

The Influence of Student Activity in Discussions and the Quality of Teaching Material Design on the Understanding of Islamic Education Material

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ABSTRACT. The development of digital technology requires students to have a strong understanding of ethics, especially in the use of social media in accordance with Islamic teachings. However, the effectiveness of Islamic Religious Education (IRE) learning is often influenced by classroom dynamics and the quality of available learning resources. This study aims to analyze the influence of student discussion activities and the quality of teaching materials on IRE comprehension, particularly regarding social media etiquette. The research method used is quantitative, with a causal-associative approach. The research sample consisted of 148 high school students selected through purposive sampling. Data were collected using structured questionnaires and analyzed using multiple linear regression to examine partial and simultaneous effects. Significant findings in this study indicate that: (1) Discussion activity has a positive and significant impact on student understanding; the initiative to argue and ask questions has been proven to strengthen mastery of the material. (2) The quality of systematic and relevant teaching materials significantly facilitates students' absorption of information. (3) Simultaneously, both variables contribute 55.9% ($R^2 = 0.559$) to student understanding, while other factors influence the rest. The study concludes that collaboration between active learning processes and effective learning media is the key to mastering the material. The implication of this research for educators is the need to design teaching materials rich in contextual case studies and to create interactive discussion spaces. Integrated improvements in the quality of these two aspects can significantly minimize the misuse of social media among adolescents by strengthening their understanding of Islamic values.

Keywords: *Student Activity, Teaching Material Design, Understanding of Islamic Education Material*

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INTRODUCTION

Islamic Religious Education plays an important role in shaping students' personalities and morals. Islamic Religious Education aims to ensure that students not only have religious knowledge, but are also able to apply it in their daily lives. A good understanding of Islamic Religious Education material needs to be reflected in their attitudes and behavior (Rasyidi, 2024); (Akbar & Azani, 2024); (Nurhaliza, 2024); (Mahbubi & Sa'diyah, 2025). Currently, amid technological advances, the Islamic Religious Education learning process faces challenges. The

success of students in understanding Islamic Religious Education is influenced by two main things: first, student interaction and discussion in class, and second, the quality of the materials or teaching materials used. Therefore, research that examines the factors that can simultaneously improve the understanding of Islamic Religious Education materials has become the focus of study (Hasanah, 2024); (Siregar, 2024); (Munandar et al., 2025); (Syam, 2025); (S. Ramadhan et al., 2025).

The challenges in Islamic religious education lessons have increased with the rise of social media use (Ilham & Ramadani, 2024; Pusvitasari & Zarkasyi, 2024; Putra et al., 2024; Risni et al., 2025). Specifically at Yadika Sumedang High School, the relevant Islamic Religious Education material is about the Etiquette of Using Social Media. This material requires students to practice religious teachings in their digital interactions (Arif et al., 2025; Hidayah et al., 2025; Kardi et al., 2023; Saepurohman et al., 2025). However, there is a gap in the field: students' understanding of etiquette on social media is still not optimal, as seen from the difference between their knowledge in class and their daily behavior. In class, student activity during discussions varies; only a few are active in speaking, while most tend to be passive (Asweni et al., 2024; Hakim et al., 2025; A. Ramadhan & Albab, 2025). In addition, the Islamic Religious Education teaching materials used may not have been made as interesting and effective as possible to discuss the rapidly changing issue of social media. This condition suggests that the learning process and the quality of teaching materials can determine students' understanding of the material (Lidawati & Gayo, 2025).

Many previous studies have proven the relationship between the learning process and the results obtained by students (Aulia, 2021); (Simatupang, 2021); (Ramadhanti et al., 2022). Students who actively participate in discussions tend to remember lessons more easily (Rikawati & Sitinjak, 2020); (Kamza et al., 2021); (Ngadha et al., 2023); (Emmanuella & Chrismastianto, 2023); (Ruslandi et al., 2025). Teaching materials that are designed to be interesting and tailored to students' needs will increase their interest in learning (Dermawan et al., 2024); (Athiyyaturrahmah & Zainab, 2024); (Zumroh, 2024); (Lubis & Albina, 2025). Theoretically, this study uses two basic concepts: Cognitive Learning Theory and Constructivism. Student activity in discussions is in line with Constructivism, namely that knowledge is constructed through social interaction and experience (Pramana et al., 2024); (Prasasty et al., 2025); (Rizki et al., 2025). Meanwhile, the Quality of Teaching Material Design is based on Cognitive Theory, ensuring that the material is presented in an easy-to-digest and visually appealing manner, making it easier to remember (Handoyo et al., 2025).

Most previous studies only tested the influence of each variable separately or only on general subjects. Not many studies have specifically tested the influence of these two factors (Student Activity in Discussions and Teaching Material Design Quality) simultaneously, in a single integrated analysis, on the Understanding of Islamic Education Material, especially with a focus on the topic of Etiquette in Using Social Media. This gap led to testing whether these two factors, when combined, would have a stronger and clearer influence in determining how well students at Yadika Sumedang High School understood the material.

Based on the above gap, the novelty of this study lies in testing a model that involves three variables comprehensively in the environment of Yadika Sumedang High School, specifically in the subject of Islamic Religious Education on the Etiquette of Using Social Media. This study not only seeks to find out how much influence Discussion Activity and Teaching Material Quality have individually, but also how these two factors work together in shaping the Understanding of Islamic Education Material (Bakar et al., 2023; R & Kamil, 2025; Rohmadi et al., 2024; Wati et al., 2024). This approach aims to provide a more definite and complete picture of the main determinants of student understanding. To answer all these questions and measure the contribution of each factor and their combination, this study will use data analysis techniques that can measure the relationship between multiple factors simultaneously.

The main objectives of this study are to analyze and prove: 1) The effect of student activity in discussions on their understanding of literature material using social media, 2) The effect of

teaching material design quality on understanding of religious education material using social media, and 3) The combined effect of student activity in discussions and teaching material design quality on understanding of religious education material using social media among students at Yadika Sumedang High School. Based on these objectives, the research questions to be answered are: 1) Does student activity in discussions have a significant effect on understanding Islamic Religious Education material? 2) Does the quality of teaching material design have a significant effect on understanding Islamic Religious Education material? 3) Do student activity in discussions and the quality of teaching material design together have a significant effect on understanding of Islamic Religious Education material?

METHOD

This study uses a quantitative approach, with an associative research method/type that aims to test the cause-and-effect relationship between variables. The population in this study was all students at Yadika Sumedang High School, including grades 10, 11, and 12. Students in grade 11 were selected as the research sample. The sampling technique used was purposive sampling, in which grade 11 was selected because it was considered representative in obtaining the Islamic Education material being studied (Firmansyah & Masrun, 2021); (Waruwu, 2023).

The main data collection technique was carried out using a developed questionnaire instrument, consisting of a total of 30 Likert scale questions (Always, Often, Sometimes, Rarely, and Never) divided to measure the variables of Student Activity in Discussions, Quality of Teaching Material Design, and Understanding of Islamic Education Material. The development of the instrument went through a series of procedures to ensure the validity and reliability of the data before it was used in the field. The data analysis technique applied to the collected quantitative data was multiple regression testing. This analysis served to test the influence of two independent variables (Student Activity in Discussions and Quality of Teaching Material Design) on the dependent variable (Understanding of Islamic Education Material) both simultaneously and partially.

Table 1 Research Indicators

No.	Variable	Indicator	Indicator Description
1.	Student Participation in Discussions	1. Verbal Engagement	1. Initiative to speak/express opinions.
		2. Asking Questions	2. Initiative to seek clarification on material.
		3. Responding to Questions	3. Participation in answering questions from friends/teachers.
		4. Supporting Arguments	4. Providing reasons or evidence to support views.
		5. Respecting Other Opinions	5. Ethical and polite aspects of discussion.
		6. Relevance of Contributions	6. Quality of input relevant to the topic.
		7. Seeking Agreement	7. Efforts to summarize or draw conclusions together.
		8. Active Writing of Responses in Online Forums	8. Participation in discussions through online forums.
		9. Courage to Discuss	9. Level of confidence in social interactions.
		10. Leadership Initiative (Putri & Taufina, 2020); (Prasetyo & Abduh, 2021).	10. Initiative to take on the role of coordinator/moderator (if any).
2.	Quality of Teaching Material Design	1. Clarity of Language	1. Word choice that is easy for students to understand.
		2. Appropriateness of Illustrations	2. Quality of supporting images, charts, or diagrams.
		3. Layout and Font	3. Visual comfort and readability.
		4. Systematic Structure	

3. Understanding of Islamic Education Material	5. Relevance of Case Examples	4. Logical sequence of material (introduction-content-conclusion).
	6. Design Consistency	5. Availability and relevance of examples to students' lives.
	7. Concept Map Completeness	6. Consistency of appearance between chapters or pages.
	8. Font Size and Type	7. Visual aids to understand the relationship between topics.
	9. Quality of Additional Materials	8. Legibility of the font.
	10. Interest Drivers (Yolanda & Wahyuni, 2020); (Azizul et al., 2020).	9. Presence and usefulness of summaries or glossaries.
		10. Design aspects that stimulate initial motivation.
	1. Memory Ability	1. Mastery of basic facts and memorization.
	2. Conceptual Understanding	2. Ability to explain the main meaning.
	3. Analytical Skills	3. Ability to break down and compare information.
	4. Application Skills	4. Ability to use concepts to solve problems.
	5. Synthesis/Connecting Skills	5. Ability to relate Islamic Religious Education material to other subjects.
	6. Hierarchical Understanding	6. Understanding of cause-and-effect relationships or levels.
	7. Self-Confidence (Cognitive)	7. Level of confidence in mastery of the material.
	8. Self-Reflection	8. Acceptance and internalization of the material.
	9. Evaluation Skills	9. Ability to assess or make decisions based on Islamic Religious Education.
	10. Mastery of Technical Terms (Umar, 2020); (Butar-Butar et al., 2023).	10. Understanding of specific Islamic Religious Education terminology.

RESULT AND DISCUSSION

Result

This section presents the research results obtained from processing data from a questionnaire completed by 11th grade students at Yadika Sumedang High School. The results of the data analysis, which was processed using multiple regression tests, are summarized in the following tables, starting from the descriptive statistical test results to the hypothesis testing results.

Table 2 Descriptive Statistics

Descriptive Statistics			
	Mean	Std. Deviation	N
Understanding_of_Material	35.5608	5.89272	148
Student_Participation_in_Discussion	35.6959	5.70077	148
Quality_of_Teaching_Material_Design	36.8311	5.66573	148

The results of descriptive statistical analysis of 148 respondents show that all research variables have high and similar mean values, indicating that students' perceptions of the three aspects are at a similar level. The Teaching Material Design Quality variable recorded the highest average value of 36.8311, followed by Student Activity in Discussions with 35.6959, and Material Comprehension with 35.5608. The standard deviation (Std. Deviation) for the three variables

ranged from 5.66573 to 5.89272. The relatively small standard deviation compared to the mean indicates that the data distribution or diversity of responses from the 148 respondents was not too far from the group mean, indicating a fairly high consistency in students' perceptions or mastery levels of the three variables studied.

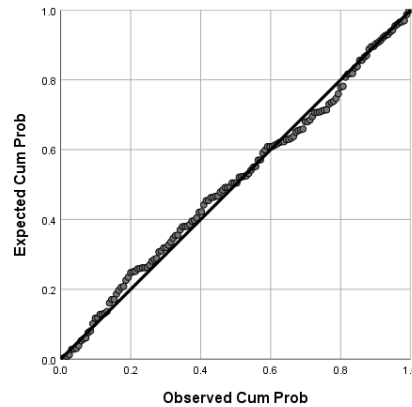


Figure 1 Normal P-P Plot of Regression Standardized Residual

Based on the results of normality testing using the Normal P-P Plot of Regression Standardized Residual for the dependent variable of Material Comprehension, it was found that the data points (residuals) were scattered around and followed the diagonal line consistently, from the lower left to the upper right. This pattern of point distribution indicates that the residual data from the regression model meets the normality assumption. Thus, it can be concluded that the data used in this study is normally distributed, so that an important requirement for multiple regression analysis has been met (Sihabudin et al., 2021).

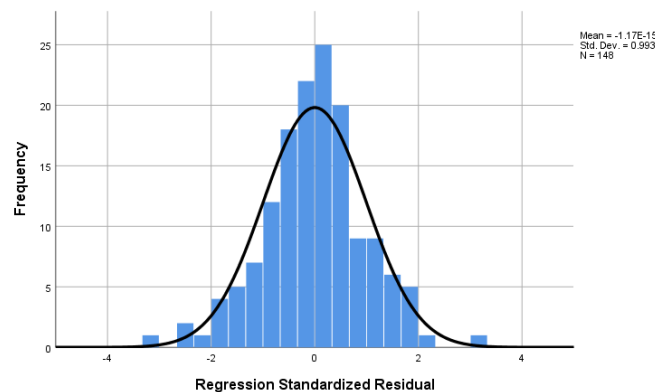


Figure 2 Histogram Regression Standardized Residual

The normality test was also confirmed through Histogram visualization for the Regression Standardized Residual variable. The shape of the curve covering the histogram bars shows a perfect bell-shaped curve, where the highest peak is in the middle, and both ends slope symmetrically (Winarno et al., 2022). This condition is reinforced by the Mean residual value that is close to zero (i.e., $-1.17\text{E}-15$ or very close to 0) and the Std. Dev. value of 0.993, which is close to 1. Thus, testing through this Histogram provides additional convincing visual evidence that the residual data is normally distributed, making the regression model suitable for use.

Table 3 One-Sample Kolmogorov-Smirnov Test

One-Sample Kolmogorov-Smirnov Test		
N		Unstandardized Residual 148
Normal Parameters ^{a,b}	Mean	.0000000
	Std. Deviation	3.91751043
Most Extreme Differences	Absolute	.050
	Positive	.048
	Negative	-.050
Test Statistic		.050
Asymp. Sig. (2-tailed)		.200 ^{c,d}

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

d. This is a lower bound of the true significance.

Statistical normality testing was performed using the One-Sample Kolmogorov-Smirnov Test. The test results showed an Asymp. Sig. (2-tailed) value of 0.200. Since the significance value of 0.200 is much greater than the significance threshold (alpha) of 0.05, it can be concluded that the residual data is normally distributed. This result reinforces the findings from the P-P Plot and Histogram visualizations, confirming that the data used in this multiple regression study meets the normality assumption.

Table 4 Coefficients^a

		Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	3.514	2.395		1.467	.144		
	Student_Participation_in_Discussion	.364	.067	.352	5.396	.000	.716	1.396
	Quality_of_Teaching_Material_Design	.517	.068	.497	7.626	.000	.716	1.396

a. Dependent Variable: Understanding_of_Material

The results of the multiple regression test show that the model is free from multicollinearity because the Tolerance value for both independent variables (Student Activity in Discussions and Teaching Material Design Quality) is 0.716 (greater than 0.10), and the VIF value is 1.396 (well below the limit of 10). Furthermore, the t-test results (partial effect) show that both variables individually have a significant effect on Material Comprehension, as evidenced by the significance value (Sig.) for Student Activity in Discussions being 0.000 and Teaching Material Design Quality also being 0.000. Since both values are less than 0.05, the partial hypothesis is accepted. Quantitatively, Teaching Material Design Quality has a higher Beta coefficient (0.497) than Student Activity in Discussion (0.352), indicating that Teaching Material Design Quality contributes a greater partial effect to Material Comprehension.

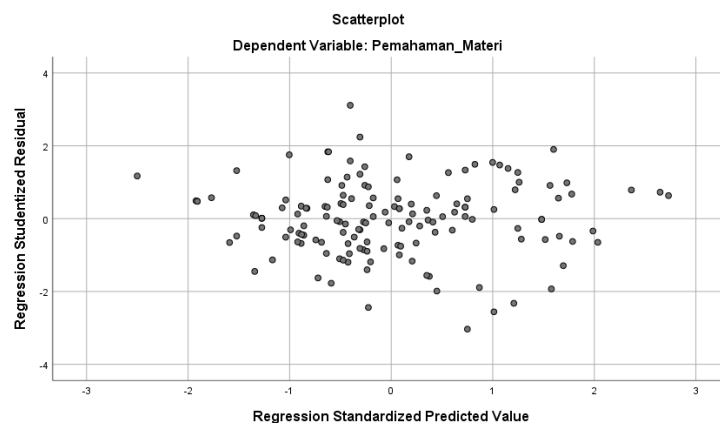


Figure 3 Regression Standardized Predicted Value

Based on the scatterplot mapping the Regression Standardized Predicted Value (X-axis) and Regression Studentized Residual (Y-axis), it can be observed that the data points are scattered randomly above, below, and around the zero point (X-axis). There is no visible pattern or specific shape (e.g., wavy, tapered, or widening), which indicates that the assumption of homoscedasticity is fulfilled. Thus, it can be concluded that there is no heteroscedasticity problem in this regression model, which means that the variance of the residuals is constant across all levels of the independent variables.

Table 5 Coefficients^a

		Coefficients ^a					
Model		Unstandardized Coefficients	Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error			Tolerance	VIF
1	(Constant)	.710	1.523	.466	.642		
	Student_Participation_in_Discussion	.019	.043	.451	.653	.716	.396
	Quality_of_Teaching_Material_Design	.043	.043	1.004	.317	.716	.396

a. Dependent Variable: Abs_Res

The homoscedasticity test using the Glejser method (absolute residual value regression) shows that this regression model is free from heteroscedasticity. This is evident from the significance value (Sig.) for the Student Activity in Discussion variable of 0.653 and the Teaching Material Design Quality variable of 0.317. Since both significance values are much greater than the specified significance level ($\alpha = 0.05$), it can be concluded that there is no significant effect of the independent variables on the absolute residual values, which means that the residual variance is constant (homoscedasticity is satisfied).

Table 6 Model Summary^b

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.127 ^a	.016	.002	2.50879	1.996

a. Predictors: (Constant), Quality_of_Teaching_Material_Design, Student_Participation_in_Discussion

b. Dependent Variable: Abs_Res

Based on the Model Summary table showing a Durbin-Watson (DW) value of 1.996, and supported by the specified limits ($dL = 1.7041$ and $dU = 1.7588$ for $N=148$ and $k=2$), the autocorrelation test shows that this regression model is free from autocorrelation problems. This is because the DW value (1.996) is between the upper limit for positive autocorrelation freedom ($dU = 1.7588$) and the upper limit for negative autocorrelation freedom ($4-dU = 4 - 1.7588 = 2.2412$). Since $1.7588 < 1.996 < 2.2412$, there is no positive or negative autocorrelation, so the regression model is declared valid for predicting Understanding of Islamic Education Material.

Table 7 Coefficients^a

		Coefficients ^a					
Model		Unstandardized Coefficients	Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error			Tolerance	VIF
1	(Constant)	3.514	2.395	1.467	.144		
	Student_Participation_in_Discussion	.364	.067	5.396	.000	.716	1.396
	Quality_of_Teaching_Material_Design	.517	.068	7.626	.000	.716	1.396

a. Dependent Variable: Understanding_of_Material

The results of the partial regression test (t-test) show a positive and significant effect of both independent variables on Understanding of Islamic Education Material. The Student Activity in Discussion variable has a positive regression coefficient value of 0.364 with a significance value

of 0.000 (less than 0.05), which means that Student Activity in Discussion partially has a significant effect on Material Comprehension. The Teaching Material Design Quality variable also shows a positive regression coefficient value of 0.517 with a significance value of 0.000 (less than 0.05), which means that Teaching Material Design Quality partially has a significant effect on Material Understanding. This positive effect indicates that improvements in Student Activity in Discussions and Teaching Material Design Quality will contribute to an increase in students' Understanding of Islamic Education Material, where Teaching Material Design Quality (0.517) has a greater effect than Student Activity in Discussions (0.364).

Table 8 ANOVA^a

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2848.460	2	1424.230	91.540	.000 ^b
	Residual	2255.993	145	15.559		
	Total	5104.453	147			

a. Dependent Variable: Understanding_of_Material

b. Predictors: (Constant), Quality_of_Teaching_Material_Design, Student_Participation_in_Discussion

The ANOVA table shows the results of the overall regression model significance test. With an F value of 91.540 and a very small significance value (Sig.) of 0.000 (meaning $p < 0.001$), it can be concluded that the overall regression model is significant and can predict the dependent variable of Material Understanding. This is supported by the Sum of Squares for Regression of 2848.460 with $df=2$, which is significantly greater than the Sum of Squares Residual of 2255.993 with $df=145$. Therefore, at least one of the predictor variables (Quality of Teaching Materials Design and Student Activity in Discussions) has a significant effect on Material Comprehension.

Table 9 Model Summary^b

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.747 ^a	.558	.552	3.94444	1.933

a. Predictors: (Constant), Quality_of_Teaching_Material_Design, Student_Participation_in_Discussion

b. Dependent Variable: Understanding_of_Material

The coefficient of determination (R Square) in Multiple Regression serves to interpret the meaning of "How much (%) contribution/influence is given by variable X1 (Quality of Teaching Materials) together with variable X2 (Student Activity in Discussions) to variable Y (Understanding of Material)?" The R Square value is 0.558 or 55.8%. Thus, it can be said that Teaching Material Design Quality and Student Activity in Discussion simultaneously only have an influence of 55.8%; the remaining 44.2% is influenced by other factors.

Discussion

The F test results show that the variables of Student Activity in Discussions and Teaching Material Design Quality simultaneously (together) have a significant effect on Understanding of Islamic Education Material on the topic of Etiquette in Using Social Media. This finding confirms the proposed hypothesis, emphasizing that a combination of dynamic learning processes and quality learning resources is the key to improving Material Comprehension. The collective influence of these two factors shows that improving Islamic Education learning outcomes cannot rely on just one aspect, but must be supported by active social interaction in the classroom and the provision of relevant and interesting teaching materials. In practical terms, this confirms the need for synergy between teacher pedagogy and learning media support (Irmawati et al., 2025).

Partially, the variable of Student Activity in Discussions was proven to have a significant and positive effect on the Understanding of Islamic Education Material. These results are in line

with Constructivism theory, in which knowledge is constructed through social interaction. This positive contribution is strongly supported by the indicators of Verbal Engagement, Asking Questions, and Responding to Questions. In the context of Social Media Etiquette, student activity encourages them not only to memorize definitions but also to test and debate how Islamic ethics are applied to viral cases or digital issues they encounter daily. Lively discussions allow students to deepen their understanding of Islamic Religious Education Concepts and Analytical Skills (indicator Y) (Zaidan et al., 2025).

The significant influence of Student Activity is also driven by the indicators of Argument Support and Contribution Relevance. Quality discussions, where students are able to provide reasons or evidence (Argument Support) that are in accordance with Islamic Education law or arguments (Contribution Relevance), force students to perform Synthesis/Connecting Skills by linking Islamic Education material with real cases (indicator Y). Furthermore, indicators such as Writing Responses in Online Forums show that student activity is not limited to the physical classroom but extends to the digital environment, which is highly relevant to the topic of Social Media Etiquette. This helps students apply the skills from the material (Syukriah et al., 2024).

Furthermore, the variable of Teaching Material Design Quality contributes a greater partial influence than Student Activity in Discussions, which shows the importance of learning media in student understanding. The main contribution of Teaching Material Design Quality lies in the indicators of Language Clarity, Layout and Font, and Systematic Structure. Neatly designed teaching materials with easy-to-understand language (Language Clarity indicator) minimize students' cognitive load. This directly facilitates Memory and Conceptual Understanding (indicator Y), because Islamic Education material on digital ethics is presented in an orderly and accessible manner, without causing visual or linguistic confusion (Syukriah et al., 2024).

The significant quality of teaching materials is also supported by the Relevance of Case Examples and Interest Drivers indicators. In the *Adab Menggunakan Media Sosial* (Etiquette in Using Social Media) material, the provision of case examples or illustrations relevant to social media phenomena (Relevance of Case Examples indicator) is very important. Teaching materials that have adequate Illustration Suitability and Additional Material Quality serve as Interest Drivers (indicator X2). This makes it easier for students to understand Islamic Education Evaluation Skills and Application Skills (indicator Y), because they can connect abstract Islamic Education concepts with real situations they encounter on social media, while also increasing their Self-Confidence (Cognitive) in mastering the material.

Although both variables have a significant effect, statistical results show that the Quality of Teaching Materials Design has a greater influence on the Understanding of Islamic Education Materials. This difference in contribution underscores that in today's digital age, where access to information is highly visual and fast, the effectiveness of professionally and contextually designed teaching materials (e.g., with examples from TikTok or Instagram) is a key determinant. Although discussion (X1) facilitates Self-Reflection and Analytical Skills, the foundation of Material Comprehension (especially Mastery of Technical Terms and Hierarchical Understanding) is first built through clear and structured learning resources (X2). Thus, this study supports the need for innovation in the design of Islamic Religious Education teaching materials as a priority.

The practical implication of this study is that to improve Material Understanding of Islamic Religious Education on Social Media Etiquette, teachers must focus on two things: (1) encouraging indicators of Courage to Discuss and Seek Agreement in the classroom, and (2) ensuring that the teaching materials used meet high standards of Case Study Relevance and Systematic Structure. The novelty of this study lies in the confirmation of the integrated influence of the two variables on specific material on Social Media Etiquette, providing more specific recommendations for schools to prioritize the visual and contextual quality of teaching materials as a dominant factor in improving the mastery of Islamic Education material among high school students.

CONCLUSION

The conclusion of the study on the Effect of Student Activity in Discussions and the Quality of Teaching Materials on the Understanding of Islamic Religious Education (PAI) Material on Social Media Etiquette is that both variables have been proven to have a significant effect, both partially and simultaneously. The main findings of this study indicate that the Quality of Teaching Material Design has a much greater impact than previously thought, even surpassing the contribution of discussion activity in the classroom. This challenges the long-held assumption that often focuses solely on teaching methods, and opens up a new discussion on the crucial role of the visual and structural aspects of learning media in facilitating student cognition in the digital age. Partially, student activity remains an important driving factor, but teaching material design with clear language and relevance to real-life cases has proven to be the most vital instrument in bridging the understanding of abstract concepts.

The scientific contribution of this study reinforces previous findings on the effectiveness of active learning, while introducing the integration of the concept of digital etiquette as a variable that enriches scientific discussion in the field of PAI. This research challenges the view that teaching materials are only secondary tools, placing them as primary elements in the success of religion-based digital literacy. However, this study has limitations because it focuses on a relatively small sample in a specific school environment, making it difficult to generalize these findings to different populations. Other factors such as variations in the social background, gender, and age of respondents are also limited in the scope of this analysis. Therefore, further research with a larger sample size and across regions is needed to provide a more comprehensive understanding and strengthen the external validity of this research model.

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