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The Influence of the 7E Learning Cycle Model on Student Learning Outcomes in Grade X on the Topic of Environmental Change and Conservation in Madrasah Aliyah Negeri (MAN) 1 Sinjai

Pengaruh Model Pembelajaran *Learning Cycle 7E* terhadap Hasil Belajar Peserta Didik Kelas X pada Materi Perubahan dan Pelestarian Lingkungan Hidup di Madrasah Aliyah Negeri (MAN) 1 Sinjai

A. Nurul Reski Cahyani[1)], Syamsul[2)], Andi Maulana[3)]

[1*, 2, 3)] Biology Education, Faculty of Tarbiyah and Education, UIN Alauddin Makassar, Indonesia.

*Corresponding Email: anurulreskichyn@gmail.com

Abstract

This study aims to analyze the differences in students' learning outcomes taught using the Learning Cycle 7E and Discovery Learning models on the topic of environmental change and conservation at MAN 1 Sinjai, as well as to examine the significant effect of the Learning Cycle 7E model on learning outcomes. The research employed a quasi-experimental method with a non-equivalent control group design. The population consisted of 203 tenth-grade students, with a purposive sampling technique resulting in 58 participants, comprising 29 students in the experimental group and 29 in the control group. Research instruments included a learning outcomes test, teaching modules, and observation sheets for instructional implementation. Data analysis was conducted using descriptive and inferential statistics, including normality, homogeneity, hypothesis testing, and influence testing. The results revealed a significant difference between the experimental and control groups, with a significance value of $\alpha = 0.00 < 0.05$ and the effect size test using Cohen's d yielded a value of 1.268 where $d > 0,8$ = very large. These findings indicate that the implementation of the Learning Cycle 7E model is significantly more effective in enhancing students' learning outcomes compared to the Discovery Learning model on the topic studied.

Penelitian ini bertujuan untuk menganalisis perbedaan hasil belajar peserta didik yang diajar menggunakan model Learning Cycle 7E dan Discovery Learning pada materi perubahan dan pelestarian lingkungan hidup di MAN 1 Sinjai, serta mengkaji pengaruh signifikan penggunaan model Learning Cycle 7E terhadap hasil belajar. Metode yang digunakan ialah eksperimen semu dengan desain non-equivalent control group. Populasi penelitian berjumlah 203 peserta didik kelas X, dengan teknik purposive sampling yang menghasilkan 58 responden, terdiri atas 29 peserta didik dalam kelompok eksperimen dan 29 dalam kelompok kontrol. Instrumen penelitian meliputi soal tes hasil belajar, modul ajar, serta lembar observasi keterlaksanaan pembelajaran. Analisis data dilakukan melalui pendekatan deskriptif dan inferensial, mencakup uji normalitas, homogenitas, uji hipotesis dan uji pengaruh. Hasil penelitian menunjukkan bahwa terdapat perbedaan signifikan antara hasil belajar kelompok eksperimen dan kontrol, dengan nilai signifikansi $\alpha = 0,00 < 0,05$ dan dan uji pengaruh dengan menggunakan Cohen's d diperoleh nilai 1.268 dimana $d > 0,8$ = sangat besar. Temuan ini mengindikasikan bahwa penerapan model Learning Cycle 7E secara signifikan lebih efektif dalam meningkatkan hasil belajar peserta didik dibandingkan dengan model Discovery Learning pada topik yang dikaji.

Article Information

Keywords:
discovery learning; environmental change and conservation; learning cycle 7E; learning outcomes; students.

Kata Kunci:
discovery learning; hasil belajar; *learning cycle 7E;* perubahan dan pelestarian lingkungan hidup; peserta didik.

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A. INTRODUCTION

Human certainly need education because it is one of the processes through which a person develops in terms of thought patterns, attitudes, character, language, and also their contribution to social life. Of course, these factors are determined by education, which is a systematic and conscious effort to enhance the potential of both individuals and groups (Safitri et al., 2022).

Education is an essential aspect of human development, encompassing the cognitive, affective, and psychomotor domains, and shaping individual character in social life. Education is a conscious and systematic effort undertaken by individuals and groups to develop their potential and skills. Education is a primary need that should be accessible to all levels of society (Hidayat et al., 2019).

Indonesia continues to strive to improve the quality of education and the social life of its younger generation. Good education will create a prosperous society (Indarta et al., 2022). However, in reality, access to and quality of education are not evenly distributed. One of the government's efforts to address current educational challenges is to implement the Independent Learning Curriculum, which gives educators the freedom to manage learning according to student needs. This curriculum emphasizes student-centered learning and aims to equip them with the competencies to think critically, act reflectively, and play an active role in global society. The government also demonstrated its commitment by providing supporting educational facilities and infrastructure to face the Society 5.0 era.

The researcher then conducted a preliminary study at the Madrasah Aliyah Negeri (MAN) 1 Sinjai, located at Jalan Baronang, Lappa Village, North Sinjai District, Sinjai Regency, South Sulawesi Province. The purpose of this study is to identify the problems faced by students in implementing the Independent Learning Curriculum. Based on the results of interviews with Mrs. Zaidah Rahmatullah, S.Pd as a Biology teacher for class X and of course students, it was found that there are several factors that influence the lack of student learning outcomes, including the ineffectiveness of the current learning model, where educators use the Discovery Learning model combined with the lecture method, making the focus of learning on the educator so that there is no reciprocal activity between students and educators during the teaching and learning process. Improvements are also needed in aspects of understanding the material, courage to express opinions, and variations in learning models.

These factors have led students' learning outcomes to decline, falling short of the minimum completion criteria (KKM), which for the subject of Biology is 75. This KKM is the benchmark for the success of educators in teaching the material. The researchers chose MAN 1 Sinjai as the research site because they observed that the existing learning model was not delivering optimal learning outcomes and was not focusing students in the learning process. Therefore, they propose implementing a more effective and innovative approach, the 7E Learning Cycle, which is expected to be more relevant and applicable to teaching–learning development and to improving learning outcomes in line with the Independent Curriculum.

The 7E Learning Cycle is a learning model that is a systematic strategy implemented to improve the quality of learning processes and outcomes (Polii & Polii, 2022). The selection of learning models must be based on student needs to ensure effective implementation and meet expectations. The first person to introduce the Learning Cycle model concept was Robert Karplus through the Science Curriculum Improvement Study (SCIS). Several literatures reveal the development of stages ranging from 3E, 5E, 6E, to 7E (Marfilinda et al., 2019).

The 7E Learning Cycle model by Eisenkraft (Eisenkraft, 2003) itself is based on constructivism theory that emphasizes active student participation in the learning process. This

model is considered capable of increasing student engagement through seven learning stages, namely: Elicit (exploring prior knowledge), Engage (building emotional involvement), Explore (exploring concepts through direct activities), Explain (explaining concepts), Elaborate (developing further understanding), Evaluate (assessing understanding), and Extend (expanding learning through enrichment tasks). Septianingrum (2022) stated that this model is effective for application in science learning because it can create an active and innovative learning atmosphere.

This learning model is designed to make students more active in the learning process. Students are encouraged to construct knowledge, identify and solve problems, while the teacher acts as a facilitator. This learning model comprises a sequence of activities that spark curiosity and help students extend their understanding through discussion, experimentation, hands-on experiences, and observation. In this way, it is hoped that students will be able to more easily know and understand the material they have studied (Marfilinda et al., 2019).

The advantage of the 7E Learning Cycle lies in its active, more based on student-centered approach in each phase of 7E so that it can be developed to trigger direct interaction with the material. This not only enhances conceptual understanding but also trains analytical skills and practical applications, such as developing hypotheses or evaluating final results. Furthermore, educators can apply this model using a wider variety of methods. The 7E Learning Cycle is expected to encourage active, creative, innovative, and meaningful learning for students. Students are given the opportunity to explore their abilities, thereby gaining learning experiences that can enhance their understanding (Shoimin, 2014).

The 7E Learning Cycle model, the material used is Environmental Change and Conservation as the material that will be taught to class X of MAN I Sinjai. In this material, students are shown a picture of environmental change events that occur in everyday life, then students are invited to observe and discuss them carefully, then the results of the observations will be explained carefully.

Assessment of learning outcomes also has an important component in the learning process. Learning outcomes are the abilities an individual acquires after the learning process has taken place, which can lead to behavioral changes in knowledge, experience, attitudes, and skills, improving student performance. Learning outcomes can be defined as changes that occur within an individual as a result of the individual's efforts or interactions with their environment (Ahmadiyanto, 2016).

Learning outcomes are student achievements that include mastery of knowledge, skills and attitudes. Evaluation of learning outcomes is carried out through various forms of assessment such as assignments, projects, presentations, and exams. The goal is to measure the extent to which students are able to apply the knowledge they have acquired in everyday life. Learning outcomes reflect the success of the educational process as a whole, including critical, creative, and collaborative thinking skills. Based on this background, the researcher is interested in conducting research with the title "The Effect of the 7E Learning Cycle Model on the Learning Outcomes of Class X Students on the Material of Environmental Change and Conservation at Madrasah Aliyah Negeri (MAN) 1 Sinjai".

B. METHOD

This study was conducted in the even (second) semester of the 2024/2025 academic year at MAN 1 Sinjai, located on Jalan Baronang, Lappa Village, North Sinjai District, Sinjai

Regency, South Sulawesi, Indonesia. The research employed a quantitative approach with a quasi-experimental design using a non-equivalent control group.

The population in this study consisted of 203 class X students, while the sample was selected purposively as many as two classes, namely class X A as the experimental class and class X B as the control class, each consisting of 29 students. Data collection techniques were carried out through learning outcome tests, observation sheets for learning implementation and documentation. The test instrument consists of multiple choices questions that have been validated by two experts. In this case, the test is used to measure cognitive abilities (knowledge and understanding), and the learning implementation observation sheet is used to measure the affective and psychomotor abilities of students. Data analysis is carried out starting from the validity and reliability test, descriptive and inferential statistics consisting of the Shapiro-Wilk normality test, the Levene Statistic homogeneity test and the Independent Sample T-Test hypothesis test also the Cohen's d influence test to determine how much influence the use of the 7E Learning Cycle model has on student learning outcomes.

C. RESULTS AND DISCUSSION

Learning Outcomes of Students Taught Using the 7E Learning Cycle Model on Environmental Change and Conservation Material at MAN 1 Sinjai

Based on the results of research conducted at MAN 1 Sinjai, the results are presented in detail in Table 1.

Table 1. Descriptive Statistical Analysis of Class XA

Parameter	Pre-Test	Post-Test
Number of Samples	29	29
Minimum Value	25	63
Maximum Value	69	100
Average	51.00	82.48
Standard Deviation	12.157	8.983
Variance	147.786	80.687

Based on the results of the descriptive analysis in class X A presented in Table 1, the average pre-test score was 51 with a maximum score of 69 and a minimum score of 25, as well as a standard deviation of 12.157 and a variance of 147.786. Meanwhile, the average post-test score increased to 82.48 with a maximum score of 100 and a minimum score of 69, accompanied by a standard deviation of 8.983 and a variance of 80.687. Furthermore, the distribution of the categorization of learning outcomes of class X A students can be seen in the following data.

Table 2. Categorization of Learning Outcomes of Class XA Students

Value Range	Frequency		Percentage		Category
	Pre-Test	Post-Test	Pre-Test	Post-Test	
80-100	0	19	0%	66%	Very well
66-79	3	9	10%	31%	Good
56-65	10	1	34%	3%	Enough
40-55	10	0	34%	0%	Not enough
0-39	6	0	21%	0%	Very less

Based on the results of the categorization pre-test and post-test scores listed in Table 2, it is known that before the treatment was given, the distribution of pre-test scores of class X A students showed that 6 people (21%) were in the very poor category, 10 people (34%) in the poor category, 10 people (34%) in the sufficient category, and 3 people (10%) in the good category. After the implementation of the Learning Cycle 7E model, there was a significant increase in the post-test results, with 19 students (66%) in the very good category, 9 students (31%) in the good category, and 1 student (3%) in the sufficient category. The average pre-test score of class X A students was 51.00, increasing to 82.48 in the post-test, which indicates a positive difference after the treatment was given.

Learning Outcomes of Students Taught Using the Discovery Learning Model on the Material of Environmental Change and Conservation at MAN 1 Sinjai.

Based on the results of research conducted at MAN 1 Sinjai, the results are presented in detail in Table 3.

Table 3. Descriptive Statistical Analysis of Class XB

Parameter	Pre-Test	Post-Test
Number of Samples	29	29
Minimum Value	25	69
Maximum Value	38	88
Average	42.86	68.28
Standard Deviation	12.620	13.038
Variance	159.266	169.993

Based on the results of the descriptive analysis presented in Table 2, it was obtained that the average pre-test score of class XB students was 42.86 with a maximum score of 69 and a minimum score of 25, as well as a standard deviation of 12.620 and a variance of 159.266. Meanwhile, the average post-test score increased to 68.28 with a maximum score of 88 and a minimum score of 38, accompanied by a standard deviation of 13.038 and a variance of 169.993. Furthermore, the distribution of the categorization of class X B students learning outcomes is shown in the following data.

Table 4. Categorization of Learning Outcomes of Class XB Students

Value Range	Frequency		Percentage		Category
	Pre-Test	Post-Test	Pre-Test	Post-Test	
80-100	0	7	0%	24%	Very well
66-79	2	11	7%	38%	Good
56-65	4	7	14%	24%	Enough
40-55	9	3	31%	10%	Not enough
0-39	14	1	48%	3%	Very less

Based on the results of the categorization pre-test and post-test scores listed in Table 4, it is known that before the treatment was given, the distribution of pre-test scores of class X B students showed that as many as 14 students (48%) were in the very poor category, 9 students (31%) in the poor category, 4 students (14%) in the sufficient category, and 2 students (7%) in the good category. After the learning took place (post-test), there was an increase in learning

outcomes, where as many as 7 students (24%) were in the very good category, 11 students (38%) in the good category, 7 students (24%) in the sufficient category, 3 students (10%) in the poor category, and 1 student (3%) in the very poor category. The average pre-test score of the control class was recorded at 42.86, while the average post-test score increased to 68.28, which reflects an increase in learning outcomes although not as optimal as the experimental class.

The Effect of Using the 7E Learning Cycle Model on the Learning Outcomes of Experimental Class XB Students on the Material on Environmental Change and Conservation at MAN 1 Sinjai

Researchers conducted an inferential statistical analysis to determine the effect of the implementation of the 7E Learning Cycle model on the learning outcomes of class X A students on the material of environmental change and preservation at MAN 1 Sinjai. The inferential analysis used included data normality tests, homogeneity test as prerequisite tests, hypothesis tests to test the significance of differences that occurred before and after treatment and influence tests to test how much influence the 7E Learning Cycle model had on student learning outcomes.

Normality Test

This test aims to determine whether the data from student learning outcomes for the experimental and control classes are normally distributed. The results of the normality test can be seen in table 5.

Table 5. Results of the Normality Test of Learning Outcomes

Class	Shapiro-Wilk			
	Statistic	Df	Sig.	Description
Pre-Test X A	0.943	29	0.121	Normally Distributed
Post-Test X A	0.952	29	0.208	
Pre-Test X B	0.934	29	0.071	
Post-Test X B	0.951	29	0.189	

Based on the analysis results presented in Table 5, the normality test was conducted using the Shapiro-Wilk test with the help of SPSS version 26 software. In class X A, a significance value of 0.121 was obtained for the pre-test data and 0.208 for the post-test data. Because the significance value is greater than 0.05, the learning outcome data of students in class X A taught using the Learning Cycle 7E model is declared to be normally distributed. Meanwhile, in class X B, a significance value of 0.071 was obtained for the pre-test and 0.189 for the post-test. With a significance value that also exceeds the 0.05 limit, the learning outcome data of students in class X B using the Discovery Learning model also shows a normal distribution. Based on these results, it can be concluded that the data from both classes have a normal distribution and fulfill one of the requirements for further inferential testing.

Homogeneity Test

A homogeneity test is conducted to determine whether the variances in the population have the same values. The results of the homogeneity test in this study can be seen in Table 6.

Table 6. Results of Homogeneity Test for Classes A and B

Levene Statistic	Df1	Df2	Sig.	Description
3.957	1	56	0.052	Homogen

Based on the results of the homogeneity test analysis shown in Table 6 and carried out with the help of SPSS software version 26, a significance value of 0.052 was obtained. Because the significance value is greater than 0.050, it can be concluded that both classes come from a homogeneous population.

Hypothesis Test

Hypothesis test is carried out to determine whether there is a difference in the average between two independent data groups. This test requires several assumptions, namely that the data must be normally distributed, both groups are independent, and the variables analyzed are numerical and categorical with two comparison groups. In this study, hypothesis testing was conducted using the Independent Sample T-Test technique. The complete results of the hypothesis test analysis can be seen in the following table.

Table 7 . Hypothesis Test Results of Learning Outcome Data

	Levene's Test for Equility of Variances		T-Test for Equility of Means		
	F	Sig.	T	Df	Sig. (2 tailed)
Equal Variances assumed	3.957	0.052	4.832	56	0.000
Equal Variances not assumed			4.832	49.693	0.000

Based on the results of the hypothesis test analysis presented in Table 7, a significance value (2-tailed) of 0.000 was obtained through the assistance of the SPSS version 26 program. The significance value is smaller than 0.05 (0.000 < 0.05), so it can be concluded that there is a significant difference between the experimental group and the control group. In addition, the results of the comparison of the t-count value of 4.832 with the t-table value of 1.672 (at a significance level of 5% and degrees of freedom/df = 56), indicate that the t-count > t-table.

Influence Test

This test was performed using Cohen's d calculation. Effect size to find out how big the influence of the 7E Learning Cycle model is on the learning outcomes of students in class X A is by using the formula:

$$\text{Cohen's } d = (M_2 - M_1) / SD_{\text{pooled}}$$

where

$$SD_{\text{pooled}} = \sqrt{((SD_1^2 + SD_2^2) / 2)}$$

The calculation can be processed by using *SPSS* and the results obtained are:

$M_1 = 82.48$, $M_2 = 68.28$, $SD_1 = 8.983$, $SD_2 = 13.038$

$d = (82.48 – 68.28) / 11.196$, $SD_{pooled} = \sqrt{[(8.983^2 + 13.038^2) / 2]} = 11.196$

$d = 14.200 / 11.196 = 1.268$

$d = 1.268$

Based on the calculation results that have been carried out, the result obtained is 1,268 which indicates that the results obtained are in the large effect size category where the interpretation value $d > 0.8$ = very large. So it can be concluded that the Learning Cycle 7E model has a large influence on the ability of student learning outcomes on the material of environmental change and preservation in class X A MAN 1 Sinjai.

DISCUSSION

The results of research conducted at MAN 1 Sinjai showed that class X A students who received learning with the Learning Cycle 7E model showed a significant increase in learning outcomes compared to class X B who received learning using the Discovery Learning model. This can be seen from the average pre-test score of class X A of 51.00, which increased to 82.48 in the post-test. This increase indicates that the application of the Learning Cycle 7E model effectively increases students understanding of the material on environmental change and preservation.

The 7E Learning Cycle model lies in its systematically organized learning structure, which guides students to understand the learning steps in a focused manner. This model also encourages active student engagement, trains critical thinking skills, provides constructive feedback, and facilitates flexibility and relevance of material in the learning process. This is in line with findings Adi et al. (2024) which state that the 7E Learning Cycle stage structure significantly supports in-depth conceptual understanding and strengthens student competencies. Furthermore, Nur & Noviardila (2021) add that this model provides opportunities for students to explore their surroundings and develop scientific concepts based on phenomena encountered.

Based on research results of Aulia & Sontani (2018), which showed a significant influence of classroom management on student learning outcomes. This means that the more skilled educators are in managing the classroom, the better the students' learning outcomes will be, and vice versa. This is also inseparable from the effectiveness of well-designed teaching modules that can support the research process in a better and more structured manner. Research by Rahmadanti et al. (2023) also shares the same opinion regarding modules that are able to provide clear instructions to educators, thereby improving student learning outcomes.

The stages in the 7E Learning Cycle model consist of Elicit, Engage, Explore, Explain, Elaborate, Evaluate, and Extend (Aprianingsih et al., 2020). The role of educators in developing learning modules is also crucial for learning success. According to Rahmi et al. (2024), educators expertise in developing learning modules supports the achievement of comprehensive learning objectives. This is crucial in the context of the implementation of the Independent Learning Curriculum, which is still in the adaptation stage in various educational units.

The definition of the Learning Cycle as a systematic activity stage to build conceptual understanding by students, as proposed by Karplus & Thier (1967) as cited in Nismalasari et al. (2016), which emphasizes a student-centered learning approach. The active learning enabled by this model is a key factor in improving learning outcomes. Pratiwi & Supardi (2014) stated that the the Learning Cycle model received a positive response because it facilitated conceptual understanding and created a pleasant learning environment. Similarly, Maskur et al. (2019) found that the 7E Learning Cycle model significantly improved students conceptual understanding.

Meanwhile, the learning outcomes of class X B students taught using the Discovery Learning model showed an increase from an average pre-test of 42.86 to 68.28 in the post-test. However, this increase did not reach the minimum completion criteria of 75, and most students still fell below that score. This could be caused by various factors such as a lack of learning independence, limited prior knowledge, low active involvement, and differences in student learning styles. According to Devi et al. (2018), the Discovery Learning model has several weaknesses, including inefficient use of time, a tendency for students to feel frustrated during the discovery process, and limitations in covering affective and psychomotor aspects. Furthermore, Khasinah (2021) added that the main obstacles in implementing Discovery Learning are the length of time required and the unpreparedness of students and educators to implement this approach optimally.

Shanthi & Maghfiroh (2020) also stated in their research that the main drawback of this learning model is that it is less efficient when applied to a large number of students. Other drawbacks include the need for students to be prepared, especially in various aspects of the learning process, which can lead to students' focus being divided and not having time to study the material during the test, resulting in suboptimal learning outcomes. This model tends to require high mental readiness and cognitive abilities from students, as well as educator skills in designing discovery-based learning experiences. If these things are not met, the effectiveness of learning will decrease.

Student disinterest and boredom in the learning process using the conventional and repetitive Discovery Learning model can also reduce learning motivation. Therefore, it is crucial for educators to choose learning models that are adaptive, engaging, and tailored to student needs. Nabillah & Abadi (2019) emphasized that the success of the learning process is largely determined by the educator's policy in choosing the appropriate and contextual learning model.

Based on the results of the hypothesis testing and effect size testing, it can be concluded that the use of the 7E Learning Cycle model significantly impacts student learning outcomes in the topic of environmental change and preservation. This finding is supported by Sumiyati et al. (2016) which state that the 7E Learning Cycle model can improve educator performance in facilitating meaningful learning outcomes through learning stages that encourage student engagement.

The 7E Learning Cycle model is also a series of activity stages organized in such a way that students can master the competencies that must be achieved in learning through active participation. This learning requires active students because, at each stage, this model always fully involves students (Mirjanah et al., 2017). Sari et al. (2021) also revealed that the 7E Learning Cycle model has a significant influence on students critical thinking skills. Thus, this model can be used as an alternative in biology learning. The data can also be applied to other concepts and subjects, improving the learning process.

The 7E Learning Cycle teaching technique can improve students grades and help them better understand the learning process. In addition to improving student learning outcomes, this

model can also enhance cognitive performance, critical thinking, and analytical skills. Another important aspect is that it can enhance the enjoyment of learning, allowing students to experience the learning process without feeling pressured (Iqbal et al., 2024).

The 7E Learning Cycle model not only improves academic achievement but also contributes to strengthening students' scientific attitudes and self-efficacy in facing the learning process (Hasanah et al., 2019). Bertiliya et al. (2023) added that students taught with this model tend to understand concepts more easily and show improvements in critical and creative thinking skills. Thus, it can be concluded that the 7E Learning Cycle model is more effective than Discovery Learning in improving learning outcomes on the material on environmental change and preservation.

D. CONCLUSION

Based on the results of the research and discussions that have been carried out, the following conclusions were obtained:

1. The learning outcomes of students who received instruction using the 7E Learning Cycle model on environmental change and preservation at MAN 1 Sinjai showed significant improvement. This was demonstrated by the average pre-test score, which was in the poor category, and an increase in the post-test to reach the excellent category.
2. The learning outcomes of students who received the Discovery Learning model on the same material showed improvement, although not as significant as those in the experimental class. The average pre-test score was in the poor category, and the post-test score increased to the good category, but did not yet reach the Minimum Completion Criteria (KKM) overall.
3. Based on the results of the hypothesis test using the Independent Sample T-Test, a significance value (sig. α) of $0.00 < 0.05$ was obtained and the influence test using Cohen's d obtained a value of 1.268 where $d > 0.8$ = very large, thus indicating a significant influence between the use of the Learning Cycle 7E model on student learning outcomes on the material of environmental change and preservation. Thus, it can be concluded that the application of the Learning Cycle 7E model is effective in improving the learning outcomes of class X A students of MAN 1 Sinjai.

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F. REFERENCE

Adi, E. P., Wedi, A., Soepriyanto, Y., Arifiansyah, M. D., & Firdaus, K. H. C. (2024). Pengaruh Model 7E Learning Cycle Dan Keterampilan Berpikir Kreatif Terhadap Hasil Belajar Mahasiswa. *Journal of Educational Technology Studies and Applied Research*, *1*(2), 1–5.

Ahmadiyanto. (2016). Meningkatkan Aktivitas Dan Hasil Belajar Siswa menggunakan media pembelajaran Ko-Ruf-Si (Kotak Huruf Edukasi) Berbasis Word Square Pada Materi Kedaulatan Rakyat dan Sistem Pemerintahan di Indonesia Kelas VIIIC SMPN 1 Lampihong Tahun Pelajaran 2014/2015. *Jurnal Pendidikan Kewarganegaraan*, *6*(2), 980–993.

Aprianingsih, E., Bahtiar, B., & Raehanah, R. (2020). Pengaruh Model Pembelajaran Learning Cycle 7E Terhadap Hasil Belajar Dan Motivasi Siswa Kimia Kelas X SMAN 1 Brang Rea Tahun Pelajaran 20119/2020. *SPIN Jurnal Kimia & Pendidikan Kimia, 2*(2), 146–162.

Aulia, R., & Sontani, U. T. (2018). Pengelolaan Kelas Sebagai Determinan Terhadap Hasil Belajar. *Jurnal Pendidikan Manajemen Perkantoran*, *3*(2), 9.

Bertiliya, W. A., Yulianti, D., & Perdana, R. (2023). Analysis of Making LKPD Based on the 7E Learning Cycle Model to Empower Critical and Creative Thinking (CCT) Skills. *Udapest International Research and Critics Institute-Journal*, *6*(1), 437–444.

Devi, P. C., Hudiyono, Y., & Gede, W. M. (2018). Pengembangan Bahan Ajar Menulis Teks Prosedur Kompleks Dengan Model Pembelajaran Discovery Learning Menggunakan Media Audio Visual (Video) Di Kelas XI SMA Negeri 1 Samarinda. *Diglosia: Jurnal Kajian Bahasa, Sastra, Dan Pengajarannya*, *1*(2), 101–114.

Eisenkraft, a. (2003). Expanding the 5E model. *The Science Teacher -Washington-*, *70*(6), 56–59.

Hasanah, U., Rachmani, N., & Rosyida, I. (2019). Self-Efficacy Siswa SMP Pada Pembelajaran Model Learning Cycle 7E (Elicit, Engange, Explore, Explain, Elaborate, Evaluate, and Extend). *Prisma, Prosiding Seminar Nasional Matematika*, *2*(1), 551–555.

Hidayat, R., Ag, S., & Pd, M. (2019). *Buku Ilmu Pendidikan Rahmat Hidayat & Abdillah* (M. P. Dr. Candra Wijaya & M. P. Amiruddin (eds.). Lembaga Peduli Pengembangan Pendidikan Indonesia (LPPPI).

Indarta, Y., Jalinus, N., Waskito, W., Samala, A. D., Riyanda, A. R., & Adi, N. H. (2022). Relevansi Kurikulum Merdeka Belajar dengan Model Pembelajaran Abad 21 dalam Perkembangan Era Society 5.0. *Edukatif : Jurnal Ilmu Pendidikan*, *4*(2), 3011–3024.

Iqbal, M., Noreen, Z., & Hayat, K. (2024). Impact of 7E Model on Students Academic Achievement: A Comprehensive Analysis in Educational Settings. *Journal of Education and Social Studies*, *5*(1), 154–167.

Khasinah, S. (2021). Discovery Learning: Definisi, Sintaksis, Keunggulan dan Kelemahan. *Jurnal MUDARRISUNA: Media Kajian Pendidikan Agama Islam*, *11*(3), 402.

Lailatur Rahmi, Fajrina, S., & Rahmi, Y. L. (2024). Literature Review : Analisis Penyusunan Modul Ajar Pada Kurikulum Merdeka. *Journal in Teaching and Education Area*, *1*(1), 12–19.

Marfilinda, R., Zaturrahmi, & Suma Indrawati, E. (2019). Development and application of learning cycle model on science teaching and learning : a literature review. *Journal of Physics: Conference Series*, *1317*(1), 13.

Maskur, R., Latifah, S., Pricilia, A., Walid, A., & Ravanis, K. (2019). The 7E Learning Cycle Approach to Understand Thermal Phenomena. *Jurnal Pendidikan IPA Indonesia*, *8*(4), 464–474.

Mirjanah, M., Hastuti, S. P., & Priyayi, F. (2017). Peningkatan Aktivitas dan Hasil Belajar Siswa Melalui Penerapan Model Learning Cycle 7 E Pada Pembelajaran Biologi Kelas X IPA 4 SMA Negeri 1 Bringin Tahun Pelajaran 2016/2017. *Relawan Jurnal Indonesia*, *29*(1), 18–27.

Nabillah, T., & Abadi, A. P. (2019). Faktor penyebab rendahnya hasil belajar siswa. *Journal Unsika*, *1*(1), 659–663.

Nismalasari, Santiana, & Rohmadi, M. (2016). Penerapan Model Pembelajaran Learning Cycle Terhadap Keterampilan Proses Sains Dan Hasil Belajar Siswa Pada Pokok Bahasan Getaran Harmonis. *EduSains*, *4*(3), 74-94

Nur, S. S., & Noviardila, I. (2021). Kajian Literatur Pengaruh Model Learning Cycle terhadap Hasil Belajar Tematik Terpadu. *Journal of Education Research*, *2*(1), 1–5.

Polii, D. J., & Polii, M. (2022). Model- Model Pembelajaran. *EDULEAD: Journal of Christian Education and Leadership*, *3*(1), 117–132.

Pratiwi, N. W., & Supardi, Z. A. I. (2014). Penerapan Model Pembelajaran Learning Cycle 5E pada Materi Fluida Statis Siswa Kelas X SMA. *Jurnal Inovasi Pendidikan Fisika (JIPF)*, *03*(02), 143–148.

Rahmadanti, N., Refianti, R., & Yanto, Y. (2023). Systematic Literature Review: Modul Berbasis Learning Cycle 7E pada Pembelajaran Matematika. *Didactical Mathematics*, *5*(2), 223–231.

Safitri, A. O., Yunianti, V. D., & Rostika, D. (2022). Upaya Peningkatan Pendidikan Berkualitas di Indonesia: Analisis Pencapaian Sustainable Development Goals (SDGs). *Jurnal Basicedu*, *6*(4), 7096–7106.

Sari, N. I., Meilinda, M., & Anwar, Y. (2021). The Effect of 7E Learning Cycle Model on the Students Critical Thinking Skills. *Sriwijaya International Journal of Lesson Study*, *1*(2), 23–30.

Septianingrum, I. (2022). Model Pembelajaran Learning Cycle 7E Untuk Meningkatkan Keterampilan. *Kalam Cendekia: Jurnal Ilmiah Kependidikan*, *10*(2), 273.

Shanthi, R. V., & Maghfiroh, N. (2020). Pengaruh Model Pembelajaran Discovery Learning Pada Pembelajaran Tematik Di MI Ma'arif Pulutan. *MAGISTRA: Media Pengembangan Ilmu Pendidikan Dasar Dan Keislaman*, *11*(1), 37.

Shoimin, A. (2014). *68 Model Pembelajaran Inovatif dalam kurikulum 2013* (R. KR (ed.)). Ar-Ruzz Media.

Sumiyati, Y., Sujana, A., & Djuanda, D. (2016). Penerapan Model Learning Cycle 7 E Untuk Meningkatkan Hasil Belajar Siswa Pada Materi Proses Dar Air. *Jurnal Pena Ilmiah*, *1*(1), 41–50.