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Development of a Geotourism-Based Learning Model to Improve Geography Understanding and Environmental Awareness of Secondary School Students

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ABSTRACT

This research aims to develop a geotourism-based learning model to enhance students' understanding of geography concepts and environmental awareness at MAN 1 Bima. The study arose from the low ability of students to connect geographical concepts with real environmental phenomena. The research employed a qualitative approach with a model development design. Participants consisted of 50 individuals, including 45 grade XI social science students and 5 geography teachers. Data were collected through observation, in-depth interviews, and document analysis, then analyzed using Miles and Huberman's interactive model. The findings revealed that the developed model consists of three main components: field exploration, conceptual reflection, and conservation action. The model effectively increased student engagement, spatial understanding, and environmental awareness, particularly regarding local natural tourism management and disaster mitigation. Therefore, the geotourism-based learning model is recommended as a pedagogical innovation for geography education at the secondary school level.

Introduction

Geography education has a strategic role in shaping students' understanding of human interaction and the environment. Geography not only equips students with knowledge of natural and social phenomena, but also teaches critical thinking skills, spatial analysis, and data-driven decision-making skills. In the context of the 21st century, geography education is required to not only transfer concepts, but also prepare the young generation who are sensitive to environmental issues, adaptive to global changes, and able to apply their knowledge in daily life.

However, the practice of geography learning in schools is often still theoretical and teacher-centered, so students' learning experience is limited to reading books and listening to lectures. The lack of active involvement of students in the learning process reduces their ability to relate geographical concepts to real phenomena in the surrounding environment. This has the potential to reduce learning interest, motivation, and in-depth understanding of the material, especially in topics that require contextual understanding such as natural resource utilization, disaster mitigation, and environmental management.

Bima Regency has enormous geotourism potential, covering hilly areas, beaches, and unique geological sites. This potential is not only a natural resource that can be explored for economic purposes, but also as a rich learning medium to connect the theory of geography with real practice. Geotourism allows students to experience geosphere phenomena firsthand, observe geomorphological processes, study the spatial distribution of the population, and understand human-environment interactions contextually. With a geotourism-based learning

approach, students not only gain knowledge, but also develop an attitude of caring for the environment and critical thinking skills.

Several previous studies (Suryani, 2021; Putra & Rahman, 2022) show that environment-based learning models have proven to be effective in improving learning outcomes and fostering students' ecological awareness. This learning model emphasizes hands-on experience, field observation, and conceptual reflection, so as to be able to build critical thinking, cooperation, and social responsibility skills. However, the majority of the research still focuses on general environment-based learning, without specifically integrating the potential of geotourism as a rich, contextual, and relevant learning resource to students' local lives.

In addition, the use of geotourism potential as a learning medium is still limited in high school. Many teachers do not yet have a systematic guide or model for integrating field visits, geosphere observations, and reflective activities into their learning plans. The absence of this structured model makes the potential of geotourism not optimally utilized, so that the opportunity to connect the concept of geography with students' real experiences is missed.

The integration of geotourism in geography learning has significant pedagogical advantages. With this approach, students can conduct field exploration, analyze natural phenomena directly, and relate theoretical knowledge to real-world situations. These activities foster a deep understanding of spatial concepts, human-environment interaction, and the importance of conservation. In addition, a geotourism-based learning experience can increase student motivation, curiosity, and involvement in the learning process, thereby encouraging the achievement of more holistic educational goals.

In this context, the research is focused on the development of a geotourism-based learning model at MAN 1 Bima. This research aims to produce a relevant, applicative, and effective learning model in improving students' understanding of geography and environmental awareness. Model development is carried out through the identification of local geotourism potential, the design of learning measures, and the evaluation of model effectiveness through the participation of students and teachers.

The formulation of this research problem is: (1) how to design a geotourism-based learning model that is relevant for geography learning in high school, and (2) how effective the model is in improving students' understanding of geography and environmental awareness. This research is expected to contribute to more contextual, innovative, and real-experience geography learning practices, while expanding the study of geotourism integration in formal education.

Research Methods

This research uses a qualitative approach with a model development research design. The qualitative approach was chosen because it allows researchers to delve deeply into the experiences, perceptions, and interactions of learners during the geotourism-based learning process. While model development design allows research not only to produce theoretical concepts, but also to create learning models that are concrete, systematic, and can be tested for effectiveness. This model was developed through the stages of problem identification, initial design, limited trial, evaluation, and revision to produce a final model that is applicable to the context of MAN 1 Bima.

The research subjects consisted of 50 participants, including 45 students of class XI social studies and 5 teachers of geography. The selection of subjects is carried out purposively to ensure the involvement of relevant participants and having an adequate geography learning experience. Data was collected through several techniques, including: (1) participatory observation to monitor student engagement and model implementation in the field, (2) in-depth interviews with teachers and students to gain a learning experience perspective, and (3) document analysis in the form of syllabus, lesson plans, and learning materials used. These three techniques are used triangulatively to improve the validity and validity of the data.

Data analysis was carried out using the interactive model of Miles and Huberman (2014) which includes three main stages, namely data reduction, data presentation, and conclusion/verification. Data reduction is carried out by simplifying, selecting, and grouping relevant information to build a category of geotourism-based learning. Furthermore, the data is presented in the form of narratives and thematic tables so that the relationship between the model components and the learners' responses can be clearly seen. The last stage, drawing conclusions, is carried out triangulatively and involves member checks with teachers and trail audits to ensure that the developed model is valid, applicable, and able to improve students' understanding of geography and environmental awareness.

Results and Discussion

The results of the study show that the developed geotourism-based learning model has three main stages that are integrated with each other, which are designed to provide a contextual and immersive learning experience for students. The integration of these three stages not only strengthens the understanding of geography concepts, but also builds students' ecological awareness and critical thinking skills towards the surrounding environment.

1. Field Exploration Stage

At this stage, students are invited to make direct observations of geotourism objects around Bima Regency, such as Lawata Beach, Wawo Hill, and other local geological sites. This field activity is designed to provide real-world experiences that allow students to understand the concepts of geomorphology, erosion processes, coastal dynamics, and direct human-environmental interactions. During the activity, students are involved in collecting field data, recording natural phenomena, as well as making sketches or photographic documentation to visualize geosphere processes.

Observations and field notes show that the exploration stage significantly increases students' enthusiasm, curiosity, and active engagement. Many students demonstrate the ability to relate theories learned in class to real-life phenomena in the field, such as explaining coastal erosion patterns or the formation of hills based on the characteristics of local rocks. In addition, this activity also encourages students to work collaboratively in teams, discuss findings, and reflect on the impact of human activities on the environment. This is in line with previous findings that direct experience in the context of geotourism is able to strengthen the understanding of geography concepts and build ecological awareness (Suryani, 2021; Putra & Rahman, 2022).

Furthermore, the field exploration stage also provides an opportunity for students to develop scientific observation and critical analysis skills. They were trained to note differences in soil texture, changes in coastline, and signs of environmental degradation, and relate those findings to classroom learning materials. This activity not only adds a dimension to the multisensory learning experience, but also enhances students' ability to construct evidence-based arguments, an important skill in 21st-century geography education.

Overall, the field exploration stage in the geotourism-based learning model has proven to be effective in changing students' learning patterns from passive to active, increasing their engagement, and strengthening their understanding of geography concepts through hands-on experience. This stage also becomes an important foundation for the next stage, as students' findings and observations during field exploration become material for analysis, reflection, and application of concepts in a broader context.

2. Conceptual Reflection Stage

Once the field activities are completed, students enter the conceptual reflection stage, where they are encouraged to relate empirical findings during geotourism exploration to geography theories and concepts that have been learned in class. This stage is designed to strengthen students' understanding of the cause-and-effect relationship between natural phenomena and human activities, as well as build critical thinking skills in analyzing field data.

In this process, teachers act as active facilitators, provide direction, ask probing questions, and guide students to be able to formulate evidence-based conclusions from the observations made.

Class discussions took place in the form of questions and answers, concept mapping, and the preparation of cause-and-effect diagrams that connect geosphere phenomena, such as weathering processes, sedimentation, coastal erosion, and hill dynamics, with human activities such as settlement development and coastal tourism. The results of the interviews showed that most students found it easier to understand abstract concepts after experiencing and observing the phenomenon firsthand. They were able to explain the process of rock weathering by pointing to real examples at Bukit Wawo, as well as describing sedimentation at Lawata Beach based on their own observations, so that theoretical knowledge became more "lively" and contextual.

In addition, the conceptual reflection stage also fosters students' ability to formulate scientific arguments and think critically. Students learn to relate natural phenomena to their causative factors, compare field findings with the geographical literature, and evaluate the impact of human activities on the environment. For example, students discuss how coastal erosion can be exacerbated by development on the coastline, and how it can affect local ecosystems. These discussions not only enhance conceptual understanding, but also foster ecological awareness and social responsibility towards the environment.

The conceptual reflection stage emphasizes the integration of real experience with theory, so that the geotourism-based learning model generates not only factual knowledge, but also analytical thinking skills, spatial understanding, and data-driven decision-making skills. This activity serves as an important link between field experience and the application of geography concepts in broader contexts, including spatial planning, disaster mitigation, and natural resource conservation. Thus, students gain a more in-depth, comprehensive, and relevant understanding of real life.

3. Conservation Action Stage

The third stage of this geotourism-based learning model is a follow-up activity that is real action, designed to instill the values of social responsibility and environmental ethics in students. At this stage, students are invited to carry out various field activities that focus on environmental conservation, such as cleaning the beach in the Lawata Beach area, tree planting, and environmental awareness campaigns at school. This activity provides hands-on experience for students to apply the geography concepts they have learned, while understanding the real impact of human behavior on the environment.

During the activity, students are not only physically involved, but also directed to do critical reflection and evaluation of the results of their actions. For example, in beach clean-up activities, students record the types of waste found, analyze the source and its impact on coastal ecosystems, and develop strategies to reduce the generation of waste in their environment. This process trains students to connect theoretical knowledge with real action, so that learning does not stop at understanding concepts, but also cultivates pro-environmental behaviors and decision-making skills based on field data.

4. Effectiveness of Geotourism-Based Learning Model

Based on the results of data triangulation from observations, interviews, and document analysis, the implementation of the geotourism-based learning model showed significant improvements in several important aspects:

1. Understanding of geography concepts: Students become better able to explain natural and social phenomena based on empirical analysis of field activities. For example, students can explain the sedimentation process in the coast, human-environmental interactions, and the influence of geomorphological changes on the lives of the surrounding community.

2. Environmental awareness: There is a real increase in environmental care behavior, as seen from students' active participation in conservation activities, concern for waste, and the ability to develop strategies for natural resource conservation. This activity helps foster the value of social responsibility that is in line with the goals of geography education in the 21st century.
3. Critical thinking skills: Students are able to relate local phenomena to global issues, such as climate change, environmental degradation, and natural disasters. Post-activity reflective discussions show that students can conduct spatial analysis, predict impacts, and propose relevant mitigation actions.

The results of this study are in line with the findings of Sari (2023), who stated that field-based contextual learning is able to increase student involvement, learning effectiveness, and in-depth concept understanding. In addition, the integration of real actions as part of learning has a positive impact on the formation of students' character, fostering ecological awareness, and preparing them to become responsible citizens and care for the environment.

Overall, the application and evaluation stages in the geotourism-based learning model not only strengthen conceptual understanding and critical thinking skills, but also encourage the internalization of important ethical and social values in geography education. Thus, this model has proven to be applicable, effective, and relevant to improve the quality of geography learning at MAN 1 Bima.

Conclusion

The geotourism-based learning model developed in this study has proven to be effective in improving students' understanding of geography and environmental awareness at MAN 1 Bima. The effectiveness of the model can be seen from the students' ability to connect abstract geographical concepts with real phenomena in the field, so that learning becomes more contextual and meaningful. The model stages consisting of field exploration, conceptual reflection, and conservative action successfully create a holistic learning experience, where students gain not only theoretical knowledge, but also observation, analysis, and critical thinking skills relevant to real life.

In addition to the cognitive aspect, this model has a positive impact on students' attitudes and behaviors. Through direct involvement in environmental conservation activities such as beach clean-ups and ecological awareness campaigns, students demonstrate increased awareness of the importance of nature conservation and social responsibility. This process instills basic environmental ethical values, forming the character of students who are caring, responsible, and proactive in preserving the natural resources around them.

The application of a geotourism-based learning model also strengthens students' critical and analytical thinking skills. Students are able to analyze local phenomena, identify cause and effect, and relate environmental problems at the local level to global issues such as climate change and ecosystem degradation. This shows that the integration of empirical experience with conceptual reflection is able to improve students' ability to think deeply, formulate evidence-based arguments, and develop creative solutions to environmental problems.

Based on these findings, it is recommended that geography teachers in secondary schools integrate the potential of local geotourism in learning activities as innovative strategies that are contextual, relevant, and interesting for students. In addition, further research needs to be conducted to test the effectiveness of this model in other regions with different geographical and social characteristics, in order to ensure the generalization and sustainability of the implementation of the geotourism-based learning model. Thus, this model not only improves the quality of geography learning, but also prepares a young generation that is intelligent, critical, and environmentally caring.

References

Dewi, R. P., Saidi, R., Somantri, L., & Maryani, E. (2023). Geography Learning Models in Improving Spatial Thinking Skills: A Literature Review. *Tunas Geografi*, 14(1). https://doi.org/10.24114/tgeo.v14i1.65092.

Herianto, A., & Sahrup, S. (2024). The effectiveness of the application of the Work Based Learning and Problem Based Learning contextual learning models on geography learning outcomes in environmental materials and environmentally friendly development. *GEOGRAPHY: Journal of Educational Studies, Research and Development.*

Kartikasari, D. (2008). *Geography learning through a contextual approach (Contextual Teaching and Learning) as an effort to improve student learning outcomes: An experimental study on grade X students in Semester 2 with hydrosphere subject matter at SMA Angkasa Bandung* (S1 Thesis). University of Education Indonesia.

Kumalawati, R., Riadi, S., & Syachreza Febriyan, G. M. (2025). The use of geospatial data in the geography learning process in the Covid19 disaster conditions. *Journal of Geography (Environmental Geography of Wetlands).*

Lasulika, C. T., & Lukum, A. (2025). Integration of geospatial technology in contextual learning of geography at the high school level. *Journal of Solar Education*, 11(1), 682–689. https://doi.org/10.56959/jpss.v11i1.418.

Masruroh, H., Sartohadi, J., & Setyawan, M. A. (2017). "Contextual Collaborating Learning" based on disaster education: A case study of the Bompon watershed, Magelang, Central Java. *Journal of Geography, Education and Environment (JGEL),* 1(1), 1–6. https://doi.org/10.29405/jgel.v1i1.450.

Miles, M. B., & Huberman, A. M. (2014). *Qualitative Data Analysis: An Expanded Sourcebook*. SAGE Publications.

Ningsih, A. T., & Rahmanelli, R. (2023). The effect of the Contextual Teaching and Learning learning method on the geography learning outcomes of grade X E students at SMAN 1 Suliki, Fifty Cities Regency. *Tambusai Education Journal*, 7(3). https://doi.org/10.31004/jptam.v7i3.11099

Putra, A., & Rahman, I. (2022). Contextual learning in environment-based geography education. *Journal of Social Education and Humanities*, 10(3), 122–134.

Putra, A., & Rahman, I. (2022). Contextual learning in environment-based geography education. *Journal of Social Education and Humanities*, 10(3), 122–134.

Rohaendi, N., Herlinawati, & Setiawan, I. F. (2024). Training and certification of geotourism guides for the community around the geopark. *BERNAS: Journal of Community Service*, 4(2). https://doi.org/10.31949/jb.v4i2.4584

Sari, D. P. (2023). Implementation of field-based learning to increase student engagement. *Journal of Social Science Education Innovation*, 9(2), 88–99.

Sari, D. P. (2023). Implementation of field-based learning to increase student engagement. *Journal of Social Science Education Innovation*, 9(2), 88–99.

Suryani, N. (2021). Environment-based geography learning strategies in secondary schools. *Journal of Social Education*, 8(1), 45–56.

Suryani, N. (2021). Environment-based geography learning strategies in secondary schools. *Journal of Social Education*, 8(1), 45–56.

Yuliani, R., & Mahendra, H. (2020). Integration of local geotourism potential in social studies learning. *Journal of Geography Education Studies*, 7(2), 77–90.