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The effect of technology based learning model on students' critical thinking ability in akidah akhlak subject at muhammadiyah 8 surakarta junior high school in the academic year 2024/2025

Aisyah Az Zahra [a.1,*], **Muhammad Jafar Nashir** [b.2]

[*ab] Institut Islam Mamba'ul 'Ulum Surakarta.
[*1] zahraaisy090701@gmail.com ; [2] muhammadjafarnashir@gmail.com
*Correspondent Author

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ABSTRACT

This study aims to: (1) identify the extent of the use of information technology-based learning media at Muhammadiyah 8 Junior High School Surakarta in the 2024/2025 academic year, (2) determine students' critical thinking skills in the Akidah Akhlak subject, and (3) examine the influence of technology-based learning models on students' critical thinking skills. The research employed a quantitative correlational method with a population of 30 students from class IT 1. Data collection techniques included observation, questionnaires, and documentation. Data analysis used the Pearson Product Moment correlation test.The findings reveal that: (1) the implementation of technology-based learning is categorized as "moderate," with 15 students (51.73%) falling into this category; (2) students' critical thinking skills are also categorized as "moderate," with 16 students (53.33%) in this range; and (3) there is a moderately strong correlation between the use of technology-based learning models (variable X) and students' critical thinking skills (variable Y), with a correlation coefficient of 0.561 and a significance level of 0.001 (< 0.05). Regression analysis indicates that the technology-based learning model contributes 31.5% to the development of students' critical thinking skills, while the remaining 68.5% is influenced by other factors. The Adjusted R Square value of 0.291 and a standard error of estimate of 6.586 suggest that the regression model has an acceptable level of accuracy.

Introduction

Education serves as the fundamental pillar in the development of a nation, where the quality of human resources is largely determined by the learning processes that take place within classrooms. In the face of the technological disruption era, educational institutions are not only expected to adapt their teaching methods to current developments but also to design instructional strategies that foster higher-order thinking skills, such as critical thinking. In alignment with the goals of national education, students are expected to grow holistically, intellectually, spiritually, socially, and in terms of 21st-century skills that demand analytical acuity and problem-solving abilities (Mashudi, 2021; Pare & Sihotang, 2023; Wakit, 2024).

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At SMP Muhammadiyah 8 Surakarta, the integration of information technology as a learning medium has been implemented as an adaptive response to the digital age. However, technical challenges such as limited access to technological devices and weak regulation of gadget use among students have posed significant obstacles. These issues have negatively impacted student concentration and reduced the effectiveness of learning, particularly in the subject of Akidah Akhlak, which is conceptual in nature and demands moral understanding as well as character development. The lack of enthusiasm among students toward this subject highlights the urgent need for an innovative learning model that bridges the use of technology with the achievement of Islamic education objectives (Ardiansyah et al., 2025; Noviani & Khoerudin, 2024; Rosfiani et al., 2025; Tamrin & Masykuri, 2024).

A learning model based on information and communication technology (ICT) emerges as a potential solution that is not only contextually relevant but also capable of enhancing students' active participation and critical thinking skills. The utilization of interactive multimedia, educational videos, digital quizzes, and online discussions is believed to provide a more meaningful learning experience while stimulating students' analytical capabilities (Agustin et al., 2023; Azhariadi et al., 2019; Ilmi, 2025). Therefore, this study is essential to examine the extent to which an IT-based instructional model influences students' critical thinking abilities in the subject of Akidah Akhlak.

Although various studies have explored the effectiveness of IT-based learning in improving academic outcomes, few have specifically examined the application of such models in strengthening critical thinking skills within the context of Islamic religious education. On the other hand, critical thinking is a core competency in the Merdeka Curriculum, which encourages students not merely to memorize content but to evaluate, analyze, and construct arguments based on logical and ethical reasoning (P. A. Facione, 2011; Paul & Elder, 2007).

This research gap is further emphasized by the limited number of studies focusing on Akidah Akhlak, despite it being a subject that inherently requires a contextual and reflective approach to shaping students' character. This opens an opportunity for the present study to fill the existing void in the literature, particularly in exploring the integration of technology to foster a critical understanding of Islamic teachings, rather than a purely doctrinal one. The study seeks to uncover new dimensions of Akidah Akhlak learning that are both pedagogically and functionally integrated with technology.

In terms of novelty, this study stands out for its focus on the IT-based learning model within the context of Islamic religious education at the junior high school level, rather than on general subjects such as Science or Mathematics, which have been more commonly explored. Another novel aspect lies in the effort to quantitatively measure the correlation between the application of technology and the enhancement of critical thinking skills a relationship that has predominantly been examined through qualitative approaches. Through a correlational method, this study provides empirical contributions that can serve as references for developing digitally based curricula in Islamic schools and madrasahs. Additionally, this research develops critical thinking indicators that are contextually adapted to the content of Akidah Akhlak, such as the ability to analyze religious arguments, evaluate ethical attitudes, and formulate alternative solutions to moral problems frequently encountered by adolescents. Thus, the integration of IT in the context of Islamic Religious Education (PAI) is not merely viewed as a technical innovation, but as a pedagogical transformation toward a more reflective, critical, and transformative educational paradigm.

Theoretically, the IT-based learning model refers to the utilization of digital technology in the teaching and learning process, involving audio-visual media, interactive simulations, and network-based access to information (Mustami, 2024; Panggabean et al., 2024; Permana et al.,

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2024). This model emphasizes the principles of interactivity, flexibility, and personalized learning, which are believed to enhance students' learning interest and absorption, even in abstract subjects such as religious education (Nurmayani et al., 2025; Ramdhan, 2025). Critical thinking skills in the context of Islamic education are of paramount importance. According to Puling et al. (2024) and Rendi et al. (2024), critical thinking involves interpretation, analysis, evaluation, and decision-making skills. In Akidah Akhlak learning, critical thinking enables students to understand differing scholarly opinions, weigh the ethical consequences of actions, and assess the validity of religious arguments used in constructing reasoning. The integration of IT and Akidah Akhlak learning creates a broader space for exploration, as students can access materials from various digital sources, engage in discussions through online platforms, and even reflect through vlogs or digital journals (Ardiana, 2025; Imamah, 2025). As stated by Sidiq et al. (2025), learning that engages multiple senses and multimedia platforms can enhance both cognitive and affective student engagement in understanding religious values.

Based on this background, the objectives of this study are to: (1) Investigate the extent to which IT-based learning models are implemented in the subject of Akidah Akhlak at SMP Muhammadiyah 8 Surakarta; (2) Assess students' levels of critical thinking in the subject; and (3) Analyze the influence of IT-based learning models on students' critical thinking skills.

The research questions formulated in this study are: (1) How does the application of IT-based learning models affect the subject of Akidah Akhlak at SMP Muhammadiyah 8 Surakarta in the 2024/2025 academic year? (2) What is the level of students' critical thinking ability in the subject of Akidah Akhlak at SMP Muhammadiyah 8 Surakarta in the 2024/2025 academic year? (3) Is there a significant influence of the IT-based learning model on students' critical thinking skills in the subject of Akidah Akhlak at SMP Muhammadiyah 8 Surakarta in the 2024/2025 academic year?

Method

This study employed a quantitative approach with a correlational design to analyze the relationship between the Information Technology (IT)-based learning model and students' critical thinking skills in the implementation of the Merdeka Curriculum at SMP Muhammadiyah 8 Surakarta. A quantitative approach was chosen as it allows for objective statistical data collection and analysis (Rachmad et al., 2024). The research was conducted at SMP Muhammadiyah 8 Surakarta from April to June 2025. The population consisted of all 180 Grade VII IT students, from which a sample of 30% or 30 students was randomly selected. This follows Arikunto (2019) guideline that if the population exceeds 100, a sample of 10–30% is sufficient.

Data collection was carried out through questionnaires, documentation, and observation. For variable X (IT-based learning model), a questionnaire served as the main instrument to collect student responses regarding the use of technology in learning. Observation and documentation were employed as complementary techniques to reinforce the data obtained from the questionnaires. Sekaran and Bougie (2016) define a questionnaire as a tool used to collect data through a series of pre-designed questions aimed at measuring research variables, while Syahrizal and Jailani (2023) state that documentation allows researchers to gather historical and written data. Observation enables direct monitoring of the learning process (Waruwu, 2023).

The conceptual definition of the IT-based learning model refers to the integration of technology in the teaching and learning process to create an interactive, flexible, and efficient learning experience (Rahayu et al., 2024). Operationally, this model includes the use of digital media, internet resources, and educational applications to support effective learning. Its indicators include attention to digital media, engagement in digital tasks, access to online

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materials, digital communication between teachers and students, and enhanced critical thinking skills resulting from the model's implementation.

Meanwhile, variable Y (students' critical thinking skills) is defined as the ability to understand, analyze, and evaluate information logically and systematically (Santrock, 2011). Indicators of this ability include the capacity to formulate problems, manage facts, construct logical arguments, design problem-solving strategies, and assess decision-making risks.

The research instruments were developed in the form of Likert-scale questionnaires and were tested for validity and reliability using SPSS version 25. Validity was assessed to ensure that the instruments measured what they were intended to measure (Arikunto, 2019), while reliability tested the consistency of the measurement results (Sugiyono, 2019). Data analysis techniques included calculating mean scores, intervals, and frequency percentages, along with prerequisite tests such as the Shapiro-Wilk test for normality. Finally, hypothesis testing was conducted using SPSS to determine whether a significant relationship existed between the two variables.

Result

Description of Respondent Data by Class

The following table presents the description of respondent data based on class:

Table 1.1: Respondents by Class

Class	Number of Respondents
Grade VII IT 1, Academic Year 2024/2025	30

Based on the table above, it can be seen that the total number of respondents is 30, all from a single class Grade VII IT 1, Academic Year 2024/2025.

Description of Respondent Data by Gender

The following is the description of respondent data based on gender:

Table 1.2: Respondents by Gender

Gender	Number of Respondents
Male	14
Female	16

Based on the table above, it is shown that the total number of respondents is 30, consisting of 14 male students and 16 female students.

Variable: The Influence of the IT-Based Learning Model

Data regarding the influence of the IT-based learning model in this study were obtained using a questionnaire distributed to the respondents. The data collected from the questionnaires are as follows:

Table 1.3: Questionnaire on the Influence of the IT-Based Learning Model

Gender	Number of Respondents
Male	14
Female	16

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From the table above, it can be seen that the influence scores of the IT-based learning model for Grade VII students at SMP Muhammadiyah 8 Surakarta, Academic Year 2024/2025, ranged from a maximum score of 80 to a minimum score of 51.

Based on these data, the next step was to calculate the mean, the number of classes, and the class interval (I) for the variable representing the influence of the IT-based learning model. The mean score was calculated to be 61.8. The number of classes was found to be 5.8744, rounded to 6 classes. The class interval was calculated as I = 4.83, which was rounded to 5.

The processed questionnaire results were then converted into percentages and presented in the following table:

Table 1.4: Frequency Distribution of the Influence of the IT-Based Learning Model

Interval	Frequency	Percentage
51–53	3	10.00%
56–60	11	36.67%
61–65	7	23.33%
66–70	4	13.33%
71–75	3	10.00%
76–80	2	6.67%
Interval	**Frequency**	**Percentage**

The frequency distribution in the table above shows that the highest number of respondents fell within the interval of 56–60, with 11 respondents or 36.67% of the total sample. This indicates that most participants in the study gave relatively high scores regarding the influence of the IT-based learning model.

The next most frequent interval was 61–65, with 7 respondents or 23.33%, also reflecting a positive assessment of the model. Conversely, the interval 76–80 had the fewest respondents, with only 2 respondents (6.67%), indicating that only a small proportion of participants gave the highest possible scores.

Overall, the distribution of the data indicates that the majority of respondents provided ratings in the moderate-to-high range for the implementation of the IT-based learning model. This supports the assumption that the approach received positive responses from the study participants.

After obtaining the above data, the next step was to classify the data into categories using the standard deviation formula, calculated with the help of the SPSS application. The results of the calculation are as follows:

Table 1.5: Calculation Results of the Standard Deviation of the Influence of the IT-Based Learning Model

Descriptive Statistics					
	N	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
X	30	51	80	61.17	5.74
Valid N (listwise)	30				

To obtain a more meaningful interpretation, the data were then classified into five categories: *very poor*, *poor*, *fair*, *good*, and *very good*. The classification was conducted using interval formulas based on the standard deviation and the mean score. This categorization aims to provide a more detailed depiction of the distribution of respondents' perceptions regarding the IT-based learning model.

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Table 1.6: Categorization Results of the Influence of the IT-Based Learning Model

Category	Interval	F	%
Very Good	68.92–80	3	10.00%
Good	64.13–69.91	5	16.70%
Fair	58.34–64.12	15	50.00%
Poor	52.55–58.33	6	20.00%
Very Poor	51–52.54	1	3.30%
Total			30

The categorization results shown in Table 1.6 indicate that the majority of respondents, totaling 15 students (50%), fell into the *fair* category. This suggests that respondents generally rated the implementation of the IT-based learning model at a moderate level. Additionally, 5 respondents (16.7%) were in the *good* category, and 3 respondents (10%) in the *very good* category collectively representing 76.7% of respondents who provided positive assessments. On the other hand, 6 respondents (20%) fell into the *poor* category, and only 1 respondent (3.3%) was in the *very poor* category.

Therefore, it can be concluded that the majority of respondents gave a relatively favorable assessment of the IT-based learning model, with only a small portion rating it poorly. This indicates that the applied learning model has positive potential in supporting the teaching and learning process, although there remains room for improvement to achieve the highest level of perception among all respondents.

Variable: Students' Critical Thinking Skills

Data for the variable of students' critical thinking skills were obtained using a questionnaire distributed to the respondents. The data collected are presented below:

Table 1.7: Questionnaire on Students' Critical Thinking Skills

Total Score	Highest Score	Lowest Score
1810	80	49

From the table above, it can be seen that the critical thinking skill scores of Grade VII students at SMP Muhammadiyah 8 Surakarta for the 2024/2025 academic year ranged from a highest score of 80 to a lowest score of 49.

Based on these data, the next step was to calculate the mean, the number of classes, and the class interval (I) for the critical thinking variable. The mean score was found to be 60.33. The number of classes was calculated as 5.874 and rounded to 6 classes. The class interval was determined using the interval formula, yielding I = 5.33. The processed questionnaire results were then converted into percentages and presented in the following table:

Table 1.8: Frequency Distribution of Students' Critical Thinking Skills

No	Interval	Frequency	Percentage
1	49–53	4	13.33%
2	54–58	6	20.00%
3	59–63	11	36.67%
4	64–68	6	20.00%
5	74–80	3	10.00%
Total			**30**

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Table 1.8 presents the frequency distribution of students' critical thinking skills data based on specific score intervals. The data are grouped into five intervals: 49–53, 54–58, 59–63, 64–68, and 74–80. The analysis shows that the majority of students fall within the 59–63 interval, totaling 11 students or 36.67% of the 30 students surveyed. This indicates that this score range is the most common or most frequently achieved by students. Furthermore, 6 students (20.00%) are found in each of the 54–58 and 64–68 intervals. Meanwhile, 4 students (13.33%) obtained the lowest scores in the 49–53 interval, and only 3 students (10.00%) achieved the highest scores in the 74–80 interval. Overall, this distribution suggests that students' critical thinking skills tend to fall within the moderate to high category, with relatively few students scoring at the very high or very low ends of the scale.

After obtaining the above data, the next step was to classify the categories using the standard deviation formula, with calculations assisted by the SPSS application. The results are as follows:

Table 1.9: Calculation Results of Students' Critical Thinking Skills Standard Deviation

Descriptive Statistics					
	N	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
X	30	49	80	61.43	7.82
Valid N (listwise)	30				

Table 1.9 presents the descriptive statistical analysis of students' critical thinking skills. The data show a minimum score of 49 and a maximum score of 80, indicating a relatively wide score range among students. The overall mean score is 61.43, suggesting that, on average, students' critical thinking skills fall within the moderate category. The standard deviation of 7.82 indicates a moderate level of variation or spread from the mean, meaning that while most students scored close to the average, there were also some whose scores were significantly lower or higher. The data were collected from 30 valid student responses, with no missing data. This information provides an overview of the distribution of students' critical thinking skills within the studied group.

Table 1.10: Categorization Results of Students' Critical Thinking Skills

Category	Interval	F	%
Very Good	69.25–80	3	10.00%
Good	61.43–69.25	7	23.33%
Fair	53.61–61.43	16	53.33%
Poor	49–53.61	4	13.33%
Total			30

Table 1.10 presents the classification of students' critical thinking levels based on their scores. This categorization process is based on the mean score (61.43) and the standard deviation (7.82) to establish the interval ranges. Based on these calculations, students' abilities are classified into four categories: *Very Good* (69.25–80), *Good* (61.43–69.25), *Fair* (53.61–61.43), and *Poor* (49–53.61). Out of the 30 students analyzed, the majority, or approximately 53.33%, fall into the *Fair* category. Meanwhile, 7 students (23.33%) are classified as *Good*, 4 students (13.33%) as *Poor*, and only 3 students (10.00%) achieved the *Very Good* category. These findings indicate that most students possess a moderate level of critical thinking skills, while relatively few students have extremely high or low abilities.

From the above calculations, it is evident that the most frequent score range is $53.61 \geq X \geq 61.43$, with 16 respondents falling into the *Fair* category.

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Analysis Prerequisite Testing – Normality Test

Table 1.11: Normality Test Results

One-Sample Kolmogorov-Smirnov Test			
			Unstandardized
N			30
Normal Parameters[a,b]	Mean		61,43
	Std. Deviation		7,82
Most Extreme Differences	Absolute		.0.2016
	Positive		0,2323
	Negative		-1.1707
Test Statistic			.0.2016
Asymp. Sig. (2-tailed)[c]			.0.1646[d]
Monte Carlo Sig. (2-tailed)[e]	Sig.		.0.1646
	99% Confidence Interval	Lower	.0.0714
		Upper	.0.2952

Table 1.11 illustrates the results of the normality test for students' critical thinking skills data using the One-Sample Kolmogorov-Smirnov Test. The purpose of this test is to determine whether the data distribution follows a normal distribution, which is a prerequisite for applying parametric statistical analysis techniques. The results show that the students' mean score was 61.43 with a standard deviation of 7.82. The highest absolute extreme difference was 0.2016, with a positive value of 0.2323 and a negative value of -1.1707. The significance value obtained from this test was 0.1646, which is greater than the 0.05 significance threshold. Based on these results, it can be concluded that the data are normally distributed. This means the dataset meets the assumption required for further analysis using parametric statistical methods such as the t-test, correlation, or regression. This also confirms that the data are suitable for deeper analysis to explore the relationship between critical thinking skills and other variables in this study.

From the table analysis above, it can be seen that the Sig. (2-tailed) value for both the IT-based learning model variable (X) and the students' critical thinking skills variable (Y) is 0.1646, which is greater than 0.05. Therefore, it can be concluded that the sample comes from a population with a normal distribution.

Analysis Prerequisite Testing – Linearity Test

Table 1.12: Linearity Test Results

			Sum of Squares	df	Mean Square	F	Sig.
Y * X	Between Groups	(Combined)	559.118	1	559.118		
		Linearity	559.118	1	559.118	12.893	0.001
		Deviation from Linearity	0.000	0	0.000	12.893	0.001
	Within Groups		1214.249	28	43.336		
	Total		1773.367	29			

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Based on the results of the linearity test between variables X and Y, the significance value obtained was 0.001. Since this value is smaller than the 0.05 significance level (0.001 < 0.05), it can be concluded that there is a significant and linear relationship between variable X (IT-based learning model) and variable Y (students' critical thinking skills). This finding indicates that the linear regression model used is appropriate and can represent the relationship between the two variables accurately. Therefore, the linearity assumption is met, allowing further analyses such as regression or correlation to be validly performed, and confirming that the relationship between variable X and variable Y is linear.

Hypothesis Testing

Before calculating the correlation coefficient between the IT-based learning model and students' critical thinking skills, a simple regression analysis was first conducted, with the results presented in Appendix 1.3. The correlation coefficient between the IT-based learning model variable (X) and the students' critical thinking skills variable (Y) for Grade VII students at SMP Muhammadiyah 8 Surakarta in the 2024/2025 academic year was then calculated using SPSS, as shown below:

Table 1.13: Pearson Product-Moment Correlation Results

Correlations			
		IT-Based Learning Model	**Critical Thinking Skills**
IT-Based Learning Model	Pearson Correlation	1	0.561
	Sig. (2-tailed)		0.001
	N	30	30
Critical Thinking Skills	Pearson Correlation	0.561	1
	Sig. (2-tailed)	0.001	
	N	30	30

Interpretation Guidelines:

- **0.00–0.20**: Very weak or negligible correlation
- **0.21–0.40**: Weak correlation
- **0.41–0.60**: Moderate correlation
- **0.61–0.80**: Strong correlation
- **0.81–1.00**: Perfect correlation

Based on these criteria, the correlation coefficient (R) between the IT-Based Learning Model and Critical Thinking Skills is **0.561**, which falls into the *moderate* category. This indicates that there is a reasonably strong relationship between the two variables.

Simple Linear Regression Test

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Table 1.14: Simple Linear Regression Test Results

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.561[a]	0.315	0.291	6,585
a. Predictors: (Constant), IT-Based Learning Mode				

Based on the simple linear regression analysis between the IT-based learning model (X) and students' critical thinking skills (Y), the correlation coefficient (R) obtained is 0.561, indicating a moderate relationship according to Pearson Product-Moment interpretation criteria. Furthermore, the R Square value of 0.315 shows that **31.5%** of the variation in students' critical thinking skills can be explained by the IT-based learning model implemented, while the remaining **68.5%** is influenced by other factors beyond the model.

The Adjusted R Square value of 0.291 accounts for the number of independent variables and sample size, indicating the model's accuracy when applied to a broader population. Additionally, the Standard Error of the Estimate value of 6.585 reflects the extent to which the observed data deviate from the predicted regression line. This value is within an acceptable range, meaning the regression model has a reasonably good level of precision in explaining the relationship between X and Y.

In conclusion, there is a meaningful influence of the IT-based learning model on the critical thinking skills of Grade VII students at SMP Muhammadiyah 8 Surakarta in the 2024/2025 academic year. The simple linear regression model is appropriate for further analysis and demonstrates that IT-based learning contributes positively to enhancing students' critical thinking abilities.

Discussion

Influence of Implementing an Information Technology-Based Learning Method in the Akidah Akhlak Subject at SMP Muhammadiyah 8 Surakarta, Academic Year 2024/2025

The research findings indicate that the implementation of the Information Technology (IT)-based learning method falls within the "fair" to "good" category, with a mean score of 61.17 on a scale range of 51–80. A total of 76.7% of students assessed the application of this model positively. This means that, in general, students responded well to the integration of technology into Akidah Akhlak learning.

The use of technology in education provides easier access to information, flexibility in interaction, and the possibility of multimedia-based learning, which, according to Mayer (2009) in Multimedia Learning, enhances students' cognitive effectiveness through the simultaneous combination of visual and verbal elements. This is also consistent with Heinich et al. (2002), who emphasized that technological media can accelerate the learning process and accommodate differences in students' learning styles. Furthermore, IT-based learning facilitates active learning approaches such as simulations, online quizzes, and virtual collaboration. This strategy aligns with Vygotsky (1978) theory of the Zone of Proximal Development (ZPD), in which technology can serve as "scaffolding" to bridge students' understanding toward a higher cognitive level.

Thus, the positive impact of this method demonstrates that integrating technology into Akidah Akhlak learning not only enriches teachers' instructional methods but also stimulates students' participation and interest in understanding moral and faith-based values.

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Students' Critical Thinking Skills in the Akidah Akhlak Subject at SMP Muhammadiyah 8 Surakarta, Academic Year 2024/2025

The data show that the majority of students possess critical thinking skills in the "fair" category (53.33%), followed by the "good" category (23.33%) and the "very good" category (10%). This indicates that most students are capable of demonstrating an adequate level of critical thinking, although it is not yet evenly distributed across all student groups.

Critical thinking is an essential skill in facing contemporary challenges. According to Ennis (1985), critical thinking is a reasonable and reflective thinking process that focuses on deciding what to believe or do. In the context of Akidah Akhlak learning, critical thinking is necessary to evaluate values, make moral decisions, and distinguish between truth (haq) and falsehood (batil) based on Islamic evidence (dalil syar'i). Critical thinking skills also encompass analysis, interpretation, evaluation, and inference (P. Facione, 1990). In value-based Islamic education such as Akidah Akhlak, these dimensions are essential to foster noble character grounded in both rational and spiritual understanding rather than mere dogma.

Nevertheless, it should be acknowledged that students' critical thinking levels can still be improved. Contributing factors may include teaching approaches that are still focused on memorization, limited practice of reflective thinking, and insufficient implementation of problem-solving-based learning.

The Effect of the IT-Based Learning Model on Students' Critical Thinking Skills in the Akidah Akhlak Subject at SMP Muhammadiyah 8 Surakarta, Academic Year 2024/2025

The results of the Pearson correlation analysis reveal a significant positive relationship between the implementation of the IT-based learning model and students' critical thinking skills ($r = 0.561$; $sig = 0.001$). This value indicates a moderate yet meaningful correlation, meaning that the higher the quality of IT integration in learning, the higher the students' critical thinking ability.

Additionally, the simple linear regression analysis produced a coefficient of determination (R^2) of 0.315. This means that 31.5% of the variance in students' critical thinking skills is explained by the IT-based learning model, while the remaining 68.5% is influenced by other factors such as the learning environment, teacher competence, family background, and students' intrinsic motivation.

These findings reinforce previous research by Firdaus et al. (2015) Firdaus et al. (2015), which concluded that the use of interactive media and technology can significantly improve students' critical thinking abilities. Well-designed digital learning stimulates higher-order cognitive skills through problem-based learning, collaborative learning, and discovery learning.

IT-based Akidah Akhlak learning enables teachers to present ethical cases or theological issues through videos, animations, and virtual discussion forums. This provides ample space for reflection and fosters a critical yet Islamic mindset in students, as emphasized in QS. Al-Hasyr [59]:21 regarding the importance of deep contemplation on the verses of Allah.

Conclusion

Based on the results of the study, it can be concluded that there is a significant relationship between the information technology (IT)-based learning model and students' critical thinking skills in the Akidah Akhlak subject at SMP Muhammadiyah 8 Surakarta. This is evidenced by a correlation coefficient value of 0.561 with a significance value of 0.001, indicating that the relationship did not occur by chance and is statistically acceptable. The strength of the correlation, which falls into the moderate category, suggests that the better the quality of IT-based learning implementation, the higher the level of critical thinking skills students possess. The results of the simple linear regression test reveal that 31.5% of the

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variation in students' critical thinking skills is influenced by the application of the IT-based learning model, while the remaining 68.5% is influenced by other factors outside the scope of this study, such as motivation, learning environment, and learning styles. The Adjusted R Square value of 0.291 and the Standard Error of the Estimate of 6.585 indicate that the research model used is fairly reliable and relevant in an educational context. Overall, these findings confirm that the implementation of an IT-based learning model contributes positively to the development of students' critical thinking skills, although its effectiveness requires support from other contributing factors to achieve more optimal outcomes.

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