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The Effect of ChatGPT Use on Students' Reflection on Pancasila and Citizenship Education Learning Materials

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ABSTRACT

The rapid integration of Generative Artificial Intelligence (Generative AI) into education has created new opportunities to support reflective learning; however, empirical evidence regarding the relationship between ChatGPT use and learning reflection in Pancasila and Citizenship Education remains limited. This study examined the relationship between ChatGPT use and students' learning reflection among Grade XI students. A quantitative correlational design was employed involving 56 Grade XI students selected through purposive sampling. Data were collected using validated questionnaires comprising 15 items measuring ChatGPT Use and 12 items measuring Learning Reflection. The data were analyzed using descriptive statistics and simple linear regression. The results demonstrated a positive and statistically significant relationship between ChatGPT use and learning reflection ($R^2 = 0.813$, $p < 0.001$). Descriptive analysis indicated that ChatGPT Use ($M = 54.21$, $SD = 3.57$) and learning reflection ($M = 42.77$, $SD = 4.38$) were classified as being in the "Good" category. These findings suggest that ChatGPT can support reflective learning when integrated into well-designed pedagogical activities under teacher guidance. This study contributes empirical evidence regarding the educational use of Generative AI in Pancasila and Citizenship Education and provides practical implications for promoting reflective and responsible learning.

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1. INTRODUCTION

Advances in digital technology have substantially influenced how educational practices are implemented worldwide, encouraging educational institutions to redesign learning environments that are more adaptive, innovative, and student-centered [1]. This transformation has become increasingly significant in the era of Society 5.0, where educational institutions are expected to enhance learning quality through the effective use of digital technologies and prepare students to respond to the challenges of an increasingly

digital society [2]. Among these technological developments, Artificial Intelligence (AI) has emerged as one of the most influential innovations, offering opportunities to enhance learning effectiveness through personalized learning experiences, intelligent feedback, and broader access to educational resources [3]. Recent international studies indicate that Artificial Intelligence is transforming educational practices from information transmission toward adaptive, learner-centered, and data-informed instructional environments, thereby redefining the respective contributions of teachers and students to the learning process [4]. Consequently, integrating AI into classroom instruction is more than a technological innovation; it is an important educational strategy for creating meaningful, student-centered learning environments [5], [6]. This transformation also raises important questions regarding how AI can be integrated pedagogically to support meaningful learning processes, particularly in learning environments that emphasize students' reflective thinking and active knowledge construction.

In Indonesia, the integration of digital technology has also influenced the implementation of Pancasila and Citizenship Education, a compulsory subject that aims to develop students' civic knowledge, democratic values, national identity, and responsible citizenship [7]. As educational policies increasingly encourage the use of digital technologies, teachers are expected to facilitate learning processes that improve academic outcomes while encouraging students to engage actively, think critically, and construct meaningful understanding [5], [6]. However, classroom practices frequently remain dominated by teacher-centered instruction, limiting students' opportunities to construct knowledge independently and engage in reflective learning. Consequently, integrating emerging educational technologies into Pancasila and Citizenship Education requires pedagogical approaches that encourage students to participate actively, critically examine civic issues, and reflect upon their learning experiences.

Learning reflection is widely recognized as an essential component of meaningful learning because it enables students to evaluate their understanding, identify misconceptions, connect new knowledge with prior experiences, and regulate subsequent learning strategies [8]. Unlike conventional learning evaluation, which primarily measures students' academic achievement, reflective learning emphasizes metacognitive awareness and encourages learners to critically examine what they have learned and how they can apply that knowledge in authentic situations [9]. In the context of Pancasila and Citizenship Education, reflective learning plays a particularly important role because effective civic learning emphasizes both acquiring civic knowledge and internalizing democratic values, social responsibility, nationalism, and ethical decision-making in everyday life [10]. Therefore, strengthening students' learning reflection has become an essential educational objective for preparing responsible citizens who can respond to the challenges of an increasingly digital society.

One of the most widely adopted AI technologies in education is ChatGPT, a generative AI system that produces natural language outputs based on user instructions [11]. Its ability to provide immediate feedback, explain concepts, generate learning resources, and facilitate interactive communication has attracted considerable attention from educators and researchers seeking innovative instructional strategies [12]. In educational settings, ChatGPT has been reported to support students' independent learning, stimulate critical

questioning, improve academic writing, and increase learning engagement through personalized interactions [13], [14]. These capabilities suggest that ChatGPT extends beyond information delivery by serving as a pedagogical resource that encourages students to construct knowledge actively and engage more deeply throughout the educational process [15]. Beyond facilitating the retrieval of relevant information, recent evidence suggests that ChatGPT can facilitate students' metacognitive regulation by encouraging them to question, evaluate, and refine their own understanding throughout the learning process. Furthermore, ChatGPT can promote self-regulated learning and metacognitive engagement when integrated into structured instructional activities [16].

Despite its considerable educational potential, integrating ChatGPT into classroom learning also presents several pedagogical and ethical challenges. Nevertheless, recent studies also emphasize that large language models present pedagogical risks related to misinformation, overreliance, and reduced critical thinking if implemented without appropriate instructional guidance [4]. Previous studies have reported that learners may develop an excessive reliance on AI-generated content, reducing opportunities to develop independent reasoning and critical thinking skills [14]. In addition, the quality of ChatGPT-generated information may vary depending on prompts and available training data, creating the possibility of inaccurate or incomplete responses that learners and teachers must carefully verify [15]. These concerns suggest that ChatGPT is intended to complement, rather than replace, teachers' pedagogical responsibilities, serving as a complementary learning tool that supports reflective inquiry, collaborative discussion, and responsible knowledge construction in the classroom.

Existing studies have consistently demonstrated ChatGPT's educational potential across various learning contexts. Previous research reports that ChatGPT improves students' learning engagement, supports self-directed learning, facilitates academic writing, and enhances access to learning resources [11], [12]. Other studies have highlighted its effectiveness in encouraging collaborative learning, providing immediate instructional feedback, and promoting more interactive classroom experiences [13], [14]. Furthermore, research on reflective learning has emphasized the importance of students' metacognitive awareness and active knowledge construction in achieving meaningful learning outcomes [8], [9]. Taken together, these studies suggest that both ChatGPT-assisted learning and reflective learning possess considerable educational value; however, their relationship has not yet been adequately explored within the context of Pancasila and Citizenship Education [10]. Taken together, these studies consistently demonstrate ChatGPT's educational potential; however, they predominantly emphasize learning performance and instructional efficiency rather than students' reflective learning processes.

Although previous research has consistently reported positive educational outcomes of ChatGPT and highlighted the importance of reflective learning, the existing body of research remains fragmented. Most studies have primarily investigated ChatGPT as a technological innovation that supports academic writing, personalized learning, classroom interaction, or students' learning engagement [11], [12], [13]. Meanwhile, studies on reflective learning have generally focused on students' metacognitive development and learning evaluation without specifically examining the role of generative AI in facilitating

reflective learning processes [8], [9]. Furthermore, empirical studies on how ChatGPT use influences students' reflective learning in the context of Pancasila and Citizenship Education remain limited [10]. This limitation indicates an important research gap concerning how generative AI can be pedagogically integrated to foster meaningful reflective learning in civic education. Addressing this gap is particularly important because reflective learning is an essential pedagogical foundation for developing responsible, critical, and democratic citizens in contemporary civic education.

To address this gap, the present study explores ChatGPT use and students' learning reflection in Pancasila and Citizenship Education at the senior high school level. Unlike previous studies that primarily examined ChatGPT through the lens of technology adoption or general educational applications, this study focuses specifically on its pedagogical contribution to reflective learning in civic education. This study contributes to the literature by providing empirical evidence regarding how ChatGPT-assisted learning relates to students' reflective learning in Pancasila and Citizenship Education, an area that has received limited scholarly attention. Theoretically, this study extends the literature by linking Generative Artificial Intelligence with reflective learning theory in the context of civic education, an area that remains an underexplored empirical focus in earlier research. Consequently, this research contributes to expanding current discussions on the educational use of generative AI while enriching the literature on reflective learning in civic education.

Therefore, this research investigates how ChatGPT use influences students' reflective learning in Pancasila and Citizenship Education among eleventh-grade students at SMA Pendidikan Membangun Bangsa. Specifically, this study explores the extent to which ChatGPT-assisted learning affects students' reflective thinking within the learning process. The study outcomes are expected to provide research-based evidence on the ethical adoption of generative AI in Citizenship Education and offer practical guidance for educators in developing reflective, meaningful learning experiences in the digital age.

2. METHOD

This study used a quantitative survey methodology with an inferential analysis approach to investigate how ChatGPT usage relates to students' learning reflection in Pancasila and Citizenship Education. A quantitative survey was selected because it enables researchers to collect measurable data from respondents and statistically analyze the relationship between research variables. This approach is considered appropriate for examining the extent to which ChatGPT use is associated with students' learning reflection based on empirical data collected through structured instruments [17], [18].

This study was conducted at SMA Pendidikan Membangun Bangsa, Bandung Regency, West Java, Indonesia. The participants consisted of 56 Grade XI students enrolled in Pancasila and Citizenship Education classes. Researchers selected participants using purposive sampling, which enables them to choose respondents with characteristics relevant to the study's objectives [19]. Grade XI students were chosen because they had participated in classroom learning activities involving ChatGPT and therefore possessed sufficient experience to evaluate its relationship with learning reflection. Because purposive sampling

does not involve random selection, interpret the findings carefully within the scope of the chosen sample.

The research data were obtained through two instruments, consisting of a structured survey questionnaire and semi-structured interview guidelines. The questionnaire was developed to assess two main variables: ChatGPT utilization as the independent variable (X) and students' learning reflection as the dependent variable (Y).

The ChatGPT Use questionnaire consisted of 15 items distributed across four dimensions: frequency of ChatGPT use (3 items), purpose of ChatGPT use (5 items), types of ChatGPT-assisted learning activities (3 items), and comfort and ease of using ChatGPT (4 items). Meanwhile, the learning reflection questionnaire consisted of 12 items representing four dimensions: material relevance (3 items), material comprehension (3 items), evaluation of the learning process (1 item), and meaning-making from learning experiences (5 items).

The questionnaire responses were quantified using a five-point Likert scale, where the lowest score represented strong disagreement (1) and the highest score indicated strong agreement (5). The instrument dimensions were developed based on the conceptual characteristics of ChatGPT-assisted learning and learning reflection in the context of Pancasila and Citizenship Education. Before data collection, experts reviewed the questionnaire to assess each item's relevance, clarity, and representativeness for the research constructs. The researchers then administered the revised questionnaire to the participants. In addition, the researchers conducted semi-structured interviews with the Pancasila and Citizenship Education teacher to obtain contextual information to support the interpretation of the quantitative findings.

Table 1. Research Instrument

Variable	Dimension	Number of Items
ChatGPT Use (X)	Frequency of ChatGPT Use	3
	Purpose of ChatGPT Use	5
	Types of ChatGPT-assisted Learning Activities	3
	Comfort and Ease of Using ChatGPT	4
	Total Items	**15**
Learning Reflection (Y)	Material Relevance	3
	Material Comprehension	3
	Evaluation of the Learning Process	1
	Meaning-Making from Learning Experiences	5
	Total Items	**12**

Note: The questionnaire responses were evaluated using a five-point Likert scale, with scores ranging from 1, indicating Strongly Disagree, to 5, representing Strongly Agree.

Prior to performing hypothesis testing, the questionnaire instrument was subjected to validity and reliability evaluations to verify its accuracy and internal consistency in measuring the targeted constructs. The Pearson Product-Moment correlation technique was employed to assess item validity, whereas Cronbach’s Alpha was applied to examine instrument reliability. Only measurement items demonstrating acceptable validity and reliability levels were incorporated into the final statistical analysis.

The collected quantitative data were processed using IBM SPSS Statistics version 20 through several analytical stages, including descriptive statistics, validity and reliability verification, classical assumption tests (normality and heteroscedasticity), simple linear regression analysis, coefficient of determination calculation, and hypothesis testing using the t-statistic. Interview data were not analyzed as a separate qualitative dataset; instead, they supported and strengthened the interpretation of the quantitative findings. Descriptive statistical analysis examined the characteristics of the investigated variables, including minimum and maximum scores, mean values, and standard deviations. To provide a more comprehensive understanding of the findings, the mean scores were grouped into four performance categories (Poor, Fair, Good, and Very Good) using a modified class-interval approach adapted from Sugiyono's statistical classification method [17]. This modification aimed to provide a clearer interpretation of respondents' tendencies in relation to the study objectives.

Before data collection, the researchers obtained permission from the school administration to conduct the study. Participants took part in the study voluntarily, and all respondents received information about the research objectives before completing the questionnaire. The researchers kept participants' identities anonymous, kept all information obtained from participants confidential, and used it exclusively for scholarly purposes. Throughout the study, ChatGPT was used as a learning support tool under teacher supervision to ensure its responsible use in accordance with the objectives of Pancasila and Citizenship Education.

3. RESULTS AND DISCUSSION

3.1. Results

A total of 56 Grade XI students participated in this study. Before testing the proposed hypothesis, the research instruments were evaluated for validity and reliability to ensure that all questionnaire items measured the intended constructs. The data were subsequently examined using assumption tests, including normality and heteroscedasticity tests, before conducting simple linear regression analysis, coefficient of determination analysis, and hypothesis testing. The following sections present the results of each statistical analysis.

The descriptive statistics provide an overview of the respondents' scores on the two research variables, namely ChatGPT Use and learning reflection. The descriptive measures include the minimum score, maximum score, mean, and standard deviation. To facilitate interpretation, the mean scores were classified into four performance categories (Poor, Fair, Good, and Very Good) using a modified class-interval approach adapted from Sugiyono's statistical classification method [17].

Table 2. Descriptive Statistics of ChatGPT Use and Learning Reflection Variables

Variable	N	Min	Max	Mean	Std. Deviation	Category
ChatGPT Use	56	46	60	54.214	3.566	Good
Learning Reflection	56	31	48	42.768	4.378	Good

Note. The category classification (Poor, Fair, Good, and Very Good) was determined using a modified class-interval approach adapted from Sugiyono [17].

These descriptive findings indicate that students generally demonstrated favorable perceptions regarding ChatGPT use and learning reflection. The validity test was conducted to evaluate whether each questionnaire item appropriately measured the intended research construct. The results of the validity analysis for both research variables are presented in Tables 3 and 4.

Table 3. Validity Test Results for the ChatGPT Use Questionnaire

No	R count	R table	Information
1	0.696	0.2632	Valid
2	0.298	0.2632	Valid
3	0.451	0.2632	Valid
4	0.969	0.2632	Valid
5	0.297	0.2632	Valid
6	0.451	0.2632	Valid
7	0.696	0.2632	Valid
8	0.696	0.2632	Valid
9	0.373	0.2632	Valid
10	0.451	0.2632	Valid
11	0.328	0.2632	Valid
12	0.337	0.2632	Valid
13	0.373	0.2632	Valid
14	0.373	0.2632	Valid
15	0.696	0.2632	Valid

As presented in Table 3, the coefficients obtained from the corrected item-total correlation analysis for the 15 items measuring the ChatGPT Use variable ranged from 0.297 to 0.969, all of which exceeded the critical r-table value of 0.2632. These findings indicate that every questionnaire item demonstrated satisfactory validity and was therefore retained for subsequent statistical analyses.

Table 4. Validity Analysis Results for the Learning Reflection Questionnaire

No	R count	R table	Information
1	0.794	0.2632	Valid
2	0.579	0.2632	Valid
3	0.579	0.2632	Valid
4	0.794	0.2632	Valid
5	0.579	0.2632	Valid
6	0.794	0.2632	Valid
7	0.794	0.2632	Valid
8	0.549	0.2632	Valid
9	0.363	0.2632	Valid
10	0.794	0.2632	Valid
11	0.794	0.2632	Valid
12	0.579	0.2632	Valid

Table 4 presents the validity test results for the learning reflection questionnaire. The corrected item-total correlation coefficients ranged from 0.363 to 0.794, exceeding the critical r-table value of 0.2632 for all 12 items. Therefore, each questionnaire item was considered valid and suitable for measuring the learning reflection construct.

Overall, the validity test results confirmed that all questionnaire items adequately represented their respective constructs. Consequently, the instruments were considered

appropriate for measuring ChatGPT Use and learning reflection, allowing the analysis to proceed to the reliability testing stage.

The reliability test was performed to examine the internal consistency of the questionnaire used to measure the research variables. The results of the reliability analysis are presented in Table 5.

Table 5. Reliability Test Results

Variables	Cronbach's Alpha	R Table	Information
ChatGPT Use (X)	0.761	0.60	Reliable
Learning Reflection (Y)	0.888	0.60	Reliable

Table 5 shows that the ChatGPT Use variable obtained a Cronbach's Alpha coefficient of 0.761, while the learning reflection variable achieved a coefficient of 0.888. Both coefficients indicate satisfactory internal consistency, demonstrating that the questionnaire reliably measured the intended constructs. Accordingly, the research instrument was considered suitable for subsequent inferential statistical analyses.

The reliability findings, together with the validity results presented in the previous section, confirm that the research instruments met the required measurement standards. Therefore, the collected data were considered appropriate for further statistical analyses, including assumption testing and regression analysis.

Before conducting the regression analysis, assumption testing was performed to ensure the data met the assumptions required for linear regression. The assumption tests included the normality and heteroscedasticity tests.

Table 6. Normality Test Results

		Unstandardized Residual
N		56
Normal Parameters[a,b]	Mean	0E-7
	Std. Deviation	4.37378803
Most Extreme Differences	Absolute	.176
	Positive	.102
	Negative	-.176
Kolmogorov-Smirnov Z		1.318
Asymp. Sig. (2-tailed)		0.062

As presented in Table 6, the Kolmogorov–Smirnov test produced an Asymp. Sig. (2-tailed) value of 0.062, which exceeded the significance level of 0.05. These findings indicate that the regression residuals were normally distributed, satisfying the normality assumption required for regression analysis. Therefore, the data fulfilled the normality assumption and were appropriate for subsequent regression analysis.

The heteroscedasticity test results are presented in Table 7. The significance value for the ChatGPT Use variable was 0.702, indicating that the regression model showed no evidence of heteroscedasticity. Consequently, the regression model met the homoscedasticity assumption. Overall, the assumption tests showed that the dataset met both the normality and

homoscedasticity assumptions. These findings indicate that the data met the statistical requirements for conducting simple linear regression analysis.

Table 7. Heteroscedasticity Test

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.551	5.421		1.024	.310
	Use ChatGPT	-.038	.100	-.052	-.384	0.702
a. Dependent Variable: Abs_Res						

Simple linear regression analysis examined the relationship between ChatGPT Use (independent variable) and learning reflection (dependent variable). Table 8 presents the regression analysis results.

Table 8. ANOVA Results of the Simple Linear Regression Model

Regression ANOVA[a]					
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	1.831	1	1.831	234.926	.000[b]
Residual	.421	54	.008		
Total	2.252	55			

As presented in Table 8, the regression coefficient for ChatGPT Use was positive, indicating a positive relationship between ChatGPT Use and learning reflection. This finding suggests that higher levels of ChatGPT use were associated with higher levels of students' learning reflection during Pancasila and Citizenship Education learning activities.

The positive regression coefficient demonstrates that ChatGPT use was positively associated with students' learning reflection. However, interpret this relationship within the context of the present correlational survey design, and do not interpret it as evidence of direct causality.

The coefficient of determination analysis estimated the proportion of variance in learning reflection explained by ChatGPT Use. Table 9 presents the results.

Table 9. Coefficient of Determination (R^2) Results

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.902[a]	.813	.810	.088

As presented in Table 9, the regression model produced an R Square value of 0.813. This indicates that the regression model explained about 81.3% of the variance in students' learning reflection, while the remaining 18.7% may be attributed to factors not included in this study.

The relatively high coefficient of determination indicates that the regression model explained a substantial portion of the observed variation in learning reflection among the participating students. Nevertheless, other educational, psychological, and contextual factors may also contribute to students' learning reflection and should therefore be considered in future studies.

The hypothesis testing was conducted using the t-test to determine whether the relationship between ChatGPT Use and learning reflection was statistically significant. Table 10 presents the results.

Table 10. Regression Coefficients and Hypothesis Testing

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	39.994	.181		220.526	.000
	Use ChatGPT	.051	.003	.902	15.327	.000

As shown in Table 10, the calculated t-value was 15.327, exceeding the critical t-table value of 1.6735. In addition, the significance value was 0.000, which was below the 0.05 threshold. These findings indicate that the relationship between ChatGPT Use and learning reflection was statistically significant. Therefore, the proposed research hypothesis was supported. The findings suggest that students who reported higher levels of ChatGPT use also tended to demonstrate higher levels of learning reflection during Pancasila and Citizenship Education learning activities.

Overall, the statistical analyses consistently demonstrated a positive and statistically significant relationship between ChatGPT Use and learning reflection among Grade XI students. The validity and reliability of the research instruments, along with the fulfillment of regression assumptions, support the robustness of the analytical results. The implications of these findings are discussed in the following section.

Taken together, the descriptive and inferential analyses consistently indicate that ChatGPT Use is positively associated with students' learning reflection. These findings provide the empirical basis for the following discussion concerning the pedagogical implications of Generative Artificial Intelligence in Pancasila and Citizenship Education.

3.2 Discussion

The findings revealed a positive and statistically significant relationship between ChatGPT Use and learning reflection among Grade XI students in Pancasila and Citizenship Education. Students who reported higher levels of ChatGPT use also tended to demonstrate higher levels of learning reflection. Furthermore, the descriptive analysis indicated that both variables were categorized as Good, suggesting that ChatGPT was generally perceived as an effective learning support tool during classroom instruction. These findings indicate that ChatGPT's educational contribution extends beyond providing rapid access to information and may facilitate students' reflective engagement with learning activities. This finding is consistent with previous studies reporting that artificial intelligence can support adaptive learning environments and promote meaningful student engagement through personalized learning experiences [3], [15], [20].

The coefficient of determination ($R^2 = 0.813$) indicates that ChatGPT Use accounted for a substantial proportion of the variance in students' learning reflection. This relatively high explanatory power may be attributed to the conceptual proximity between ChatGPT-

assisted learning activities and reflective learning processes, both of which emphasize active engagement, self-evaluation, metacognitive regulation, and continuous interaction with learning materials. Nevertheless, this finding should be interpreted within the context of the present correlational survey design and the characteristics of the participating students. Other pedagogical, psychological, and contextual factors that were not examined in this study may also contribute to students' learning reflection.

One possible explanation for these findings is that ChatGPT enables students to interact with learning materials in a more flexible and iterative manner. Similar findings were reported by Lo (2023), who found that ChatGPT supported students' conceptual understanding and reflective engagement when used as a complementary learning tool rather than a substitute for independent learning [21]. Students could ask follow-up questions, request alternative explanations, compare viewpoints, and verify their understanding through ongoing dialogue with the AI system. Such interactions encourage learners to monitor their own understanding, recognize misconceptions, evaluate AI-generated responses, and reconstruct knowledge through continuous reflection. These metacognitive processes are essential to reflective and self-regulated learning. Recent studies similarly demonstrate that ChatGPT can enhance students' reflective learning when learners actively evaluate AI-generated responses rather than accepting them uncritically, thereby promoting deeper cognitive engagement and independent learning [16]. This finding reinforces the importance of integrating AI-supported learning within pedagogically structured learning environments rather than using AI as a substitute for independent learning.

The present findings also extend previous research concerning the educational application of ChatGPT. Earlier studies primarily examined ChatGPT as a tool for academic writing, information retrieval, learning assistance, and personalized instruction [11], [12], [13], [15]. Likewise, research in Pancasila and Citizenship Education emphasized the importance of integrating digital technology into classroom learning to improve student engagement and instructional quality [5], while studies on artificial intelligence highlighted its potential to enrich innovative learning environments [22]. This study extends these findings by providing empirical evidence that ChatGPT is positively associated with students' learning reflection in the specific context of Pancasila and Citizenship Education. This contribution matters because empirical studies of reflective learning as an outcome of ChatGPT use in civic education remain relatively limited. Recent systematic reviews likewise conclude that ChatGPT has considerable potential to support personalized learning, formative feedback, and instructional innovation, although empirical evidence concerning reflective learning is still developing [23].

These findings are particularly relevant to the objectives of Pancasila and Citizenship Education, which emphasize not only knowledge acquisition but also reflective thinking, democratic reasoning, ethical awareness, and responsible citizenship. Reflection enables students to connect civic concepts with authentic social experiences, evaluate multiple perspectives, and formulate reasoned judgments regarding citizenship issues. In this regard, ChatGPT should not be viewed merely as a technological innovation but as a pedagogical scaffold that can facilitate reflective dialogue, conceptual clarification, and critical inquiry. Accordingly, ChatGPT's educational value depends not only on its technological capabilities

but also on how teachers integrate it into meaningful learning experiences that encourage students to question, evaluate, and justify their own ideas.

Despite these promising findings, interpret the results with caution. The present study employed a quantitative survey design with purposive sampling; therefore, the observed relationship represents an empirical association rather than direct causal evidence. Moreover, various pedagogical and contextual factors beyond the scope of this study influence ChatGPT's educational effectiveness, including instructional design, students' digital literacy, learning motivation, and teachers' facilitation strategies. These findings are consistent with recent studies emphasizing that the educational benefits of Generative Artificial Intelligence depend primarily on responsible pedagogical implementation, critical evaluation of AI-generated information, and active teacher guidance rather than unrestricted technology use [24].

In practical terms, this study offers valuable insights for teaching and learning practices. Teachers should position ChatGPT as a complementary instructional resource that supports reflective discussion, concept clarification, independent inquiry, and evidence-based reasoning rather than as a replacement for teacher instruction. This finding aligns with Fuller and Barnes (2024) [24], who argued that ChatGPT's educational effectiveness depends primarily on teacher facilitation and pedagogically meaningful implementation. Students should also be encouraged to compare AI-generated responses with textbooks, classroom discussions, constitutional principles, and authentic civic issues before constructing their own conclusions. Such instructional strategies strengthen reflective thinking while simultaneously promoting digital literacy, ethical awareness, and responsible use of artificial intelligence. Consequently, successfully integrating Generative Artificial Intelligence into Pancasila and Citizenship Education requires a balanced instructional approach that combines technological innovation with teacher facilitation, reflective learning strategies, and critical evaluation of AI-generated information.

Overall, this study provides empirical evidence that ChatGPT Use is positively associated with learning reflection among senior high school students in Pancasila and Citizenship Education. More importantly, the findings suggest that the educational contribution of Generative Artificial Intelligence lies not merely in accelerating access to information but in supporting meaningful reflective learning through well-designed pedagogical interactions. This finding complements recent international evidence indicating that the future of AI-supported education should emphasize human-AI collaboration, reflective thinking, ethical AI use, and active teacher facilitation rather than relying solely on technological advancement [16], [23]. Therefore, future educational innovation should focus on developing instructional models that integrate Generative Artificial Intelligence with reflective pedagogy to strengthen students' critical thinking, civic reasoning, and responsible participation in digital society.

4. CONCLUSION

This study investigated the relationship between ChatGPT Use and learning reflection among Grade XI students in Pancasila and Citizenship Education. The findings revealed a positive and statistically significant relationship between the two variables,

indicating that students who reported higher levels of ChatGPT use also tended to demonstrate higher levels of learning reflection. Furthermore, the descriptive analysis showed that both ChatGPT Use and learning reflection were categorized as Good, suggesting that integrating ChatGPT into classroom learning was positively perceived and supported students' reflective learning experiences.

Beyond confirming the statistical relationship between the research variables, this study contributes to the growing body of knowledge on the educational application of Generative Artificial Intelligence (Generative AI), particularly within the context of Pancasila and Citizenship Education. Unlike many previous studies that have primarily focused on the general use of ChatGPT in education, this research provides empirical evidence that ChatGPT can support students' reflective learning when integrated into pedagogically meaningful classroom activities. These findings enrich the discussion on the potential role of Generative AI in promoting reflective learning and strengthening student engagement in civic education.

The findings have several practical implications for educational practice. Rather than functioning as a substitute for teachers, ChatGPT should be positioned as a learning support tool that facilitates inquiry, classroom discussion, and reflective thinking. Its educational value depends not only on technological capabilities but also on teachers' pedagogical competence in designing meaningful learning activities, providing appropriate instructional guidance, and encouraging students to evaluate AI-generated information critically. Consequently, the responsible integration of Generative AI into Pancasila and Citizenship Education should emphasize both technological innovation and the development of students' reflective and critical thinking skills. Future implementation should also consider ethical AI literacy, transparency, and responsible human-AI collaboration, as emphasized in recent international discussions concerning Generative Artificial Intelligence in education [25].

Despite its contributions, this study has certain constraints that require consideration. The first limitation concerns the sample characteristics, as the research was conducted among a small group of students from a single senior high school, which may limit the findings' applicability to wider educational contexts. Second, the study focused exclusively on the relationship between ChatGPT Use and learning reflection without examining other psychological, pedagogical, or technological factors that may also influence students' reflective learning. Therefore, future research should include more diverse educational settings, larger sample sizes, and additional explanatory variables. Future studies employing longitudinal, mixed-methods, or experimental designs are expected to provide a deeper understanding of how Generative Artificial Intelligence can effectively support reflective learning across diverse educational contexts.

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