Emerging Technologies in Learning (IJET)*, 15(14), 4–17.
- Menendez, M. C. D., Diaz, C. A. E., & Menendez, R. M. (2020). Educational experiences with Generation Z. *International Journal on Interactive Design and Manufacturing (IJIDeM)*, 14, 847–859.
- Mohamad, A. M. (2020). Student as teacher – alternative revision method via Quizizz app. *MALIM: Jurnal Pengajaran Umum Asia Tenggara*, 21(1), 150–159.
- Müller, A. M., Goh, C., Lim, L. Z., & Gao, X. (2021). Covid-19 emergency e-learning and beyond: Experiences and perspectives of university educators. *Education Sciences*, 11(1), 1–15.
- Munna, A. S., & Kalam, M. A. (2021). Teaching and learning process to enhance teaching effectiveness: A literature review. *International Journal of Humanities and Innovation (IJHI)*, 4(1), 1–4.
- Nahdi, D. S., & Jatisunda, M. G. (2020). Analisis literasi digital calon guru SD dalam pembelajaran berbasis virtual classroom di masa pandemi Covid-19. *Jurnal Cakrawala Pendas*, 6(2), 116–123.
- Nasar, I., Nurdianingsih, F., Rahmi, E., & Purwanto, M. B. (2024). Values of character education: Study of strengthening the culture of digital literacy for youth in disruptive 5.0 era. *Gema Wiralodra*, 15(1), 596–604.
- Nashar, Nurhasanah, A., & Fauzan, R. (2021). The effectiveness of critical thinking ability on the basis of Quizizz application viewed from problem based learning model in history learning of senior high school. In *IOP Conference Series: Earth and Environmental Science*, 747(1), p. 012046. IOP Publishing.

- Nasrullah, R., Aditya, W., Satya, T. I., Nento, M. N., Hanifah, N. M., & Akbari, Q. S. (2017). *Materi pendukung literasi digital*. Kementerian Pendidikan dan Kebudayaan.
- Ndari, W., Suyatno, Sukirman, & Mahmudah, F. N. (2023). Implementation of the Merdeka curriculum and its challenges. *European Journal of Education and Pedagogy (EJ-EDU)*, 4(3), 111–116.
- Nguyen, L. A. T., & Habók, A. (2023). Tools for assessing teacher digital literacy: A review. *Journal of Computers in Education*, 11, 305–346.
- Nuary, M. G., Abidin, J., Pranatha, A., Martiningsih, T. W., & Rusdiani, I. (2024). The impact of Quizizz learning media in increasing interest and learning motivation for early childhood education students. *JILTECH: Journal International of Lingua & Technology*, 3(2), 329.
- Nurfauziyah, S., Nursanti, S., & Utamidewi, W. (2023). Penggunaan Instagram sebagai media literasi digital pada akun @dp3akarawang. *Jurnal Ilmiah Wahana Pendidikan*, 9(9), 245–254.
- Nurjannah, V. (2024). The role of teachers as strengthening the profile of deep Pancasila students independent curriculum. *International Journal of Students Education*, 2(2), 13–18.
- Otlu, H., Otlu, H. G., & Sönmez, D. (2023). Investigation of science teachers' views on Kahoot, Socrative, Quizizz and My Quiz applications, which are Web 2.0 based assessment and evaluation tools. *European Journal of Educations Studies*, 10(9), 335–347.
- Purba, L. S. L. (2019). The effectiveness of the Quizizz interactive quiz media as an online learning evaluation of physics chemistry 1 to improve student learning outcomes. *6th International Conference on Mathematics, Science, and Education (ICMSE)*, 1–4.
- Putra, A. E., Rohman, M. T., Linawati, & Hidayat, N. (2023). Pengaruh literasi digital terhadap kompetensi pedagogik guru. *Murhum: Jurnal Pendidikan Anak Usia Dini*, 4(1), 201–211.
- Quraishi, T., Ulusi, H., Muhid, A., Hakimi, M., & Olusi, M. R. (2024). Empowering students through digital literacy: A case study of successful integration in a higher education curriculum. *Journal of Digital Learning and Distance Education*, 2(9), 667–681.
- Rahimah, & Amatillah, Z. (2024). Student perceptions of Quizizz as an assessment tool in English classes at MA Bustanul Ulum. *Journal of Research in English Language Teaching (JR-ELT)*, 8(2), 113–124.
- Rahmad, N., Lestari, A., Musa, L. A. D., & Sugilar, H. (2019). Quizizz online digital system assessment tools. *IEEE 5th International Conference on Wireless and Telematics (ICWT)*, 1–4.
- Rapanta, C., Botturi, L., Goodyear, P., Guardia, L., & Koole, M. (2020). Online university teaching during and after the Covid-19 crisis: Refocusing teacher presence and learning activity. *Postdigital Science and Education*, 2, 935–995.
- Rina, N., Suminar, J. R., Damayanti, N. A., & Hafiar, H. (2020). Digital literacy education in the industrial revolution 4.0 in Alquran primary school students. *Library Philosophy and Practice (e-Journal)*.
- Ririen, D., & Daryanes, F. (2022). Analisis literasi digital mahasiswa. *Research and Development Journal of Education*, 8(1), 210–219.
- Ririen, D., & Heriasman. (2021). Does self-management affect students' digital literacy? Evidence from a campus in Riau Province. *Jurnal Kependidikan*, 7(4), 946–955.
- Rizal, R., Setiawan, W., & Rusdiana, D. (2019). Digital literacy of preservice science teacher. *International Conference on Mathematics and Science Education (ICMScE)*, 1–6.
- Rusmini., Suyono., & Agustini, R. (2021). Analysis of science process skills of chemical education students through self project based learning (SjBL) in the pandemic COVID 19 era. *Journal of Technology and Science Education*, 11(2), 371–387.
- Rusydiyah, E. F., Purwati, E., & Prabowo, A. (2020). How to use digital literacy as a learning resource for teacher candidates in Indonesia. *Cakrawala Pendidikan*, 39(2), 305–318.
- Santoso, H., Abdinagoro, S. B., & Arief, M. (2019). The role of digital literacy in supporting performance through innovative work behavior: The case of Indonesia's telecommunications industry. *International Journal of Technology (IJTech)*, 10(8), 1558–1566.
- Saputra, A. R. (2022). Pentingnya literasi digital dalam pendidikan kewarganegaraan di era digital. *Jurnal Ilmu Sosial*, 5(1), 12–20.

- Saputra, M., & Siddiq, I. H. A. (2020). Social media and digital citizenship: The urgency of digital literacy in the middle of a disrupted society era. *International Journal of Emerging Technologies in Learning*, 15(7), 156–161.
- Sari, G. I., Winasis, S., Pratiwi, I., Nuryanto, U. W., & Basrowi. (2024). Strengthening digital literacy in Indonesia: Collaboration, innovation, and sustainability education. *Social Sciences & Humanities Open*, 10, 1–20.
- Sobirin, W., Susilawati, L., Rohendi, A., Mulyanto, A., & Warta, W. (2023). Implementation of the project to strengthen Pancasila student profiles in forming student character. *International Journal of Bunga Bangsa Cirebon (IJOBBA)*, 2(1), 1–9.
- Solihin, L. (2020). Darurat literasi membaca di kelas awal. *Masyarakat Indonesia*, 46(1), 34–48.
- Sujana, A., & Rachmatin, D. (2019). Literasi digital abad 21 bagi mahasiswa elementary school teacher education: Apa, mengapa, dan bagaimana. *Conference Series Journal*, 1–7.
- Sumardin, S., Larisu, Z., & Sumule, M. (2022). Kompetensi literasi digital pada mahasiswa perpustakaan dan ilmu informasi Fakultas Ilmu Sosial dan Ilmu Politik Universitas Halu Oleo. *Jurnal Literasi Perpustakaan dan Informasi UHO*, 2(3), 173–183.
- Svensson, T., Wilk, J., & Aman, K. G. (2022). Information literacy skills and learning gaps – Students' experiences and teachers' perceptions in interdisciplinary environmental science. *The Journal of Academic Librarianship*, 48(1), 102465.
- Syah, R., Darmawan, D., & Purnawan, A. (2019). Analisis faktor yang mempengaruhi kemampuan literasi digital. *Jurnal AKRAB (Aksara Agar Berdaya)*, 10(2), 60–69.
- Syahrir, Pujriyanto, Musdalifa, & Fitri, S. (2024). The implementation of Merdeka curriculum to realize Indonesia golden generation: A systematic literature review. *Al-Islah: Jurnal Pendidikan*, 16(2), 1434–1450.
- Tejedor, S., Cervi, L., Escoda, A. P., & Jumbo, F. T. (2020). Digital literacy and higher education during COVID-19 lockdown: Spain, Italy, and Ecuador. *Publications*, 8(4), 48.
- Udeogalanya, V. (2022). Aligning digital literacy and student academic success: Lessons learned from COVID-19 pandemic. *International Journal of Higher Education Management (IJHEM)*, 8(2), 54–65.
- Vebrianto, R., Hermita, N., Irawan, D., Muhtahid, I. M., & Thahir, M. (2024). Teachers' experiences in sekolah penggerak program: A retrospective case study. *Journal of Education and Learning (EduLearn)*, 18(1), 79–88.
- Wahyuningsih, T., Rozie, F., Jafar, F. S., Nurhaliza, T., & Erawati, S. S. (2024). Integration of Pancasila student profile dimensions in the independent learning ECE curriculum: Narrative inquiry early childhood education of teachers mover in Indonesia. *Cakrawala Dini: Jurnal Pendidikan Anak Usia Dini*, 15(1), 61–70.
- Wang, L. C. C., Lam, E. T. C., & Jiang, S. (2024). Preliminary investigation of the effectiveness of Quizizz on vocabulary acquisition between individual and group practices in Chinese as a foreign language high school classes in the U.S.A. *International Journal of Chinese Language Teaching*, 5(3), 87–96.
- Widana, I. W., Sumandya, I. W., & Citrawan, I. W. (2023). The special education teachers' ability to develop an integrated learning evaluation of Pancasila student profiles based on local wisdom for special needs students in Indonesia. *Kasetsart Journal of Social Sciences*, 44(2), 527–536.
- Widyanti, A., Hasudungan, S., & Park, J. (2020). E-learning readiness and perceived learning workload among students in an Indonesian university. *Knowledge Management and E-Learning*, 12(1), 18–29.
- Wulandari, Z. R., Azzahra, N., Wulandari, P., Halimah, & Santoso, G. (2023). Memperkuat jiwa kewarganegaraan di era digital dengan pendidikan kewarganegaraan yang komprehensif. *Jurnal Pendidikan Transformatif*, 2(2), 415–424.
- Yanti, N., Mulyati, Y., Sunendar, D., & Damaianti, V. (2021). Tingkat literasi digital mahasiswa Indonesia. *Diksa: Pendidikan Bahasa dan Sastra Indonesia*, 7(1), 59–71.
- Yassen, S. O. A., & Danani, A. M. A. (2023). Media education and digital media: Nurturing digital literacy and critical thinking. *Journal of Namibian Studies*, 35(1), 604–635.
- Yong, A., & Rudolph, J. (2022). A review of Quizizz – A gamified student response system. *Journal of Applied*

Learning & Teaching, 5(1), 146–155.

- Yu, Z. (2022). Sustaining student roles, digital literacy, learning achievements, and motivation in online learning environments during the COVID-19 pandemic. *Sustainability*, 14(8), 4388.
- Yuliana, C. P., Rasyid, S. A., Manan, A., Putra, R. S., & Parwita, K. (2023). Students' information literacy at the MTsN 4 Banda Aceh based on empowering eight model. *Lentera Pustaka: Jurnal Kajian Ilmu Perpustakaan, Informasi dan Kearsipan*, 9(1), 11–24.
- Zakso, A., Agung, I., Sofyatiningrum, E., & Capnary, M. C. (2022). Factors affecting character education in the development of the profile of Pancasila students: The case of Indonesia. *Journal of Positive School Psychology*, 6(2), 2254–2273.
- Zhao, F. (2019). Using Quizizz to integrate fun multiplayer activity in the accounting classroom. *International Journal of Higher Education*, 8(1), 37–43.
- Zuhroh, S. (2023). A implementation of the values of Pancasila student profile in learning insight of the archipelago in class IV students of SD Al-Ihsan Medan. *Journal of General Education Science*, 1(3), 182–186.
- Zuriah, N., Sunaryo, H., Lutfiana, R. F., Setyawan, H., Sulistiyo, Sabariah, Rufii, Harmanto, Gontara, S. Y., Susanto, & Pavlovic, R. (2024). Strengthening the Pancasila student profile for Indonesian citizens through physical education at school. *Dialnet*, 6(1), 1261–1275.