

The Influence of Digital Literacy and Civic Literacy on Civic Responsibility among Prospective Teachers

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Abstract

Purpose: This study aims to analyse the influence of digital literacy and civic literacy on civic responsibility among prospective teachers.

Methodology: The study employs a quantitative descriptive methodology with a correlational design, using purposive random sampling. The research population consists of 2.791 people, and the research sample consists of 247 students from the Faculty of Teacher Training and Education, Universitas Muhammadiyah Surakarta.

Results: The results show that all three research hypotheses were proven and accepted. The t-value for digital literacy was $3.247 > t\text{-table } 1.651$, and the t-value for civic literacy was $9.992 > t\text{-table } 1.651$, indicating that H_1 was accepted. Digital literacy and civic responsibility are positively correlated, and H_2 is approved, indicating a favorable impact between civic literacy and civic responsibility. The F-test indicates that both literacies positively affect civic responsibility. These findings indicate that the higher the levels of digital literacy and civic literacy among prospective teachers, the higher their awareness and sense of responsibility as citizens, both in real life and the digital space. Digital literacy and civic literacy help students understand their actions and consequences in the digital and real worlds, thereby fostering a stronger sense of civic responsibility.

Applications/Originality/Value: This research can be applied in the development of curricula and learning strategies for Pancasila and Civic Education. The novelty of this research lies in the simultaneous empirical testing of digital and civic literacy to analyse the formation of civic responsibility in the digital age, this area has not been widely studied among prospective teachers.

Introduction

In today's digital age, every citizen should have a high sense of civic responsibility because this is very important for maintaining democratic stability, strengthening social cohesion, and preventing the misuse of digital technology (Prayogi et al., 2024). Citizens with a strong sense of civic responsibility tend to actively participate in society, including in the digital space, and avoid spreading hoaxes and immoral behaviour in the virtual and real worlds (Pangrazio & Sefton-Green, 2021). In the context of education, prospective teachers are expected to be agents of change with a high level of civic responsibility and awareness, as well as role models in social and civic life (Sukmayadi et al., 2024). Civic responsibility is a fundamental aspect that prospective teachers must possess as part of their professional competence, given the importance of their role in shaping the character and civic values of future generations (Arafat, 2021).

However, in reality, many young people still lack the motivation, will, and ability to behave wisely on social media. They are easily influenced by hoaxes, online scams, and cyberbullying (Nurrahmi & Syam, 2020). Facts on the ground also show that the younger generation has not fully fulfilled its responsibilities as citizens, as evidenced by declining political engagement and participation in socio-political movements. A survey by the IDN Research Institute reveals that the younger generation has lower trust in political institutions, such as political parties (61%), the house of representatives (55%), and the government (47%) (Nafian, 2025). This condition has resulted in a decline in political participation among the younger generation, especially students, who tend to prioritise personal interests over political activities due to cost and benefit considerations (Naibaho & Savirani, 2017). The low political participation of the younger generation cannot be separated from the context of the 21st century, marked by rapid development and the widespread use of technology across various fields, including education (Batubara & Habibi, 2024). For prospective teachers, digital technology not only functions as a learning medium but also as a tool for communication, building relationships, and accessing information (Zuria, 2018).

The widespread dissemination of hoaxes, particularly before the general election in 2024, requires the public to be more critical and selective in receiving and disseminating information. According to data from the directorate general of applications and informatics of the Ministry of Communication and Digital Affairs (MCDA), between August 2018 and March 2023, 11.357 hoaxes were identified circulating on various digital platforms. A survey conducted by Tirta and

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Jakpat with 1.500 respondents showed that 6.6% did not verify information before sharing it, and 2.93% were unsure whether their actions constituted verification (Hartanto, 2023). This condition shows how important it is to know how to verify reliable sources of information that could undermine public trust, weaken critical thinking, and trigger social instability (Sari et al., 2021). Furthermore, the problem of online fraud is also increasing in Indonesia. Research results on Indonesian Internet Penetration 2024 by the Indonesian Internet Service Providers Association (APJII) show that Indonesians are still vulnerable to becoming victims of digital data security cases. APJII chairman Muhammad Arif explained at a press conference on Wednesday, January 31, 2024, that online fraud ranked highest at 32.50%, a sharp increase from 10.30% in 2023 (Prasetya, 2024). In addition, the issue of Online Gender-Based Violence (GBV) has also seen a significant increase, with cyberbullying cases rising by 118 cases in the first quarter of 2024 compared to the previous year (Safenet, 2024). The impact is not only social but also psychological, such as the emergence of trauma, anxiety, depression, and even the risk of suicide. Data from the Ministry of Women's Empowerment and Child Protection (MoWECP) shows that the majority of cyberbullying victims are in the 18-25 age group (57%) (Anggraini, 2024).

Another issue attracting attention is the low level of civic literacy among the younger generation. A survey conducted by the Centre for Strategic and International Studies (CSIS) on August 8-13, 2022, found low political interest among young voters, particularly in running for legislative or executive office. A total of 84.7% of respondents said they had no desire to run for the house of representative or assembly of provincial/regional, and 85.2% were not interested in becoming regional heads. Only 14.6% of respondents were interested in becoming members of the legislature, 14.1% in becoming regional heads, and 0.7% chose not to answer. These findings show that the younger generation, including students, still has a low level of political participation and does not fully understand their responsibilities as citizens (Hasya, 2022). The continuity of democracy is seriously threatened by the younger generation's lack of interest in politics. The lack of involvement of the younger generation in politics weakens party and government regeneration, thereby potentially creating a lost generation, namely a generation that is not ready to take on strategic roles in political and state life (Muhammad, 2024). This phenomenon shows symptoms related to understanding civic responsibility among students, with low levels of digital literacy and civic literacy. This condition has the potential to hinder the emergence of a young generation that is aware of their rights, obligations, and roles as responsible citizens in the digital age (Fadillah & Syahputra, 2021).

Civic responsibility is defined as an individual's attitude that reflects awareness of their role and obligations as a citizen. Civic responsibility encompasses two main aspects. The first is digital literacy, which is the ability to critically evaluate information, counter disinformation, and foster digital ethics in the virtual world. The second aspect is civic literacy, this influences how the next generation is shaped to be role models in democracy, social engagement, and concern for socio-political issues. Strengthening these two aspects will reinforce the integrity of prospective teacher as agents of social change who can participate actively and wisely amid the rapid flow of information, which is often misleadin (Aljamaliah et al., 2024). One of the challenges related to this issue is the low level of digital literacy among the younger generation. The capacity to acquire, understand, and use information is referred to as digital literacy presented in multiple formats through digital devices, laptops, tablets, and computers (Gilster, 1949; Nurjanah et al., 2017). Digital literacy must be supported by several processes, such as critical thinking, collaboration, creativity, communication, and active learning using digital technology (Nurfauziyanti et al., 2022). Digital literacy must be supported by several processes, such as communication, collaboration, critical thinking, creativity, and active learning using digital technology (Juwandi et al., 2019). Furthermore, civic literacy remains a challenge in efforts to raise awareness of civic responsibility among the younger generation. Young people with low civic literacy tend to be less involved in democratic life because they are less interested in socio-political issues and have a weak sense of patriotism (Huda et al., 2018). On the other hand, there are factors that support civic literacy, such as understanding the rights and obligations of citizens, the ability to evaluate various public issues, and active participation in socio-political activities (Suryaningsih, 2023; Sukmayadi et al., 2024). If low digital and civic literacy are not addressed immediately, they can have adverse effects that threaten the long-term sustainability of democracy. Therefore, this research is closely related to Pancasila and Civic Education, which strategically shape the character and attitudes of the younger generation by strengthening digital literacy, civic literacy, and civic responsibility to prepare them to address the challenges of living in the country in the digital age.

Several previous studies have examined the relationship between digital literacy, civic literacy, and attitudes of responsibility as citizens. According to Yuniarto (2025), civic education in the society 5.0 era is greatly strengthened by the development of the concept of civic duty through the integration of elements of digital citizenship. In line with this, Enda (2022) found that students' openness, creativity, and discipline in using digital technology can be improved by instilling values of responsibility through digital literacy activities. Both studies focused on application in learning, not on analysing the correlation between digital literacy and civic responsibility. In addition, there has been no specific focus on prospective teachers who will play an important role as educators in the future. Furthermore, Pradana (2018) emphasises the importance of citizens' ability to distinguish between true and valid information and to logically determine the validity of information sources. However, the development of community-based digital literacy, especially for housewives and families, is very important to create a critical, ethical, and technologically skilled society (Adnjani et al., 2021). Rahmawati and Wibowo (2023) also believes that improving digital literacy and citizenship through education and character development can shape a generation that is intelligent, moral, and ready to face the challenges of the 21st century. However, these studies still focus on character development and the broader social environment, so they have not empirically examined the relationship between digital literacy and the civic responsibility of students, especially prospective teachers

who will play a role as educators in the digital age. Meanwhile, Ridha and Riwanda (2020) explain that the use of digital media in teaching civic literacy can increase students' political engagement and national character. Furthermore, Kurniawan et al., (2025) reveal that the application of the civic literacy model together with Pancasila education can increase students' understanding of nationality and strengthen their character in terms of self-control, responsibility, and social empathy. Widiatmaka and Kurniawan (2023) also emphasise that in the era of society 5.0, civic literacy skills are very important for students to participate in national life actively. Although these studies have proven the importance of civic literacy in shaping national idealism, most still focus on the implementation of learning and character building rather than empirical measurement of the relationship between civic literacy and civic responsibility. Although these studies have proven the importance of civic literacy in shaping national idealism, most still focus on the implementation of learning and character building rather than empirical measurements of the relationship between civic literacy and civic responsibility.

Previous studies have generally discussed digital or civic literacy separately and have focused on aspects of learning or character building rather than on the empirical relationship between variables. Based on this gap, this study aims to analyse the combined influence of digital literacy and civic literacy on the civic responsibility of prospective teachers, amid the rapid flow of information and its challenges to civic values. This study examines the relationship between citizens' understanding of their rights, responsibilities, and active involvement with their ability to access, evaluate, and use digital information responsibly. The theoretical basis of this study is Albert Bandura (1989) social cognitive theory, which explains that reciprocal interactions among personal, behavioural, and environmental factors shape human behaviour. Based on this theory, digital literacy and civic literacy are viewed as individual abilities as well as the result of a social learning process that shapes the attitudes, mindsets, and sense of civic responsibility of future teacher candidates.

Thus, researchers are interested in conducting a study entitled "The Influence of Digital Literacy and Civic Literacy on Civic Responsibility among Prospective Teachers", the novelty of this study lies in the simultaneous empirical testing of digital literacy and civic literacy to analyse the formation of civic responsibility in the digital age. This research also makes a theoretical contribution by combining two complementary concepts of literacy to shape intelligent, ethical, and responsible citizens, especially among prospective teachers. Conceptually, this research expands on the idea that digital skills and civic awareness must be balanced so that citizens can participate in the digital era ethically and responsibly. This study focuses on prospective teachers at the Faculty of Teacher Training and Education, Universitas Muhammadiyah Surakarta. Based on the background described above, the researcher identified several problems, including the fact that students do not yet fully possess the characteristics of responsible citizens, low political engagement among the younger generation, students who are not yet fully wise in using social media, the spread of hoaxes, widespread online fraud, and increasing problems of cyberbullying.

The hypothesis in this study was developed to examine the influence of digital literacy and civic literacy on the civic responsibility of prospective teachers. The study focuses on testing the relationship between the two independent variables, both individually and simultaneously, with respect to the dependent variable. The following hypotheses were determined for this study: 1) H_1 : There is a positive influence between digital literacy (X_1) and civic responsibility (Y) among prospective teachers, 2) H_2 : There is a positive influence between civic literacy (X_2) and civic responsibility (Y) among prospective teachers, and 3) H_3 : There is a positive simultaneous influence between digital literacy (X_1) and civic literacy (X_2) on the civic responsibility (Y) among prospective teachers.

Methods

The study employs a quantitative descriptive methodology with a correlational design to examine the relationship between independent variables and the dependent variable (Suriani et al., 2023; Andriyanti & Patmisari, 2024). The sampling technique used was purposive random sampling. The research population consisted of 2,791 people, and the research sample consisted of 247 students from the Faculty of Teacher Training and Education (FKIP), Universitas Muhammadiyah Surakarta (UMS). The criteria for selecting respondents based on the sampling technique were active students enrolled in the 2022-2023 academic year at FKIP UMS, both male and female, and who had participated in PLP 1 (School Field Introduction). All data collected was used solely for research purposes and was guaranteed not to be disclosed to outside parties. Data collection was conducted with the voluntary consent of the respondents. Data analysis techniques included classical assumption tests and hypothesis testing using the SPSS 29 (Statistical Package for the Social Sciences) application. The classical assumption test was conducted to assess whether the OLS (Ordinary Least Squares) linear regression model had classical assumption problems, including normality tests, multicollinearity tests, linearity tests, and heteroscedasticity tests (Mardiatmoko, 2020). Furthermore, hypothesis testing was carried out as a basis for testing the validity of the formulated hypotheses, including t-tests (partial), F-tests (simultaneous), and multiple linear regression analysis (Ghozali, 2018).

Data collection was conducted by distributing questionnaires via Google Forms, comprising 45 items measured on a 5-point Likert scale. The statements were compiled using indicators developed based on theories relevant to each variable. The digital literacy variable refers to Paul Gilster (1997), the civic literacy variable refers to David Kerr (1999), and the civic responsibility variable refers to Westheimer and Kahne (2004). To ensure the validity of the collected data, an instrument test was conducted, which included validity and reliability tests. The validity test was used to measure the validity of a questionnaire. A questionnaire is considered valid if its statements can reveal something that will be measured

by the questionnaire (Sugiyono, 2017). The criteria for determining whether data is valid or not are that if the calculated r -value $> r$ -table, then the statement is declared valid. Conversely, if r -value $< r$ -table, then the statement is declared invalid. The validity test was conducted on 48 respondents, and the results showed that all statement items on the variables of digital literacy and civic responsibility were declared valid because they had a correlation value $> r$ -table 0.284. However, one item in the civic literacy variable was invalid, so it was removed from the research instrument. Next, a reliability test was conducted to assess the questionnaire used as an indicator of each variable. A questionnaire is considered reliable when respondents' answers to the statements remain consistent over time (Arikunto, 2017). The reliability analysis revealed that all variables had Cronbach's Alpha > 0.60 , indicating that the research instrument demonstrates satisfactory reliability and appropriate for measuring the variables under study.

Results and Discussions

Data Descriptions

Respondent Descriptions

Respondent identity is an essential requirement for determining the characteristics and background of respondents involved in the study. If the respondent's identity does not match the characteristics that have been set for sample selection, then that respondent does not qualify as a sample in the study. First, among the total 247 respondents, the highest frequency was female, with 139 (56.2%), while male respondents numbered 108 (43.8%). Second, the respondents came from 11 different study programs. The study program with the highest number of respondents was English Education (17.8%), followed by Primary School Teacher Education (15%), and Information Technology Education (14.1%). Meanwhile, the study programs with the fewest respondents were Early Childhood Education and Geography Education, each with 1.6%. Other study programs also had varying numbers of respondents, such as Pancasila and Civic Education (12.6%), Physical Education (9.7%), Mathematics Education (8.1%), Accounting Education (5.7%), Biology Education (7.7%), and Indonesian Language and Literature Education (6.1%). Overall, this distribution shows that respondent participation is fairly evenly spread across various FKIP UMS study programs.

Third, of the total 247 respondents, the majority were from the class of 2022, numbering 187 (75.7%), while those from the class of 2023 numbered 60 (24.3%). In addition, all respondents had participated in PLP 1 activities. Thus, the characteristics of the respondents in this study were consistent with the established criteria, reflecting the diversity of the academic backgrounds of FKIP UMS students, who served as the research sample.

Descriptive Analysis

Data analysis is generally conducted by using descriptive statistics to examine the variables of digital literacy (X_1), civic literacy (X_2), and civic responsibility (Y). These measurements include the maximum, average, and minimum values.

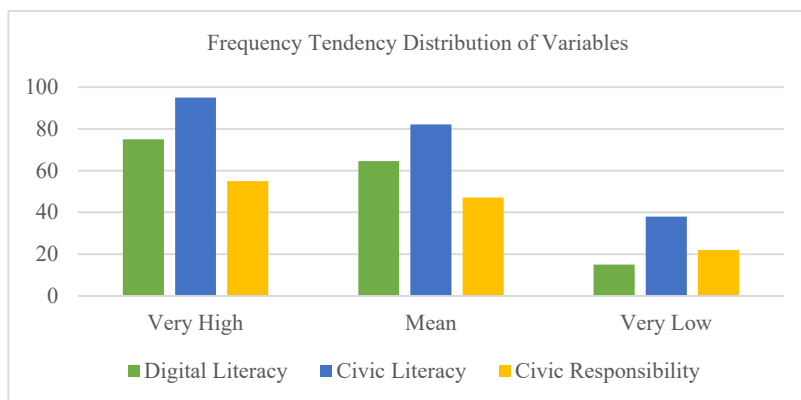


Figure 1. Interval Diagram Data.

Source: Researcher Data Processing, 2025.

Based on Figure 1, the exceptionally high category showed the highest scores digital literacy at 76 (30.8%), civic literacy at 95 (38.4%), and civic responsibility at 56 (22.7%). In the mean category, the average scores for digital literacy are 67 (27.1%), civic literacy are 82 (33.2%), and civic responsibility are 48 (19.4%). Meanwhile, in the very low category, the lowest scores were 15 (6.1%) for digital literacy, 39 (15.8%) for civic literacy, and 20 (8.1%) for civic responsibility.

Data Analysis Results

Prerequisite Analysis Test

First, a normality test to examine whether the collected data met the assumption of normal distribution required for further analysis. A regression model is considered appropriate when the Asymp Sig. (2-tailed) value is > 0.05 , indicating that the data are normally distributed. Conversely, an Asymp Sig. (2-tailed) value is < 0.05 , indicates that the data are not normally distributed (Santoso, 2019). Based on the results of the normality test, it was determined that the data in this study were normally distributed. This was proven by a Sig. value of $0.099 > 0.05$. Therefore, the data were normally distributed, indicating that the research variables met the normality assumption.

Furthermore, the multicollinearity test aimed to ascertain whether the regression model's independent variables were intercorrelated (Ghozali, 2018). A regression model is considered adequate when there is no correlation among the independent variables; the presence of such correlation indicates multicollinearity. The decision criteria state that a Tolerance value ≥ 0.10 and a Variance Inflation Factor (VIF) ≤ 10.0 , indicate the absence of multicollinearity. The results of the multicollinearity test for digital literacy show a Tolerance value of $0.602 > 0.100$, and for civic literacy, the Tolerance value is also $0.602 > 0.100$. Meanwhile, the VIF value for digital literacy is $1.660 < 0.100$ and for civic literacy, the VIF is $1.660 < 0.100$. Therefore, it can be inferred that there is no multicollinearity and no correlation between the variables of digital literacy and civic literacy.

After conducting the multicollinearity test, to determine whether there was a linear relationship between the independent and dependent variables, a linearity test was performed. The relationship may be either positive or negative (Priyatno, 2016; Fauziyah & Julaha, 2022). The linearity test is a prerequisite for the regression test. The criteria are that if the Sig. linearity value > 0.05 , then it is not linear, and if the Sig. linearity value is < 0.05 , it is linear. The linearity test results indicate that the relationship between digital literacy and civic responsibility is linear with a linearity Sig. value of $0.001 < 0.05$, indicating a significant linear relationship between the two variables. Furthermore, the relationship between civic literacy and civic responsibility is linear with a Sig. linearity value of $0.001 > 0.05$. Therefore, both independent variables meet the linearity assumption, thus, the linear regression model may be applied in further analysis.

Furthermore, a heteroscedasticity test was conducted to assess whether the residuals' variance was consistent across observations in the regression model. When the residual variance remains constant, the condition is referred to as homoscedasticity, whereas variation in the residual variance indicates heteroscedasticity. A regression model is considered appropriate when it exhibits homoscedasticity or does not show heteroscedasticity (Ghozali, 2018). The test criterion is that if the variable's p-value is > 0.05 , there is no heteroscedasticity. Conversely, if the variable's p-value is < 0.05 , then there is heteroscedasticity. Based on the heteroscedasticity test results, it is known that the Sig. value of the digital literacy variable is $0.955 > 0.05$ and for the civic literacy variable is $0.297 > 0.05$. Thus, it can be concluded that the regression model is not heteroscedastic. Therefore, the study's regression model satisfies the homoscedasticity assumption and may be utilized for additional investigation.

Hypothesis Test

The hypothesis test's findings will serve as the foundation for demonstrating the validity of the hypothesis formulated in the study. The first hypothesis test in this study, the t-test (partial), is used to examine the effect of individual independent variables on the dependent variable (Windarjono, 2018). The t-test is conducted with the following conditions: if t-value $>$ t-table and Sig. value < 0.05 , then there is an effect of variable X on variable Y. Conversely, if t-value $<$ t-table and Sig. value > 0.05 , then there is no effect of variable X on variable Y.

Table 1. T-test Results (Partial).

Variable	t-table	t-value	Sig.
Digital Literacy	1.651	3.247	.001
Civic Literacy	1.651	9.992	<.001

Source: Researcher Data Processing, 2025.

Based on Table 1, the results of the t-test analysis show that, first, the Sig. value for digital literacy is $0.001 < 0.05$ and the t-value is $3.247 >$ t-table 1.651, thus, H_1 is accepted and H_0 is rejected, indicating an influence between digital literacy and civic responsibility. Second, the Sig. value for civic literacy is $0.001 < 0.05$ and the t-value is $9.992 >$ t-table 1.651, so it can be concluded that H_0 is rejected and H_2 is accepted, meaning that there is an influence between civic literacy and civic responsibility.

Second, the F-test (simultaneous) is intended to test the regression model for the simultaneous impact of each independent factor on the dependent variable. According to the test, the conclusion is determined with a Sig. level of 5% or 0.05. The test can be done by comparing the F-value with the F-table at a Sig. level of < 0.05 , with the test criteria being that if F-value $<$ F-table, it means that together the X variables do not affect the Y variable. If F-value $>$ F-table, it means that together the X variables affect the Y variable.

Table 2. F-test Results (Partial).

Variable	Sum of Squares	df	Mean Square	F	Sig.
Regression	4059.289	2	2029.644	125.583	<.001 ^b
Residual	3943.464	244	16.162		
Total	8002.753	246			

Source: Researcher Data Processing, 2025.

Based on Table 2, it is known that the Sig. value is $0.001 < 0.05$ and the F-value value is $125.583 > F\text{-table } 3.032$, so it can be concluded that H_0 is rejected and H_3 is accepted, meaning that there is a simultaneous influence between digital literacy and civic literacy on civic responsibility.

Third, this study used multiple linear regression to examine the extent to which the independent variables influence the dependent variable. According to Sugiyono (2017), the goal of multiple linear regression analysis is to determine which independent variables affect a dependent variable. The results of the analysis are presented in the following table.

Table 3. Multiple Linear Regression Test Results.

Variable	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	8.833	2.472		3.572	<.001
Digital Literacy	.140	.043	.188	3.247	.001
Civic Literacy	.356	.036	.579	9.992	<.001

Source: Researcher Data Processing, 2025.

Based on Table 3, the regression equation model can be formulated as follows.

$$Y = 8.833 (\alpha) + 0.140 (X_1) + 0.356 (X_2) + e$$

The multiple regression equation model means, among other things, that the constant (α) = 8.833, meaning that if digital literacy and civic literacy are zero (0) or remain constant, then the civic responsibility value of prospective teachers is 8.833. Second, $B_1 (X_1) = 0.140$, meaning that if digital literacy increases by one (1) unit, the civic responsibility of prospective teacher students will also increase by 0.140. Third, $B_2 (X_2) = 0.356$, meaning that if civic literacy increases by one (1) unit, the civic responsibility of prospective teachers will also increase by 0.356. In addition, the Sig. value of digital literacy is $0.001 < 0.05$, while the Sig. value of civic literacy is $<.001 < 0.05$, so it can be concluded that digital literacy and civic literacy have a positive and significant partial effect on the civic responsibility of prospective teachers.

The Influence of Digital Literacy on Civic Responsibility among Prospective Teachers

The findings of the study indicate that digital literacy significantly affects the civic responsibility of prospective teachers. These findings indicate that the higher the digital literacy of prospective teachers, the greater their sense of responsibility as citizens. This result occurs because digital literacy skills encourage students to think critically, selectively, and ethically in using information in the digital space. From the perspective of Albert Bandura (1989) social cognitive theory, this ability is a personal factor that interacts with the digital environment to shape responsible civic behaviour. This theory emphasises that human behaviour is shaped by the reciprocal interaction among personal factors, behaviour, and the environment (reciprocal determinism), so that students' experiences in the digital world can strengthen the formation of civic responsibility attitudes. These findings are in line with Rawanoko et al. (2021) which show that the ethical use of social media correlates with increased digital responsibility among prospective teachers. This means that when students use social media wisely, they not only demonstrate good digital ethics but also reflect a sense of responsibility as citizens in the digital space. In line with these findings, Rezki et al. (2025) emphasise that digital literacy is essential for developing the critical, analytical, and creative thinking skills required in the teaching profession, underscoring the importance of students creating digital literacy wisely and utilising technology effectively in the learning and teaching process. These skills help students make wiser decisions, understand the social impact of technology, and act morally in the virtual world, which is a tangible manifestation of civic responsibility in the modern era. Putri et al. (2025) also highlight the importance of strengthening the curriculum for teaching digital ethics in higher education, especially to shape future educators who possess not only strong academic abilities but also sufficient moral integrity to use digital media appropriately. Strengthening the curriculum not only develops digital competencies but also instils moral principles and social awareness as a foundation for prospective teachers to be responsible for their digital activities and their impact. Furthermore, Rahayu et al. (2025) noted that digital literacy, when applied through a scientific approach, can improve cognitive learning outcomes and strengthen students' civic disposition, making them better prepared to face challenges in the digital age. This shows that the reflective application of digital literacy can foster critical awareness and responsibility, enabling students to play an active role as ethical citizens in both the digital and real worlds. Several of these research results reinforce the importance of good digital literacy skills in shaping the civic responsibility of prospective teachers, both as individuals and

as future educators. Therefore, digital literacy can be seen as an essential factor in shaping students' civic character to behave ethically, critically, and responsibly in their use of technology as citizens and members of the nation.

The Influence of Civic Literacy on Civic Responsibility among Prospective Teachers

The results of the study indicate that civic literacy significantly influences the civic responsibility of prospective teachers. These findings show that students with high levels of civic literacy tend to have a stronger awareness of their civic duties and rights and behave more responsibly. This influence may occur because civic literacy instils an awareness of moral, social, and national values that form the basis of civic responsibility. Civic literacy is also an important factor in developing knowledge and shaping a sense of love for the country, unity, and the practice of the Pancasila ideology (Octavialis & Ananda, 2021; Rahmawati et al., 2022). This shows that the development of social and moral responsibility in community life depends on a strong understanding of the principles of citizenship. Based on Albert Bandura (1989) social cognitive theory, civic literacy acts as a personal factor that influences how students view and respond to socio-political situations in their environment. This explains that students' civic knowledge not only shapes conceptual understanding but also fosters critical thinking, empathy, and responsibility in dealing with socio-political issues. This explains that students' civic knowledge not only shapes conceptual understanding but also fosters critical thinking, empathy, and responsibility in addressing socio-political issues. Civic literacy among students is crucial in creating a participatory and responsible character in social and state life, because through an understanding of the rights and obligations as citizens, students will be encouraged to participate actively. This literacy also fosters civic competence, including the intellectual skills individuals need in socio-political life (Wiguna et al., 2025). Furthermore, Tachyudin et al. (2020) state that civic literacy strengthens national awareness by optimising civic skills and the ability to position oneself, thereby fostering positive behaviour in society and preventing national disintegration. Therefore, civic literacy fosters awareness and a sense of responsibility, motivating students to maintain unity and contribute to the stability of national life. Guntoro and Widodo (2024) it also emphasises that civic literacy in the digital age can be strengthened through the application of the 4C principles, namely critical thinking, collaboration, communication, and creativity, to shape good and thoughtful citizens who can critically and responsibly filter out hoaxes. The application of these principles helps students develop critical and collaborative thinking skills, enabling them to assess information rationally and actively maintain an ethical digital environment. Thus, the study's findings provide support for the notion that civic literacy is crucial in shaping future educators' personalities, enabling them to adapt to the times and understand the values of responsible citizenship as citizens.

The Influence of Digital Literacy and Civic Literacy on Civic Responsibility among Prospective Teachers

Based on the analysis results, the independent variables positively impact the dependent variable, so digital literacy and civic literacy have a combined impact on the civic responsibility of prospective teachers. This finding confirms that mastery of digital literacy and citizenship literacy are essential factors in shaping responsible civic attitudes and behaviours in the modern era. Both forms of literacy can improve cognitive abilities, strengthen social awareness, and encourage active participation of students in the nation's and the state's existence. These results show that both simultaneously shape students' moral awareness, critical thinking, and empathy towards their role as citizens. The integration of digital literacy and civic literacy helps students understand the relationship between actions in the digital space and their consequences for social life, thereby fostering a stronger sense of responsibility in fulfilling their civic roles. These findings can be further explained through Albert Bandura (1989) social cognitive theory, which views digital literacy and civic literacy as personal factors that interact with behavior and the environment to shape the civic responsibility of prospective teachers. This interaction fosters their civic awareness and helps them learn to adjust their actions and responsibilities based on an understanding of civic values and digital ethics. In other words, these results illustrate that civic responsibility is not only a matter of cognitive knowledge but also a social learning process involving observation, experience, and the internalisation of values in both digital and academic environments. In addition, Saputra (2025) revealed that social media substantially influences students' perceptions of tolerance, responsibility, transparency, and encourages active participation in civic and public affairs. In an academic environment, social media also contributes to the development of political knowledge, critical thinking skills, digital literacy, and legal awareness. This research shows that digital space is not only a means of communication but also a forum for social interaction that shapes civic awareness. Therefore, the wise use of social media can strengthen the character of prospective teachers as citizens who care about socio-political issues and are not indifferent to public issues. Prasetyo et al. (2023) also emphasise that digital citizenship is an important skill for prospective teachers, especially given the increasing need for character education programs that emphasize the use of technology by students. This shows that prospective teachers must not only be proficient in using technology but also understand digital ethics and responsibility to instil moral values and responsibility in students. In line with this view, a balanced understanding of media literacy and digital citizenship also enables prospective educators to become smart technology users and act as agents of change, fostering a critical, ethical, and participatory digital culture in educational environments and society (Gillern et al., 2024). Based on this, the results of the study prove that as students' digital literacy and citizenship literacy increase, so does their ability to understand the social impact of their actions, analyze information critically, and adjust their behavior to

citizenship norms. The interaction between these two literacies strengthens the formation of civic responsibility among prospective teachers.

In addition, the results of this study are highly relevant to the field of Pancasila and Civic Education (PPKn), as PPKn learning is a strategic way to instill the values of responsibility and civic participation. Through the integration of these values, students not only have a theoretical understanding but also can apply them in real situations as moral and civilised citizens. Furthermore, PPKn also serves as a means of knowledge transfer and a forum for the character building of citizens (Humaeroh & Dewi, 2021). Through the strengthening of moral values and social participation in PPKn learning, this confirms that digital literacy and civic literacy can be effective instruments in fostering public morality and strengthening democratic awareness among prospective teachers. Therefore, the results of this study reinforce the view that digital literacy and civic literacy are complementary components in achieving PPKn learning that is adaptive to the demands of globalisation and technological advances. Thus, this study supports the development of PPKn as a subject that not only teaches Pancasila values but also equips the younger generation with digital literacy and civic literacy skills relevant to the difficulties of the twenty-first century.

Conclusions

Based on the findings and analysis results obtained, it can be concluded that digital literacy has a positive and significant effect on the civic responsibility of prospective teachers, meaning that the higher the digital literacy of prospective teachers, the greater their sense of responsibility as citizens. Furthermore, civic literacy also has a positive and significant effect on civic responsibility, indicating that students with high levels of civic literacy tend to have a stronger awareness of their rights and obligations as citizens and behave more responsibly. Simultaneously, digital literacy and civic literacy have a combined effect on the civic responsibility of prospective teachers, indicating that mastery of digital and civic literacy is an essential factor in shaping responsible civic attitudes and behaviour in the modern era. These results show that both simultaneously shape students' moral awareness, critical thinking, and empathy towards their role as citizens. The integration of digital literacy and civic literacy helps students understand their actions and their consequences in both digital and real spaces, thereby fostering a stronger sense of responsibility in fulfilling their civic roles.

Based on the above discussion, strengthening students' digital literacy through training in digital ethics, information literacy, and the use of technology in learning will increase their awareness of digital responsibility. In addition, improving civic literacy through project-based contextual learning can encourage nationalism and social-political awareness. Therefore, universities need to integrate the strengthening of digital literacy and civic literacy into the curriculum for prospective teachers in order to create a generation of digitally savvy educators, have a strong sense of national character, and can serve as role models as responsible citizens in the digital age.

Suggestions

Several recommendations can be made based on the study's findings. Students are expected to continue to develop their digital literacy and civic literacy skills in a balanced manner, not only understanding technology critically but also using it ethically and responsibly. Lecturers or educators need to develop project-based and collaborative learning models that encourage active participation and strengthen civic values. In addition, for teacher training institutions, it is recommended to integrate both aspects of literacy into the curriculum to develop prospective educators who are adaptable to the times and have a strong sense of national character. For the government, the results of this study can be used as input in formulating educational policies that support the improvement of digital literacy and civic literacy among the younger generation in order to develop intelligent, critical, and responsible citizens in the digital age. Future researchers are advised to expand the scope of their research and consider other factors that influence civic responsibility, such as religiosity and organisational experience, as these can shape students' moral values, social empathy, and participatory behaviour.

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