

The Influence of Teacher Competence, Strategies, and Technology Use on the Effectiveness of Learning in Islamic Education

Muaddyl Akhyar^{1*} , Ilpi Zukdi² , Salmi Wati³, Kunalan Kuriaya⁴ , Ramil Abbasov⁴ 

^{1,2} Universitas Islam Negeri Imam Bonjol Padang, Indonesia
Balai Gadang, Kec. Koto Tengah, Kota Padang, Sumatera Barat 25586, Indonesia
³ Universitas Islam Negeri Sjech M. Djamil Djambek Bukittinggi, Indonesia
Jl. Gurun Aua, Kubang Putih, Kec. Banuhampu, Kota Bukittinggi, Indonesia
⁴ Institut Aminuddin Baki Cawangan Genting Highlands Pahang, Malaysia
Jl. Institut Aminuddin Baki, Sri Layang, 69000 Genting Highlands Pahang, Malaysia
⁴ George Mason University, Virginia, United States
4400 University Dr, Fairfax, Virginia 22030-4444, United State

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Abstract: The Influence of Teacher Competence, Strategies, and Technology Use on the Effectiveness of Learning in Islamic Education

Objective: This study aims to examine the influence of teacher competence, teaching strategies, and technology use on the effectiveness of Islamic education at SMPN 4 Bukittinggi. **Method:** This study employed a correlational research design. Data were collected through questionnaires and analyzed using descriptive statistics. **Results:** The results showed that teacher competence, teaching strategies, and technology use collectively accounted for 58.6% of the variance in Islamic education effectiveness, while the remaining 41.4% was influenced by other variables not examined in this study. **Conclusion:** The findings reveal that teacher competence, teaching strategies, and the use of technology play a significant role in enhancing the effectiveness of Islamic education. **Contribution:** This study provides an empirical examination of the factors affecting the effectiveness of Islamic education, including teacher competence, learning strategies, and the use of technology.

Keyword: Teacher Competence, Teaching Strategy, Use of Technology, Islamic Education Learning

Abstrak: Pengaruh Kompetensi Guru, Strategi Pembelajaran, dan Penggunaan Teknologi terhadap Efektivitas Pembelajaran Pendidikan Islam

Tujuan: Penelitian ini bertujuan untuk menganalisis dan menggali lebih dalam mengenai pengaruh antara kompetensi guru, strategi pembelajaran, dan penggunaan teknologi terhadap efektivitas pembelajaran pendidikan Islam di SMPN 4 Bukittinggi. **Metode:** Desain penelitian menggunakan metode korelasional. Pengumpulan data menggunakan kuesioner. Analisis menggunakan statistik deskriptif. **Hasil:** Uji simultan menunjukkan bahwa ketiga variabel independen (pengaruh kompetensi guru, strategi pembelajaran, dan penggunaan teknologi) secara bersama-sama berpengaruh dengan signifikansi 58,6%, sedangkan 41,4% sisanya dipengaruhi oleh variabel lain yang tidak diteliti. **Kesimpulan:** Temuan penelitian mengungkap bahwa kompetensi guru, strategi pembelajaran, dan penggunaan teknologi memiliki peran penting dalam meningkatkan efektivitas pembelajaran pendidikan Islam. **Kontibusi:** Penelitian ini berkontribusi sebagai kajian empiris mengenai faktor-faktor yang memengaruhi efektivitas pembelajaran pendidikan Islam meliputi kompetensi guru, strategi pembelajaran, dan penggunaan teknologi.

Kata Kunci: Kompetensi Guru, Strategi Pembelajaran, Penggunaan Teknologi, Pembelajaran PAI

*** Corresponding Author:** Muaddyl Akhyar,  muaddylakhyar@gmail.com

Islamic Education Study Program, Universitas Islam Negeri Imam Bonjol Padang, Indonesia

Address: Prof. Mahmud Yunus Lubuk Lintah, Anduring, Kec. Kuranji Kota Padang, Indonesia, Indonesia

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A. INTRODUCTION

Islamic education plays a vital role in shaping students' character and morals at different levels of education (Akhyar & Zukdi, 2025). In this context, the effectiveness of Islamic education is significantly influenced by several factors, including teacher competence, the learning strategies employed, and the use of technology in the learning process. One of key factors is teacher competence, which serves as a foundational element in creating a conducive learning environment (Richardson & Mishra, 2018). This competence includes not only a deep understanding of the subject matter but also the ability to adapt to the changing times, including shifts in how students learn. Competent teachers are capable of developing teaching methods that align with students' needs and implementing effective strategies to deliver learning content meaningfully (Hatim, 2018).

In addition to teacher competence, the learning strategies applied also have a significant impact on learning effectiveness. Innovative and interactive learning strategies can enhance student engagement in the learning process, shifting their role from passive listeners to active participants (Howell, 2021). The use of project-based learning, group discussions, and simulations can improve students' understanding of Islamic concepts more effectively. These strategies allow students to explore content, engage in peer discussions, and apply the knowledge they acquire in real-life contexts (Utomo, 2023).

In today's digital era, the use of technology in education has become indispensable. The integration of technology into Islamic education offers new opportunities to enhance learning effectiveness (Akhyar et al., 2025). Educational technologies such as applications, learning videos, and online platforms not only facilitate access to information but also create more engaging and interactive learning experiences. The use of technology allows teachers to deliver content more creatively and fosters communication and collaboration among students, teachers, and parents (Wang et al., 2024). Research shows that students exposed to educational technology tend to be more motivated and achieve better learning outcomes (Janah & Ristianah, 2024).

According to Piaget and Vygotsky, learning is an active process in which students construct their understanding and knowledge through interaction with their environment and with others. Therefore, teacher competence in creating a learning environment that supports such interaction is crucial. Competent teachers are capable to design teaching strategies that facilitate discussion, collaboration, and reflection, thereby increasing student engagement (Pass, 2007). Additionally, the Theory of Multiple Intelligences introduced by Gardner highlights the existence of various types of intelligence, such as linguistic, logical-mathematical, and interpersonal. By understanding the diverse intelligences among students, teachers can design varied teaching strategies to accommodate individual learning needs. The use of technology in Islamic education can serve as a valuable tool to support these multiple intelligences (Gardner, 2000).

Relevant studies have shown that teacher competence has a significant influence on learning effectiveness. According to a study conducted by Ismail (2024), there is a positive relationship between teachers' pedagogical competence and students' learning outcomes in Islamic education subjects. Pedagogical competence includes the teacher's ability to design, implement, and evaluate the learning process. This study highlights that teachers who integrate diverse teaching methods, including the use of technology, tend to foster more active and engaged students. Another study by Rahman (2024) emphasizes the importance of teaching strategies in improving student learning outcomes. This research found that the implementation of project-based learning strategies in Islamic education not only increases student interest but also enhances their understanding of religious values. By actively involving students in projects, they are better able to comprehend and apply the knowledge they gain in everyday life contexts.

The use of technology in Islamic education has also been shown to have a positive impact. A study by [Taja \(2021\)](#) indicated that the use of interactive learning media, such as digital-based learning applications, can increase students' motivation and academic achievement. By utilizing technology, students engage in learning in a more enjoyable and stimulating manner, which in turn enhances their understanding of the learning material. Supporting effective Islamic education also requires collaborative efforts among teachers, schools, and other relevant stakeholders. Through the development of structured training programs and institutional support, teachers are expected to improve their competence in both teaching strategies and the use of technology. Research by [Prasetya \(2024\)](#) demonstrated that teachers' active participation in professional development programs can enhance their skills in applying technology and implementing innovative teaching strategies.

Although the three factors which are teacher competence, teaching strategies, and the use of technology are interconnected and contribute to the effectiveness of Islamic education, research examining the relationship among these elements remains limited. This highlights the importance of further investigation, especially given the evolving nature of education and the ongoing challenges in ensuring that the learning process remains effective and relevant. A deeper understanding of the influence of teacher competence, teaching strategies, and technology use is expected to provide practical solutions and recommendations for improving the quality of Islamic education in schools.

Teacher competence, teaching strategies, and the use of technology each influence the effectiveness of Islamic education. Recent studies have shown that the effectiveness of Islamic education is significantly shaped by three main components: teacher competence, the teaching strategies employed, and the extent to which technology is integrated into the learning process ([Lubis & Ariansyah, 2024](#); [Arif et al., 2025](#); [Diana & Azani, 2024](#)). [Akyuz \(2018\)](#) through the Technological Pedagogical Content Knowledge (TPACK) framework, found that teachers' integrated mastery of technological, pedagogical, and content knowledge enhances the quality of classroom learning interactions. Their findings affirm that teachers with comprehensive competence are not only able to deliver learning content effectively but also to adapt strategies and learning media to meet students' diverse needs.

In line with these findings, [Rashid & Asghar \(2016\)](#) emphasized that academic supervision strategies, teacher collaboration, and the appropriate use of educational technology positively impact the performance of Islamic education teachers, ultimately improving learning effectiveness. Similarly, [Huang et al. \(2022\)](#) showed that professional development programs focused on technology and character values significantly encourage teachers to design innovative and meaningful learning experiences. Research by [Rauf et al. \(2021\)](#) reinforced this argument by asserting that the application of digital-based learning strategies, such as Discovery Learning and Problem-Based Learning models combined with interactive media, can significantly enhance students' religious literacy. Lastly, [Zedan et al. \(2015\)](#) highlighted the importance of institutional support in developing Islamic education teachers' competencies through continuous training, reflective supervision, and the strengthening of teacher learning communities based on technology. Collectively, these findings suggest that improving the effectiveness of Islamic education requires synergy between teachers' professional capacity, adaptive pedagogical strategies, and the use of relevant and context-sensitive technology.

Research on the influence of teacher competence, teaching strategies, and the use of technology on the effectiveness of Islamic education is essential to address the gap in understanding the interaction among these three factors. While many studies have examined each variable individually, few have explored them comprehensively. This study is therefore relevant in providing deeper insights into how these factors contribute to the creation of effective learning environments, particularly in the digital era, which demands competent teachers as well as appropriate strategies and technologies.

This study aims to analyze and explore more deeply the influence of teacher competence, teaching strategies, and technology use on the effectiveness of Islamic education. Through a comprehensive and systematic approach, this research is expected to contribute to the improvement of educational practices while addressing the challenges of teaching Islamic education in the digital age. By gaining a deeper understanding of the factors influencing learning effectiveness, then educators, school administrators, and policymakers can formulate strategic actions needed to enhance the quality of education in Indonesia, particularly in the fundamental field of Islamic education.

B. METHOD

The research design used in this study was a quantitative method with a correlational approach, aiming to analyze the relationships among teacher competence, learning strategies, and technology use in relation to the effectiveness of Islamic education in schools. The correlational method was employed to determine whether there were significant relationships among the variables.

This study was conducted in 2024 at SMPN 4 Bukittinggi, located in the Kota Bukittinggi. The research population consisted of all teachers and students at the school, with the sample selected using a stratified random sampling technique to ensure representativeness across different groups.

The research instrument was a questionnaire designed to measure the variables of teacher competence, teaching strategies, technology use, and learning effectiveness. The questionnaire was distributed directly to the participants.

The data collected were analyzed using both descriptive and inferential statistical methods, including Pearson correlation analysis to identify the relationships among variables and multiple regression analysis to examine the simultaneous effects of the independent variables on the dependent variable. The validity and reliability of the questionnaire were tested prior to analysis. Ethical considerations were observed throughout the research process to protect the privacy and rights of all participants. Through this methodological approach, the study aims to provide in-depth insights into the factors that influence the effectiveness of Islamic education at SMPN 4 Bukittinggi.

C. RESULTS AND DISCUSSION

Result

1. Prerequisite Analysis Test

a. Normality Test

The normality test is part of the classical assumption tests and is used to determine whether the residual values are normally distributed. The results of the normality test for each variable showed a significance value of 0.071 for the influence of teacher competence, teaching strategies, and technology use on the effectiveness of Islamic education. Since this value is greater than the alpha level of 0.05, it can be concluded that the data are normally distributed. The results are presented in the following table:

Table 1. Normality Test

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		37
Normal Parameters ^{a,b}	Mean	,0000000
	Std. Deviation	3,64965351
Most Extreme Differences	Absolute	,152
	Positive	,091
	Negative	-,152
Test Statistic		,152

One-Sample Kolmogorov-Smirnov Test

	Unstandardized Residual
Asymp. Sig. (2-tailed)	,071 ^c
a. Test distribution is Normal.	
b. Calculated from data.	
c. Lilliefors Significance Correction.	

Based on the table above, it can be concluded that the data points are close to the diagonal line, indicating that the data are normally distributed.

b. Multicollinearity Test

The multicollinearity test was conducted to determine whether there is an influence among the independent variables within the regression model. The results of the multicollinearity test are presented in the following table:

Table 2. Multicollinearity Test

Collinearity Statistics	
Tolerance	VIF
,626	1,598
,258	3,883
,332	3,012

Based on the table above, it can be seen that the tolerance value for the Teacher Competence variable is $0.626 > 0.10$, for the Teaching Strategy variable is $0.258 > 0.10$, and for the Technology Use variable is $0.332 > 0.10$. This indicates that there is no multicollinearity or significant correlation among the independent variables. Furthermore, the VIF (Variance Inflation Factor) value for Teacher Competence is $1.598 < 10.00$, for Teaching Strategy is $3.883 < 10.00$, and for Technology Use is $3.012 < 10.00$, also confirming the absence of multicollinearity among the independent variables.

2. Hypothesis Testing

a. Hypothesis 1

The first hypothesis test was conducted to determine whether there is an influence of teacher competence on the effectiveness of Islamic education. The results of the first hypothesis test are presented in the table below:

Table 3. Simple Linear Regression Test

Coefficients ^a					
		Unstandardized Coefficients		Standardized Coefficients	
Model		B	Std. Error	Beta	t
1	(Constant)	12,847	6,667		1,927
	x1	,681	,158	,589	4,308

a. Dependent Variable: y

Based on the results of the regression analysis, the regression equation indicates that the Teacher Competence variable (X1) has a positive regression coefficient in relation to the Effectiveness of Islamic Education (Y), with a coefficient value of 0.681. This means that every one-unit increase in Teacher Competence will result in a 0.681-unit increase in the Effectiveness of Islamic Education, assuming all other variables remain constant. The t-value for X1 is 4.308 with a significance (Sig.) value of 0.000, which is less than 0.05. Therefore, the null hypothesis (H_0), which states that there is no influence of Teacher Competence on Learning Effectiveness, is rejected, and the alternative hypothesis (H_1), which states that there is an influence, is accepted. It can thus be concluded that Teacher Competence has a significant effect on the Effectiveness of Islamic Education at SMPN 4 Bukittinggi, Kota Bukittinggi.

b. Hypothesis 2

The second hypothesis test was conducted to examine the effect of teaching strategies on the effectiveness of Islamic education. The results of this second hypothesis test are presented in the table below:

Table 4. Simple Linear Regression Test

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	t
		B	Std. Error	Beta	
1	(Constant)	13,208	5,572		2,370
	x2	,673	,132	,653	5,098

a. Dependent Variable: y

Based on the results of the regression analysis, the regression equation indicates that the Teaching Strategy variable (X2) has a positive regression coefficient in relation to the Effectiveness of Islamic Education (Y), with a coefficient value of 0.673. This means that every one-unit increase in Teaching Strategy (X2) will result in a 0.673-unit increase in the Effectiveness of Islamic Education, assuming the other independent variables remain constant. The t-value for variable X2 is 5.098 with a significance value (Sig.) of 0.000, which is less than 0.05. Therefore, the null hypothesis (H_0), which states that there is no effect of Teaching Strategy on the Effectiveness of Islamic Education, is rejected, and the alternative hypothesis (H_1), which states that there is an effect, is accepted. It can thus be concluded that Teaching Strategy has a significant influence on the Effectiveness of Islamic Education at SMPN 4 Bukittinggi.

c. Hypothesis 3

The third hypothesis test was conducted to determine the effect of technology use on the effectiveness of Islamic education. The results of the third hypothesis test are presented in the table below:

Table 5. Multiple Linear Regression Test

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	t
		B	Std. Error	Beta	
1	(Constant)	8,084	5,932		1,363
	x3	,783	,139	,691	5,650

a. Dependent Variable: y

Based on the results of the regression analysis, the regression equation shows that the Technology Use variable (X3) has a positive regression coefficient in relation to the Effectiveness of Islamic Education (Y), with a coefficient value of 0.783. This means that each one-unit increase in Technology Use (X3) will result in a 0.783-unit increase in the Effectiveness of Islamic Education, assuming the other independent variables remain constant. The t-value for variable X3 is 5.650, with a significance (Sig.) value of 0.000, which is less than 0.05. Therefore, the null hypothesis (H_0), which states that there is no influence of Technology Use on the Effectiveness of Islamic Education, is rejected, and the alternative hypothesis (H_1), which states that there is an influence, is accepted. It can thus be concluded that Technology Use has a significant effect on the Effectiveness of Islamic Education at SMPN 4 Bukittinggi.

d. Hypothesis 4

The fourth hypothesis test was conducted to determine whether the independent variables collectively or simultaneously have a significant effect on the dependent variable. The results of this fourth hypothesis test are presented in the table below:

Table 6. Simultaneous Test (F-Test)

		ANOVA ^a				
	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	679,184	3	226,395	15,580	,000 ^b
	Residual	479,519	33	14,531		
	Total	1158,703	36			

a. Dependent Variable: y

b. Predictors: (Constant), x3, x1, x2

Based on the results of the simultaneous test (ANOVA) shown in the table above, the calculated F value is 15.580 with a significance value of 0.000. In this test, the hypothesis is accepted if the significance value is less than 0.05 or if the F calculated value is greater than the F table value, which in this case is 3.13. Since the F calculated value (15.580) is greater than the F table value (3.13), and the significance value (0.000) is less than 0.05, it can be concluded that the three independent variables, which is Teacher Competence (X1), Teaching Strategies (X2), and Technology Use (X3), collectively have a significant effect on the dependent variable, the Effectiveness of Islamic Education at SMPN 4 Bukittinggi, Kota Bukittinggi. Therefore, the null hypothesis (H_0), which states that there is no joint effect of the three independent variables on the dependent variable, is rejected, and the alternative hypothesis (H_1), which states that there is a joint effect, is accepted. The results of the analysis indicate that there is an influence of teacher competence, teaching strategies, and technology use on the effectiveness of Islamic education at SMPN 4 Bukittinggi.

To assess the accuracy of the regression analysis in representing the sample data, a test of the coefficient of determination was conducted. The results of the coefficient of determination test are presented in the following table:

Table 7. Coefficient of Determination X1, X2, X3-Y

Model Summary ^b					Std. Error of the Estimate
Model	R	R Square	Adjusted R Square		
1	,766 ^a	,586	,549		3,812

a. Predictors: (Constant), x3, x1, x2

b. Dependent Variable: y

Based on the table above, it can be seen that the coefficient of determination, or R square, is 0.586 or 58.6%. This indicates that the independent variables, Teacher Competence, Teaching strategies, and Technology Use, contribute 58.6% to the Effectiveness of Islamic Education at SMPN 4 Bukittinggi, Kota Bukittinggi. The remaining 41.4% is influenced by other variables not examined in this study.

Discussion

1. The Influence of Teacher Competence on the Effectiveness of Learning in Islamic Education

The findings of this study have important implications for educational management, particularly in efforts to improve the quality of learning in schools. Teacher competence is one of the key elements that determine the success of the classroom learning process. This competence includes various aspects such as mastery of subject matter, classroom management skills, the ability to use appropriate teaching methods, and the ability to communicate effectively and provide guidance to students. According to [Fitria \(2019\)](#), high levels of teacher competence not only affect students' academic performance but also increase their learning motivation and contribute to the creation of a more conducive learning environment. These

findings are aligned with the present study, which indicate that strong teacher competence significantly improves learning effectiveness.

Furthermore, the findings support the theory proposed by [Usman \(2021\)](#), which states that the quality of learning is greatly influenced by the teachers's ability to manage the teaching and learning process effectively. Teacher competence is a key factor in creating effective learning environments ([Ellis et al., 2016](#)), as competent teachers can adapt teaching methods to meet the needs and characteristics of their students. In this study, improved teacher competence has been shown to have a significant positive impact on the effectiveness of Islamic education, where students demonstrating better comprehension of the material and improved academic achievement in the subject.

This study also confirms the importance of effective classroom management as a key aspect of overall teacher competence. Effective classroom management fosters a supportive learning environment, and ultimately contributes to the achievement of learning objectives. As noted by [Supriyanto \(2020\)](#), good classroom management includes organizing student-teacher interactions, managing time effectively, and creating a classroom climate that is comfortable and conducive to learning. This is particularly important in the context of Islamic education, which not only addresses students' cognitive aspects but also their affective and spiritual dimensions. Therefore, highly competent teachers are those who can integrate religious values into the teaching and learning process, thereby enhancing learning effectiveness ([Eliasa, 2014](#)).

However, this study also offers several recommendations for education policymakers. Improving teacher competence should be a primary focus in all efforts to enhance the quality of education ([Uerz et al., 2018](#)), particularly through continuous professional development and training programs. In line with [Rambe's \(2019\)](#) perspective, well-structured training programs can help teachers strengthen their pedagogical competencies, ultimately improving teaching quality. In addition, institutional support, such as the provision of adequate facilities and the creation of a conducive working environment, should also be taken into account to improve learning effectiveness ([Falola et al., 2020](#)). This study highlights the critical role of teacher competence in fostering effective learning. Teacher competence not only directly influences student achievement but also contributes to the overall attainment of educational goals ([López-Martín et al., 2023](#)). Therefore, developing teacher competence must remain a central strategy in improving educational quality, particularly within the field of Islamic education.

2. The Influence of Teaching Strategies on the Effectiveness of Learning in Islamic Education

The findings indicate that the teaching strategies implemented by teachers play a critical role in achieving successful learning outcomes. Effective teaching strategies can increase student engagement, facilitate deeper understanding, and create a classroom environment that supports conducive learning. According to [Hairunisa & Abdurrahman, \(2024\)](#) teaching strategies that align with students' characteristics and the subject matter encourage learners to be more active, creative, and critical throughout the learning process. In addition, using various teaching approaches, such as discussion, group work, and project-based learning, can enhance students' understanding of Islamic education content.

Effective teaching strategies also contribute to the integration of Islamic values into students' everyday lives. Teachers who apply well-designed teaching strategies can help students internalize spiritual, moral, and ethical values in accordance with Islamic teachings ([Alabdulhadi & Alkandari, 2024](#)). This is particularly important because Islamic education extends beyond cognitive aspects but also affective and psychomotor domains ([Kuo et al., 2024](#)). Therefore, appropriate teaching strategies can enhance students' comprehension not only at the theoretical level but also in terms of applying Islamic values in their daily lives. These findings also align with the theoretical framework proposed by [Sanjaya \(2008\)](#), who

emphasizes that teaching strategies must be aligned with the learning objectives, student characteristics, and the subject matter. A well-selected teaching strategy helps student's comprehend the material more easily, as such strategies stimulate active participation and increase students' learning motivation. In this context, the implementation of varied and creative teaching strategies by Islamic education teachers at SMPN 4 Bukittinggi has been shown to improve the effectiveness of the learning process.

This study recommends that schools provide training for Islamic education teachers to enable them to develop and implement innovative and effective teaching strategies. Such training programs should include technology-integrated instruction, interactive teaching methods, and collaborative learning approaches that encourage active student participation. Moreover, support from the school, through the provision of adequate facilities and a supportive learning environment, can significantly enhance the quality of teaching strategies applied in the classroom (Kong, 2015). The study highlights the vital role of teaching strategies in enhancing the effectiveness of Islamic education. Well-designed teaching strategies not only impact students' academic achievement but also play a significant role in developing their character and moral values (Zhang, 2025). Therefore, the development and consistent implementation of effective teaching strategies should become a key priority in improving the quality of education, particularly in Islamic education subjects.

3. The Influence of Technology Use on the Effectiveness of Learning in Islamic Education

The findings provide valuable insight into how the integration of technology into Islamic education can significantly enhance its effectiveness. The use of technology, such as computers, the internet, and digital learning platforms, can enrich students' learning experiences, facilitate access to a wide range of learning resources, and enable more interactive and dynamic learning processes (Gan et al., 2015). According to a study conducted by Muzaini (2024), technology supports can create a more flexible learning environment by allowing students to learn at their own pace and access information that is relevant to the subject matter. This is particularly important in Islamic education, where students are often required to understand abstract religious concepts, and technology can help bridge that gap.

Furthermore, technology enables Islamic education teachers at SMPN 4 Bukittinggi to deliver learning material in more engaging and diverse formats. By utilizing multimedia, such as instructional videos, simulations, and interactive presentations, teachers can increase students' interest and attention during lessons. This aligns with the view expressed by Munawaroh (2021), who stated that the use of technology in education can enhance student engagement, provide faster feedback, and allow for personalized learning tailored to individual student needs. Therefore, the use of technology not only improves learning effectiveness but also enhances the quality of interaction between teachers and students (Haleem et al., 2022).

In addition, the use of technology in Islamic education also plays a vital role in developing students' digital literacy skills (Irons, 2022). Digital literacy has become an essential competency in the era of globalization and the Fourth Industrial Revolution, where the ability to access, evaluate, and effectively use digital information is increasingly critical (Martínez-Bravo et al., 2022). Therefore, the integration of technology into Islamic education at SMPN 4 Bukittinggi not only contributes to students' academic achievement but also prepares them to face future challenges in a technology-driven society.

However, this study also highlights the importance of infrastructure support and teacher training in optimizing the use of technology in the learning process. Schools need to provide adequate facilities, such as reliable internet access and sufficient technological devices, to ensure the smooth integration of technology in education. Moreover, teacher training is essential to enhance their competencies in effectively using technology in teaching settings (Tondeur et al., 2018). This is supported by research conducted by Gresinta & Hidayat (2024), which emphasizes that training and mentoring for teachers in technology use is a key factor in increa-

sing the effectiveness of technology-based learning. Overall, this study underscores that the appropriate use of technology has a significant positive impact on the effectiveness of Islamic education. When implemented effectively, technology not only improves students' understanding of learning content but also enhances their learning motivation and digital literacy skills (Mohammadyari & Singh, 2015). Therefore, the integration of technology into learning practices should continue to be supported and developed as a means of improving overall educational quality.

4. The Influence of Teacher Competence, Teaching Strategies, and Technology Use on the Effectiveness of Learning in Islamic Education

The research findings support the view that the integration of teacher competence, appropriate teaching strategies, and the use of technology is essential for enhancing learning effectiveness, particularly within the context of Islamic education. Teacher competence, which includes professional knowledge, pedagogical skills, classroom management abilities and the capacity to guide students effectively, provides a strong foundation for high-quality learning processes (Suwandi, 2016). Meanwhile, well-designed teaching strategies can improve student engagement and help them understand the material more deeply (Gresinta & Hidayat, 2024).

The use of technology in the classroom is also a crucial element in today's digital era. Technology not only serves as a tool for delivering content but also enables students to access broader information and learn in more flexible ways (McKnight et al., 2016). This aligns with the findings of Muzaini (2024) who stated that technology enhances learning effectiveness by making the learning process more interactive and engaging. This study makes an important contribution to understanding the factors that influence the effectiveness of Islamic education, particularly at SMPN 4 Bukittinggi. The results show that a combination of strong teacher competence, the implementation of effective teaching strategies, and the optimal use of technology can significantly improve the quality of learning. Therefore, schools and other stakeholders must continue to develop teacher training programs, update teaching strategies, and provide adequate technological resources to support the learning process.

However, the study also indicates that there are other factors influencing learning effectiveness that should be considered. Future research may explore additional variables such as student learning motivation, the school's social environment, or parental involvement in supporting their children's education. These factors may contribute further to improving the quality of learning in the future.

D. RESEARCH IMPLICATIONS AND CONTRIBUTIONS

1. Research Implications

This study carries broad implications from practical, theoretical, managerial, and methodological perspectives. Practically, it highlights the importance of enhancing teacher competence, developing innovative teaching strategies, and integrating technology into Islamic education. Teachers must receive ongoing professional training to adapt their teaching methods to the evolving demands of education and the diverse characteristics of students. Theoretically, this study strengthens and expands constructivist learning theories and the TPACK model (Technological Pedagogical Content Knowledge), which emphasizes the necessity for teachers to master three fundamental aspects of modern teaching practices which includes content knowledge, pedagogical expertise, and technological proficiency.

From a managerial standpoint, the study implies the need for strategic planning by schools and education policymakers to provide supporting technological infrastructure and continuous professional development for teachers. Methodologically, the study demonstrates that a quantitative correlational approach is effective in objectively identifying and measuring

the impact of educational variables on learning effectiveness. This approach can serve as a reference for future studies that use either quantitative or mixed methods.

2. Research Contribution

This study makes a significant contribution to the advancement of knowledge, particularly in the field of Islamic education. First, it enriches the empirical literature on the factors influencing the effectiveness of Islamic education, which has previously been dominated by conceptual and normative approaches. Second, the study integrates three key variables, namely teacher competence, teaching strategies, and technology use, into a comprehensive and integrative analytical model. This approach offers a holistic perspective on effective learning practices in the digital era. Third, the findings serve as a foundation for the development of Islamic education policies that are responsive to contemporary challenges. These policies emphasize the importance of aligning teacher capabilities with the use of technology to convey Islamic values in ways that are both contextual and relevant. Fourth, the results of this study can serve as a valuable reference for curriculum development, teacher training programs, and the evaluation of learning systems that focus on measurable student outcomes and active engagement in the learning process.

E. RECOMMENDATIONS FOR FUTURE RESEARCH DIRECTIONS

This study provides a foundation for more in-depth and extensive future research. Subsequent studies are encouraged to investigate other variables not examined in this research, such as students' learning motivation, family support, school culture, or the role of school leadership in supporting instructional innovation. In addition, future researchers may consider qualitative or mixed-methods approaches to gain a more contextual understanding of the learning process, classroom social interactions, and students' perceptions of technology use in Islamic education. Future research can also broaden the scope of study to different educational levels, such as primary or upper secondary education, and consider more diverse geographic backgrounds in order to enhance the generalizability of the findings. Finally, longitudinal studies are recommended to observe the long-term impact of improved teacher competence and technology integration on students' spiritual and moral learning outcomes.

F. CONCLUSION

Teacher competence, teaching strategies, and the use of technology play a crucial role in enhancing the effectiveness of Islamic education. Each of these variables contributes significantly to the achievement of more optimal learning outcomes. Teacher competence, which includes subject knowledge, pedagogical skills, and professional attitudes, improves the effectiveness of Islamic education as competent teachers better equipped to deliver learning material in a more engaging, clear, and student-centered manner. This directly influences students' understanding and engagement in the learning process. Likewise, appropriate teaching strategies, such as student-centered approaches and varied teaching methods, can increase student participation, deepen their comprehension, and facilitate the achievement of learning objectives more effectively.

In addition, the use of technology in Islamic education also has a significant positive impact. Technology facilitates easier access to a wide range of learning resources, enhances interactivity between teachers and students, and supports the use of more engaging and effective teaching media. The appropriate use of educational software and digital learning platforms enables students to learn more independently and flexibly, while also fostering the development of 21st-century skills that are highly relevant in today's world. Thus, integrating technology into learning not only enriches the learning experience but also improves the overall efficiency and effectiveness of the learning process.

The combined role of teacher competence, teaching strategies, and technology use has a significant impact on the effectiveness of Islamic education. These three elements support one another in creating a conducive and effective learning environment in schools. High teacher competence facilitates the implementation of appropriate teaching strategies, which can be further strengthened through the use of technology. Therefore, strengthening these three factors is essential to improve the quality of Islamic education in schools, particularly at SMPN 4 Bukittinggi, to foster learning that is more meaningful and beneficial for students.

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AUTHOR CONTRIBUTIONS STATEMENT

All authors discussed the results and contributed to the final manuscript. MA: Conceptualization, Writing - Original Draft. IZ: Writing - Review & Editing. SW: Methodology. KK: Conceptualization.

DECLARATION OF COMPETING INTEREST

The authors declare that there are no conflicts of interest financial, professional, or personal that could have influenced the results or interpretation of this research.

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