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Didaktika: Jurnal Kependidikan Vol. 13 No. 4 Nopember 2024

The Effectiveness of Case Method-Based Teaching Modules on Ecosystem Materials to Enhance Learning Outcomes of Fifth Grade Elementary School Students

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Abstract

The purpose of this study was to determine the effectiveness of the case method-based teaching module on ecosystem material in improving science learning outcomes of grade V students of SDN 107103 Lantasan Baru which is adjusted to the independent learning curriculum. This study is a type of research and development (Reasearch and Development) using the 4D model (define, design, develop, disseminate). The results of the study showed that the pre-test and post-test results showed an increase in the average learning outcome score of 29.3. The initial pre-test results showed an average student score of 54.7 and the post-test results showed an increase in the average class score of 84. Therefore, it can be concluded that the case method-based teaching module on ecosystem material can be categorized as effective in improving science learning outcomes of grade V students.
Keywords: Teaching Module, Case Method, Ecosystem, Independent Curriculum

Introduction

In the 21st century, students' thinking skills are very important to improve, this certainly affects student learning outcomes. Case Method is solution in implementing learning that can improve students' skills and abilities(Wardani et al., 2023). The Case Method can provide a meaningful learning experience. Meaningful learning is a lesson that does not only memorize concepts or facts, but learning that connects existing concepts so as to produce a complete understanding and is not easily forgotten (J. B. Kelana, 2019). Then, on the other hand, Science Learning in elementary schools is still oriented towards theoretical abilities and learning models, where the learning process of students is not shown something real, but only imagines abstractly stated that in science learning, students' questioning skills in class are still relatively low, this makes their interest in learning and learning outcomes in science learning also low(Nestiadi et al., 2024). Therefore, meaningful learning must be applied as learning that is not only memorizing concepts and imagining abstractly, but interesting learning so that it can attract interest and improve student learning outcomes(A. J. Kelana et al., 2022).

Based on the results of interviews with elementary school class teachers, especially related to science subjects, student learning outcomes have decreased and are still relatively low, This can be seen from the completion of student grades, which previously 65% of students completed, decreasing to 53% of students completing science lessons.(Nestiadi et al., 2024). Student learning outcomes can decrease due to the selection of inappropriate learning models such as memorizing, lecturing in delivering material, and using teaching materials that are less interesting and activate students (Vahlepi et al., 2021). Therefore, in seeing the success of learning, especially science, learning outcomes can be an indicator of success, this is because if there is a good process in learning, the learning outcomes will also be good, but what happens

in schools is that student grades can decrease due to the selection of inappropriate learning models and teaching materials(Firmansyah et al., 2023).

According to Nasution (2024), in the results of his research it was stated that teaching modules in elementary schools still contain a lot of material in knowledge rather than practice, while teaching modules are learning tools for students, so teaching modules must be equipped with activities that can increase students' enthusiasm for learning. In addition(Nasution et al., 2024), Syamsuar (2016) stated that the Ministry of Education, Culture, Research and Technology recommends the use of the Case Method learning model as a solution to overcome problems of student activity and learning outcomes, and teachers act as facilitators, initiators, directors, participants and motivators in the Case Method learning process(Syamsuar, 2018). This is in line withBudiono (2021), who said that the Case Method provides opportunities for students to develop their potential, self-actualization, self-actualization, innovate, and find solutions to the cases discussed. Therefore, to solve the problem of student learning outcomes, it is necessary to develop a Case Method-based teaching module, where the teaching module will contain material based on previous cases as a medium for students to play a role with the aim of students solving existing problems.(Budiono et al., 2021)

Based on the results of observations of class V students at SDN 107103 Lantasan Baru, it was found that students in the class lacked understanding of science learning. Then the teacher who teaches only conducts monotonous learning that only focuses on textbooks, students are also less interested in the existing textbooks, and learning outcomes decline in science learning(Seprianto & Hasby, 2023). Based on several research studies, it was revealed that the low science learning outcomes were also caused by learning devices that were not yet able to support learning and provide meaningful learning for students. Therefore, researchers are interested in creating a teaching material in the form of a Case Method-based teaching module on ecosystem material to improve student learning outcomes, especially in grade V of elementary school.

Method

The type of this research is Research and Development (R&D). Research that refers to the 4D model (Define, Design, Develop, Disseminate)(Sugiyono, 2022). This research focuses on the Development of teaching modules based on the Case Method on ecosystem material to improve student learning outcomes, especially grade V of elementary school which is implemented with the 4D model research steps(Nugroho, 2015).

This research is a development research to produce a product in the form of a Case Method-based teaching module that can improve student learning outcomes. In this study, the researcher used a 4-D model development procedure. The 4-D model was chosen because this development model is considered systematic and suitable for developing learning devices(Istiqomah et al., 2022). The research will be conducted at V SDN 107103 Lantasan Baru from August to September 2024. This time includes analyzing, designing, developing, implementing products and evaluating (Sugiyono, 2015). The subjects of this study were grade V students of Elementary School 107103 Lantasan Baru. The instruments that will be used in this study are learning outcome tests, observation sheet instruments and interview sheets. The instruments and questionnaires were first validated before being used.

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Results

This research was carried out in class V at SDN 107103 Lantasan Baru . The results of this research are a teaching module based on the Case Method on ecosystem material . This research was carried out using the 4D research and development model (Define, Design, Develop, Disseminate). The research results obtained in each development stage are described as follows: This validation stage is carried out by three validators who are experts in their respective fields, namely module design experts, material experts, and teacher assessment

Design Expert Validation

Design expert validation of the Case Method-based teaching module display on ecosystem material will be carried out in August 2024 . Carried out by material experts . The assessment was carried out to obtain information that will be used to improve the quality of Case Method-based teaching modules on ecosystem material, especially on the design and appearance of teaching modules . The assessment results of the design expert validation can be seen in the following table:

Table 1 . Design expert validation results

No.	Assessment Aspects	Average value	Presentation	Criteria
1	Appearance	4, 6	9 2 %	Very Worth It
2	Consistency	4, 1	82 %	Very Worth It
3	Use of Letters	4, 3	8 6 %	Very Worth It
4	Utilization of Technology	4, 0	80 %	Very Worth It
Average Amount		4, 25	85 %	Very Worth It

The teaching module design expert's presentation are also presented in diagram form, so the results can be seen in the following image:

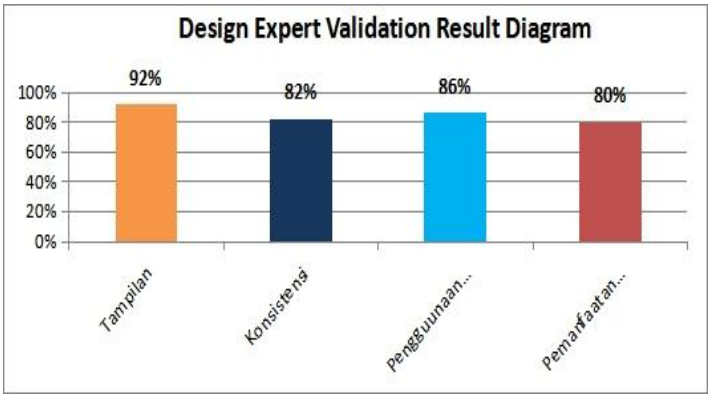


Figure 1. Diagram of Design Expert Validation Result

Material Expert Validation

The validation of material experts for the Case Method-based teaching module on ecosystem material is scheduled to take place in August 2024. This activity will be conducted by material experts who are lecturers in Science Education from the Faculty of Mathematics and Natural Sciences, Medan State University. The validation process aims to gather relevant feedback and information to improve the quality of the Case Method-based teaching module, particularly on ecosystem material. By involving experts in their respective fields, this validation is expected to ensure that the module meets academic standards, aligns with learning needs, and provides optimal benefits for students.

The assessment conducted during this validation includes various aspects, such as the content of the material, the presentation format, and language usage, to guarantee that the module is suitable as a learning medium. Feedback and evaluation results from the experts will serve as a foundation for refining and enhancing the module to support more effective and efficient learning processes. The results of the material expert validation are presented in table form to provide a clear overview of the feasibility level of the Case Method-based teaching module on ecosystem material.

Table 2. Material expert validation results

No.	Assessment Aspects	Average value	Presentation	Criteria
1	Content or material	4, 3	86 %	Very worthy
2	Serving components	4, 4	88 %	Very worthy
3	Language	4, 6	92 %	Very worthy
Average Amount		4, 43	86 %	Very Worth It

The results of the material expert's presentation are also presented in diagram form, so the results can be seen in the following image;

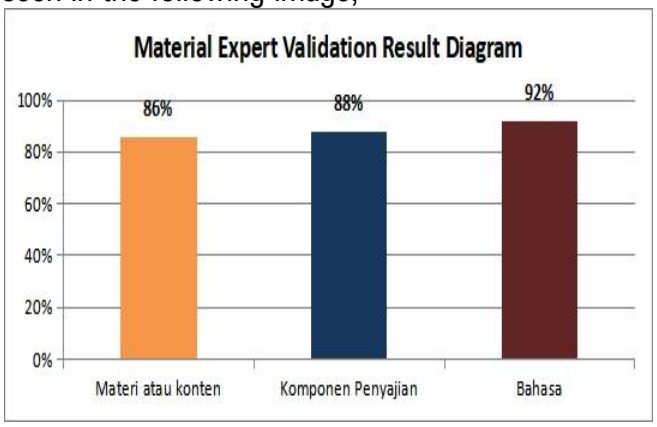


Figure 2. Diagram of Material Expert Validation Results

The validation results from material experts indicate that the teaching module being tested is highly feasible based on three main aspects: content or material, presentation components, and language. In the aspect of content or material, the module received an average score of 4.3 with a feasibility percentage of 86%, indicating that the content aligns with educational standards and learning objectives. Furthermore, the presentation components were rated with an average of 4.4 and a feasibility percentage of 88%, reflecting that the module is systematically organized and easy to understand for both students and teachers. From a language perspective, the module achieved the highest score, with an average of 4.6 and a feasibility percentage of 92%, signifying the use of clear, communicative language appropriate for fifth-grade elementary school students.

Overall, the average score from the material experts' validation reached 4.43, with a feasibility level of 86%, falling into the "Very Worthy" category. This indicates that the module is suitable as an effective and high-quality learning medium. The visualization of the validation results in diagram form also provides a clearer representation and supports a comprehensive interpretation of the data. Therefore, the module is expected to meet the learning needs in terms of content, presentation, and language, thus contributing significantly to improving student learning outcomes.

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The evaluation results at the evaluation stage can be seen in the following table:

Table 3. Comparison of pre test and post test scores

Student Absence	Pre Test Score	Post Test Score
1	55	100
2	70	85
3	30	95
4	65	70
5	45	90
6	65	85
7	45	90
8	60	90
9	60	80
10	65	89
11	45	91
12	60	78
13	55	74
14	60	85
15	30	83
16	65	91
17	45	77
18	65	86
19	45	80
20	60	88
21	47	76
22	58	81
23	62	70
24	49	77
25	55	91
26	60	80
27	63	87
28	70	79
29	55	90
30	39	84
31	48	82
Average	54.7	84

Based on table 3 , it shows that the average pre test score is 54,7 and the average post test score is 84 . From this average, it can be seen that the difference in learning outcomes is that the post test results have better scores than the pre test. So that through this we can see the differences in pre-test and post-test results, before and after using the teaching module developed.

Discussion

Before testing the effectiveness of the teaching module, product validation is first carried out which consists of validating material experts and design experts by going through a revision

stage so as to produce a teaching module that is suitable for testing or implementation in the field. To analyze the effectiveness of the teaching module being developed, it can be seen from the increase in student learning outcomes before and after using the teaching module, which can be seen from the pre-test and post-test results. Based on the evaluation carried out, the post test results were higher than the pre test results. The average pre test score is 54.7 and the average post test score is 84.

According to Hasrattudin stated that the indicator of learning effectiveness is based on the achievement of learning completeness> 80% of students have completed, the time used in learning is efficient or does not exceed regular learning, and students' responses to learning are positive(Adeng et al., 2023). Based on the results of the post-test analysis of the stage I and stage II tests, it was found that student learning outcomes in the stage I test had not met the classical completion criteria. Student learning completeness is reviewed from the learning outcomes tested using tests that have been developed in the form of multiple choices(Gita et al., 2018). The results of the stage I test showed that the average student learning outcomes had not met the classical completion, while the results of the stage II test showed that the average student learning outcomes had met the classical learning completion criteria. The percentage of student completion in the stage I test, namely students who completed the pre-test was 54,7 while the student completion in the post-test was 84. Meanwhile, the percentage of student completion in the second stage of the test, there were 13% students who completed the pre-test while the completion of students in the post-test was 87%.

Based on the results of the study, it can be seen that the learning module developed can help students classically achieve learning completion. Thus, it can be concluded that the use of the case method-based teaching module developed meets the criteria for effectiveness.(Utami et al., 2023) Analysis of the effectiveness of the Case Method-based teaching module on the developed ecosystem material can be seen from the level of completeness of student learning outcomes, through pre-test and post-test scores. Based on table 3 above, the percentage of students' learning completeness was 87%, there was an increase in learning outcomes of 31.5%. Thus, this shows that learning with Case Method-based teaching modules on ecosystem material has been able to improve student learning outcomes. So that the Case Method-based teaching modul on ecosystem material is effective and feasible. However, this research still requires further research to be perfected.

Conclusion

The development of Case Method-based teaching modules on ecosystem material has been implemented in class V of SDN 107103 Lantasan Baru. The results obtained through the development of this teaching module can be concluded as follows: The Case Method-based teaching module on ecosystem material has been validated by the material expert validator with the criteria Very Feasible. This is indicated by the percentage of feasibility obtained by 85%. The results of validation by design experts with the criteria Very Feasible. This is indicated by the percentage of feasibility obtained by 86%. In addition, based on the results of the student response questionnaire, it can be seen that students are interested in using the module. Through the results of the pre-test and post-test, there was an increase in learning outcomes of 29.3%. The average pre-test percentage was 5-4.7% and the average post-test percentage was 8-4%. So that the Case Method-based teaching module on ecosystem material can be said to be effective and Feasible and Practical to use in learning.

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Acknowledgment

Thank you to all parties who have helped the researcher in completing this research, both supervising lecturers, the principal, teachers and students where I conducted my research, hopefully this research will be useful for all parties.

References

Adeng, A., Anwar, M. F. N., & Chotimah, C. (2023). Pengembangan Modul Pembelajaran IPA Berbasis Project Based Learning pada Materi Hubungan antar Makhluk Hidup dalam Ekosistem Siswa Kelas V Sekolah Dasar. Pendagogia: Jurnal Pendidikan Dasar, 3(3), 116–125.

Budiono, A., Wiryokusumo, I., & Karyono, H. (2021). Pengembangan Modul IPA Berbasis Literasi dan Integratif Dalam Memfasilitasi Belajar Mandiri Siswa. 8(293), 58–67. https://doi.org/10.17977/um031v8i12021p058

Firmansyah, F., Irnandi, I., Siregar, N. N., & Simamora, E. W. (2023). Development of an interactive e-module based on a case method to improve higher-order thinking skills. Journal of Research in Instructional, 3(2), 296–306.

Gita, S. D., Annisa, M., & Nanna, W. I. (2018). Pengembangan modul IPA materi hubungan makhluk hidup dan lingkungannya berbasis pendekatan kontekstual. LENSA (Lentera Sains): Jurnal Pendidikan IPA, 8(1).

Istiqomah, I., Masriani, M., Rasmawan, R., Muharini, R., & Lestari, I. (2022). Pengembangan E-Modul Flipbook IPA Berbasis Problem Based Learning pada Materi Pencemaran Lingkungan. Jurnal Basicedu, 6(5), 9156–9169.

Kelana, A. J., Irfan, D., Maksum, H., & Wulansari, R. E. (2022). Flipbook Based E-Module With Case Method In Vehicle Testing Course. Journal for Lesson and Learning Studies, 5(3), 480–486.

Kelana, J. B. (2019). Bahan Ajar IPA Berbasis Sains (1st ed.). Lekkas.

Nasution, N. J., Faisal, F., Sihotang, R., Tamba, R., & Tambunan, H. P. (2024). Pengembangan Media Pop-Up Book Berbasis Case Method pada Tema Pahlawanku di Kelas IV Mis Nurul Hidayah TA 2023/2024. Jurnal Pendidikan Tambusai, 8(1), 6412–6418.

Nestiadi, A., Leksono, S. M., & Kurniasih, S. (2024). Pengembangan Modul Praktikum Biologi Umum Berbasis Case Method untuk Meningkatkan Keterampilan Proses Sains Mahasiswa Pendidikan Ilmu Pengetahuan Alam. Jurnal Pendidikan Abad Ke-21, 2(1), 13–20.

Nugroho. (2015). Strategi Jitu Memilih Metode Statistic Penelitian Dengan SPSS. Andi.

Seprianto, S., & Hasby, H. (2023). Analysis of Students' Scientific Literacy Ability by the Implementation of Case Method Learning. Jurnal Penelitian Pendidikan IPA, 9(3), 1143–1148.

Sugiyono. (2015). Metode Penelitian dan pengembangan. Alfabeta.

Sugiyono. (2022). Memahami Penelitian Kualitatif dan Kuantitatif. Alfabeta.

Syamsuar, & Reflianto. (2018). Pendidikan Dan Tantangan Pembelajaran Berbasis Teknologi Informasi Di Era Revolusi Industri 4.0. E-Tech : Jurnal Ilmiah Teknologi Pendidikan, 6(2). http: //ejournal.unp.ac.id/index.%0Aphp/e-tech/article/view/101343/100535

Utami, M. P., Santika, I. D., & Khoiriyah, B. (2023). Kurikulum Merdeka Dan Pengembangan Modul Ipas Kontekstual Berbasis Inkuiri Untuk Membentuk Nalar Kritis Siswa SD Fase B. Innovative: Journal Of Social Science Research, 3(3), 7532–7544.

Vahlepi, S., Helty, H., & Tersta, F. W. (2021). Implementasi model pembelaaran berbasis case method dan project based learning dalam rangka mengakomodir higher order thinking

skill mahasiswa dalam mata kuliah psikologi pendidikan bahasa arab di masa pandemi. Jurnal Pendidikan Tambusai, 5(3), 10153–10159.

Wardani, K. S. K., Astria, F. P., & Nurwahidah, N. (2023). Development of Ethnoscience-Based Science Education Module Using a Case Based Learning Model. Jurnal Penelitian Pendidikan IPA, 9(SpecialIssue), 473–478.