



DEEP LEARNING LEARNING STRATEGIES AS A MODERATOR OF THE INFLUENCE OF SPIRITUAL HABITUATION AND TEACHER SUPPORT ON STUDENTS ISLAMIC CHARACTER

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ABSTRACT. *The formation of Islamic character is a primary objective of Moral Faith learning in secondary schools, yet its achievement is influenced by pedagogical and spiritual factors. This study aims to examine the effects of teacher support and spiritual habituation on students' Islamic character, as well as the mediating role of deep learning. A quantitative approach was employed involving 48 students of SMA Muhammadiyah 5 Yogyakarta selected through saturation sampling. Data were collected using a Likert-scale questionnaire and analyzed using SEM-PLS with SmartPLS 3. The results indicate that teacher support has a positive and significant effect on deep learning and Islamic character, while spiritual habituation significantly influences deep learning but not Islamic character directly. Deep learning does not significantly affect Islamic character and does not mediate the proposed relationships. These findings highlight the central role of teachers and contextual spiritual reinforcement in shaping students' Islamic character.*

Keywords: *Deep Learning, Islamic Character, Moral Beliefs, Spiritual Habituation, Teacher Support.*

ABSTRAK. Pembentukan karakter Islami merupakan tujuan utama pembelajaran Akidah Akhlak di jenjang sekolah menengah, namun pencapaiannya dipengaruhi oleh faktor pedagogis dan spiritual. Penelitian ini bertujuan untuk menganalisis pengaruh dukungan guru dan pembiasaan spiritual terhadap karakter Islami siswa serta peran mediasi deep learning. Penelitian menggunakan pendekatan kuantitatif dengan melibatkan 48 siswa SMA Muhammadiyah 5 Yogyakarta yang dipilih melalui teknik sampling jenuh. Data dikumpulkan menggunakan kuesioner skala Likert dan dianalisis dengan Structural Equation Modeling berbasis Partial Least Squares (SEM-PLS) menggunakan SmartPLS 3. Hasil penelitian menunjukkan bahwa dukungan guru berpengaruh positif dan signifikan terhadap deep learning dan karakter Islami siswa. Pembiasaan spiritual berpengaruh signifikan terhadap deep learning, namun tidak berpengaruh langsung terhadap karakter Islami. Deep learning tidak berpengaruh signifikan terhadap karakter Islami dan tidak berperan sebagai variabel mediasi. Temuan ini menegaskan pentingnya peran guru dan penguatan nilai spiritual kontekstual dalam pembentukan karakter Islami siswa.

Kata Kunci: Pembiasaan Spiritual, Deep Learning, Dukungan Guru, Karakter Islami, Akidah Akhlak.

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INTRODUCTION

Islamic character education is a fundamental objective of Moral Faith (*Akidah Akhlak*) learning at the high school level, particularly in shaping students' personalities in accordance with the values of faith, morality, and social responsibility. However, in practice, the formation of Islamic character among students has not always shown optimal results. Many schools still face challenges, including students' limited internalization of religious values, a



tendency to view moral learning as merely cognitive content, and the limited transfer of religious understanding into daily behavior. This condition indicates that Islamic character education has not fully functioned as a transformative educational process, but rather remains normative and procedural. Recent studies suggest that religious character should not be understood merely as doctrinal knowledge, but as the outcome of an educational process involving pedagogical interaction, value internalization, and continuous habituation. Nevertheless, empirical evidence suggests that learning practices often prioritize material completion over meaningful engagement between teachers and students. As a result, the effectiveness of character education is strongly influenced by the quality of educational communication and relationships established during the learning process, (Sastra Negara et al., 2024). When these relationships are weak, students tend to experience moral disengagement and lack personal attachment to Islamic values.

The challenges of Islamic education in the modern era are becoming increasingly complex, particularly in striking a balance between strengthening religious values and meeting the demands of contemporary pedagogy. Rapid social change, digital culture, and pragmatic learning orientations have contributed to a decline in students' spiritual sensitivity and moral reflection. In this context, the integration of religious dimensions with humanistic and student-centered approaches is considered essential to shaping students holistically, not only cognitively, but also affectively and spiritually, (Rohmadani & Achadi, 2026). Therefore, Akidah Akhlak learning is required to present meaningful learning experiences so that Islamic values are internalized and practiced, rather than remaining at a purely conceptual level.

One of the critical issues identified in previous studies is the role of teachers in Islamic character education. Teachers are often positioned as transmitters of knowledge, while their role as moral and spiritual guides is not fully developed. In fact, research indicates that the success of internalizing a religious character is highly dependent on the consistency and quality of teacher support in integrating Islamic values into daily learning activities. Pedagogical and emotional support from teachers has been shown to increase student engagement and foster more stable religious attitudes, (Tjahjono et al., 2020). The absence of such support can lead to fragmented learning experiences and weaken the impact of character education.



In addition to teacher support, spiritual habituation represents another crucial component that is frequently underutilized in school settings. Although schools often implement religious routines, these activities are sometimes carried out symbolically without deep reflection or internal meaning. Consequently, students may participate in spiritual practices without developing genuine moral awareness. Previous research has highlighted that consistent and meaningful spiritual habituation significantly contributes to shaping students' moral consciousness and readiness to internalize religious values. The integration of spiritual practices in learning is also seen as a response to the existential void and loss of meaning experienced by students amid educational modernization, (Faqihuddin et al., 2025)

Alongside these challenges, contemporary pedagogy has introduced deep learning strategies that emphasize deep understanding, reflection, critical thinking, and the connection between learning content and real-life contexts. Deep learning holds potential for supporting meaningful character education, particularly when students are encouraged to reflect on values and relate them to their personal experiences, (Kovač et al., 2025) However, despite its growing popularity, there is still limited empirical evidence regarding the effectiveness of deep learning in Islamic character education, especially when examined as a moderating variable that strengthens the relationship between teacher support and spiritual habituation.

Based on these problems, this study is important to conduct in order to address the existing gap between Islamic character education ideals and classroom realities. By examining the interaction between teacher support, spiritual habituation, and deep learning strategies, this research seeks to provide empirical evidence on how Islamic character can be formed more effectively and meaningfully in high school contexts. The findings are expected to contribute both theoretically and practically to the development of Islamic education that is relevant, transformative, and responsive to contemporary challenges.

METHODOLOGY

Research Design

This study employs a quantitative approach with an explanatory survey design to examine the causal relationships among variables and to analyze the role of moderating variables within a structural model. The quantitative approach is appropriate because it allows for the objective measurement of latent constructs through observable indicators and enables hypothesis testing using statistical procedures. The explanatory survey design is used to



explain patterns of influence among variables based on empirical data. In this study, the design is applied to investigate the influence of deep learning strategies and teacher support on students' Islamic character in learning Akidah Akhlak, with spiritual habituation functioning as a moderating variable. Data were analyzed using Structural Equation Modeling based on Partial Least Squares (SEM-PLS), a method that facilitates the examination of complex relationships among variables in quantitative research, (Creswell, J. W., 2018).

Population and Sample

The research population includes all students of SMA Muhammadiyah 5 Yogyakarta who participated in the learning of Akidah Akhlak in the academic year. The number of students who met the research criteria was 48, so the entire population was used as the research sample. The sampling technique used is saturated sampling (total sampling), which is included in the category of non-probability sampling.

The use of total sampling was deemed appropriate because the population was relatively small and homogeneous, allowing researchers to obtain a comprehensive empirical picture without the risk of sample selection bias. The sample size of 48 respondents also met the minimum criteria for SEM-PLS analysis, particularly based on the principle of the 10-times rule, which requires a minimum sample size of ten times the number of structural paths leading to one latent construct.

Research Instruments

This research investigates four main aspects that are operationalized through a structured questionnaire using a five-point Likert scale. The first aspect is deep learning learning strategies, which describe the extent to which students engage meaningfully with learning activities. This aspect is measured through indicators of conceptual understanding, reflection on meaning, relevance of learning materials to real-life situations, active student involvement, and critical thinking. The second aspect is teacher support, which reflects the role of teachers in facilitating both academic and character development. This aspect is assessed through indicators of pedagogical support, emotional support, motivational support, and exemplary value support provided by teachers during the learning process. The third aspect is spiritual habituation, which refers to the consistent practice and internalization of



spiritual values in students' daily lives. It is measured through indicators related to the consistency of religious practices, spiritual reflection, awareness of spiritual values, and spiritual internalization, and it functions as a moderating variable in this study. The fourth aspect is students' Islamic character, which serves as the outcome variable and represents the manifestation of Islamic values in students' attitudes and behaviors. This aspect is measured through indicators of religious attitudes, moral responsibility, honesty, patience, and prosocial behavior. Collectively, these four aspects provide a comprehensive framework for examining the relationships among learning strategies, teacher support, spiritual habituation, and students' Islamic character using a SEM-PLS approach.

Data Collection Techniques

Data collection was carried out offline by distributing printed questionnaires to respondents in the school environment. The implementation of data collection is carried out for one week during the Akidah Akhlak learning hours with the consent of the school and subject teachers. Before filling out the questionnaire, the researcher provided an explanation to the respondents about the purpose of the research, the procedure for filling in the instruments, and the respondents' right not to answer or withdraw from the research at any time. To maintain the quality of the data, respondents were given written and verbal instructions to answer the questionnaire honestly according to their learning experience, (Purwanto et al., 2021) All questionnaires are collected directly after filling is completed to minimize missing *data*. The researcher also guarantees that there are no academic consequences arising from the respondents' participation or non-participation in this study.

Data Analysis Techniques

Data analysis was carried out using SEM-PLS with the help of SmartPLS software version 3. This technique was chosen because it is able to analyze complex structural models, test the effect of moderation, and has a tolerance to non-normal data and small sample sizes.

The analysis stages include evaluation of measurement models to assess the validity and reliability of constructs, evaluation of structural models through coefficients of determination (R^2), effect size (f^2), and predictive relevance (Q^2), and hypothesis testing through bootstrapping procedures. The moderation effect test was carried out by forming *an*



interaction term between spiritual habituation and independent variables, with significance criteria determined based on a $p < 0.05$.

Research Ethics

This research is carried out by upholding the ethical principles of educational research. Respondents' participation is voluntary and preceded by an explanation of the research objectives and procedures. The confidentiality of respondents' identities is maintained through the use of numerical codes, and data is used solely for academic purposes, (Aminudin Hasan, 2025) This research does not pose psychological or academic risks for respondents and is conducted by upholding honesty and scientific responsibility.

RESULTS

General Description of Respondent Data

This study involved 48 students of SMA Muhammadiyah 5 Yogyakarta who participated in the learning of Akidah Akhlak in the academic year of the research. All respondents were used as research samples through saturated sampling techniques, considering the relatively small and homogeneous population number. Based on demographic characteristics, respondents consisted of male and female students with a relatively balanced proportion. The age range of respondents was in the range of 15–18 years, which is the typical age of high school students. All respondents were active students who had participated in the learning of the Moral Faith regularly and were involved in spiritual habituation activities in the school environment.

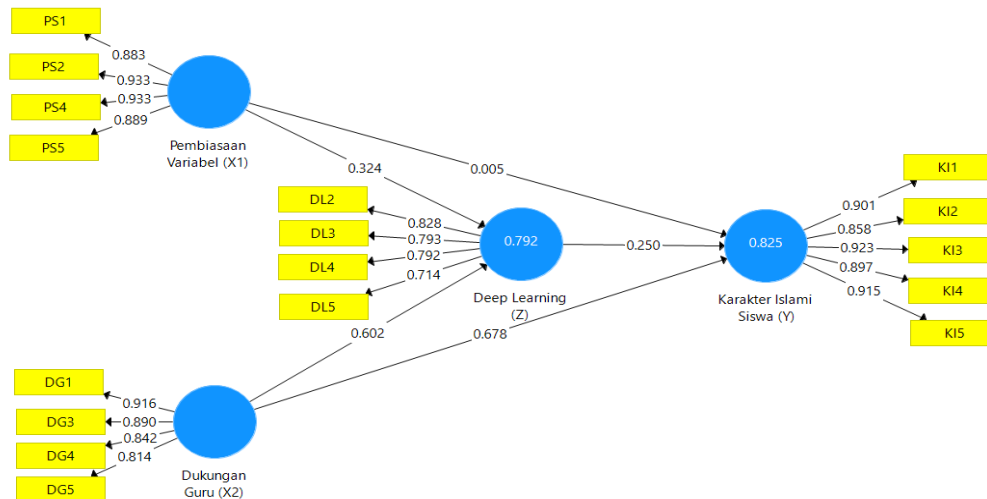
Descriptive statistical analysis shows that the data obtained has a good distribution and does not show significant *outliers*. The mean values and standard deviations on all variables are within the acceptable range for Structural Equation Modeling analysis based on Partial Least Squares (SEM-PLS). Thus, the data is considered to meet the prerequisites for testing measurement models and structural models.

The level of respondents' participation in filling in research instruments is relatively high, as shown by the completeness of the answers in all measured indicators. The data collection process is carried out in a conducive learning atmosphere so that respondents can provide reflective answers according to their learning experiences and spiritual habituation. This

strengthens the quality of the data obtained because the students' responses represent the actual conditions of learning Akidah Akhlak and pedagogical interactions that take place in the school environment.

PLS-SEM Analysis Results

Uji outer model



Picture 1. *Variable Level Outer Model*
(Source: primary data, processed by researchers, 2026)

Validity Test

The questionnaire can be said to be valid with two stages of testing, namely the convergent validity test and discriminant validity. The convergent validity test is based on the results of external loading and AVE data processing. Meanwhile, the discriminant validity test can see the results of data processing at the Fornell-Larcker Criterion, cross loading, and HTM values

Convergent validity test

Based on the results of the variable level validity test data processing in table one below, out of 20 dimensions, 3 dimensions were found to be invalid, including: DG2, DL1, and PS3. As for the invalid dimension, it will be removed from the processing of the analysis data further, because it does not meet the convergent validity requirements and will affect the Average Variance Expected (AVE) value. The following are the final results of the convergent validity data analysis processing from the *variable level loading factor* value :



Tabel 1. Loading Factor Value

Variabel	Loading Factor	Keterangan
DG1	0,911	Valid
DG2	0,609	Tidak Valid
DG3	0,881	Valid
DG4	0,839	Valid
DG5	0,798	Valid
DL1	0,686	Tidak Valid
DL2	0,797	Valid
DL3	0,781	Valid
DL4	0,783	Valid
DL5	0,724	Valid
KI1	0,900	Valid
KI2	0,858	Valid
KI3	0,923	Valid
KI4	0,898	Valid

(Sumber data: data primer, diolah peneliti, 2026)

The following are the final results of the processing of convergent validity data analysis as seen from the Average Variance Expected (AVE) value which must be > 0.5 as explained in the following table:

Table 2. AVE Value

Variabel	Cronbach's Alpha	Average Variance Extracted (AVE)
Deep Learning	0,790	0,613
Dukungan Guru	0,888	0,750
Karakter Islami Siswa	0,941	0,808
Pembiasaan Spiritual	0,930	0,828

(Data source: primary data, processed by researchers, 2026)

Based on the data results in table 2 above, it is known that the Average Variance Expected (AVE) value of each variable is > 0.5. The Average Variance Expected (AVE) value of each variable has > 0.5, which means it meets the requirements of the convergent validity test. So it can be concluded that all variables in this study have met the requirements of the convergent validity test.

Validity of Discrimination

The results of the discriminant validity test can be seen from the correlation value of each dimension to the dimension itself must be greater than the correlation value of the other dimensions as a whole. In addition to looking at the correlation value, the results of the discriminant validity test can also be obtained from the Fornell and Larcker Criterion value,



Cross loading value, and the Heterotrait-Monotrait Ratio (HTMT) value on the statement item, (Hair et al., 2019). An indicator is declared to have met the discriminant validity test if the cross loading value of the dimension-to-dimension statement items itself must be greater than the correlation value of the statement item to the other dimension, as explained in the Fornel and Larcker Criterion value calculation table below:

Table 3. Fornell and Larcker Criterion Result

	Deep Learning	Dukungan Guru	Karakter Islami	Pembiasaan Spiritual
Deep Learning	0,783			
Dukungan Guru	0,871	0,866		
Karakter Islami	0,845	0,900	0,899	
Pembiasaan Spiritual	0,824	0,830	0,773	0,910

(Data source: primary data, processed by researchers, 2026)

Based on the data results in table 3 above, it can be seen that the correlation value of each variable to the variable itself is greater when compared to the correlation value of the variable to other variables. So it can be concluded that the variables in this study have met the discriminant validity test. In addition, to see the correlation value between variables, the discriminant validity test can be seen from the cross loading value. The cross loading value of the item for each variable is explained in the following table:

Table 4. Variable Level Cross Loading Values

Variabel	Deep Learning (Z)	Dukungan Guru (X2)	Karakter Islami (Y)	Pembiasaan Variabel (X1)
DG1	0,772	0,916	0,817	0,736
DG3	0,763	0,890	0,745	0,812
DG4	0,701	0,842	0,759	0,644
DG5	0,777	0,814	0,791	0,679
DL2	0,828	0,647	0,546	0,701
DL3	0,793	0,740	0,858	0,697
DL4	0,792	0,676	0,631	0,600
DL5	0,714	0,649	0,551	0,567
KI1	0,765	0,812	0,901	0,669
KI2	0,793	0,740	0,858	0,697
KI3	0,770	0,864	0,923	0,725
KI4	0,725	0,818	0,897	0,673
KI5	0,746	0,805	0,915	0,712
PS2	0,786	0,769	0,718	0,933
PS4	0,800	0,747	0,721	0,933
PS5	0,671	0,753	0,726	0,889
PS1	0,735	0,751	0,649	0,883



(Source: primary data, processed by researchers, 2026)

Based on the data presented in table 4 above, it can be seen that the correlation value of each variable dimension to the variable dimension itself has a greater cross loading value compared to the correlation value of the item to the other variable dimensions. Thus, it can be stated that each variable dimension used in this study has met the discriminant validity test.

The last discriminant validity test is by looking at the Heterotrait-Monotrait Ratio (HTMT) value. According to (Sarstedt et al., 2022) the value of the Heterotrait-Monotrait Ratio (HTMT) is more recommended to look at the discriminant validity test than the value of the Fornell and Larcker Criterion and the value on the loading factor. The value of the Heterotrait-Monotrait Ratio (HTMT) is fulfilled when the correlation between dimensions is < 0.90 (Hair et al., 2019). The results of the Heterotrait-Monotrait Ratio (HTMT) processing are described in the table below:

Table 5. Variable Level HTMT Values

Variable	Deep Learning (Z)	Dukungan Guru (X2)	Karakter Islami (Y)	Pembiasaan Spiritual (X1)
Deep Learning (Z)				
Dukungan Guru (X2)	1,033			
Karakter Islami (Y)	0,958	0,983		
Pembiasaan Spiritual (X1)	0,954	0,913	0,827	

(Sumber: data primer, diolah peneliti, 2026)

Reliability test

Composite Relability

The results of the reliability test showed that the Cronbach's Alpha and Composite Reliability values for all variables were above 0.70. This indicates that the research instrument has excellent internal consistency and is able to measure constructs stably. With the fulfillment of validity and reliability, the measurement model is feasible to proceed to structural model testing. The results are visible in the following table 6:



Table 6. Hasil Composite Realbility

Variable	Cronbach's Alpha	Composite Reliability
Deep Learning	0,790	0,863
Dukungan Guru	0,888	0,923
Karakter Islami	0,941	0,955
Pembiasaan Spiritual	0,930	0,950

(Data source: primary data, processed by researchers, 2026)

Model Iner Test

Goodness of fit

Table 7. Fit Summary Value

Indikator	Saturated Model	Estimated Model
SRMR	0,080	0,080
d_ ULS	1,217	1,217
d_ G	1,477	1,477
Chi-Square	328,977	328,977
NFI	0,704	0,704

(Data source: primary data, processed by researchers, 2026)

Based on the results of the data presented in table 5 above, it was found that: the SMSR value was $0.080 < 0.10$ (meeting the criteria), so the model can be said to be fit. The model test is seen from the NFI test value, in this study it shows an NFI value of 0.704, so the research model can be said to be fit and has the compatibility or goodness of the model with research data of 70.4%.

R square Value (R²)

The R² value for the student's Islamic character variable of 0.792 indicates that 79.2% of students' Islamic character variations can be explained by a combination of deep learning learning strategies, teacher support, and spiritual habituation. This value is very high and reflects the strong explainability of the model. Meanwhile, the R² value in the deep learning variable of 0.825 shows that spiritual habituation and teacher support have a great contribution in shaping the quality of deep learning. The results of the research data processing obtained the following R-Square values:

Table 8. R- Square Value (R²)

	R Square	R Square Adjusted
Deep Learning	0,792	0,782
Karakter Islami Siswa	0,825	0,813

(Data source: primary data, processed by researchers, 2026)



F square Value (F²)

The value of F2 is used to provide an overview of the magnitude of the influence of exogenous latent variables on endogenous latent variables in the structural order. According to Chin (1998), the F2 value is categorized as a weak influence, namely the F2 value of 0.02 is categorized as a weak influence, the F2 value of 0.15 is categorized as a moderate influence, and finally the F2 value of 0.35 is categorized as a strong influence. The results of the data processing of the F2 value of the research are explained in the table below:

Tabel 9. F Square Value (F²)

Variabel	Deep Learning (Z)	Dukungan Guru (X2)	Karakter Islami (Y)	Pembiasaan Spiritual (X1)
Deep Learning (Z)			0,074	
Dukungan Guru (X2)	0,543		0,530	
Karakter Islami (Y)				
Pembiasaan Spiritual (X1)	0,157		0,000	

(Data source: primary data, processed by researchers, 2026)

Based on the data in table 7 above, it is known that the f² value in the Teacher Support → Deep Learning relationship is 0.543, which shows that Teacher Support has a great influence on Deep Learning. Furthermore, the f² value in the relationship between Spiritual Habituation → Deep Learning is 0.157, which means that Spiritual Habituation has a moderate influence on Deep Learning. In the relationship between Deep Learning → Islamic Character, an f² value of 0.074 was obtained, which indicates that Deep Learning has a small influence on the Islamic Character of Students. Meanwhile, the f² value on the relationship between Teacher Support → Islamic Character is 0.530, which indicates that Teacher Support has a great influence on the Islamic Character of Students. Finally, the f² value on the relationship between Spiritual Habituation → Islamic Character is 0.000, which means that Spiritual Habituation has no influence on the Islamic Character of the Student.



Q square Value(Q²)

Tabel 10. Q square Value (Q²)

Variable	SSO	SSE	Q ² (=1-SSE/SSO)
Deep Learning	192,000	103,161	0,463
Dukungan Guru	192,000	192,000	
Karakter Islami Siswa_	240,000	85,163	0,645
Pembiasaan Spiritual	192,000	192,000	

(Data source: primary data, processed by researchers, 2026)

Based on table 8 above, the Q² values for the *deep learning* variables (0.463) and the Islamic character of the students (0.645) were above zero, which indicates that the model has excellent predictive capabilities. Thus, the model is not only explanatory but also relevant for empirical predictions.

Hypothesis Test

This study aims to test seven hypotheses derived from the proposed structural model, consisting of five direct-effect hypotheses and two moderation-effect hypotheses. Hypothesis testing was conducted using the inner model evaluation in the Structural Equation Modeling–Partial Least Squares (SEM-PLS) approach. The significance of each hypothesized relationship was assessed based on the T-statistic and P-value criteria obtained from the bootstrapping procedure. A hypothesis is considered accepted if the T-statistic value exceeds the critical value of 1.96 at a significance level of 5% ($\alpha = 0.05$) and if the P-value is less than 0.05. Conversely, hypotheses that do not meet these criteria are rejected.

The first set of hypotheses examines the direct effects among the main variables. These include the influence of deep learning strategies on students’ Islamic character, the effect of teacher support on deep learning strategies, the direct effect of teacher support on students’ Islamic character, the influence of spiritual habituation on deep learning strategies, and the direct effect of spiritual habituation on students’ Islamic character. The results of the direct hypothesis testing indicate that teacher support has a significant positive effect on both deep learning strategies and students’ Islamic character, and spiritual habituation has a significant influence on deep learning strategies. However, the direct effects of deep learning strategies and spiritual habituation on students’ Islamic character were not statistically significant and were therefore rejected.



In addition to the direct relationships, this study also tests two moderation hypotheses to examine whether spiritual habituation moderates the relationship between deep learning strategies and students' Islamic character. The moderation effect was evaluated by analyzing the interaction terms within the SEM-PLS model. The results show that the interaction effects between deep learning strategies and spiritual habituation, as well as between spiritual habituation and students' Islamic character, did not meet the statistical significance criteria. Therefore, both moderation hypotheses were rejected.

Overall, the hypothesis testing results demonstrate that out of the seven hypotheses tested, three were accepted and four were rejected. These findings provide empirical evidence regarding the structural relationships among teacher support, deep learning strategies, spiritual habituation, and students' Islamic character, and they offer important implications for understanding both direct and moderating mechanisms within the proposed research model.

Based on the results of testing on the inner model, the results can be used as data to see that the hypotheses formulated in this study can be declared accepted or rejected. Looking at the results of the internal model test, a T-statistical value is obtained, the hypothesis can be declared acceptable if the T-statistical value is greater than the T-table, which is 1.96 (α 5%). In addition, the hypothesis test can be seen from the P Value, provided that the P Value must be < 0.05 , meaning that the hypothesis is accepted. The results of the hypothesis test in this study were obtained from direct and indirect influence hypothesis test data as explained in the table as follows:

Tabel 11. Hypothesis Test Scores – Live

Variabel	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ((O/STDEV))	P Values	Keterangan
Deep Learning -> Karakter Islami Siswa	0,250	0,249	0,165	1,514	0,131	Ditolak
Dukungan Guru -> Deep Learning	0,602	0,587	0,149	4,034	0,000	Diteima
Dukungan Guru -> Karakter Islami Siswa	0,678	0,684	0,163	4,160	0,000	Diteima
Pembiasaan Spiritual -> Deep Learning	0,324	0,342	0,151	2,142	0,033	Diteima
Pembiasaan Spiritual ->	0,005	-0,002	0,146	0,037	0,970	Ditolak



Karakter Islami
Siswa

(Data source: primary data, processed by researchers, 2026)

Table 12. Hypothesis Test Value – Moderation

Variabel	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Keterangan
Deep Learning -> Karakter Islami Siswa_	0,150	0,144	0,104	1,450	0,148	Ditolak
Pembiasaan Spiritual -> Karakter Islami Siswa	0,081	0,087	0,072	1,128	0,260	Ditolak

(Data source: primary data, processed by researchers, 2026)

DISCUSSIONS

The Influence of Deep Learning on Students' Islamic Character

The results of the study showed that deep learning strategies had no significant effect on students' Islamic character. These findings indicate that learning that emphasizes conceptual understanding and cognitive reflection has not directly shaped the dimensions of students' religious character. Islamic character demands the internalization of sustainable values through affective experiences and real practice, so that the dominant learning approach, which focuses on cognitive aspects, has limitations in shaping religious attitudes and behaviors. In the context of religious education, the process of character formation requires consistent examples and habituation so that the values understood can be realized in the students' actual actions, (Nazhruna, 2024)

The Influence of Teacher Support on Deep Learning

Teacher support has been proven to have a significant effect on the implementation of deep learning strategies. These findings confirm that teachers play a crucial role in creating a learning environment that fosters active engagement and a deep understanding of the material. Pedagogical guidance, supportive interactions, and constructive feedback from teachers help students develop reflective and analytical thinking skills. In learning Akidah Akhlak, the role of teachers as value facilitators enhances the quality of learning, enabling students not only to understand the material but also to relate it to the realities of life, (Alimni et al., 2022)



The Influence of Teacher Support on Students' Islamic Character

The study's results indicate that teacher support has a significant impact on the development of students' Islamic character. These findings confirm that students' religious character develops through direct interaction with teachers as role models. Teachers' attitudes, behaviors, and consistency in instilling Islamic values have a real influence on the internalization of students' character. In teaching the Moral Faith, teachers not only convey material but also serve as moral models, guiding students in applying Islamic values in their daily lives, (Mustafa et al., 2025)

The Influence of Spiritual Habituation on Deep Learning

Spiritual habituation has been shown to have a significant effect on deep learning strategies. These findings demonstrate that spiritual practices consistently carried out can shape students' psychological and affective readiness for in-depth learning. Spirituality offers inner peace, self-awareness, and intrinsic motivation, which support learning engagement and motivation. In the context of Moral Faith, spiritual habituation serves as an internal foundation that helps students interpret learning materials in a reflective and valuable way, (Muzayaroh, 2021)

The Influence of Spiritual Habituation on the Islamic Character of Students

The results of the study show that spiritual habituation does not have a direct and significant effect on the Islamic character of students. These findings indicate that routine spiritual practices are not necessarily internalized into character without meaningful pedagogical reinforcement. Spiritual values require a process of meaning-making, dialogue, and contextual application to shape students' religious attitudes and behaviors. Without straightforward integration in the learning of Akidah Akhlak, spiritual habituation has the potential to stop at the level of formal rituals, (Tamuri et al., 2012)

The Indirect Influence of Teacher Support on Students' Islamic Character through Deep Learning

The results of the indirect influence test showed that teacher support did not have a significant effect on students' Islamic character through deep learning learning strategies. These findings suggest that although teacher support can improve the quality of the learning process, its effects do not operate medially through deep learning mechanisms. Students'



Islamic Character is formed through direct interaction with teachers who act as role models and value builders, not solely through increasing cognitive understanding. This condition is in line with the view that the role of teachers in character education is relational and normative, so that the impact is more substantial when it is realized through habituation of attitudes and examples than through high-level cognition-based learning strategies, (Suhartini et al., 2025)

The Indirect Influence of Spiritual Habituation on Students' Islamic Character through Deep Learning

The results of the indirect influence analysis also showed that spiritual habituation did not have a significant effect on students' Islamic character through deep learning learning strategies. These findings suggest that spiritual practices that encourage deep learning engagement do not necessarily transform into Islamic characters when placed in the learning mediation pathway. Deep learning functions more as a means of reflective understanding, but it does not automatically bridge the internalization of spiritual values into students' religious behavior. Character formation requires a habituation process accompanied by value assistance and social strengthening, so that deep learning is not effective enough as a single mediator in the relationship between spirituality and character, (Harisa, 2019)

CONCLUSIONS

This study employs a quantitative approach, utilizing SEM-PLS analysis with 48 students from SMA Muhammadiyah 5 Yogyakarta, to examine the role of deep learning strategies as a moderator of the influence of teacher support and spiritual habituation on students' Islamic character in the subject of Akidah Akhlak. The results of the study show that deep learning strategies do not have a significant direct effect on students' Islamic character, indicating that deep understanding-oriented learning is not effective enough to form a religious character without continuous pedagogical support. Teacher support has been proven to have a significant effect on deep learning strategies, as well as a direct impact on students' Islamic character. These findings confirm that teachers play a dominant role in shaping students' religious character through their example, pedagogical interactions, and consistent value building. Spiritual habituation has a significant impact on deep learning strategies, but it does not directly influence students' Islamic character. Therefore, spiritual practice requires



pedagogical strengthening to ensure that the instilled values can be internalized optimally. The results of the indirect influence test showed that deep learning strategies did not mediate the relationship between teacher support and students' spiritual habituation of their Islamic character. The formation of students' Islamic character is more determined by direct interaction, teacher example, and habituation of values in learning Akidah Akhlak than by cognitive learning mechanisms as intermediate variables.

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