

Improving Biology Learning Outcomes through Guided Inquiry with Video Media

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Abstract

Lack of student participation during discussions causes students to become inactive when learning, and difficulty in answering teacher questions because the information the teacher conveys is not understood by students. This results in student scores still below the KKM in Global warming is one of them. The minimum completeness criteria set at SMPN 2 Lembah Gumanti is 65. The purpose of the study was to determine the effect of the application of the guided inquiry model with video media on the biology learning outcomes of seventh-grade students of SMPN 2 Lembah Gumanti, Solok Regency. The type of research is an experiment with a research design Randomized Control Group Posttest Only Design. The use of t-test is used in the affective domain as a data analysis technique and the t-test was used in the cognitive and psychomotor domains for data analysis techniques. 1 the experimental class has an average score of 62.38 with a predicate of C (Enough) while the control class has an average value of 53.22 with a predicate of D (Less). Hypothesis test 0.05 obtained t-count $2.90 > t\text{-table } 1.67$, meaning that H_1 is accepted. The guided inquiry learning model accompanied by video media can improve the biology learning outcomes of class VII students of SMPN 2 Lembah Gumanti, Solok Regency.

Keywords: Guided Inquiry, learning outcome, Biology

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Introduction

In the teaching process, the teacher applies the lecture method but in the lesson plans the learning model used is Discovery Learning (Ana, 2019). so there is a lack of compatibility between planning and implementation in the learning process (Sohel-Uz-Zaman & Anjalin, 2016); (Gkrimpizi et al., 2023); (Hattie & Donoghue, 2016). In addition, the scientific approach taken has not been implemented because it has only reached the stage of observing and asking questions. Lack of student participation during discussions causes students to become inactive when learning, and difficulty in answering teacher questions because the information the teacher conveys is not understood by students (Bergdahl, 2022); (Mustapha et al., 2010); (Bali, 2016); . This results in student scores still below the KKM in Global warming is one of them. The minimum completeness criteria set at SMPN 2 Lembah Gumanti is 65.

The low value of students on global warming material, especially on the sub-material of the process of the occurrence of the greenhouse effect, makes it difficult for students to understand (Malhi et al., 2021). This happens when the teacher explains the material using PowerPoint media which only contains the main points of explanation that cause the process of the greenhouse effect. The low value of students on global warming material is because in this material students find it difficult to understand the process of the greenhouse effect. When explaining the material the teacher uses PowerPoint media which is only in the form of explanatory points which causes the learning objectives in the process of the greenhouse effect to not be conveyed properly (Lari, 2014). The purpose of the study was to determine the effect of the application of the guided inquiry model with video media on the biology learning outcomes of seventh-grade students of SMPN 2 Lembah Gumanti, Solok Regency.

Methodology

The type of research is an experiment with a research design Randomized Control Group Posttest Only Design. All students of class VII SMPN 2 Gumanti Valley, Solok Regency. The sampling technique was purposive sampling so class VII.1 was chosen as the experimental class and class VII.2 was used as the control class. Instruments in the research in the affective domain are attitude observation (responsible and cooperative in groups), instruments in the cognitive domain in the form of multiple-choice questions through written tests, and instruments in the psychomotor domain with products (systematic reports and report readability. The use of t-test is used in the affective domain as a data analysis technique and the t-test was used in the cognitive and psychomotor domains for data analysis techniques.

Results

The results of the research have been conducted at SMPN 2 Lembah Gumanti with two sample classes, namely, class VII.1 by applying guided inquiry learning models and video media as the experimental class and class VII.2 applying the scientific approach as the control class. Assessment of students' cognitive domains is carried out based on the results of the final test conducted after all the material in the chapter has been studied by students in 4 meetings, the final test is carried out with 23 multiple-choice questions. In Figure 1 the experimental class has an average score of 62.38 with a predicate of C (Enough) while the control class has an average value of 53.22 with a predicate of D (Less).

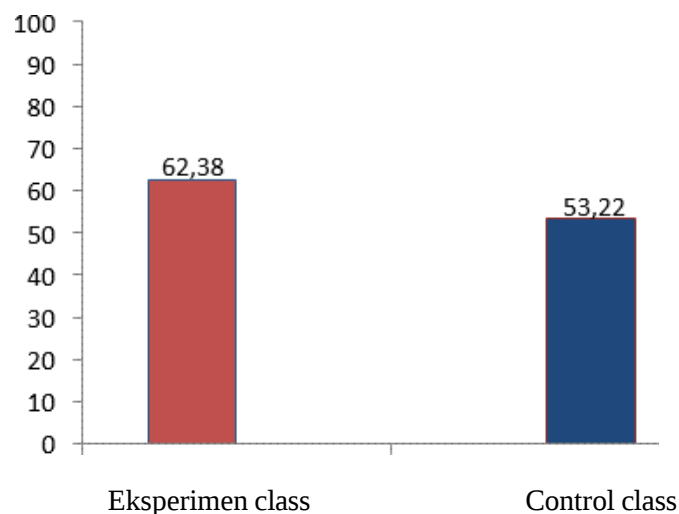


Figure 1. The average value of the sample class

Percentage of KKM with a limit of 65. In the experimental class completed 13 students or (50.00%), 13 students did not complete, or (50.00%) while in the control class 2 students completed (8.00%) while those who did not complete were 23 students (98.00%). Hypothesis test 0.05 obtained t-count 2.90 > t-table 1.67, meaning that H1 is accepted.

Discussion

The results of the hypothesis test that has been carried out, that the application of the guided inquiry learning model with the media can improve student learning outcomes. Based on the acquisition of psychomotor domain scores for the experimental class with 62.38 predicated Enough (C) and the control class with a value of 53.22 predicated Less (D). In the cognitive domain, the experimental class is categorized as adequate and under the KKM. This is because students are not used to using this learning model and only some students can understand it. This makes the learning process less than optimal. however, student involvement becomes active with the application of this model and media (Alalwan, 2022); (Sivakumar et al., 2023); (Gulzar et al., 2022); (Manu et al., 2021). Curiosity is high if the observation activities are under the material in the video media (Pamungkas, 2020); (Jirout et al., 2022). This can be seen in the understanding and ability of students' memory to increase after watching the video. stated that "video media can record real current events, with a combination of color, audio, and movement to make the characters look more alive and watching videos can strengthen students' understanding in material about asking questions about material that is not understood and seek answers from sourcebooks. In accordance with the opinion of (Wati & Sartiman, 2019); (Jerrim et al., 2022); (Darling-Hammond et al., 2020); (Keiler, 2018) that the guided inquiry learning model has the advantage of emphasizing maximum learning on students for search and discovery so that their role is not only accepting but also playing a role in finding themselves by way of direction.

In the learning process in the control class students' scores were low, because in learning students did not listen to the explanations delivered by the educators. As seen in the question and answer process, only some students responded, while others were busy with their own activities. This is because students only focus on textbooks so students' curiosity in learning is lower than in the experimental class. According to (Zhang, 2023); (Thornberg et al., 2022), learning outcomes

will be maximized if there is a teacher-student relationship.

Conclusion

Student scores still below the KKM in Global warming is one of them. The minimum completeness criteria set at SMPN 2 Lembah Gumanti is 65. Assessment of students' cognitive domains is carried out based on the results of the final test conducted after all the material in the chapter has been studied by students in 4 meetings, the final test is carried out with 23 multiple-choice questions. In Figure 1 the experimental class has an average score of 62.38 with a predicate of C (Enough) while the control class has an average value of 53.22 with a predicate of D (Less). The guided inquiry learning model accompanied by video media can improve the biology learning outcomes of class VII students of SMPN 2 Lembah Gumanti, Solok Regency.

References

- Alalwan, N. (2022). Actual use of social media for engagement to enhance students' learning. *Education and Information Technologies*, 27(7), 9767–9789. <https://doi.org/10.1007/s10639-022-11014-7>
- Ana, N. Y. (2019). Penggunaan Model Pembelajaran Discovery Learning Dalam Peningkatan Hasil Belajar Siswa Di Sekolah Dasar. *Pedagogi: Jurnal Ilmu Pendidikan*, 18(2), 56. <https://doi.org/10.24036/fip.100.v18i2.318.000-000>
- Bali, N. (2016). The No-Participation of Students in Physical Education: A Comparative Study of Tunisian Trainee Teachers. *Creative Education*, 07(10), 1486–1499. <https://doi.org/10.4236/ce.2016.710154>
- Bergdahl, N. (2022). Engagement and disengagement in online learning. *Computers & Education*, 188, 104561. <https://doi.org/10.1016/j.compedu.2022.104561>
- Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B., & Osher, D. (2020). Implications for educational practice of the science of learning and development. *Applied Developmental Science*, 24(2), 97–140. <https://doi.org/10.1080/10888691.2018.1537791>
- Gkrimpizi, T., Peristeras, V., & Magnisalis, I. (2023). Classification of Barriers to Digital Transformation in Higher Education Institutions: Systematic Literature Review. *Education Sciences*, 13(7), 746. <https://doi.org/10.3390/educsci13070746>
- Gulzar, M. A., Ahmad, M., Hassan, M., & Rasheed, M. I. (2022). How social media use is related to student engagement and creativity: Investigating through the lens of intrinsic motivation. *Behaviour & Information Technology*, 41(11), 2283–2293. <https://doi.org/10.1080/0144929X.2021.1917660>
- Hattie, J. A. C., & Donoghue, G. M. (2016). Learning strategies: A synthesis and conceptual model. *Npj Science of Learning*, 1(1), 16013. <https://doi.org/10.1038/npjscilearn.2016.13>
- Jerrim, J., Oliver, M., & Sims, S. (2022). The relationship between inquiry-based teaching and students' achievement. New evidence from a longitudinal PISA study in England. *Learning and Instruction*, 80, 101310. <https://doi.org/10.1016/j.learninstruc.2020.101310>
- Jirout, J. J., Zumbunn, S., Evans, N. S., & Vitiello, V. E. (2022). Development and Testing of the Curiosity in Classrooms Framework and Coding Protocol. *Frontiers in Psychology*, 13, 875161. <https://doi.org/10.3389/fpsyg.2022.875161>
- Keiler, L. S. (2018). Teachers' roles and identities in student-centered classrooms. *International Journal of STEM Education*, 5(1), 34. <https://doi.org/10.1186/s40594-018-0131-6>
- Lari, F. S. (2014). The Impact of Using PowerPoint Presentations on Students' Learning and Motivation in Secondary Schools. *Procedia - Social and Behavioral Sciences*, 98, 1672–

1677. <https://doi.org/10.1016/j.sbspro.2014.03.592>
- Malhi, G. S., Kaur, M., & Kaushik, P. (2021). Impact of Climate Change on Agriculture and Its Mitigation Strategies: A Review. *Sustainability*, 13(3), 1318. <https://doi.org/10.3390/su13031318>
- Manu, B. D., Ying, F., Oduro, D., & Boateng, S. A. (2021). Student engagement and social media in tertiary education: The perception and experience from the Ghanaian public university. *Social Sciences & Humanities Open*, 3(1), 100100. <https://doi.org/10.1016/j.ssaho.2020.100100>
- Mustapha, S. M., Rahman, N. S. N. A., & Md.Yunus, M. (2010). Factors influencing classroom participation: A case study of Malaysian undergraduate students. *Procedia - Social and Behavioral Sciences*, 9, 1079–1084. <https://doi.org/10.1016/j.sbspro.2010.12.289>
- Pamungkas, T. D. (2020). Android-based augmented reality media and the curiosity about mathematics. *Journal of Physics: Conference Series*, 1663(1), 012016. <https://doi.org/10.1088/1742-6596/1663/1/012016>
- Sivakumar, A., Jayasingh, S., & Shaik, S. (2023). Social Media Influence on Students' Knowledge Sharing and Learning: An Empirical Study. *Education Sciences*, 13(7), 745. <https://doi.org/10.3390/educsci13070745>
- Sohel-Uz-Zaman, A. S. Md., & Anjalin, U. (2016). Implementing Total Quality Management in Education: Compatibility and Challenges. *Open Journal of Social Sciences*, 04(11), 207–217. <https://doi.org/10.4236/jss.2016.411017>
- Thornberg, R., Forsberg, C., Hammar Chiriac, E., & Bjereld, Y. (2022). Teacher–Student Relationship Quality and Student Engagement: A Sequential Explanatory Mixed-Methods Study. *Research Papers in Education*, 37(6), 840–859. <https://doi.org/10.1080/02671522.2020.1864772>
- Wati, Y., & Sartiman, S. (2019). Discovery Learning: Pengaruhnya Terhadap Hasil Belajar. *Indonesian Journal of Science and Mathematics Education*, 2(1), 123–129. <https://doi.org/10.24042/ijsme.v2i1.3981>
- Zhang, B. (2023). The Relationship Between Teacher-Student Rapport and EFL Learners' Engagement in Online Scaffolding Setting. *Journal of Psycholinguistic Research*, 52(5), 1685–1705. <https://doi.org/10.1007/s10936-023-09954-3>