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THE EFFECTIVENESS OF EXPERIENTIAL LEARNING THROUGH *JELAJAH ALAM SEKITAR* (JAS) APPROACH ON THE NINTH-GRADE STUDENTS' COGNITIVE LEARNING OUTCOMES AND ACTIVENESS ON THE FUNCTION OF SOIL FOR LIFE AND ITS COMPONENTS LEARNING MATERIAL

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ABSTRACT

This paper discusses the effectiveness of Experiential Learning on the Jelajah Alam Sekitar approach (JAS) on the ninth-grade students' cognitive learning outcomes and activeness at SMP Negeri 6 Semarang on the function of soil for life and its component learning material. The research uses the Static Group Comparison method by involving two classes. The control class (9H) uses the lecture method and the experimental class (9G) uses the JAS approach based on Experiential Learning. The cognitive learning outcome data were obtained from multiple choice objective tests (summative assessment), while students' activeness data were obtained from observation sheets. Data were analyzed by using an independent T-test. The results indicate that the JAS approach was effective in improving students' cognitive learning outcomes and activeness. It is evidenced by a significant difference between the average score of cognitive learning outcomes in the control class at 89 and in the experimental class at 96.3 with a p-value of 0.043. In addition, there was a difference between the average score of students' activeness in the control class at 12.3 and in the experimental class at 13 with a p-value of 0.116. Yet, the differences were not significant. Based on the results of the research, it is recommended that teachers can use the JAS approach as one of the alternative learning methods that can improve students' cognitive learning outcomes and activeness.

Keywords*: *JAS approach, students' cognitive learning outcomes, students' activeness, the role of soil

EFEKTIVITAS PEMBELAJARAN BERBASIS PENGALAMAN MELALUI PENDEKATAN JELAJAH ALAM (JAS) SEKITAR TERHADAP HASIL BELAJAR KOGNITIF DAN KEAKTIFAN PESERTA DIDIK KELAS 9 PADA MATERI PERANAN TANAH BAGI KEHIDUPAN DAN KOMPONENNYA

ABSTRAK

Artikel ini membahas efektivitas pembelajaran berbasis pengalaman pada pendekatan Jelajah Alam Sekitar (JAS) terhadap hasil belajar kognitif dan keaktifan peserta didik kelas 9 di SMP Negeri 6 Semarang pada materi peranan tanah bagi kehidupan dan komponennya. Penelitian menggunakan metode Static Group Comparison dengan melibatkan dua kelas. Kelas kontrol (9H) menggunakan metode ceramah dan kelas eksperimen (9G) menggunakan pendekatan JAS berbasis pembelajaran berdasarkan pengalaman. Data hasil belajar kognitif diperoleh dari tes objektif pilihan ganda (penilaian sumatif), sedangkan data keaktifan peserta didik diperoleh dari lembar observasi. Data dianalisis dengan menggunakan Uji T independen. Hasil penelitian menunjukkan bahwa pendekatan JAS efektif dalam meningkatkan hasil belajar kognitif dan keaktifan peserta didik. Hal ini dibuktikan dengan adanya perbedaan signifikan antara rata-rata hasil belajar kognitif kelas kontrol sebesar 89 dan kelas eksperimen sebesar 96,3 dengan nilai p sebesar 0,043. Selain itu, terdapat perbedaan rata-rata keaktifan peserta didik antara kelas kontrol sebesar 12,3 dan kelas eksperimen sebesar 13 poin dengan nilai p sebesar 0,116. Namun, perbedaan ini tidak signifikan. Dari hasil penelitian, disarankan agar guru dapat menggunakan pendekatan JAS sebagai salah satu alternatif pembelajaran yang dapat meningkatkan hasil belajar kognitif dan keaktifan peserta didik.

Kata Kunci: pendekatan JAS, hasil belajar kognitif peserta didik, keaktifan peserta didik, peranan tanah

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INTRODUCTION

Biology learning is one of the learning that requires direct interaction with the natural environment as the main source of learning. The natural environment can provide meaningful experiences and knowledge for students, as well as increase their motivation and activeness in the learning process. The JAS approach is one of the ways of learning that uses learning resources from the natural environment. (Nur Astuty et al., 2017). The Environmental Exploration Approach (JAS) is a learning approach that utilizes the natural environment around the students as the object of biology learning, which phenomena are studied directly through observation and other scientific activities (Alimah & Marianti, 2016) with this approach, students can develop critical thinking skills, creative, and scientific, as well as apply biological concepts in real life.

The material of the role and components of soil is a contextual material, meaning that the material is connected and related to the life of students (Afriani, 2018). Soil experiences problems such as erosion, pollution, degradation, and damage due to natural and human factors. These problems reduce the quality and quantity of soil as a source of biology learning. Good and diverse soil can support scientific activities that improve the cognitive learning outcomes and activeness of students on the role of soil for life and its components. Therefore, efforts are needed to increase public awareness and knowledge about soil. One of them is through science education in schools that provide an understanding of the basic concepts of soil.

Cognitive learning outcomes and student engagement are two crucial aspects of the learning process. Cognitive learning outcomes refer to the results that demonstrate students' abilities to comprehend, remember, apply, analyze, evaluate, and create the concepts they have learned (Sudjana, 2009). According to (Cahyani, 2019; Hidayah, 2019), innovation and creativity in teaching have an impact on student engagement in the learning process, as evidenced by conditions, behaviors, or activities involving students, such as asking questions, expressing opinions, completing assignments, being able to answer teachers' questions, and collaborating with other students.

Experiential Learning also provides valid outcomes in terms of learning that utilizes instructional modules for the process of Environmental Exploration (Basaroh et al., 2021). Experiential learning is a learning process where knowledge is acquired through a form of experience, combining understanding with activities performed (Anjarwati, 2018). In the Experiential Learning method, the learning media used is the individual's own experiences. Experiential learning grants freedom to learners to achieve success by selecting the experiences, skills, and concepts they want to learn from those experiences. Experiential learning can also enhance students' scientific process skills and learning outcomes in biology, as students can engage in scientific activities directly and receive feedback from their observations and experiments (Putra, 2021).

Therefore, this research holds significant importance as it will provide a deeper understanding of the extent to which Experiential Learning-based Environmental Exploration can enhance student participation in learning about the role of soil in life and its components. By implementing Experiential Learning in Environmental Exploration, the effectiveness of this approach, this study can make a meaningful contribution to the development of more interactive and engaging learning approaches in the field of biology, particularly at the secondary school level (SMP fase D).

The research objectives are as follows:

1. To assess the effectiveness of the Environmental Exploration approach in enhancing student engagement and cognitive learning outcomes in the topic of soil's role.
2. To investigate the effectiveness of the Environmental Exploration approach in the topic of soil's role on student engagement and cognitive learning outcomes.
3. To analyze the student engagement and cognitive learning outcomes during the

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Environmental Exploration activities focused on the topic of soil's role.

METHOD

This research was conducted at SMP Negeri 6 Semarang and took place from January to April. The population of this study consisted of all 9th-grade students at SMP Negeri 6 Semarang. The research sample consisted of Class 9G as the experimental group and Class 9H as the control group, selected through purposive sampling. Purposive sampling is a non-probability sampling technique based on the researcher's consideration or judgment regarding specific characteristics or criteria possessed by the population (Sukardi, 2021). The data for this research includes student engagement data and cognitive learning outcomes data (Quantitative Research). The data sources for this study were obtained from observation questionnaires and cognitive learning outcomes from a summative assessment on the topic of soil's role and its components. The data analysis for this research will utilize an independent t-test to test the research hypothesis and determine whether the differences between the treatment and control groups are statistically significant or not.

This research utilizes the Static Group Comparison method. This design is an experimental design model where one group receives a treatment, and subsequent observations are conducted to determine the outcomes, without a pretest (Hastjarjo, 2019). Static-group comparison is a pre-experimental research design involving two groups of subjects, namely the treatment group (in this case, Class 9G receiving the intervention) and the control group (in this case, Class 9H not receiving the intervention). Then, the outcomes of both groups are observed and compared (Connections, 2022).

The research, titled "The Effectiveness of Experiential Learning in Environmental Exploration on Cognitive Learning Outcomes and Student Engagement in the Topic of Soil's Role and Its Components," consists of the following variables:

1. The independent variable is the Environmental Exploration approach. This variable represents the treatment given to the experimental group to test its influence on the dependent variables.
2. The dependent variables are student engagement and cognitive learning outcomes. These variables are the measured outcomes influenced by the independent variable. Student engagement can be measured using an observation checklist for student engagement.
3. The control variables are the number of students, the topic of soil's role, and the duration of the learning process from January to April.

RESULTS AND DISCUSSION

Data collection was conducted through observations and action research using the Environmental Exploration approach. Within this approach, the researcher utilized the Problem Based Learning (PBL) method for teaching the topic of Soil's Role. This type of learning emphasizes experiential learning, where students engage in authentic learning experiences (Anjarwati, 2018). The data collection process involved observing student engagement, including their participation in answering questions, giving presentations, and engaging in discussions. The data were collected during the teaching of the Soil's Role topic, comparing two classes: the control group and the experimental group. These groups received different treatments, with the experimental group implementing the Environmental Exploration approach, while the control group followed a traditional lecture-based teaching method. The data on student engagement are as follows:

Table 1. Student Activity Instrument

	Indicator of Student Activity
1	Timeliness of task completion/submission
2	Engagement in class discussions
3	Engagement in asking questions
4	Engagement in answering questions and/or presentations

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The instrument is based on the book by(Sudjana, 2009), where student engagement encompasses their attitudes and behaviors in participating in learning activities, such as asking questions, providing answers, engaging in discussions, completing tasks, and so on.

These indicators were then transformed into a standardized point system for data collection. The highest score is 4, indicating full fulfillment of the indicator aspect. A score of 3 represents partial fulfillment of the indicator aspect but not all of them. A score of 2 indicates a lack of fulfillment of the indicator aspect, but there are still some aspects that meet the criteria. The lowest score is 1, indicating no fulfillment of the indicator aspect at all. Here are the results of student engagement:

Table 2. The Activeness of Control Class Students

	Activity Indicator Point				
Sample Number	**1**	**2**	**3**	**4**	**Total Score**
1	3	4	2	4	13
2	4	4	2	1	11
3	4	4	4	1	13
4	4	4	2	4	14
5	4	4	2	3	13
6	4	4	2	3	13
7	4	4	4	3	15
8	4	4	2	3	13
9	4	4	2	3	13
10	4	4	2	4	14
11	4	4	4	2	14
12	4	4	2	2	12
13	4	4	2	4	14
14	4	4	4	2	14
15	4	4	2	2	12
16	4	4	4	3	15
17	4	4	2	2	12
18	4	4	4	1	13
19	4	4	4	1	13
20	4	4	2	1	11
21	3	4	2	1	10
22	4	4	2	1	11
23	4	2	2	1	9
24	4	4	2	2	12
25	4	4	2	4	14
26	4	1	2	1	8
27	4	4	2	1	11
28	4	2	2	1	9
29	4	4	2	1	11
30	4	4	4	1	13
Total	118	113	76	63	370
Mean	3,93	3,76	2,53	2,1	12,33
Highest	4	4	4	4	15
Lowest	3	1	2	1	8

Table 2 illustrates that student engagement is generally high, with an average mean score of 15. When broken down by specific engagement indicators, the discussion engagement indicator had the highest score, indicating that all students actively participated in discussions. This is followed by the timeliness of task completion/submission indicator, with scores of

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3.93 and 3.76. On the other hand, the engagement in asking questions and presentations indicators had relatively lower scores of 12.66 and 10.33, respectively.

Table 3. The Activeness of Treatment Class Students

Sample Number	Activity Indicator Point 1	2	3	4	Total Score
1	4	4	3	3	14
2	4	4	3	3	14
3	4	4	2	3	13
4	4	4	2	3	13
5	4	4	2	3	13
6	4	4	2	3	13
7	4	4	2	3	13
8	4	4	2	3	13
9	4	4	2	3	13
10	4	4	2	3	13
11	4	4	2	3	13
12	4	4	2	4	14
13	4	4	4	4	16
14	4	4	2	4	14
15	4	4	4	3	15
16	4	4	2	3	13
17	4	4	2	4	14
18	4	4	2	2	12
19	4	4	2	3	13
20	3	4	4	4	15
21	4	4	2	3	13
22	4	4	2	2	12
23	4	4	4	2	14
24	4	4	2	2	12
25	4	4	2	1	11
26	4	4	2	1	11
27	4	4	2	1	11
28	4	2	2	2	10
29	3	4	2	3	12
30	4	4	4	3	15
31	4	4	4	3	15
32	4	2	2	1	9
Total	126	124	78	88	416
Mean	3,9375	3,875	2,4375	2,75	13
Highest	4	4	4	4	16
Lowest	3	2	2	1	9

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The data obtained in Table 3 for the experimental group shows a slight difference. In terms of the total score obtained, it is 65. When examining the indicators in more detail, the timeliness of task completion/submission and classroom discussion indicators have similar scores, with only a few points difference, specifically 19.68 and 19.37, respectively. The engagement in questioning and answering, as well as the presentation indicators, have scores of 12.18 and 13.75, respectively. When compared to Table 2, the scores for the discussion and presentation indicators in Table 3 are higher. Furthermore, the data presented in percentage form shows a 5% difference between the control group and the experimental group in terms of student engagement. The graphical representation of this difference is as follows.

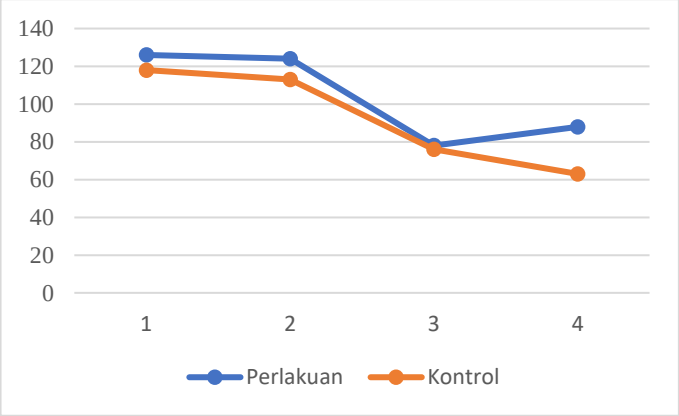

Figure 1. Graph of Student Activeness Class control and treatment

Based on Figure 1 above, it is clear that there is no significant difference between the two groups. The graph shows that indicator 4 is slightly higher in the experimental group, which is supported by the results of the Independent t-test, indicating no significant difference with a p-value greater than 0.05. This finding is consistent with the research conducted by (Putra, 2021). Both classes in the study utilized problem-based learning (PBL) as the teaching method. PBL is an instructional method that teaches students to think critically and solve real-world problems using the necessary knowledge, skills, and attitudes (Tim Penyusun Fakultas Hukum Universitas Udayana, 2016). Student engagement can also be measured by their active participation in the learning process, as it allows them to understand the material through their active involvement (Alimah & Marianti, 2016). The effectiveness of the learning process is determined by active interaction. Students and teachers need to actively engage in the learning process for it to be successful. Learning activities should be actively participated in by students and well-organized and observed by teachers to have an impact on student engagement and learning outcomes.

Table 4. Student Activity Independent T Test

		F	Sig.	t	df	Sig. (2-tailed)
Activity	**Equal variances assumed**	1.825	.182	-1.593	60	.116
	Equal variances not assumed			-1.586	57.410	.118

Table 4 presents non-significant data regarding the effectiveness of Experiential Learning in Environmental Exploration. This can be attributed to the fact that both classes were given the same teaching method, Problem-Based Learning, which provides opportunities for

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students to actively participate in the learning process by asking questions, seeking learning resources, reporting learning outcomes, and engaging in discussions with peers and teachers (Syamsidah; & Suryani, 2018). Apart from external factors, the lack of significance may also be influenced by internal factors of the students, such as inherent traits, intelligence, physical condition, psychomotor skills, emotional state, age, and gender (Samsudin, 2020).

Furthermore, the data obtained pertains to the cognitive learning outcomes of students observed in the topic of Soil's Role using the Static Group Comparison method. The attached data is the Summative Assessment data, also known as daily assessment, on the Soil's Role topic obtained from the control group and experimental group. Learning outcomes refer to the changes in behavior that occur in students after participating in the learning process, which can be observed and measured quantitatively and qualitatively (M, Alfandi; E, 2018).

Table 4. Cognitive Learning Outcomes Data on the Role of Soil Material

Description	Control Class	Treatment Class
Completeness (≥75)	22	29
Incomplete (<75)	8	3
Completeness Percentage	73%	91%
Number of Students	30	32
Number of Students Not Working on	2	2
Number of Students Doing	28	30
Means	89,03	96,26
Highest Score earned	99	99
Lowest value obtained	73	70
Differentiation Percentage		8%

Table 5. Independent T Test of Students' Cognitive Learning Outcomes

		F	Sig.	t	df	Sig. (2-tailed)
Learning outcomes	**Equal variances assumed**	12.743	.001	-2.090	46	.042
	Equal variances not assumed			-2.090	38.848	.043

The data obtained from Table 4 indicates a percentage difference of 8% between the control group and the experimental group. The control group consists of 30 students, two of whom did not complete the assessment, which can be considered as data errors in both classes. This is further supported by the results of the Independent t-test, which compares the means of two paired groups, in this case, the control group and the experimental group based on the Static Group Comparison method. The statistical analysis using SPSS version 25 yielded a significance value of 0.042, indicating a significant difference between the control group and the experimental group when the p-value is less than 0.05. This is shown in Table 5. Therefore, it can be concluded that the implementation of the Environmental Exploration approach has a significant impact on the cognitive learning outcomes of students in the experimental group.

Discussion

From the data analysis results, it can be concluded that Experiential Learning can enhance student engagement and cognitive learning outcomes, which aligns with the findings of (Munif, 2009) that Experiential Learning aims to improve student motivation and learning outcomes by providing authentic experiences. This is also consistent with the studies by (Azizi et al., 2015) and (Taukhid, 2022), which suggest that Experiential Learning trains students to think

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creatively during the learning process, leading to effective learning.

Experiential Learning is a teaching method that prioritizes experience as a source of learning. With Experiential Learning, students can learn through doing, sensing, observing, reflecting, and applying concepts in real-life situations. This approach can enhance motivation, interest, participation, understanding, critical thinking skills, and both cognitive and affective learning outcomes of studentsn (Sugandi, 2008).
The improvement in cognitive learning outcomes and student engagement is based on the characteristics of Experiential Learning, as described by (Fathurrohman, 2015): (1) Learner-centered: Experiential Learning emphasizes giving learners the freedom to choose topics, problems, and learning resources based on their interests and needs. (2) Process-oriented: Experiential Learning provides opportunities for active engagement in the learning process through direct experiences and reflection. (3) Real-life situation-based: Experiential Learning allows learners to connect the concepts they learn with their previous experiences and new situations. (4) Involves all aspects of learners: Experiential Learning offers opportunities for learners to develop their cognitive, affective, and psychomotor aspects in the learning process. (5) Integrates theory and practice: Experiential Learning allows learners to formulate concepts or generalizations from their experiences and apply them in different situations. (6) Collaborative and ooperative: Experiential Learning encourages interaction and collaboration among peers, educators, and other learning resources. These characteristics of Experiential Learning contribute to the enhancement of cognitive learning outcomes and student engagement by providing a learner-centered and active learning environment that integrates theory with practical experiences, and promotes collaboration and reflection.

CONCLUSIONS AND RECOMMENDATION

The results of this study demonstrate that the JAS approach is effective in enhancing student engagement and cognitive learning outcomes in the topic of soil's role. This is evidenced by the difference in average student engagement between the control group and the experimental group, which amounts to 5%, with the Independent t-test indicating no significant difference. This lack of significance may be influenced by both external and internal factors of the students. Additionally, there is a significant difference in the average cognitive learning outcomes between the control group and the experimental group, with a significance value of 0.043. From these findings, it can be concluded that the JAS approach can be an alternative teaching method that enhances students' cognitive learning outcomes but does not significantly impact student engagement in the topic of soil's role. This method combines understanding with practical activities, which aligns with the benefits of implementing Experiential Learning in Environmental Exploration, a learning method based on students' experiences. This method combines understanding with hands-on activities by applying direct learning experiences.

Suggestions for further research include increasing the intensity or duration of the treatment in both the control and experimental groups to achieve more significant results in terms of student engagement and cognitive learning outcomes. Using more varied measurement instruments to obtain more specific and sensitive results, thereby providing more accurate and measurable data.

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