**International Journal of Educational Evaluation and Policy Analysis**
**Volume 2 Number 2 April 2025**
E-ISSN : 3048-0841; P-ISSN.: 3048-0833, Page 245-262
DOI: https://doi.org/10.62951/ijeepa.v2i2.265
*Available online at*: https://international.aripi.or.id/index.php/IJEEPA

# Artificial Intelligence, Learning Evaluation, and Teacher Competence in Enhancing Social Studies Quality

**Syamdani [1*], Elpisah[2], Muhammad Fahreza W[3]**
[1,2,3] Department of Economic Education, Graduate Faculty,
Universitas Patompo, Indonesia
*Author Correspondence : zayyan392@gmail.com*

***Abstract***. *Amid rapid technological advancements, improving the quality of primary education remains a critical challenge. The purpose of this study is to determine the influence of Artificial Intelligence (AI), learning evaluation, and teacher competence on the quality of Social Studies instruction. The research used a quantitative design involving 25 sixth-grade students at SD Inpres Barua, Bontolempangan, during the 2024/2025 academic year through total sampling. Data were gathered via questionnaires and analyzed using multiple linear regression, t-tests, and F-tests in SPSS 26. Results revealed that AI, evaluation, and teacher competence significantly and positively affect learning quality both individually and collectively. These findings reinforce the critical role of digital tools and professional teaching standards in fostering more effective and meaningful learning experiences.*

***Keywords*** *Artificial Intelligence (AI), Teacher Competence, Learning Quality*

## 1. INTRODUCTION

In an era where digital transformation is rapidly reshaping every corner of society, education remains one of the most vital yet vulnerable sectors (MY et al., 2025). The integration of Artificial Intelligence (AI) into educational systems promises sweeping improvements in how students learn and how teachers teach. However, despite its potential, the adoption of AI in primary education—especially in developing regions—remains inconsistent, fragmented, and often superficial. The heart of the problem lies not only in the technology itself but in how it is applied: AI must be aligned with pedagogical goals, teaching competencies, and evaluation systems if it is to truly enhance learning quality.

In Indonesia, particularly in rural areas like Bontolempangan, educational quality is often challenged by limited infrastructure, lack of technological literacy among teachers, and traditional teaching practices that do not cater to diverse student needs. Teachers face real constraints: insufficient digital resources, unclear integration strategies, and evaluation systems that fail to reflect the depth of student understanding (Pratikto & Setiawan, 2019). Meanwhile, students are often left navigating lessons with low motivation, limited feedback, and generic instructional content that does not reflect their individual learning styles or paces (Abroto et al., 2021). These educational frictions call for an adaptive, technology-enabled approach to learning—yet such an approach must be driven by informed implementation, effective teacher competencies, and accurate assessment tools.

The growing body of literature on AI in education reveals transformative potential, particularly in terms of personalized learning, real-time feedback, and administrative

*Received Maret 15, 2025; Revised Maret 30 ,2025; Accepted April 05,2025; Published : April 08, 2025*

automation. Alief & Nurmiati (2022) underscore that AI systems can perform tasks traditionally requiring human intelligence—such as problem-solving and decision-making—creating new pathways for student engagement and instructional precision. More recently, Press (2021) and Avisyah et al. (2023) have explored how machine learning and deep learning technologies power adaptive learning platforms, enabling systems to deliver customized content based on students' learning behaviors and performance data. These systems can dynamically adjust to each student's needs, offering a level of personalization previously unattainable.

Moreover, Serdianus & Saputra (2023) highlight how AI can streamline educational administration, freeing up teachers to focus on direct instructional tasks. In the realm of student assessment, Chakim (2023) warns of the need for ethical AI deployment, emphasizing concerns about data privacy, algorithmic bias, and the readiness of educators. Muliastrini (2019) and Hartati (2021) emphasize the importance of AI in supporting 21st-century literacy, particularly at the elementary level, where foundational skills are formed and cognitive, emotional, and digital literacies begin to intersect. AI tools such as automated grading, personalized learning dashboards, and AI tutors have shown great promise in enhancing the precision and efficiency of learning evaluation (Kisno et al., 2023).

Additionally, Ulimaz (2024) and Herawati (2016) argue that accurate and individualized assessment is crucial for improving student outcomes. Personalized feedback mechanisms enabled by AI not only allow students to receive more timely guidance but also enable teachers to fine-tune their strategies based on data-driven insights. International studies have further expanded this discourse, with Owan et al. (2023) and Alqahtani et al. (2023) demonstrating the effectiveness of large language models (LLMs) and natural language processing (NLP) in adaptive teaching systems. These advancements allow for the creation of curriculum-aware content delivery, mental health monitoring, and even personalized tutoring assistance. Yet, as noted by Ley et al. (2023) and Mena-Guacas et al. (2023), existing AI systems in education remain under-researched in terms of their real-world classroom impact—especially within public schools and marginalized communities. Many studies are either theoretical or limited to urban pilot projects, leaving a significant gap in understanding how AI affects actual classroom instruction and learning outcomes in more resource-constrained environments.

While the scholarly discourse on AI in education continues to expand, there remains a notable disconnect between technological advancements and their practical implementation in primary education settings. The majority of empirical studies focus on secondary or higher

education, where technological infrastructure and teacher readiness are often more robust. Less attention has been paid to the synergy between AI, teacher competence, and learning evaluation in elementary education—especially in schools with limited resources and digital readiness, such as SD Inpres Barua in South Sulawesi.

Although several researchers have confirmed the ability of AI to enhance personalized learning and automate assessment (Rizvi, Waite, & Sentance, 2023), few have examined how teacher professional competence mediates the effectiveness of AI in actual classroom settings. Similarly, while the value of evaluation practices is widely recognized, the intersection of AI-powered assessment with pedagogical strategies remains understudied. There is insufficient empirical evidence on how these three variables—AI, learning evaluation, and teacher competence—work in concert to improve learning outcomes, particularly in Social Studies education, which often lacks interactive and adaptive learning tools. In short, a significant gap exists in contextual studies that explore how the convergence of AI technologies, robust teacher competencies, and effective evaluation practices can jointly influence the quality of instruction in primary schools. Bridging this gap is essential not only for theoretical advancement but also for practical improvement in the way education is delivered at the foundational level.

This study aims to investigate the influence of Artificial Intelligence (AI), learning evaluation, and teacher competence on the quality of Social Studies education among sixth-grade students at SD Inpres Barua, Bontolempangan. Specifically, it seeks to assess the individual and collective contributions of these variables in enhancing instructional quality, student motivation, and academic performance. By employing a quantitative approach and total sampling method with 25 students, this study generates empirical insights that are grounded in local educational contexts yet globally relevant. The novelty of this research lies in its integrative focus. Unlike previous studies that treat AI as an isolated intervention, this study positions AI within a broader ecosystem—one that includes the professional capacity of teachers and the integrity of learning evaluations. It recognizes that technology alone is insufficient without pedagogical alignment and competent human facilitation. The findings from this research are expected to contribute to the ongoing discourse on AI in education by offering a practical framework for deploying AI tools effectively in elementary-level instruction. Furthermore, it provides evidence-based recommendations for educators, policymakers, and technologists working to enhance the quality of foundational education in underserved regions.

## 2. LITERATURE REVIEW

*Artificial Intelligence (AI)*

Artificial Intelligence (AI) has rapidly emerged as a transformative force in education, especially in response to challenges intensified by the COVID-19 pandemic (Alief & Nurmiati, 2022; Hakim, 2022). Defined as the capability of machines to simulate human intelligence (Kusumadewi, 2003; Barr & Feigenbaum, 1982; Rich & Knight in Tjahyanti, 2022), AI in education offers adaptive learning, automated assessment, and personalized content tailored to student needs (Kisno et al., 2023; Avisyah et al., 2023). Applications such as virtual mentors, smart content, and voice assistants facilitate individualized learning, reduce teacher workload, and provide real-time feedback (Tjahyanti, 2022; TeachThought, 2022). However, implementing AI presents critical issues such as limited infrastructure, lack of teacher training, ethical concerns, and technological inequality across schools (Abroto et al., 2021; Pratikto & Setiawan, 2019).

Despite these challenges, AI holds vast potential in transforming educational processes—enhancing efficiency, student engagement, and assessment precision (Serdianus & Saputra, 2023; Chakim, 2023). Robotic systems like Hero-01 and Bioloid Series offer hands-on STEAM education, while adaptive learning platforms such as Coursera and Udemy demonstrate how AI supports global, flexible learning (Tjahyanti, 2022). Moreover, AI reshapes teacher roles into facilitators, supports trial-and-error learning, and leverages data analytics to improve decision-making and inclusivity (Ronsumbre et al., 2023; Sappaile et al., 2024; Salomo Leuwol et al., 2023). As highlighted by Yohanes Bowo Widodo (2024), over 78% of students report AI enhances learning effectiveness, signaling a paradigm shift toward data-driven, learner-centered education. These developments call for thoughtful AI integration that upholds ethical standards while maximizing its pedagogical potential (Tkachenko, 2023; Alqahtani et al., 2023; Mena-Guacas et al., 2023).

*Learning Evaluation*

Learning evaluation is a structured, continuous, and comprehensive process essential for assessing both teaching effectiveness and student learning outcomes. As stated by Ramayulis (2011), evaluation encompasses value-based judgments to determine the extent of success in achieving instructional goals. It functions not only as a means of measuring academic achievement but also as a feedback mechanism to refine instructional strategies and educational programs (Asrori, 2014; Fadilah, 2014). Evaluation includes three major scopes: teaching program evaluation, teaching implementation, and learning outcomes assessment (Sudaryono, 2012). The evaluation must be planned, systematic, and aligned with learning

objectives, assessing knowledge, skills, and attitudes using various methods including observation, peer and self-assessment, and performance tasks (Badan Penelitian dan Pengembangan, 2015). Legally grounded in the Indonesian Education Law No. 20/2003 and Permendikbud No. 53/2015, evaluation is also a national standard of educational accountability and quality control.

Evaluation plays a critical role in stimulating student engagement and identifying learning obstacles (Putra, 2022). It helps educators improve teaching performance, align content with curriculum standards, and enhance student-centered learning experiences. Evaluation serves both formative and summative purposes: as a compass to navigate educational directions and as a mirror reflecting the effectiveness of pedagogy (Wina Sanjaya, 2009; Mugiadi in Sudjana, 2006). When applied effectively, evaluation not only monitors student progress but also informs curriculum development, supports guidance and counseling, and fosters student resilience (Rimayulis, 2012). Therefore, evaluation is more than a judgment—it is a dynamic pedagogical tool that bridges planning with measurable impact, and ultimately influences the quality of learning outcomes.

*Learning Quality*

Learning quality refers to the effectiveness of instructional processes in achieving cognitive, affective, and psychomotor goals, observable through behavioral changes in students (Rifa'i & Anni, 2015; Purwanto, 2017; Suprijono in Tobroni, 2015). Quality learning is not only measured by academic outcomes but also by how learners internalize values, gain skills, and develop positive attitudes (Siregar & Nara, 2015; Dimyati & Mudjiono, 2013). According to Daryanto (2011), four pillars underpin quality education: learning to know, to do, to live together, and to be. These are operationalized through teacher behavior, student engagement, conducive learning environments, relevant content, and effective instructional systems (Sukamto, 2004). Quality learning requires structured lesson plans, goal-oriented materials, interactive media, and classroom management aligned with students' needs and characteristics.

Teacher competencies—such as the ability to initiate learning, ask meaningful questions, explain clearly, vary teaching strategies, and manage classrooms—play a vital role in ensuring learning effectiveness (Aqib, 2006). Teachers must also encourage individual and group participation, guide small group discussions, and reinforce student performance positively. Student activity is another critical component. As Hamalik (2001) and Diedrich in Sardiman (2007) emphasize, students must be engaged visually, orally, mentally, emotionally, and physically. Activities such as observing, listening, experimenting, questioning, drawing, and expressing emotions reflect their involvement in learning. Teachers must design lessons

that activate these modes to maximize student achievement and ensure active participation rather than passive attendance. Therefore, learning quality is shaped by dynamic teacher-student interaction, purposeful content delivery, and an environment that fosters engagement and growth.

*Teacher Competence*

Teacher competence is a multifaceted construct encompassing knowledge, skills, values, attitudes, and motivation necessary for effective educational performance (Firdaus Ainul Yaqin, 2015; Mulyasa, 2008). It includes three main domains: personal, social, and professional competence (Cece Wijaya in Yaqin, 2015). Personal competence involves integrity, discipline, creativity, and self-reflection; social competence emphasizes communication, collaboration, and community engagement; while professional competence demands mastery of subject matter, class management, instructional design, and assessment (P3G in Yaqin, 2015). A good teacher demonstrates not only pedagogical knowledge but also emotional intelligence and adaptability in shaping students' character and knowledge (Nasution in Yaqin, 2015). These competencies are essential for enabling teachers to fulfill their dual role as educators and mentors in fostering intellectual and moral development (Elpisah & Hasan, 2019; Irdayani Djasman Pakiding et al., 2025).

The continuous development of teacher competence is crucial to educational quality and national competitiveness (Danim, 2010). Rapid advancements in science, technology, and educational decentralization require teachers to evolve through in-service training, academic qualifications, action research, and professional collaboration (Suderajat, 2003; Mulyasa, 2004). Programs such as MGMP, certification, symposiums, and PTK (Penelitian Tindakan Kelas) are designed to improve teaching practices and educational outcomes (Saud Udin Saefuddin, 2009). Furthermore, engaging with scientific journals, participating in conferences, and joining professional organizations strengthen reflective practices and pedagogical innovation. Ultimately, teacher professionalism thrives when supported by intrinsic motivation, institutional support, and an educational climate that values growth, creativity, and collaboration (Cecep Wijaya in Yaqin, 2015).

## 3. METHODS

This research employs a quantitative approach using an ex post facto design, which aims to examine the effects of independent variables that have already occurred on a dependent variable without applying direct treatment (Widarto, 2013). The study was conducted in the odd semester of the 2024/2025 academic year at SD Inpres Barua, Bontolempangan District,

involving all 25 sixth-grade students as the sample using a saturated sampling technique. The independent variables include Artificial Intelligence (AI) as identified by Rich & Knight (in Tjahyanti, 2022), Learning Outcome Evaluation (Putra, 2022), and Teacher Competence (Mulyasa in Yaqin, 2015), while the dependent variable is Learning Quality (Kiswanti, 2013). Data were collected through Likert-scale questionnaires, direct observations, and literature review, with primary data derived from students' questionnaire responses and secondary data obtained from relevant references. The research instrument was tested for validity and reliability using product moment correlation and Cronbach's Alpha through SPSS version 26. Basic assumption testing included normality, multicollinearity, and heteroscedasticity tests (Ghozali, 2019). Data analysis techniques involved descriptive statistics, t-test for partial effects, F-test for simultaneous effects, beta coefficient analysis to determine the most dominant variable, and the coefficient of determination ($R^2$) to measure how much the independent variables explain the variance in IPS learning quality.

## 4. RESULTS

*Normality Test*

Good data is normally distributed data and if the results are not normally distributed, the resulting statistical tests are invalid. As table 1 below.

**Table 1. One-Sample Kolmogorov-Smirnov Test**

| | | Artificial intelligence (AI) (X1) | Learning Evaluation (X2) | Teacher Professional Competence (X3) | Social Studies Learning Quality (Y) |
|---|---|---|---|---|---|
| N | | 25 | 25 | 25 | 25 |
| Normal Parametersa,b | Mean | 27.2000 | 18.3600 | 17.8400 | 14.8000 |
| | Std. Deviation | 2.29129 | 2.32522 | 2.60896 | 2.08167 |
| Test Statistic | | 0.105 | 0.128 | 0.084 | 0.170 |
| Asymp. Sig. (2-tailed)c | | .200d | .200d | .200d | 0.062 |
| a. Test distribution is Normal. | | | | | |
| b. Calculated from data. | | | | | |
| c. Lilliefors Significance Correction. | | | | | |

Table 1 shows that the regression model, confounding or residual variables have a normal distribution. The analysis results provide evidence that the data is normally distributed, to see that the data has a normal distribution lies in the Asymp. Sig. (2-tailed) value of Artificial Intelligence (AI) (X1) 0.200, Learning Evaluation (X2) 0.200, Teacher Professional

Competence (X3) 0.200, and Social Studies Learning Quality (Y) 0.062 has a significance value> 0.05. So based on these results it can be stated that the data used in the research is normally distributed and the data can be used to the next testing stage

*Multicollinearity Test*

Test Multicollinearity can be seen from the VIF (*Variance Inflation Factor*), if the Tolerance value> 0.10 and VIF < 10.00 (ten) it means that there is no multicollinearity in the data tested, while if the Tolerance value < 0.10 and VIF> 10.00 (ten) it means that there is Multicollinearity in the data tested.

**Table 2. Multicollinearity Test**

| **Coefficients[a]** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. | Collinearity Statistics | |
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | -3.766 | 2.250 | | -1.674 | 0.109 | | |
| | Artificial intelligence (AI) (X1) | 0.306 | 0.124 | 0.337 | 2.468 | 0.022 | 0.429 | 2.329 |
| | Learning Evaluation (X2) | 0.300 | 0.142 | 0.335 | 2.110 | 0.047 | 0.318 | 3.146 |
| | Teacher Professional Competence (X3) | 0.265 | 0.121 | 0.332 | 2.197 | 0.039 | 0.350 | 2.857 |
| a. Dependent Variable: Social Studies Learning Quality (Y) | | | | | | | | |

Source: SPSS 26 Data Processing Results (primary data processed, 2024)

Table 2 shows that for each variable, namely Artificial Intelligence (AI) (X1) has a tolerance value of 0.429> 0.10, a tolerance value for Learning Evaluation (X2) of 0.318> 0.10 and a tolerance value for Teacher Professional Competence (X3) of 0.350> 0.10. While the *Value Influence Factor* (VIF) value of Artificial Intelligence (AI) (X1) 2.329 < 10.0, the *Value Influence Factor* (VIF) value of Learning Evaluation X2) 3.146 < 10.0 and the *Value Influence Factor* VIF) value of Teacher Professional Competence (X3) 2.857 < 10.0. it can be concluded that there is no multicollinearity.

*Heteroscedasticity Testing*

This test aims to test whether in the regression model there is an inequality of residual variants between one another.

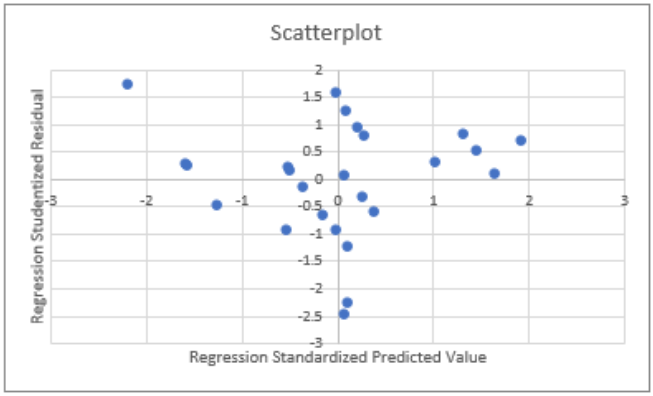


**Figure 1. Heteroscedasticity Testing**

In figure 1 To determine the presence or absence of symptoms of heteroscedasticity can be done by using a heteroscedasticity graph between the predicted value of the dependent variable and the independent variable. From the scatterplots above, it can be seen that the points spread randomly and are spread both above and below the number 0 and the Y axis, it can be concluded that there is no heteroscedasticity in the regression model, so the regression model is suitable for use in testing.

*Multiple Linear Regression*

Table 3. Multiple Linear Regression

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -3.766 | 2.250 | | -1.674 | 0.109 |
| | Artificial intelligence (AI) (X1) | 0.306 | 0.124 | 0.337 | 2.468 | 0.022 |
| | Learning Evaluation (X2) | 0.300 | 0.142 | 0.335 | 2.110 | 0.047 |
| | Teacher Professional Competence (X3) | 0.265 | 0.121 | 0.332 | 2.197 | 0.039 |

a. Dependent Variable: Social Studies Learning Quality (Y)

Based on the output table 4.8 above in the *Coefficients* column, the multiple linear regression equation model is obtained as follows:

$$\boldsymbol{Y = 3.766 + 0.306X_1 + 0.300X_2 + 0.265X_3}$$

The above equation model can be explained as follows:

- Constant coefficient of 3.766
- The X1 coefficient of 0.306 means that every change in Artificial Intelligence (AI) (X1) by 1 unit and other variables are considered constant, it will increase the Quality of Social Studies Learning of Grade VI Students of SD Inpres Barua Kec. Bontolempangan by 0.306.

- The coefficient of X2 is 0.300, meaning that every change in Learning Evaluation (X2) by 1 unit and other variables are considered constant, it will increase the Quality of Social Studies Learning of Grade VI Students of SD Inpres Barua Kec. Bontolempangan by 0.300.
- The coefficient of X3 is 0.265, meaning that every change in Teacher Professional Competence (X3) by 1 unit and other variables are considered constant, it will increase the Quality of Social Studies Learning for Grade VI Students of SD Inpres Barua Kec. Bontolempangan by 0.265.

*Simultaneous Test (F Test)*

Table 4. Simultaneous Test

| **ANOVAa** | | | | | | |
|---|---|---|---|---|---|---|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 86.500 | 3 | 28.833 | 34.601 | .000b |
| | Residuals | 17.500 | 21 | 0.833 | | |
| | Total | 104.000 | 24 | | | |
| a. Dependent Variable: Social Studies Learning Quality (Y) | | | | | | |
| b. Predictors: (Constant), Teacher Professional Competence (X3), Artificial Intelligence (AI) (X1), Learning Evaluation (X2) | | | | | | |

In table 4, the simultaneous test shows that there is a significant effect between the independent variables (X) simultaneously on the dependent variable (Y) which can be seen in the table above, namely with a sig value. F test of 0.000 at a significant level of 0.05. This value is smaller than 0.05 which indicates that all independent variables, which consist of; Artificial Intelligence (AI) (X1), Learning Evaluation (X2) and Professional Competence of Teachers (X3) together have an effect on the Quality of Social Studies Learning (Y) on Grade VI Students of SD Inpres Barua Kec. Bontolempangan.

*Partial Test (t Test)*

Table 5. - t test

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -3.766 | 2.250 | | -1.674 | 0.109 |
| | Artificial intelligence (AI) (X1) | 0.306 | 0.124 | 0.337 | 2.468 | 0.022 |
| | Learning Evaluation (X2) | 0.300 | 0.142 | 0.335 | 2.110 | 0.047 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Teacher Professional Competence (X3) | 0.265 | 0.121 | 0.332 | 2.197 | 0.039 |

a. Dependent Variable: Social Studies Learning Quality (Y)

In table 5. Partial test is a test to determine the effect of each independent variable on the independent variable. The decision-making criteria can be done by comparing the probability value or sig. with the significance level of 0.05. If the probability value ≥ 0.05, the effect between the independent variable (X) on the dependent variable (Y) is not significant. Conversely, if the probability value <0.05, the effect between the independent variable (X) on the dependent variable (Y) is significant.

**Determinant Coefficient Test**

Table 6 .Test coefficient of determination

| **Model Summary[b]** | | | | | |
|---|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
| 1 | .912a | 0.832 | 0.808 | 0.91286 | 2.170 |
| a. Predictors: (Constant), Teacher Professional Competence (X3), Artificial Intelligence (AI) (X1), Learning Evaluation (X2) | | | | | |
| b. Dependent Variable: Social Studies Learning Quality (Y) | | | | | |

In table 6 The coefficient of determination (*R-square*) is a value (proportion) that measures how much the ability of the independent variables (X) used in the regression equation, in explaining the variation in the dependent variable. The coefficient of determination ranges from 0 to 1.

From the table above, it is known that the coefficient of determination (*R-square*) is 0.832. This value can explain that X1, X2 and X3 are able to influence the Quality of Social Studies Learning simultaneously or together by 83.2%, in Class VI Students of SD Inpres Barua Kec. Bontolempangan. and the remaining 16.8% is influenced by other factors outside the regression model used.

*Dominant Variable*

Table 7. Table Unstandardized Coefficients Beta

| Model | | Unstandardized Coefficients | | Standardized Coefficients |
|---|---|---|---|---|
| | | B | Std. Error | Beta |
| 1 | (Constant) | -3.766 | 2.250 | |
| | Artificial intelligence (AI) (X1) | 0.306 | 0.124 | 0.337 |
| | Learning Evaluation (X2) | 0.300 | 0.142 | 0.335 |

| | | | | |
|---|---|---|---|---|
| | Teacher Professional Competence (X3) | 0.265 | 0.121 | 0.332 |

a. Dependent Variable: Social Studies Learning Quality (Y)

Based on Table 7 above, it can be seen that the value of Unstandardized Coefficients Beta Artificial Intelligence (AI) (X1) is 0.306, Learning Evaluation (X2) is 0.300, and Teacher Professional Competence (X3) is 0.265. Of the three X Variables, the highest Beta coefficient variable is the Artificial Intelligence (AI) *Unstandardized Coefficients Beta* variable with a value of 0.306. Thus, the most dominant variable affecting the Quality of Social Studies Learning of Grade VI Students of SD Inpres Barua Kec. Bontolempangan is Artificial Intelligence (AI).

**Discussion**

*The Effect of Artificial Intelligence (AI) on The Quality of Social Studies Learning of Grade VI Students of SD Inpres Barua Kec. Bontolempangan*

The results of the analysis show that the Artificial Intelligence (AI) variable (X1) has a positive and significant effect on the Quality of Social Studies Learning of Grade VI Students at SD Inpres Barua, Bontolempangan District. This conclusion is drawn from the probability value of 0.022, which is smaller than the significance level of 0.05, and the t-count of 2.468, which is greater than the t-table value of 1.710 (df = 24, α = 5%). These findings indicate that the integration of AI in learning processes can enhance the quality of education by offering more efficient, interactive, and personalized learning experiences. AI-based tools are increasingly used in schools to support student engagement and facilitate the teaching process through automation, intelligent feedback, and adaptive learning systems.

This result is in line with the findings of Zhang et al. (2023), who emphasized the role of ChatGPT—a transformer-based AI model developed by OpenAI—in generating human-like responses and enhancing user interaction with educational content. Similarly, Arifdarma (2023) stated that ChatGPT contributes to more accessible and understandable learning material, which in turn improves learning effectiveness. Suarifqi Diantama (2023) also supports this, noting that the utilization of AI technologies like ChatGPT increases students' motivation, engagement, and 21st-century skills, while also aiding teachers in instructional design, professional development, and assessment. These findings collectively reinforce the positive contribution of AI to improving the quality of learning in the education sector.

*The Effect of Learning Evaluation on the Quality of Social Studies Learning of Grade VI Students of SD Inpres Barua Kec. Bontolempangan*

The probability value of X2 is 0.047, which is less than the significance threshold of 0.05, and the t-count value of 2.110 is greater than the t-table value of 1.710 (df = 24, α = 5%). These results indicate that the Learning Evaluation variable (X2) has a positive and significant effect on the Quality of Social Studies Learning for Grade VI Students at SD Inpres Barua, Bontolempangan District. This suggests that effective and systematic learning evaluation plays a crucial role in enhancing the learning experience, guiding students' academic development, and improving instructional quality. Evaluation allows for identifying strengths and weaknesses in the teaching process, enabling both teachers and students to make targeted improvements.

These findings are supported by the research of Mardianta, Faizal Ibnu (2016), which emphasizes the importance of teacher efforts in implementing comprehensive learning evaluations within the 2013 Curriculum framework. In his study of history teachers in Batang District, he found that teachers conducted well-structured evaluations based on attitudes, knowledge, and skills, while also managing follow-up assessments despite facing constraints like large class sizes and limited time. Moreover, Arifin (in Mardianta, 2016) stresses that evaluation is a systematic and continuous process vital for measuring learning quality and supporting effective planning and motivation for students. Hence, a good evaluation system not only supports teacher effectiveness but also empowers students to improve their learning outcomes.

*The Effect of Teacher Professional Competence on the Quality of Social Studies Learning for Grade VI Students of SD Inpres Barua Kec. Bontolempangan*

The probability value of X3 is 0.039, which is less than the significance level of 0.05, and the t-count value of 2.197 is greater than the t-table value of 1.710 (df = 24, α = 5%). These statistical findings indicate that the teacher competence variable (X3) has a positive and significant effect on the Quality of Social Studies Learning for Grade VI students at SD Inpres Barua, Bontolempangan District. This means that when teachers possess higher competence—ranging from pedagogical to professional, personality, and social skills—they are more likely to create effective, engaging, and high-quality learning environments that support student success and cognitive development.

This finding aligns with the study by Firdaus Ainul Yaqin (2015), which highlights various strategic efforts to improve teacher competence through sustainable professional development such as workshops, postgraduate education, journal studies, certification alignment, and IT training. Furthermore, it supports Law No. 14/2005 on Teachers and Lecturers, which mandates that competence—covering pedagogical, professional, personality,

and social aspects—is a fundamental requirement for educators in achieving national education goals. Government Regulation No. 19 of 2005 further emphasizes that competent teachers are crucial in managing learning processes, developing student potential, and maintaining ethical standards, all of which significantly influence the quality of classroom instruction and learning outcomes.

*The Influence of Artificial Intelligence (AI), Learning Evaluation and Professional Competence of Teachers on the Quality of Social Studies Learning of Grade VI Students of SD Inpres Barua Kec. Bontolempangan*

The simultaneous test results indicate that all independent variables—Artificial Intelligence (X1), Learning Evaluation (X2), and Teacher Competence (X3)—have a significant and joint effect on the dependent variable, the Quality of Social Studies Learning (Y), among Grade VI students at SD Inpres Barua, Bontolempangan District. This conclusion is drawn from the F-test significance value of 0.000, which is smaller than the threshold of 0.05. Thus, it can be confirmed that the integration of AI, the implementation of structured learning evaluation, and the professional competence of teachers collectively contribute to enhancing the learning outcomes and classroom experiences of students.

These findings are consistent with previous studies and theoretical frameworks. A 2024 study by Widodo, Sibuea, and Narji revealed that 78% of students found AI effective in adapting learning materials to their pace, and 85% stated it supported their personal interests. Teachers also reported AI's value in delivering individualized feedback and lesson structuring. Additionally, evaluations play a vital role in identifying learning challenges and stimulating student motivation (Purwanto in Tobing, 2019), while teacher competence, as mandated by Law No. 14/2005, is fundamental to fulfilling educational goals. Hence, the synergy of AI tools, continuous evaluation, and competent educators significantly shapes high-quality learning environments in the classroom.

*The most dominant variable affecting the Quality of Social Studies Learning of Grade VI Students of SD Inpres Barua Kec. Bontolempangan is Artificial Intelligence (AI)*

Artificial Intelligence (AI) emerges as the most dominant variable influencing the quality of social studies learning due to its capability to significantly enhance learning efficiency and personalization. Unlike traditional approaches, AI provides real-time feedback and customized learning content tailored to each student's pace, preferences, and needs. This adaptive learning approach empowers students to engage with material more meaningfully and allows them to take ownership of their learning journey. Additionally, AI systems help teachers optimize their time by automating administrative tasks, enabling them to focus more on

mentoring and interactive teaching. This dual support—towards both learners and educators—marks AI as a transformative tool in modern education.

However, while the benefits of AI are substantial, concerns remain regarding the potential overreliance on technology, which may hinder students' ability to develop independence and critical thinking. To address this, a hybrid model is essential—one that combines the strengths of AI with traditional pedagogical methods. Literature emphasizes that while AI can enhance student motivation and engagement through personalized and interactive features, it must not replace human interaction and mentorship. Teachers play an irreplaceable role in fostering social-emotional skills, ethics, and collaborative abilities—areas where AI still lacks nuance. Therefore, successful integration of AI in education requires strategic implementation, teacher readiness, equitable infrastructure, and supportive policy frameworks to ensure that technology enhances rather than disrupts the human-centered essence of education.

## 5. CONCLUSION

Based on the findings of this study, it can be concluded that Artificial Intelligence (AI), Learning Evaluation, and Teacher Professional Competence each have a positive and significant effect on the Quality of Social Studies Learning for Grade VI students at SD Inpres Barua, Bontolempangan District. Among these, AI emerged as the most dominant factor influencing learning outcomes. The statistical analysis supports this conclusion, demonstrating that AI's capacity to provide real-time feedback, personalized content, and learning efficiency plays a critical role in enhancing the educational experience. In contrast to traditional methods that rely solely on the teacher’s direct instruction, AI-enabled tools facilitate adaptive learning environments that cater to diverse student needs. Similarly, well-structured learning evaluation systems and teacher competence contribute meaningfully to the overall learning quality by ensuring pedagogical consistency and instructional relevance. Yet, it is the integration of AI that stands out as a transformative lever, redefining how knowledge is accessed, delivered, and reinforced in the classroom.

This research contributes meaningfully to both educational theory and practice, particularly in the discourse surrounding the role of emerging technologies in primary education. In terms of academic value, this study provides empirical evidence supporting the integration of AI in the instructional process, especially within the context of a public primary school setting. It underscores the relevance of a multi-variable approach in understanding what shapes the quality of learning—demonstrating that the convergence of technological tools,

teacher capability, and evaluative mechanisms can create an ecosystem conducive to high-quality education. Practically, the study offers valuable insights for policymakers and school administrators seeking to improve student learning outcomes through technology-enhanced strategies. It also highlights the need for continuous professional development for teachers, the reinforcement of formative assessment practices, and investment in infrastructure that supports AI-assisted learning. As education systems globally move toward digitization, the originality of this study lies in its localized perspective, capturing the real-world implications of AI integration in rural or suburban school contexts where such transformations are often under-documented.

## 6. LIMITATION

The research was conducted on a relatively small sample size within a single school, limiting its generalizability to broader populations. Additionally, the study's reliance on self-reported data through questionnaires may introduce response bias. Future research should expand to multiple schools with diverse demographic contexts to capture a more comprehensive picture of AI's impact. Furthermore, longitudinal studies would be valuable to assess the long-term influence of AI on student learning behavior and achievement. There is also an opportunity to explore the ethical dimensions of AI in education, particularly in relation to data privacy, equity, and student autonomy. As a way forward, future studies should investigate the balance between AI usage and human-centered pedagogies, ensuring that technological integration amplifies—not replaces—the vital role of human connection in teaching and learning.

## REFERENCES

A. Abroto, A. Prastowo, and R. Anantama, "Analisis hambatan proses pembelajaran daring dengan menggunakan aplikasi WhatsApp di sekolah dasar," *Jurnal Basicedu*, vol. 5, no. 3, pp. 1632–1638, 2021.

A. Barr, E. A. Feigenbaum, and P. R. Cohen, *The handbook of artificial intelligence*. Addison-Wesley, 1982.

A. M. Sardiman, *Interaksi dan motivasi belajar mengajar*. Raja Grafindo Persada, 2007.

A. Rifa'i and C. T. Anni, *Psikologi pendidikan*. UNNES Press, 2015.

A. S. Herawati, "Evaluasi sistem inventaris manajemen aset...," Skripsi, STMIK Sinar Nusantara, 2016.

A. Ulimaz et al., “Peningkatan motivasi dan prestasi belajar...,” *Jurnal Review Pendidikan dan Pengajaran*, vol. 7, no. 1, pp. 1962–1976, 2024.

C. Ley et al., “Machine learning and conventional statistics...,” *Knee Surgery, Sports Traumatology, Arthroscopy*, vol. 30, no. 3, pp. 881–889, 2022.

Daryanto, *Media pembelajaran*. Sarana Tutorial Nurani Sejahtera, 2011.

Dimyati and Mudjiono, *Belajar dan pembelajaran*. Rineka Cipta, 2013.

E. Elpisah and M. Hasan, “Perbandingan Kompetensi Wirausaha Mahasiswa...,” *Lentera Pendidikan*, vol. 22, no. 1, pp. 110–125, 2019.

E. Mulyasa, *Menjadi guru profesional*. Remaja Rosdakarya, 2008.

E. Rich and K. Knight, *Artificial intelligence*, 2nd ed. McGraw-Hill, 1991.

E. Siregar and H. Nara, *Teori belajar dan pembelajaran*. Ghalia Indonesia, 2015.

F. A. Yaqin, “Analisis strategi kepala sekolah dalam meningkatkan kompetensi guru,” Skripsi, UIN Maulana Malik Ibrahim, 2015.

G. F. Avisyah, I. J. Putra, and S. S. Hidayat, “Open Artificial Intelligence analysis using ChatGPT integrated with Telegram Bot,” *Jurnal ELTIKOM*, vol. 7, no. 1, pp. 60–66, 2023, doi: 10.31961/eltikom.v7i1.724.

H. H. Pratikto and T. Setiawan, “Implementasi Kurikulum 2013 dan permasalahannya,” *Jurnal Pawiyatan*, vol. 26, no. 1, pp. 33–41, 2019.

H. Kiswanti, “Peningkatan kualitas pembelajaran IPA...,” Skripsi, UNNES, 2013.

H. Suderajat, *Implementasi kurikulum berbasis kompetensi (KBK)*. Cipta Cekas Grafika, 2003.

I. D. Pakiding, E. Elpisah, and R. Devilla, “Role of Social Studies Teacher Forum...,” *Int. J. Social Welfare and Family Law*, vol. 2, no. 1, pp. 107–123, 2025.

I. Ghozali, *Aplikasi analisis multivariate dengan program IBM SPSS 25*. Undip Press, 2019.

I. Ramayulis, *Ilmu pendidikan Islam*. Kalam Mulia, 2011.

I. Robandi, *Artificial intelligence: Mengupas rekayasa kecerdasan tiruan*. Penerbit Andi, 2021.

K. Kisno, Muliyadi, and R. Gunawan, “Kecerdasan buatan dalam evaluasi pembelajaran...,” *Jurnal Teknologi dan Pembelajaran*, vol. 10, no. 2, pp. 75–85, 2023.

L. P. A. S. Tjahyanti, P. S. Saputra, and M. S. Gitakarma, “Peran AI untuk mendukung pembelajaran...,” *Komteks*, vol. 1, no. 1, pp. 1–12, 2022.

M. Fadilah, *Implementasi kurikulum 2013 dalam pembelajaran*. Ar-Ruzz Media, 2014.

M. H. R. Chakim, “Kemajuan teknologi di abad 21: Perubahan perspektif,” *ADI Pengabdian Kepada Masyarakat*, vol. 4, no. 1, pp. 40–45, 2023.

N. K. E. Muliastrini, "Penguatan literasi baru...," *Dharma Acarya: Jurnal Pendidikan*, vol. 1, no. 2, pp. 55–66, 2019.

N. MY, M. Ardiansyah, and A. A. Sarbani, "Meningkatkan Keaktifan Siswa...," *Pinisi Journal PGSD*, vol. 5, Mar. 2025.

N. Sudjana, *Metode statistik*. Tarsito, 2006.

O. Hamalik, *Proses belajar mengajar*. PT Bumi Aksara, 2001.

R. Alief and E. Nurmiati, "Penerapan kecerdasan buatan dan teknologi informasi pada efisiensi manajemen pengetahuan," *Jurnal Masyarakat Informatika*, vol. 13, no. 1, pp. 59–69, 2022, doi: 10.14710/jmasif.13.1.43760.

S. Danim, *Profesionalisasi dan etika profesi guru*. Alfabeta, 2010.

S. Hartati, *Kecerdasan buatan berbasis pengetahuan*. UGM Press, 2021.

S. Kusumadewi, *Artificial intelligence: Teknik dan aplikasinya*. Graha Ilmu, 2003.

S. Nasution, *Didaktik asas-asas mengajar*. Jemmars, 2015.

S. R. Putra, "Desain evaluasi belajar berbasis kinerja," *Jurnal Pendidikan dan Evaluasi Pembelajaran*, vol. 2, no. 1, pp. 34–42, 2022.

S. Rizvi, S. Waite, and S. Sentance, "Artificial intelligence in education...," *Computers & Education: Artificial Intelligence*, vol. 4, p. 100136, 2023.

S. Serdianus and T. Saputra, "Peran artificial intelligence ChatGPT...," *Masokan: Jurnal Ilmu Sosial dan Pendidikan*, vol. 3, no. 1, pp. 8–15, 2023.

Sudaryono, *Dasar-dasar evaluasi pembelajaran*. Graha Ilmu, 2012.

Sukamto, *Peningkatan kualitas pembelajaran*. Depdiknas, 2004.

U. S. Saud, *Pengembangan profesi guru*. Alfabeta, 2009.

UGM Press, *Pemikiran guru besar UGM menuju Indonesia maju 2045: Bidang sains dan teknologi*. 2021.

V. Tkachenko, "Ethical implications of AI in education...," *Journal of Educational Technology and Society*, vol. 26, no. 2, pp. 134–148, 2023.

W. Sanjaya, *Perencanaan dan desain sistem pembelajaran*. Kencana Prenada Media Group, 2009.

Widarto, "Penelitian ex post facto disampaikan pada pelatihan metodologi penelitian," FT UNY, Jun. 2013.

Y. B. Widodo, "Kecerdasan buatan dalam pendidikan...," *Jurnal Teknologi Informatika dan Komputer MH Thamrin*, vol. 10, no. 2, pp. 112–121, 2024.