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Learning Cycle 7E Learning Model: Optimizing Student Learning Outcomes in Aqidah Akhlak

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ABSTRACT

This research focuses on MA Nurul Iman Sekincau's low student learning results in the evaluative and creative parts of Aqidah Akhlak. Low student participation and traditional learning paradigms may hamper higher-order thinking. This quantitative study tests the 7E Learning Cycle model's impact on student learning, particularly at cognitive levels C5 (evaluating) and C6 (creating), as well as affective and psychomotor domains. The study was quasi-experimental with a post-test-only control group. A was the experimental group that received the 7E Learning Cycle model, while B was the control group that used conventional methods. Multiple-choice cognitive C5 and C6 exams, self-assessment questionnaires, and performance observation sheets were used. The findings of the data analysis demonstrated that the 7E Learning Cycle model considerably improved student learning. Cognitive hypothesis testing revealed a significant difference between experimental and control groups (t-value = 3.581, $p < 0.001$). Through internalizing character ideals and religious attitudes, this model significantly impacted the affective and psychomotor domains ($p = 0.000$, mean difference = 3.721), outperforming the control group. The cognitive instrument had critical notes since it was dominated by easy and very easy items (86.66%), so its discriminatory power needed to be increased despite meeting validity and reliability requirements. This study found that the 7E Learning Cycle model can help Madrasah educators improve Aqidah Akhlak learning through active involvement and high-level cognitive stimulation.

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1. INTRODUCTION

Learning outcomes are a manifestation of the abilities acquired by students after undergoing the learning process, encompassing the dimensions of understanding, skills, and changes in attitudes (Bella, 2024; Fatimah et al., 2023). Conceptually, learning outcomes reflect students' level of mastery of the material and relatively permanent changes in behaviour as a result of interactions with the educational environment (Timor et al., 2021; Mulia et al., 2021). Referring to the educational taxonomy, this success is

measured through three main domains: cognitive (knowledge and evaluation), affective (attitudes and values), and psychomotor (physical skills) (Agusdianita et al., 2025; Alqarny & Ridha, 2024).

However, the national education portrait based on the PISA (OECD) report still reveals crucial challenges, particularly related to the high prevalence of students with low literacy and achievement levels (Alfaruqi & Nurwahidah, 2025; Esti et al., 2023). Systemic problems such as low instructional quality, high grade repetition rates among low socioeconomic groups, and disparities in education quality in rural areas confirm that the learning process is not running optimally (Arianto, 2022). Low learning outcomes are often an indicator that the learning strategies implemented are unable to accommodate students' higher-order thinking development needs (Ragab et al., 2024; Shalikhah & Nugroho, 2023).

A preliminary study was conducted by researchers involving Akidah Akhlak teachers and grade XI students. A student at MA Nurul Iman Sekincau identified several fundamental problems: (1) pupils tend to be passive and less involved in class discussions, which directly impacts the depth of material understanding. (2) Learning is still one-way (teacher-centred), thus limiting collaborative interaction and active student involvement. (3) Evaluation data shows that students have adequate mastery of the basic cognitive levels (C1-C3), but experience a significant decline in accuracy at the critical thinking levels (C4-C6). Furthermore, although students are able to memorise and apply basic concepts, they struggle to analyse and evaluate the material in depth. This reinforces the urgency of transforming learning models that not only emphasise basic cognitive aspects but also integrate affective and psychomotor domains to foster critical and creative thinking skills, as well as strengthen noble morals.

Implementing an integrated learning model is a fundamental solution to overcoming learning barriers and improving student competency achievement (Al Abri et al., 2024; Amini & Lena, 2019). The 7E Learning Cycle (Elicit, Engage, Explore, Explain, Elaborate, Evaluate, and Extend) is a constructivist approach systematically designed to facilitate mastery of new concepts and deepen contextual understanding (Aljallad & Ali Al-dulaimi, 2018; Bahri & Adiansha, 2020; Istiqomah et al., 2025). This model emphasises not only cognitive aspects but also encourages active student participation through an investigative process that fosters a scientific mindset (Balta & Sarac, 2016; Musfiroh et al., 2024; Priyadi & Wibowo, 2024).

The advantage of the 7E Learning Cycle model lies in its seven sequential stages that position students as active subjects (student-centred), while the teacher acts as a facilitator, stimulating discussion and reasoning (Noreen et al., 2024; Rozita & Masrurotullaily, 2023). Operationally, the contribution of each stage is as follows: (1) Elicit & Engage: Exploring prior knowledge and arousing student interest through real-life relevance. (2) Explore & Explain: Encourages independent experimentation and strengthens fundamental problem-solving skills. (3) Elaborate & Evaluate: Trains critical thinking skills (C5) by assessing, comparing, and making decisions. (4) Extend: Strengthens creative thinking skills (C6) through the creation of ideas, solutions, and original works (Ainurrahmi et al., 2024; Anjelina et al., 2023). Through this cycle,

learning competencies can be achieved holistically, encompassing higher-level cognitive domains, affective domains through the formation of religious attitudes, and psychomotor domains through physical exercise and direct experience (Musfiroh et al., 2024; Utami et al., 2022).

Although various literature has demonstrated the effectiveness of the 7E Learning Cycle in improving learning outcomes in science disciplines such as physics and natural sciences (Istuningsih et al., 2018; Noreen et al., 2024; Utami et al., 2022), this research offers novelty in the contextual aspect. The novelty of this research lies in the integration of the 7E Learning Cycle model for learning Akidah Akhlak at Madrasah Aliyah.

Additionally, this research is new because it looks closely at how well the 7E Learning Cycle model helps improve higher-order thinking skills (HOTS) at levels C5 (Evaluation) and C6 (Creation), while also developing emotional and physical skills. Unlike previous research that focused on the sciences (Khairani et al., 2021; Noreen et al., 2024), this study provides a conceptual contribution to the development of constructivism models within the Islamic education sector. This approach offers an innovative methodology relevant to revitalising the quality of Aqidah Akhlak learning in madrasa environments. To ensure data objectivity, this study applies triangulation data collection techniques that include (1) Cognitive Aspects: Using validated multiple-choice test instruments to measure the depth of understanding of the material. (2) Affective Aspects: Using self-assessment techniques to evaluate students' internalisation of religious values and attitudes. (3) Psychomotor Aspects: Using performance appraisals to systematically assess students' practical skills.

The preliminary study conducted through observation and interviews at MA Nurul Iman Sekincau revealed a significant disparity between students' basic cognitive achievements (C1–C3) and their analytical and synthesis abilities (C4–C6). The condition of students who tend to be passive and have fluctuating variations in learning interests indicates that conventional methods have not been able to encourage active participation or optimal character development. Therefore, this study aims to test the effectiveness of the 7E Learning Cycle model in improving students' critical and creative thinking skills at a high cognitive level, developing noble morals and religious attitudes through a reflective learning process, and training physical skills and actions that are in line with the values of Akidah Akhlak.

2. METHOD

This research employed a quantitative approach with a quasi-experimental design. The design used was a Post-Test Only Control Group Design, where the effect of the treatment was assessed based on a comparison of the final achievement between the experimental and control groups. The study was conducted at MA Nurul Iman Sekincau. The subjects were divided into two groups: the Experimental Group (Grade XI-A): Received treatment using the 7E Learning Cycle learning model. The Control Group (Grade XI-B): Used conventional learning methods (lectures and question-and-answer sessions). The sample was selected using the Simple Random Sampling technique to

ensure each member of the population had an equal opportunity and to minimize selection bias.

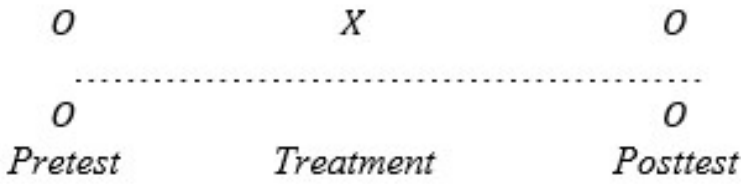

Figure 1. Post-Test Only Control Group Design

The experimental class employed the 7E model to divide the learning process into seven interconnected steps. This process begins with the Elicit stage, where students' prior knowledge is explored through provocative questions relevant to the Aqidah Akhlak material, followed by the Engage stage to foster student interest and active involvement through presentations of case studies or contextual phenomena. Next, in the Explore stage, students are given ample space to conduct investigations and observations through collaborative group activities.

To strengthen students' findings, the teacher provides conceptual clarification in the Explain stage, which is then deepened in the Elaborate stage through the application of concepts in different new situations or contexts. Student competency achievement is then measured comprehensively in the Evaluate stage through formative evaluations, both during the process and at the end of the session. This learning series concludes with the Extend stage, which aims to build the sustainability of students' knowledge through independent project work and critical reflection on the material that has been learned.

Data were collected through three main instruments designed to holistically measure learning outcomes, as presented in Table 1 below.

Table 1. Research Instruments

Aspects	Instruments	Key Indicators
Cognitive	Multiple-Choice Test (15 Items)	Focus on Higher Order Thinking Skills (C5: Evaluating and C6: Creating).
Affective	Self-Assessment (24 Questions)	Use a 5-point Likert Scale to measure religious attitudes and character.
Psychomotor	Performance Observation Sheet	Assesses active participation, thoroughness, responsibility, and the application of moral values.

Before the instruments were used in the research, a pilot test was conducted to ensure the quality of the data obtained. The validity of the questionnaire items was tested using the Product Moment test to ensure the accuracy of each item in measuring the specified indicators, while the scientific consistency of the measurement results was ensured through Cronbach's Alpha reliability test. This step was crucial to ensure the research instrument met the standard of accuracy and reliability before entering the main data collection stage.

Data analysis in this study was conducted using inferential statistics, systematically arranged through several stages. The first stage was the prerequisite test, which included a normality test to determine data distribution and a homogeneity test to ensure equality of variance between the study groups. Once the prerequisites were met, a hypothesis test

was conducted using an independent sample t-test to determine whether there was a significant difference in average learning outcomes between the experimental and control classes.

As a final stage, the processed statistical results were interpreted. The data were analyzed descriptively to draw conclusions regarding the effectiveness of the 7E Learning Cycle model in improving the quality of Aqidah Akhlak learning at MA Nurul Iman Sekincau.

3. RESULTS AND DISCUSSION

Results

This research was conducted at MA Nurul Iman Sekincau with the main focus on analyzing the effectiveness of the implementation of the Learning Cycle 7E learning model on improving the learning outcomes of class XI students in the subject of Akidah Akhlak. Comprehensively, the parameters of success in this research were evaluated through three main competency domains, namely (1) Cognitive Domain: Emphasizing higher order thinking skills (Higher Order Thinking Skills), especially at levels C5 (Evaluating) and C6 (Creating) based on Bloom's Taxonomy. (2) Affective Domain: Measuring the internalization of character values, religious attitudes, and ethics of students. (3) Psychomotor Domain: Assessing applicative skills and manifestations of moral behavior in the context of learning.

Cognitive Aspects of Multiple Choice Test Instruments

Cognitive Test Instrument Validity Testing

Instrument validity testing was conducted to ensure that the developed cognitive test items were truly capable of measuring the established higher-order thinking constructs (C5 and C6). Instrument validity in this study was analyzed using two main approaches: logical validity and empirical validity. Logical validity was achieved through an expert judgment process by subject matter experts and educational evaluation experts to review the suitability of the items to competency achievement indicators and the accuracy of the item construction. Next, empirical validity was tested by piloting the instrument on respondents outside the research sample with similar characteristics. The pilot data were analyzed using Karl Pearson's Product Moment correlation technique. Items were declared valid if the correlation coefficient (r_count) was greater than the r_table value at a 5% significance level. This testing was crucial to ensure that each instrument had proportional discriminatory power and difficulty levels, so that the resulting data would accurately represent students' actual cognitive abilities. The results of the Cognitive Test Instrument Validity Test are presented in Table 2.

Table 2. Cognitive Test Instrument Validity Testing

Question Number	R-Table	R-Count	Information
1	0.374	0,108	Invalid
2	0.374	0,687	Valid
3	0.374	0,462	Valid

Question Number	R-Table	R-Count	Information
4	0.374	0,449	Valid
5	0.374	0,381	Valid
6	0.374	0,494	Valid
7	0.374	0,541	Valid
8	0.374	0,554	Valid
9	0.374	0,591	Valid
10	0.374	-0,111	Invalid
11	0.374	0,502	Valid
12	0.374	0,700	Valid
13	0.374	0,070	Invalid
14	0.374	0,421	Valid
15	0.374	0,401	Valid

The results of the cognitive test instrument trial consisting of 15 questions are shown in Table 2. There are 12 questions (numbers 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 14, and 15) that are declared valid. This is because the r_count value on these items is greater than r_table (0.374). The item with the highest validity value is found in question number 12 with an r_count of 0.700. There are 3 questions (numbers 1, 10, and 13) that are declared invalid or invalid. This invalidity is caused by the r_count value being smaller than r_table, including question number 1 (0.108), question number 10 (-0.111), and question number 13 (0.070). The cognitive test instrument that meets the requirements for use in collecting research data is the question items that are declared valid. For invalid test items, researchers can carry out elimination (dropping) or in-depth revisions so that the quality of the instrument is maintained in measuring students' cognitive levels accurately.

Reliability Test of Cognitive Test Instruments

Reliability testing is conducted to evaluate the consistency and stability of cognitive test instruments when used repeatedly on the same subjects. In this study, reliability testing of test items that have been declared valid was conducted using the Cronbach's Alpha formula. This technique aims to determine the internal consistency of the instrument by comparing the reliability coefficient (r_11) with the applicable reliability criteria.

Table 3. Reliability Test of Cognitive Test Instruments

Reliability Statistics	
Cronbach's Alpha	**N of Items**
.620	15

Building upon reliability testing criteria, an instrument is considered reliable if its Cronbach's Alpha value is >0.60. Given the result of 0.620, this cognitive test instrument is considered reliable. This cognitive test instrument has good consistency and is suitable for use as a consistent data collection tool in research on students' Aqidah Akhlak learning outcomes.

Distribution of Questions Based on Level of Difficulty

This evaluation instrument is strategically designed to ensure a comprehensive assessment of student abilities through a proportional distribution of question difficulty levels. Adopting a normal distribution model, this set of questions covers a wide range of cognitive levels to accurately differentiate learning outcomes. Specifically, the questions are categorized into three main levels: Easy, Medium, and Difficult. This structure aims to build participant confidence at the beginning of the exam through the low category, provide measurable challenges in the medium category, and identify in-depth mastery of the material through the difficult category. This balanced composition not only serves to maintain the validity and reliability of the instrument but also ensures that the evaluation results provide an objective picture of the individual competency mapping within the tested population.

Table 4. Distribution of Questions Based on Level of Difficulty

No	Difficulty Level	Question Number	Total	Percentage
1	Very Difficult	-	-	-
2	Difficult	10	1	6,67%
3	Currently	2	1	6,67%
4	Easy	1, 4, 7, 8, 11, 13, 14, 15	8	53,33%
5	Very easy	3, 5, 6, 9, 12	5	33,33%

The data in Table 4 shows that the evaluation instrument used was dominated by low-difficulty items. Cumulatively, 86.66% of the total questions fell into the "Easy" (53.33%) and "Very Easy" (33.33%) categories. This distribution indicates that the majority of questions were designed to measure respondents' basic understanding or lower-level cognitive abilities (LOTS).

Conversely, the percentage of questions at higher levels of difficulty was very limited. The "Moderate" (in the table) and "Difficult" categories each accounted for only 6.67% (1 item). Furthermore, there were no items in the "Very Difficult" category. This instrument tended to be very easy for most respondents, which may have been effective in motivating participants in the early stages of learning. Furthermore, the low number of questions in the moderate-to-difficult range suggests that this instrument is less than optimal in distinguishing between participants with average ability and those with high ability or in-depth mastery of the material. To improve the discriminant validity of the instrument in the future, it is recommended to make adjustments (revisions) to the composition of the questions by increasing the proportion of medium and difficult difficulty levels in order to achieve a more proportional distribution or follow a normal curve pattern.

Normality Test

The normality test is a crucial step in prerequisite statistical analysis, which aims to determine whether the data obtained from the experimental and control groups are normally distributed. This data distribution determination forms the basis for selecting the type of statistics to be used in hypothesis testing, namely, whether to use parametric

or non-parametric statistics. In this study, the normality test was conducted on students' cognitive, affective, and psychomotor learning outcome scores using relevant statistical analysis techniques with the aid of SPSS software.

Data are considered normally distributed if the p-value obtained is greater than the alpha level of significance of 0.05. Meeting this normality assumption ensures that the sample is representative of the population, allowing subsequent independent sample t-test results to be scientifically reliable. If the data proves normal and homogeneous, inferential analysis can proceed to test the effectiveness of the 7E Learning Cycle model on improving student learning outcomes at MA Nurul Iman Sekincau.

The results of the data analysis show that the statistical value of the experimental group is 0.154 with a significance value (Sig.) of 0.059. Because the Sig. value is > 0.05, the data in the experimental group is declared normally distributed. Meanwhile, the statistical value of the control group is 0.151 with a significance value (Sig.) of 0.068. Because the Sig. value is > 0.05, the data in the control group is also declared normally distributed. Considering that both groups have a significance value greater than 0.05 in the Kolmogorov-Smirnov test, the assumption of normality has been met. Thus, data analysis can be continued using parametric statistical procedures, such as the Independent Sample t-Test.

Homogeneity Test

The homogeneity test is conducted as a prerequisite step in data analysis to determine whether the data variances of two or more groups are homogeneous or equal. In this study, the homogeneity test aims to ensure that the experimental group (the class using the Learning Cycle 7E model) and the control group (the conventional class) have equivalent variance characteristics before hypothesis testing is carried out. This equality of variance is an absolute requirement in the use of parametric statistics, especially the t-test (Independent Sample t-Test), so that the differences in results found are truly purely caused by the treatment and not due to differences in the initial conditions of the sample.

The analysis results show a significance value of 0.638. Data is declared to have homogeneous variance if the significance value (Sig.) is greater than 0.05. Since the Sig. value of 0.638 > 0.05, it can be concluded that the data variance between the experimental and control groups is homogeneous or the same. By fulfilling this homogeneity assumption, the research data meets the requirements to proceed to the hypothesis testing stage using parametric statistics.

Hypothesis Test (T-Test)

The results of the Independent Samples T-Test on the RESULTS variable, the first step is to review Levene's Test for Equality of Variances. The F value obtained is 0.224 with a significance (Sig.) of 0.638. Because the Sig. value is > 0.05, it can be concluded that the data variance between groups is homogeneous, so the interpretation refers to the Equal variances assumed row. In the t-test for Equality of Means section, the calculated t value is 3.581 with degrees of freedom (df) 62. The two-way significance value (Two-

Sided p) shows a number <0.001, which is smaller than the significance level of alpha = 0.05. This indicates that H_0 is rejected and Ha is accepted, which means there is a statistically significant average difference in the RESULTS variable between the two groups. The average difference (Mean Difference) was recorded at 1.85728, with a 95% confidence interval (95% Confidence Interval) between 0.82046 and 2.89410.

Table 5. Hypothesis Test (T-Test)

Variable	Variance Assumption	Levene's Test (Sig.)	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
RESULTS	Equal variances assumed	638	3,581	62	<,001	185,728	51,868
	Equal variances not assumed		3,589	61,992	<,001	185,728	51,745

Affective Aspects of Self-Assessment Questionnaire Instrument

Validity Test

Instrument validity testing was conducted to ensure that each statement item in the affective self-assessment questionnaire was able to accurately measure the targeted psychological construct. Based on the results of statistical analysis using Pearson Product Moment correlation, the level of validity was determined by comparing the correlation coefficient value (r_count) to the critical value (r_table) at a significance level of 5% (alpha = 0.05). The test results showed that all statement items in this instrument had an r_calculated value greater than r_table, as well as a significance value (Sig. 2-tailed) that was below the threshold of 0.05.

Based on the results of data analysis, there are 16 statement items that are declared Valid, namely question numbers: 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 19, 21, and 24. These items have r_count values ranging from 0.367 to 0.825, where the value is greater than r_table (0.344). This shows that these items have a significant contribution in measuring the affective construct being studied. On the other hand, there are 8 statement items that are declared Invalid/Failed, namely question numbers: 1, 3, 13, 18, 20, 22, and 23. These items have r_count values <0.344. Even in questions 22 and 23, a negative correlation (-0.002 and -0.028) was found, indicating that the statements are inconsistent or contradictory to the total instrument score. Overall, only items with Valid status will be used in further research data collection. Invalid items will be dropped or completely revised to avoid compromising the reliability and accuracy of research data measurement.

Reliability Test

After conducting a validity test and eliminating items that did not meet the criteria, the next step was to conduct a reliability test to determine the level of internal consistency of the affective self-assessment questionnaire instrument. This test was conducted using the Cronbach's Alpha statistical technique. An instrument is considered

reliable and dependable if its Cronbach's Alpha coefficient exceeds the minimum research standard, which is 0.60.

The data analysis results show that the Cronbach's Alpha value of 0.844 is greater than 0.60 (0.844 > 0.60). Referring to the reliability level classification, this value is in the Very Strong or Very High category. This concludes that all statement items in the Affective Self-Assessment questionnaire have met the requirements for very good reliability. Thus, this instrument can be declared reliable and consistent for use as a data collection tool in this study.

Normality Test

The normality test aims to determine whether the observed data in a regression model or research variables are normally distributed. The accuracy of selecting a statistical test, whether parametric or non-parametric, depends heavily on meeting this normality assumption. In this study, the test was conducted using the Kolmogorov-Smirnov (or Shapiro-Wilk, depending on the sample size) technique, with a decision-making criterion based on the significance value (p-value).

The results of the experimental group data analysis show that the significance value (Sig.) is 0.006. Because 0.006 < 0.05, the data in Group 1.00 is declared not normally distributed. While the control group The significance value (Sig.) is 0.183. Because 0.183 > 0.05, the data in Group 2.00 is declared normally distributed. Considering that one of the groups (the experimental group) has data that is not normally distributed, the overall normality assumption is not met. Professionally, if one of the variables or groups is not normal, researchers are advised to perform data transformation or consider using non-parametric statistics (such as the Mann-Whitney U Test) if the data remains non-normal after correction attempts. This test is used as a non-parametric alternative to the Independent Samples T-Test because previously the data in one of the groups (the experimental group) was known not to be normally distributed.

Homogeneity Test

A homogeneity test is performed to determine whether the data variances of two or more groups are homogeneous or equal. This homogeneity assumption is a crucial prerequisite for using parametric statistics, such as the t-test, to ensure that the differences found truly stem from differences between groups, rather than from imbalanced internal variation in the data. This test generally uses the Levene's Test technique, with a decision-making criterion based on comparing the significance value (p-value) with the alpha level of 0.05.

The results of the data analysis indicate that the mean-based significance value is 0.091, which is greater than the 0.05 level (0.091 > 0.05). Therefore, it can be concluded that the data variances in this variable are homogeneous. In other words, there are no significant differences in variance between the tested groups, thus meeting one of the basic assumptions for comparative analysis.

Hypothesis Test (T-Test)

Hypothesis testing was conducted to determine whether there was a statistically significant difference in the average between the two groups of research subjects on the DATA variable. This test used the Independent Samples T-Test technique by comparing the significance value (p-value) with a significance level of alpha = 0.05. Before conducting the t-test, the assumption of homogeneity of variance was verified using Levene's Test to ensure the correct selection of data rows in the statistical output Table 6.

Table 6. Hypothesis Test (T-Test)

Variable	Variance Condition	Levene's Test (F)	Levene's Test (Sig.)	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval (Lower)	95% Confidence Interval (Upper)
DATA	Equal variances assumed	2,958	91	-4,167	60	0	-890,323	213,656	-1,317,699	-462,947
	Equal variances not assumed			-4,167	51,759	0	-890,323	213,656	-1,319,103	-461,542

Building upon the results of the homogeneity test using Levene's Test for Equality of Variances in Table 6, a significance value of 0.091 ($p > 0.05$) was obtained. This indicates that the data variance between groups is homogeneous, so the t-test analysis was continued with reference to the Equal Variances Assumed assumption. The t-test results showed a significance value (2-tailed) of 0.000, which is below the 0.05 threshold. This finding indicates a statistically significant difference in the averages between the two groups tested. Furthermore, the Mean Difference value of -8.903 indicates that the average of the first group was consistently lower than the second group, with a significant difference.

Psychomotor Aspects of the Performance Observation Questionnaire Instrument

The psychomotor aspects of this study were measured through a comprehensive approach combining subject perceptions and actual performance assessments. A questionnaire was used to gather data on respondents' mental readiness and self-perceptions of the technical skills being learned. However, to ensure the validity of the objective results, these data were synchronized with performance observation methods. Through a structured observation sheet, each stage of the subjects' physical manipulation and motor coordination was directly assessed based on predetermined performance indicators. The combination of these two instruments allows for holistic

data collection, where self-reported behavioral tendencies can be verified through actual demonstration of skills in the field.

Normality Test

A normality test was conducted to determine whether the data in the experimental and control groups were normally distributed, as a requirement for using parametric statistics. Given that the sample size (n) for each group was 31 (df = 31), the results were analyzed using the Shapiro-Wilk test (which is more accurate for small samples) and the Kolmogorov-Smirnov test.

The data analysis results showed that the significance value (Sig.) for the experimental group in the Kolmogorov-Smirnov test was 0.200 and the significance value (Sig.) for the Shapiro-Wilk test was 0.229. Because both values were greater than 0.05, the data in the experimental group were considered normally distributed. Meanwhile, the significance value (Sig.) for the control group in the Kolmogorov-Smirnov test was 0.095 and the significance value (Sig.) for the Shapiro-Wilk test was 0.227. Because both values were greater than 0.05, the data in the control group were considered normally distributed. Based on these test results, it can be concluded that all research data is normally distributed. With this normality assumption met, you can proceed with data analysis using parametric statistics (such as the Independent Sample T-Test or Paired Sample T-Test) to further test your hypotheses.

Homogeneity Test

The homogeneity test aims to determine whether the data variance of the two groups (Experimental and Control) is the same (homogeneous) or not. This is an important prerequisite assumption before conducting a comparative test such as the Independent Sample T-Test. The results of the data analysis show that the Significance Value (Sig.) Based on the Mean: The significance value obtained is 0.106. The data is declared homogeneous if the significance value (Sig.) > 0.05, Because the value of 0.106 > 0.05, then H_0 is accepted. Therefore, it can be concluded that the data variance in the Experimental group and the Control group is the same or homogeneous.

Hypothesis Test (T-Test)

Table 7. Hypothesis Test (T-Test)

Variable	Group	t	df	Sig. (2-tailed)	Mean Difference
Learning outcomes	Experiment and control	4.706	62	< 0,001	3.721

From the results of the previous homogeneity test (Sig. 0.106 > 0.05), the Equal variances assumed row is used. It is known that the Significance value (Two-Sided p) is <0.001. Because the p value <0.05, then H_0 is rejected and H_a is accepted. This shows that there is a statistically significant difference between the learning outcomes of the Experimental group and the Control group. The Mean Difference value of 3.721 (positive) indicates that the average score of the Experimental group is significantly

higher than the Control group. Therefore, the application of treatment to the Experimental group is proven to effectively provide a significant influence on improving the learning outcomes of the research subjects compared to the Control group.

Discussion

This study aims to evaluate the effectiveness of the 7E Learning Cycle model on improving the learning outcomes of eleventh-grade students at MA Nurul Iman Sekincau in the subject of Aqidah Akhlak (Faith and Morals). Comprehensively, success is measured through three main domains: cognitive (focusing on HOTS), affective (character and ethics), and psychomotor (moral behavior).

Cognitive Dimension: HOTS Development and Instrument Validity

Validity test results indicate that of the 15 cognitive instrument items designed to measure Higher-Order Thinking Skills (HOTS) at levels C5 and C6, 12 were declared valid, with a reliability value of 0.620, falling into the reliable category. An intriguing observation was noted in the distribution of difficulty levels, with items predominantly classified as "Easy" (53.33%) and "Very Easy" (33.33%), spanning all phases of the 7E Learning Cycle. Theoretically, the 7E model is designed to challenge students' cognitive abilities through systematic stages from Elicit to Extend; however, instruments that tend to be too easy risk suboptimally differentiating the abilities of average students from high-achievers. This phenomenon aligns with criticisms in educational evaluation that instruments must have strong discriminatory power to represent true cognitive complexity (Greiff et al., 2013; Maxnun et al., 2024).

Despite the low difficulty level of the instrument, the t-test results showed a significant difference in mean scores between the experimental and control groups ($p < 0.001$) with a mean difference of 1.857. These results confirm that the 7E model provides superior cognitive stimulation compared to conventional methods. This finding strengthens the constructivist theory, which states that active involvement in the learning cycle consistently strengthens information retention and conceptual understanding (Naade et al., 2019; Singer & Moscovici, 2008). This is also in line with previous studies that emphasized that the effectiveness of the Learning Cycle model lies in its ability to build a bridge between prior knowledge and the independent discovery of new concepts, thus producing more meaningful learning outcomes (Noreen et al., 2024).

Affective Dimension: Internalization of Character Values

In the affective aspect, the self-assessment instrument demonstrated very strong reliability (0.844). Although the experimental group data were not normally distributed ($p = 0.006$), the analysis still revealed a significant difference, with the experimental group's mean significantly different from the control group.

Character internalization in the Aqidah Akhlak subject improved a lot during the Engage and Elaborate phases of the 7E Learning Cycle model. At this stage, students

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not only theoretically memorize moral doctrine but are also encouraged to contextualize these values within the realities of everyday life. This aligns with Lickona's perspective on character education, which emphasizes the importance of moral knowing, moral feeling, and moral action for the full internalization of ethical values (Arif et al., 2023; Munawarsyah et al., 2024). Through intensive group discussions in the Engage phase, students begin to develop emotional awareness of moral issues, while the Elaborate phase provides them with the space to test the consistency of these values in a variety of new and complex situations.

These findings reinforce previous studies that suggest the cycle learning model is effective in enhancing religious attitudes because it provides a reflective space for students to collaboratively discuss ethical values (Islamy & Budiyanti, 2025). Theoretically, this is closely related to Vygotsky's concept of social constructivism, where social interaction within a group becomes a catalyst for the transformation of values from external knowledge to internal beliefs (Ghaedi et al., 2020; Shah, 2022). So, using the 7E model at MA Nurul Iman Sekincau shows that a student-focused approach helps students remember their values better than traditional methods, which are usually more one-sided.

Psychomotor Dimension: Manifestation of Moral Behavior

The superiority of the 7E model was most significant in the psychomotor domain. The t-test showed a t-value of 4.706 with a Mean Difference of 3.721, significantly outperforming the control group. This demonstrates the 7E model's effectiveness in improving applied learning outcomes.

Theoretically, the Explore and Extend phases of the 7E Learning Cycle provide opportunities for students to practice motor skills and behavioral coordination. In the context of Akidah Akhlak (Islamic Creed), this means students are able to manifest moral teachings into concrete actions. This finding aligns with the principle of holistic learning, which emphasizes that mastery of material must lead to behavioral change (psychomotor) (Brewe et al., 2023; Bulkani et al., 2025).

Comprehensive Analysis and Implications

Overall, the implementation of the 7E Learning Cycle model at MA Nurul Iman Sekincau has been shown to have a significant positive impact on all domains of student competency, including cognitive, affective, and psychomotor. Strong synchronization between student self-perceptions through questionnaires and observations of actual psychomotor performance ensures that the data obtained is highly valid and objective. These findings confirm the holistic learning theory, which states that a learning process structured in a continuous cycle can simultaneously address various dimensions of student development (Johnson, 2023). This is also in line with earlier research that shows the Learning Cycle model works not only to improve conceptual understanding but also to improve practical skills and mental attitudes through real-world learning experiences (De Witt et al., 2024; Yaman & Karasah, 2018).

However, as a critical note for future development, researchers need to increase the proportion of items with medium and high difficulty (higher-order thinking skills) in the cognitive instrument. This step is necessary to achieve an ideal normal distribution curve and strengthen the instrument's discriminatory power. Theoretically, this issue relates to Item Response Theory (IRT), where the quality of an instrument is measured by its ability to distinguish between high- and low-ability students (Reeve, 2024; Toraman et al., 2022). This adjustment is crucial so that learning evaluations not only measure mastery of basic material but also stimulate analytical, evaluative, and creative skills in line with the demands of a modern HOTS-based curriculum.

This study provides empirical evidence that the 7E Learning Cycle model can effectively improve learning outcomes in religious subjects (Akidah Akhlak), strengthening the theory that a systematic learning cycle facilitates the assimilation of new knowledge. This study demonstrates that the 7E model is not only effective for science materials but also capable of simultaneously measuring and improving higher-order cognitive aspects (C5 and C6), affective (character), and psychomotor (moral behavior). Furthermore, it provides a reference for constructing a valid and reliable cognitive test instrument to measure the ability to evaluate (C5) and create (C6) in the context of moral-religious education.

Furthermore, the results of this study provide practical guidance for teachers at MA Nurul Iman Sekincau in implementing the 7E model as a solution to overcome the limitations of conventional methods. Through item analysis, this study contributes to mapping the quality of examination instruments, including their discriminatory power and difficulty levels, so that teachers can make continuous improvements to their question banks. Offers a comprehensive assessment model by combining self-perception questionnaires and performance observations to objectively measure students' psychomotor behavior.

4. CONCLUSION

The implementation of the 7E Learning Cycle learning model has been proven to be significantly effective in improving the learning outcomes of grade XI students at MA Nurul Iman Sekincau in the subject of Akidah Akhlak. This is based on the significant difference in the average cognitive learning outcomes between the experimental and control groups, with a t-count value of 3.581 and a significance of <0.001. This model is able to measure higher-order thinking skills (Higher Order Thinking Skills) at levels C5 and C6. The implementation of this model has a real influence on the affective domain, which includes the internalization of character values and students' religious attitudes. The results of the hypothesis test showed a significant average difference with a significance value of 0.000. In addition, the 7E Model effectively improves students' psychomotor competencies, where the average value of the experimental group is consistently higher than the control group with a mean difference of 3.721. Overall, the research instrument meets the requirements of validity and reliability. The cognitive instrument, on the other hand, is still mostly made up of low-differentiation items

(86.66% easy and very easy). The psychomotor instrument, on the other hand, has a wide range of discriminating power.

As a recommendation, teachers are advised to adopt the 7E Learning Cycle model as an alternative active learning strategy to improve student participation and learning outcomes holistically. When preparing evaluations, teachers need to pay more attention to the proportion of item difficulty levels by increasing the number of items in the medium and difficult categories to more accurately differentiate student abilities. Future researchers are advised to conduct in-depth revisions of items with low discriminating power ("Poor") to maintain evaluation reliability. Given the non-normal distribution of data on the affective aspect, future researchers may consider using non-parametric statistics (such as the Mann-Whitney U test) or data transformation for more precise results.

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