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Student Learning Activeness: An Experimental Study on the Effectiveness of the 9E Learning Cycle Model

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A B S T R A C T

Learning activeness is essential for achieving optimal educational outcomes. However, many students still demonstrate low levels of active participation, particularly in Islamic Religious Education. The Learning Cycle 9E model is considered a potential strategy to enhance learning activeness through structured learning stages. This study aims to examine its effectiveness in improving students' learning activeness at SMA Negeri 15 Bandar Lampung. This research employs a quantitative approach with a quasi-experimental design. The population consists of all 12th-grade students, with class XII F7 as the experimental group and class XII F8 as the control group, selected through simple random sampling. Normality tests show significance values of 0.92 (experimental) and 0.649 (control), both greater than 0.05, indicating normal data distribution. The t-test results show a significance value of 0.962 (>0.05), leading to the acceptance of H_0. Findings indicate that the Learning Cycle 9E model does not significantly impact students' learning activeness. Other factors, such as motivation, classroom environment, and teacher involvement, may influence the results. Further research should explore modifications to the model or alternative cooperative learning strategies to optimize learning activeness in Islamic Religious Education.

1. Introduction

Education in Indonesia aims to develop students' potential so that they become individuals who are faithful, pious, have noble character, are healthy, knowledgeable, skilled, creative, and responsible (Marshanda et al., 2023; Rahmawati, 2019; Rokhanah et al., 2021; Saragih et al., 2021; Rokhanah et al., 2021). Well-managed, systematic, effective, and efficient education can accelerate the development of national culture by promoting societal well-being and intellectual empowerment (Nur Khadriah et al., 2025; Nur & Noviardila, 2021; Salsabila et al., 2022). However, education will not lead to progress if the system itself is not properly structured (Ranialini et al., 2025). The quality of education in Indonesia remains low due to inadequate facilities and infrastructure, as well as a lack of professionalism among educators. For instance, when teachers merely

provide notes without offering explanations, the learning process becomes ineffective(Adolph, 2020; Khoerunnisa & Aqwal, 2020; Mirdad & Pd, 2020; Wahyudi et al., 2022). Educators are required to adapt their teaching by integrating technology. The use of technology, teaching methods, and learning models plays a crucial role in making classroom learning more engaging, preventing students from feeling bored and uninterested in the learning process (A. A. Azizah et al., 2025; Trenggono Hidayatullah et al., 2023; Wulandari et al., 2021).

Learning is considered effective when students actively participate in the process, both individually and in groups (Abdullah, 2019; Pratiwi et al., 2025). Active Learning in learning reflects their efforts to develop their potential through various activities, whether conducted in face-to-face settings or online (N. Azizah et al., 2025; Eman Nataliano Busa, 2023; D. A. Putri & Taufina, 2020). This process also serves as a form of personal development, encompassing both soft and hard skills, with teachers acting as facilitators to enhance students' knowledge, skills, attitudes, and behavioral improvements (Gosha Patriasya et al., 2025.; Irma et al., 2020; Khotimah et al., 2023; Putri & Ramadhan, 2021; Putri & Taufina,2020; Sari et al., 2023; Setiabudhi et al.,2019.). Active Learning takes various forms, including both physical and cognitive activities (Dheni Purnasari 2022; Fitria et al., 2023; Maritsa et al., 2021). Physical engagement involves completing tasks such as reading, listening, and practicing, whereas cognitive engagement is demonstrated through discussions, problem-solving, and inquiry-based activities (Muryaningsih et al.,2023; D. A. Putri & Taufina, 2020). According to Sudjana (2016), indicators of Active Learning in classroom include: 1) Active participation in the learning process, such as involvement in class activities. 2) Participation in problem-solving tasks. 3) Asking questions to peers or teachers. 4) Seeking additional information beyond what is taught in class. 5) Engaging in discussions. 6) Confidence in their own abilities. 7) Completing exercises and assignments. 8) Applying acquired knowledge to real-life situations.

Based on preliminary research data conducted at SMA Negeri 15 Bandar Lampung, which involved observations, interviews, questionnaire distribution, and documentation with students from class XII F7 and the Islamic Religious Education (IRE) teacher, Mr. Saibani, M.Pd., on November 4, 2024, several issues were identified in the implementation of IRE learning. The key problems identified include. 1) Low Active Learning due to a lack of motivation among students to actively participate in the learning process. 2) Limited student involvement, suggesting that the conventional teaching model may be ineffective in encouraging student participation. This is primarily due to the minimal opportunities given to students to express their opinions. 3) Suboptimal utilization of available resources, as the teaching model applied by the teacher does not adequately meet students' learning needs, making it difficult for them to grasp the material effectively. 4) Inadequate support for students' individual needs, where teachers struggle to provide sufficient attention and support. This challenge arises from the underutilization of technology in the learning process, despite the availability of facilities that could enhance innovative teaching methods.

The Results of the Learning Engagement Questionnaire

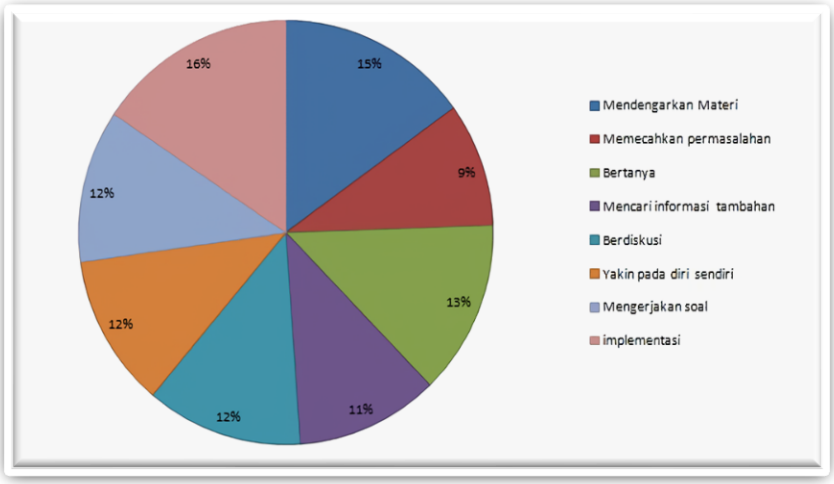

Figure 1. Preliminary Research Results on Students' Learning Engagement

In this study, the researcher categorized the results of the questionnaire distributed to students at SMA Negeri 15 Bandar Lampung based on indicators of learning engagement. The results, illustrated in a pie chart, show the following percentages: Listening – 13% Problem-solving – 9% Asking questions – 13% Seeking additional information – 11% Participating in discussions – 12% Self-confidence – 12% Completing exercises – 12% Application of knowledge – 16% These findings indicate a lack of Active Learning process, particularly in problem-solving tasks assigned by teachers. This highlights the need for teachers to implement strategies to address this issue. Based on initial observations and a series of interviews, there is an urgent need to adopt a learning module that could significantly enhance Active Learning. The key focus should be on problem-solving, ensuring that students actively participate in the learning process. Given that students may experience fatigue and boredom in their daily studies, it is essential to provide them with guidance on problem-solving strategies. In the context of Islamic Religious Education (IRE), problem-solving skills serve as a strong foundation for navigating both worldly and spiritual challenges. The students' needs, as reflected in the questionnaire results, are visually represented in Figure 1.

This issue has also been observed in previous studies, which reported a decline in students' learning engagement, leading to reduced involvement and participation in the learning process. One way to overcome challenges in learning and improve student achievement is by implementing an engaging and effective instructional model that encourages active participation (Afifah et al., 2025; Sudjana, 2022; Khoerunnisa & Aqwal, 2020). Therefore, the researcher selected the Learning Cycle 9E model, as this instructional approach actively involves students in every stage of the learning process (Prasetyo & Abduh, 2021; Sudrajat, 2024; Putra, 2021; Nisa et al., 2022; Putri Ristia et al., 2023 Risal & Astutik, 2021; Tukiran et al., 2020). The Learning Cycle model consists of a series of structured learning

stages designed to help students achieve educational goals by actively engaging in the process (Abdurrochim et al., 2022; Buwono et al., 2022; Lasaiba, 2023; Marshanda et al., 2023; D. T. Putri & Ramadhan, 2021; Susanti & Ardiawan, 2024). This model comprises nine stages: Elicit, Engage, Explore, Explain, Elaborate, Evaluate, Extend, Exchange, and Empower (Sartika et al., 2020). Each stage encourages students to express their ideas, collaborate, explore knowledge, and apply learned concepts to broader contexts. As a result, this model enhances students' interest and engagement in the learning process(Amalia & Istiqomah, 2020; Ardiya Cahyani et al., 2021; Susanti & Ardiawan, 2024; Wahyuningsih et al., 2023).

Findings from several researchers, including Hakim (2021), Osanlou Roya (2024), Rizal (2021), Safitri (2023), and Tukiran (2020), have revealed a significant increase in students' learning engagement after educators implemented the Learning Cycle instructional model. Although numerous studies have examined the Learning Cycle 9E model in the context of education and Active Learning, there remains a gap in understanding its overall impact on student participation, particularly in Islamic education at the high school level, specifically in Islamic Religious Education (IRE) for twelfth-grade students. Most previous research has primarily focused on general subjects such as Science and Mathematics. Therefore, the purpose of this study is to analyze the extent to which the Learning Cycle 9E model influences students' learning outcomes in Islamic Religious Education at SMA Negeri 15 Bandar Lampung.

The findings of this study provide new insights into how the integration of instructional models within conventional teaching methods can positively impact students' engagement in Islamic Religious Education (IRE). The results suggest that implementing this approach can enhance students' interest, support a more interactive teaching and learning process, and ultimately improve their engagement in IRE lessons. The implications of this study highlight the importance of adapting instructional models to meet students' learning needs, particularly in Islamic Religious Education. Additionally, it underscores the need for teachers to develop skills in designing engaging learning strategies to optimize student participation and learning outcomes.

2. Methodology

This study uses a quantitative approach. The quantitative approach is associated with numerical data and statistical calculations to analyze data obtained in the field, aiming for accurate and objective results. The type of research used is a Quasi-Experimental Design with a Posttest Only Control Group Design. This type of research is used to observe the effect of a treatment or intervention on the subjects being studied. In addition, the research variables used by the author are the independent variable, which is the Question Students Have learning model, and the dependent variable, which is student engagement. The technique used for sampling is simple random sampling, which is a method where each member of the population has an equal chance of being selected. After applying simple

random sampling, the sample chosen was class XII F7 as the experimental group using the Learning Cycle learning model and class XII F8 as the control group using the conventional model. The population of this study consists of all students in class XII at SMA Negeri 15 Bandar Lampung. This study was conducted during the even semester of the 2024/2025 academic year at SMA Negeri 15 Bandar Lampung in the Islamic Education (PAI) subject.

The instrument used in this study is a non-test in the form of a Likert-scale questionnaire. The questionnaire used by the author is designed to measure student engagement based on the indicators of engagement that are employed. The indicators of student engagement, according to Sudjana, consist of 8 indicators. These indicators are as follows: when the teaching and learning process takes place, students actively participate in completing their learning tasks, students are willing to engage in problem-solving during the learning activities, students are willing to ask their peers or the teacher if they do not understand the material or encounter difficulties, students make an effort to seek information that can help solve the problem they are facing, students engage in group discussions according to the teacher's instructions, students are able to assess their own abilities and the results they have achieved, students practice solving problems or exercises, and students have the opportunity to use or apply what they have learned to complete tasks or solve the problems they encounter.

In this study, the instrument used is a questionnaire consisting of 24 questions. These questions will be distributed, but before that, validation by a validator is necessary. After obtaining validation from the validator, the next step is to administer the 24 items to a trial class. Afterward, the data is tabulated and the validity of the questionnaire is tested using SPSS. The results of the validity test show that all 24 questionnaire items are valid. Then, the 24 items are given to both the experimental class and the control class. To test the validity of an instrument, the Pearson product-moment correlation formula is used to determine whether the instrument is valid or not.

This study also uses a reliability test aimed at measuring the results of the measurement. To determine the level of reliability, the Cronbach Alpha formula is used. Indicating that the instrument is reliable. The prerequisite test used is the normality test to measure whether the data obtained is normally distributed. The normality test uses the Liliefors test. Furthermore, the test used is the homogeneity test, which is used to determine whether the population variance is the same or not. The homogeneity test used in this study is the Bartlett test. The hypothesis test used in this study summarizes a brief and clear assumption about the relationship or influence between the independent variable and the dependent variable in the research. To test the hypothesis in this study, an independent sample t-test is used. The reliability test results used in this study are presented in Table 1 below:

Table 1. Description of The Reability Test

Reliability Statistics	
Cronbach's Alpha	N of Items
.813	24

Based on the reliability test using Cronbach's Alpha, $R_{hit} > R_{table}$, the instrument is considered reliable, with a coefficient of 0.813, indicating a high level of reliability. The results of the data analysis conducted on Class XII F8 (experimental group) and Class XII F7 (control group) regarding students' learning engagement in Islamic Religious Education (IRE) are presented below.

3. Result and Discussion

a. Normality Test

The normality test was conducted to determine whether the collected data follow a normal distribution based on a normally distributed population. Data are considered normally distributed if the significance value is greater than 0.05. In this study, the Lilliefors test was used for normality assessment. The results of students' learning engagement in twelfth-grade classes at SMA Negeri 15 Bandar Lampung are presented in Table 2 below.

Table 2.Description of The Normality Test

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Kelompok	Statistic	df	Sig.	Statistic	df	Sig.
Keaktifan Belajar	Eksperimen (Learning Cycle 9E)	.116	32	.200*	.943	32	.092
	Kontrol (Konvensional)	.094	31	.200*	.974	31	.649

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

a. Lilliefors Significance Correction

Based on the data analysis results using the Shapiro-Wilk test, the experimental group obtained a significance value of 0.092, which is greater than 0.05, indicating that the data are normally distributed. Similarly, the control group obtained a significance value of 0.649, which is also above 0.05, confirming that the data follow a normal distribution. Thus, it can be concluded that both datasets meet the normality assumption, as their significance values exceed 0.05.

b. Homogeneity Test

The homogeneity test is conducted to determine whether the variance of the data distribution is equal (homogeneous) or unequal (heterogeneous). Data are

considered homogeneous if the significance value (Sig.) is greater than 0.05. In this study, the Bartlett's test was applied to assess homogeneity. The results of this test are presented in Table 3 below.

Table 3. Description of The Homogeneity Test

Tests of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
KeaktifanBelajar	Based on Mean	.002	1	61	.962
	Based on Median	.022	1	61	.881
	Based on Median and with adjusted df	.022	1	60.999	.881
	Based on trimmed mean	.004	1	61	.948

Description of Homogeneity Test Results for Learning Engagement in Grade XII at SMA Negeri 15 Bandar Lampung Based on the results, the homogeneity test shows a significance value (Sig.) greater than 0.05, with a Sig. (2-tailed) value of 0.962. Thus, it can be concluded that the learning engagement data of Grade XII students at SMA Negeri 15 Bandar Lampung are homogeneous.

c. Hypothesis Test

In this hypothesis test, the T-test is used to assess whether the independent variable influences the dependent variable. To test this hypothesis, a Simple Independent T-Test was applied. The results of the hypothesis test using the T-Test on the learning engagement of Grade XII students at SMA Negeri 15 Bandar Lampung are presented in Table 4 below.

Table 4. Description of The Hypothesis Test

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	Df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Keaktifan Belajar	Equal variances assumed	.002	.962	4.688	61	<.001	<.001	12.021	2.564	6.894	17.149
	Equal variances not assumed			4.686	60.774	<.001	<.001	12.021	2.565	6.891	17.152

Based on Table 4, the T-Test results using SPSS show a calculated t-value with a significance (Sig.) of 0.962. This means that the Sig. (2-tailed) value of 0.962 is greater than 0.05. This result indicates that there is no significant effect of the Learning Cycle 9E model on students' learning engagement in Islamic Religious Education (IRE) at SMA Negeri 15 Bandar Lampung.

The Learning Cycle 9E instructional model aims to achieve optimal learning engagement through social interaction (Firdiana et al., 2023; Matitaputty, Jk & Sopacua, 2023). However, the results of this study indicate that the application of the Learning Cycle 9E model did not have a significant effect on increasing students' learning engagement in Islamic Religious Education (IRE) at SMA Negeri 15 Bandar Lampung. The T-test results showed a significance value (2-tailed) of 0.962, which is greater than 0.05. As a result, H_0 is accepted, and H_1 is rejected, meaning that there is no significant difference between the experimental class (which used the Learning Cycle 9E model) and the control class (which used a conventional method). This finding suggests that the Learning Cycle 9E model has not been able to enhance students' participation in learning as expected.

Factors Contributing to the Ineffectiveness of This Model One of the primary factors contributing to the ineffectiveness of this model is students' lack of readiness to adopt a more interactive learning approach. Based on observations and interviews with teachers and students, most students are still accustomed to conventional, passive learning methods. They tend to receive material without actively engaging in discussions or exploring concepts. Limited experience with exploration-based learning has hindered the effective implementation of innovative instructional models (Wahyudi et al., 2022).

Another major challenge is the time constraints in implementing all phases of the Learning Cycle 9E. Ideally, this model should be fully implemented across all nine stages. However, in practice, the *Exchange* and *Empower* phases could not be optimally executed due to restricted instructional time in the school schedule (Saragih et al., 2021).

The classroom environment also plays a significant role in limiting the model's effectiveness. Observations in the classroom indicate that both physical conditions and the overall learning atmosphere are not conducive to active learning, creating barriers that prevent students from engaging in more exploratory activities (Khoerunnisa & Aqwal, 2020). These limitations make it difficult for students to develop critical thinking skills and become independent learners.

Another contributing factor is the lack of student motivation. Survey results indicate that the lowest indicator of learning engagement is problem-solving involvement, with only 9% of students actively participating in this aspect. Problem-solving engagement is a crucial component of active learning. However, many students in this study lacked confidence in expressing their opinions and were reluctant to participate in discussions (Sudjana 2022).

Although this study did not demonstrate a significant increase in students' learning engagement, its findings provide valuable insights for future improvements in teaching methods. The results suggest that instructional models should be adjusted to align with students' characteristics and learning conditions while being integrated with complementary strategies that enhance motivation and participation. Modifications to the Learning Cycle 9E model—such as simplifying its phases or incorporating educational technology—could be a feasible approach to improving its effectiveness in the context of Islamic education in high schools. Additionally, future research could explore other contributing factors to student engagement, such as teacher involvement strategies, formative assessment techniques, and the role of social environments in fostering active student participation.

4. Conclusion

Based on the research findings, it can be concluded that the Learning Cycle 9E instructional model does not have a significant impact on improving students' learning engagement in the Islamic Education subject at SMA Negeri 15 Bandar Lampung. This is evidenced by the t-test results, which indicate no significant difference between the experimental class and the control class. Several key factors contribute to these findings, including students' lack of readiness to adopt a more interactive learning approach, time constraints in implementing the model effectively, and an unsupportive learning environment. Therefore, adjustments and modifications in the implementation of the instructional model are necessary to better align with students' characteristics and to consider other factors that may enhance their learning engagement.

References

Abdullah, I. (2019). Peningkatan hasil belajar matematika siswa kelas VII-1 MTs Alkhairaat Salilama pada persamaan dan pertidaksamaan linier satu variabel dengan menggunakan model pembelajaran Learning Cycle 5E. *JEMS: Jurnal Pendidikan Matematika dan Sains*, *4*(1), 50–62. https://doi.org/10.25273/jems.v11i2.15917

Abdurrochim, P. L., Khairunnisa, Y., Nurani, M., & Aeni, A. N. (2022). Pengembangan aplikasi BEAT (Belajar Asyik Tentang) Pendidikan Agama Islam untuk meningkatkan hasil belajar pendidikan agama Islam siswa sekolah dasar. *Jurnal Basicedu*, *6*(3), 3972–3981. https://doi.org/10.31004/basicedu.v6i3.2749

Afifah, N., Hasanah, U., Makbuloh, D., Hijriyah, U., Saputra, M. I., & Azizah, N. (2025). Self-confidence: How does the experimentation of the Course Review Horay learning models impact it? *JIIP: Jurnal Ilmiah Ilmu Pendidikan*, *8*(1). http://jiip.stkipyapisdompu.ac.id

Amalia, R. D., & Istiqomah, I. (2020). Upaya meningkatkan minat dan hasil belajar matematika melalui model pembelajaran Learning Cycle siswa

kelas IV SD Negeri Siyono III. *Trihayu: Jurnal Pendidikan Ke-SD-an*, *6*(2). https://doi.org/10.30738/trihayu.v6i2.7946

Ardiya Cahyani, A., Novika Pertiwi, F., Windiyanti Rokmana, A., Aliyatul Muna, I., & Artikel, R. (2021). Efektivitas model Learning Cycle 5E berbasis literasi sains terhadap kemampuan bertanya peserta didik. *Jurnal Teknologi Informasi dan Ilmu Pendidikan*, *14*(1). http://ejournal.iainponorogo.ac.id/index.php/jtii

Azizah, A. A., Azizah, N., Baharudin, B., Asiah, N., & Fakhri, J. (2025). Learning interest: How does the effectiveness of the game-based learning and team games tournament models? *Jurnal Pendidikan dan Pembelajaran Indonesia (JPPI)*, *5*(1), 103–117. https://doi.org/10.53299/jppi.v5i1.939

Buwono, I. S., Kartono, K., Sri, T., & Asih, N. (2022). Mathematics reasoning ability based on personality types on 9E learning cycle with kid-friendly rubrics. *Jurnal Pendidikan Matematika*, *11*(2).

Busa, E. N. (2023). Faktor yang mempengaruhi kurangnya keaktifan peserta didik dalam kegiatan pembelajaran di kelas. *Jurnal Sosial Humaniora dan Pendidikan*, *2*(2), 114–122. https://doi.org/10.55606/inovasi.v2i2.764

Firdiana, I. R., Supeno, & Rusdianto. (2023). Pengaruh model Learning Cycle 5E berbantuan e-LKPD berbasis multirepresentasi dalam pembelajaran IPA terhadap higher order thinking skills siswa SMP. *Pendipa Journal of Science Education*, *7*(3), 355–361. https://doi.org/10.33369/pendipa.7.3.355-361

Fitria, A., Nurlaela, E., & Prajabatan, P. (2023). Model pembelajaran kooperatif tipe TGT berbantuan media group card untuk meningkatkan keaktifan belajar siswa sekolah dasar. *Pendas: Jurnal Ilmiah Pendidikan Dasar*, *9*(1), 1004–1018.

Hakim, A. R., Asikin, M., & Cahyono, A. N. (2021). The development of learning module with mobile augmented reality based on 9E learning cycle to improve problem solving skills. *Jurnal Pendidikan Sains*, *10*(1), 1–9.

Khadriah, N. N., Azizah, N., Sa'idy, I., Istihana, & Baharudin. (2025). Learning outcomes: How is the experimentation of the AIR learning model? *JIIP: Jurnal Ilmiah Ilmu Pendidikan*, *8*(1), 271–279. http://jiip.stkipyapisdompu.ac.id

Khoerunnisa, P., & Aqwal, S. M. (2020). Analisis model-model pembelajaran. *Fondatia*, *4*(1), 1–27. https://doi.org/10.36088/fondatia.v4i1.441

Khotimah, H., Astuti, E. Y., & Apriani, D. D. (2023). Pendidikan berbasis teknologi: Permasalahan dan tantangan. *Jurnal Teknologi dan Pendidikan*, *4*(2).

Lasaiba, M. A. (2023). The effectiveness of the 5E Learning Cycle model as an effort to optimize students' activities and learning outcomes. *Edu Sciences Journal*, *4*(1), 11–21. https://doi.org/10.30598/edusciencesvol4iss1pp11-21

Matitaputty, J. K., & Sopacua, J. (2023). The effectiveness of the Learning Cycle 5E learning model in an effort to improve learning outcomes of history. *JIM: Jurnal Ilmiah Mahasiswa Pendidikan Sejarah*, *8*(2), 740–747. https://doi.org/10.24815/jimps.v8i2.24816

Maritsa, A., Salsabila, U. H., Wafiq, M., Anindya, P. R., & Ma'shum, M. A. (2021). Pengaruh teknologi dalam dunia pendidikan. *Al-Mutharahah:*

Jurnal Penelitian dan Kajian Sosial Keagamaan, *18*(2), 91–100. https://doi.org/10.46781/al-mutharahah.v18i2.303

Marshanda, S., Syahruddin, S., & Nuha Akhwtun, D. (2023). Perencanaan sistem pendidikan Islam: Pandangan Undang-Undang Sisdiknas No. 20 Tahun 2003. *Jurnal Ilmiah Multidisiplin*, *1*(11), 115–122.

Mirdad, J., & Pd, M. I. (2020). Model-model pembelajaran: Empat rumpun model pembelajaran. *Jurnal Pendidikan Inovatif*, *2*(1), 14–23.

Muryaningsih, S., & Solissa, M. (2023). Peran teknologi pendidikan dalam implementasi Kurikulum Merdeka. *Jurnal Teknologi dan Kurikulum*, *5*.

Nirwana, N., Azizah, N., Zulhannan, Z., Romlah, L. S., & Rahmatika, Z. (2025). Students learning activeness: An experimental study on the effectiveness of the cooperative learning model Question Students Have. *JIIP: Jurnal Ilmiah Ilmu Pendidikan*, *8*(1). http://jiip.stkipyapisdompu.ac.id

Nisa, K., Ramadhan, S., & Thahar, H. E. (2022). 5E Learning Cycle model on students' learning outcomes. *Al-Ishlah: Jurnal Pendidikan*, *14*(3), 3361–3374. https://doi.org/10.35445/alishlah.v14i3.1868

Nur, S. S., & Noviardila, I. (2021). Kajian literatur pengaruh model Learning Cycle terhadap hasil belajar tematik terpadu. *Jurnal Kajian Pendidikan*, *2*(1), 1–5.

Osanlou, R., & Halakoo, K. (2024). Examining education based on the E9 Learning Cycle model to improve. *Journal of Educational Theory and Practice*, *3*(3), 264–274.

Patriasya, G., Baharudin, Z., Zulaikhah, S., Isti'ana, A., Hasanah, I. F., & Azizah, N. (2025). Learning interest: How does the experimentation compare between the TAI and TEL models? *JIIP: Jurnal Ilmiah Ilmu Pendidikan*, *8*(1). http://jiip.stkipyapisdompu.ac.id

Piu, M. J. D., Rawa, N. R., Bela, M. E., & Studi Pendidikan Matematika, P. (2021). Pengembangan modul geometri ruang berbasis model Learning Cycle 7E untuk meningkatkan kemampuan koneksi matematis siswa kelas VIII SMP. *Jurnal Citra Pendidikan*, *5*(1). http://jurnalilmiahcitrabakti.ac.id/jil/index.php/jcp/index

Prasetyo, A. D., & Abduh, M. (2021). Peningkatan keaktifan belajar siswa melalui model Discovery Learning di sekolah dasar. *Jurnal Basicedu*, *5*(4), 1717–1724. https://doi.org/10.31004/basicedu.v5i4.991

Pratiwi, A., Azizah, N., Baharudin, B., Saputra, M. I., & Mustofa, M. (2025). Student learning outcomes: Innovative learning with an experimentation blended learning model. *Jurnal Pendidikan dan Pembelajaran Indonesia (JPPI)*, *5*(1), 63–74. https://doi.org/10.53299/jppi.v5i1.938

Purnasari, D. (2022). Pemanfaatan teknologi sebagai media pembelajaran dalam pendidikan era digital. *Journal of Educational Learning and Innovation*, *2*(2), 227. https://doi.org/10.46229/elia.v2i2

Putra, P. D. (2021). Penerapan model pembelajaran kooperatif dengan pendekatan open ended learning untuk meningkatkan hasil belajar matematika siswa kelas III SD Negeri 110 Pekanbaru. *Jurnal Pajar (Pendidikan dan Pengajaran)*, *5*(1). https://doi.org/10.33578/pjr.v5i1.8079

Putri, D. A., & Taufina, T. (2020). Meningkatkan keaktifan belajar siswa melalui model Make a Match di sekolah dasar. *Jurnal Basicedu*, *4*(3), 610–616. https://doi.org/10.31004/basicedu.v4i3.403

Putri, D. T., & Ramadhan, B. (2021). Profil keterampilan proses sains peserta didik menggunakan model pembelajaran 9E Learning Cycle at home melalui pembelajaran daring. *Jurnal Pendidikan Sains*, *7*, 164–175.

Putri Ristia, H., Nuha, U., & Supeno, S. (2023). Model Learning Cycle 5E berbantuan LKPD berbasis three-dimensional thinking graph dan pengaruhnya terhadap scientific reasoning pada siswa SMP. *Jurnal Paedagogy*, *10*(3), 703. https://doi.org/10.33394/jp.v10i3.7283

Rahmawati, E. (2019). Efektivitas penggunaan aplikasi I-Waris terhadap peningkatan pemahaman konsep mawaris peserta didik kelas XI di MAN 1 Bandar Lampung. *UIN Raden Intan Lampung*.

Ranialini, N., Azizah, N., Hijriyah, U., Anwar, S., & Istihana. (2024). Eksperimentasi model pembelajaran FERA dan ICI terhadap hasil belajar peserta didik pada mata pelajaran Pendidikan Agama Islam. *Intizar*, *30*(2). http://doi.org/10.19109/intizar.v30i2.24547

Risal, M., & Astutik, A. P. (2021). The effectiveness of Islamic education learning based on Learning Cycle on learning outcomes in junior high school. *Academia Open*, *4*, 1–10. https://doi.org/10.21070/acopen.4.2021.3098

Rokhanah, N., Widowati, A., & Sutanto, E. H. (2021). Peningkatan keaktifan belajar siswa dengan menerapkan model pembelajaran kooperatif tipe Student Team Achievement Divisions (STAD). *Edukatif: Jurnal Ilmu Pendidikan*, *3*(5), 3173–3180. https://doi.org/10.31004/edukatif.v3i5.860

Safitri, P. A., & Liantoni, F. (2023). The influence of the Learning Cycle blended learning model on student learning outcomes. *Jurnal Pendidikan Sains*, *6*(3), 83–91.

Salsabila, U. H., Khoirunnisa, J. F., Saputra, R. H. I., Zidanurrohim, A., & Hafidhdin, M. (2022). Teknologi pendidikan berbasis blended learning dalam pembelajaran Pendidikan Agama Islam. *Jurnal Educatio FKIP Unma*, *8*(4), 1634–1640. https://doi.org/10.31949/educatio.v8i4.4116

Saragih, L. M., Tanjung, D. S., & Anzelina, D. (2021). Pengaruh model pembelajaran open ended terhadap hasil belajar siswa pada pembelajaran tematik. *Jurnal Basicedu*, *5*(4), 2644–2652. https://doi.org/10.31004/basicedu.v5i4.1250

Sari, R., Bakar, R. M., Yhani, P. C. C., Mukadar, S., Lidiawati, L. S., Indah, N., & Hilir, A. (2023). Belajar dan pembelajaran. *Jurnal Pendidikan Multidisiplin*, *7*(1).

Sartika, I., Sri, T., & Asih, N. (2020). Peran kid-friendly rubrics dalam model pembelajaran 9E Learning Cycle terhadap kemampuan penalaran matematis siswa. *Jurnal Pendidikan Matematika dan Sains*, *3*, 621–625.

Setiabudhi, J., Thalita, A. R., Fitriyani, A. D., & Nuryani, P. (2019). Penerapan model pembelajaran TGT untuk meningkatkan keaktifan belajar siswa kelas IV. *Jurnal Inovasi Pendidikan Dasar*, *4*(2).

Sudjana. (2022). *Metode statistik untuk penelitian pendidikan*. Bandung: Alfabeta.

Sudrajat, S. J. (2024). Meningkatkan keaktifan siswa pada mata pelajaran PAI melalui model pembelajaran kooperatif tipe Jigsaw di kelas VIII SMPN 10 Kota Serang. *Jurnal Inovasi dan Teknologi Pendidikan Jurinotep*, *2*(3), 241–360. https://doi.org/10.46306/jurinotep.v2i3

Susanti, T., & Ardiawan, Y. (2024). Model pembelajaran Learning Cycle 5E terhadap keterampilan critical thinking matematis. *Jurnal Pendidikan Matematika*, *2*, 1449–1457.

Susanti, I., Agung, A. G., & Wulandari, G. A. A. (2020). Pengaruh model Inside Outside Circle berbantuan media video terhadap keaktifan belajar matematika. *Jurnal Ilmiah Pendidikan Profesi Guru*, *3*(1).

Trenggono Hidayatullah, M., Asbari, M., Ibrahim, M. I., Hadidtia, A., & Faidz, H. (2023). Urgensi aplikasi teknologi dalam pendidikan di Indonesia. *Journal of Information Systems and Management*, *2*(6). https://jisma.org

Tukiran, Mubarokah, F. A., & Nasrudin, H. (2020). Improvement of self-efficacy and student learning outcomes on acid base material using 9E Learning Cycle model. *International Journal of Chemical Science and Education (IJCSE)*, *196*, 199–202. https://doi.org/10.2991/aer.k.201124.037

Wahyudi, L. E., Mulyana, A., Dhiaz, A., Ghandari, D., Dinata, Z. P., Fitoriq, M., & Hasyim, M. N. (2022). Mengukur kualitas pendidikan di Indonesia. *Ma'arif Journal of Education, Madrasah Innovation and Aswaja Studies*, *1*(1), 18–22. https://doi.org/10.69966/mjemias.v1i1.3

Wahyuningsih, R., Budianti, Y., & Aarrahim, A. (2023). Penerapan model pembelajaran Learning Cycle 5E terhadap hasil belajar IPA siswa sekolah dasar. *Jurnal Elementaria Edukasia*, *6*(2), 844–857. https://doi.org/10.31949/jee.v6i2.5087

Wulandari, R., Mustadi, A., & Rahayuningsih, Y. (2021). Pengaruh Project Based Learning berbantuan lapbook terhadap keaktifan belajar siswa. *Jurnal Pendidikan: Teori, Penelitian, dan Pengembangan*, *6*(2), 300. https://doi.org/10.17977/jptpp.v6i2.14511

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