

Research article

Geosite Evaluation to Support Learning and Conservation

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Abstract.

Freedom of learning can introduce more contextual factors, including environmental factors, into Indonesia's education system. Bromo Tengger Semeru National Park has a natural uniqueness that can support the contextual learning process. Education held in the park can provide concrete conservation understanding for park visitors. Educational support facilities can provide information to understand the condition of the Bromo Tengger Semeru National Park area, but these facilities are still not fully developed. The conservation effort requires more information, including evaluation of the geosite as geological wealth. Geosite evaluation occurs by describing the uniqueness of the geological, ecological and cultural landscapes so that educational information can be produced for the sake of conservation of the region. An appreciation of the existing geodynamic processes can offer park visitors a valuable learning experience during their tour activities. This research aimed to determine the kind of evaluation of geosites that can be developed in volcanic tourism activities. Qualitative approaches were used to provide a description of geosite evaluation. The research was conducted on the tourist route of Mount Penanjakan – Sand Sea – Mount Bromo.

Keywords: Bromo Tengger Semeru National Park, geosite, educational, qualitative, geography

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1. Introduction

The revolution of the national education system led Indonesians to have new habits in the learning process. The concept of freedom of learning provides equal opportunities for every student to be able to access learning resources. Learning resources that can be mastered by students in the form of data literacy, technology literacy and human literacy [1]. Changes in the learning process also need to consider student-centered learning, collaboration, meaningful and integrated with the community [2].

The development of the 2013 curriculum was followed by a 21st century learning strategy that combines critical thinking skills, creative, collaborative, and good communication skills including the implementation of the National Long-Term Development Plan (RPJP) year 2005 - 2025 (Law No. 17 of 2007). RPJP describes national development priorities, among others, to realize a society of noble character, morals, ethics, culture,

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and civility based on the philosophy of Pancasila. Education can help students develop creativity, aesthetic awareness and to socialize with good norms, values, and social beliefs [3]. Today's learning process also needs to consider character building.

Bromo Tengger Semeru National Park has excellent geological, ecological and cultural potential for development. Natural tourism activities, especially conservation tourism is one of the efforts to facilitate the natural potential in the region. The tourism sector has contributed in the fields of economy, education, and conservation. TNBTS has a variety of attractions, especially with the formation of Bromo Tengger Caldera. The attraction of the volcano and its ecosystem can also be an important weight for the ecogeological proposal of Bromo Tengger Caldera as a world natural heritage / geological site heritage in Indonesia [4].

The management of national parks as educational tourism can be an excellent effort to do. Conservation objectives can be achieved by educating and creating contextual learning processes in TNBTS. Geography education is one of the efforts to communicate the important role of maintaining diversity of geodiversity as a unique and rare geological heritage. According to Walid, the nature of character education in the context of education in Indonesia is value education, namely the education of noble values sourced from the culture of the Indonesian nation itself, in order to foster the personality of the younger generation [5].

Character building supports the global sustainable development program (SDGs) which is improving the quality of education so that people and nature can live in harmony and sustainable. According to Abdullah, in the learning process, students not only interact with teachers as one of the sources, but include interaction with all learning resources that allow it to be used to achieve the desired results [6]. The natural environment can be a meaningful learning resource for students and at the same time contribute to sustainable development.

2. Method

This research is qualitative research. This research was conducted in 2 stages. The first stage uses observational research design to obtain geosite evaluation data. Observations made are field observations and literature. Then continued with interviews of parties related to the theme of research. In addition, a documentation process is also carried out to obtain research data.

3. Result and Discussion

3.1. Geosite Education

National education is a very dynamic system and changes in accordance with the development of technology and the need for people to survive. Identification of competencies required in the 21st century according to the US-based Partnership for 21st century Skills is "The 4Cs" – communication, collaboration, critical thinking, and creativity [7]. The skills that are expected to be present in students after the study period are critical thinking and problem solving. In addition there are communication and collaboration skills and skills. Teachers must be able to explore the potential of students to be able to work with others but still have their own identity. Therefore, students are also expected to have the ability to think critically and innovatively to show their characteristics. Then the development of the ability of students is expected to also master technology and information literacy. Students are expected to develop their knowledge not only from one source but from many sources in information technology.

Learning must always be able to bring students to the global development goals and meet the skills needed for this era of industrial revolution. Indonesia has a vision and mission whose implementation is related to the formation of a nationalist student personally and able to be proactive to the surrounding problems. Paradigm change will also change the principles that have previously been lived into new principles in accordance with modern learning conditions. Educators and educational institutions will be collaborators of learners in shaping themselves in accordance with the vision and mission of national education.

Geography education can play an active role in achieving sustainable development goals. The function of education and national education objectives are also an effort to provide a good life for students. Geography education provides a variety of knowledge about phenomena in the student environment, both natural and social phenomena. Geography Education is also able to provide an understanding of environmental and social problems so that students are able to solve problems in their environment. In addition, continued development efforts can also be made from the aspect of tourism by developing educational tourism.

The geography approach is very suitable to explain the phenomenon of geodiversity diversity that occurs in TNBTS. Geography education is one of the efforts to communicate the important role of maintaining diversity of geodiversity as a unique and rare geological heritage. According to Walid, the nature of character education in the

context of education in Indonesia is value education, namely the education of noble values that are sourced from the culture of the Indonesian nation itself, in order to foster the personality of the younger generation [5].

Educational tourism plays an important role in providing learning experience through the observation process in the field. Such observations or interpretations lead learners to the understanding, creation, or change of viewpoint of benefits then lead to appreciation, with positive understanding, and to increase the awareness of geosite conservation [8]. TNBTS has a variety of attractions, especially with the formation of Bromo Tengger Caldera. The attraction of the volcano and its ecosystem can also be an important weight for the eco geological proposal of Bromo Tengger Caldera as a world natural heritage / geological site heritage in Indonesia [4].

3.2. Volcanic Edu tourism Development Site

In geography learning, one of the basic competencies expected is that students can understand the concept of space (location, distribution, potential, climate, earth face shape, geology, flora and fauna) and interspace interaction in Indonesia and its influence on human life in economic, social, cultural, and educational aspects.

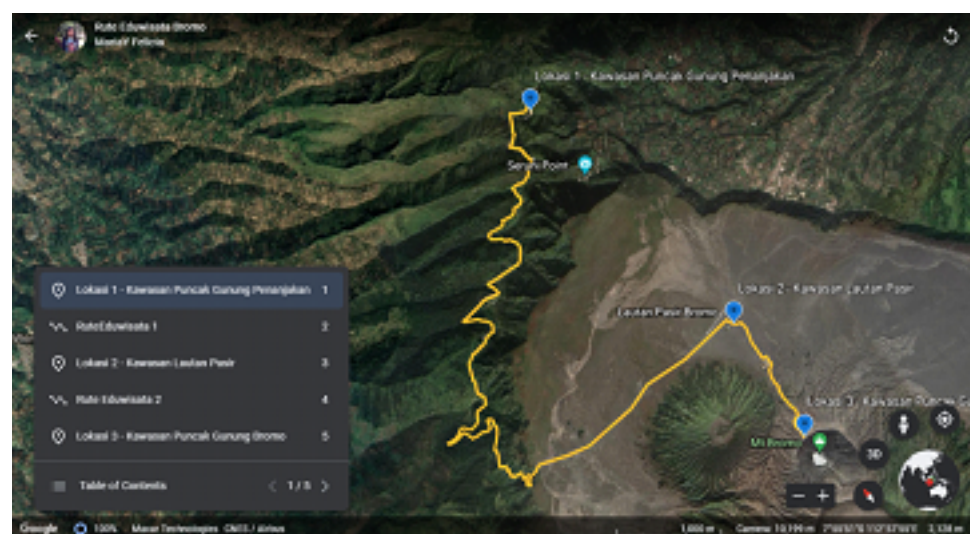


Figure 1: Volcanic Eduwisata Location Route.

Therefore, visitors can analyze social interactions in space and their influence on social, economic and cultural life. Visitors can also learn about socio-cultural values and norms and institutions when interacting with locals around top tourist sites.

Understanding of this meter can be developed into more contextual learning by including the competence of factual, conceptual, procedural, and metacognitive knowledge related to eye-catching phenomena and events. Locations that have the potential to educate the volcanic landscape include:

1. Mount Penanjakan Area

Mount Penanjakan area is worth developing for IPS learning because it is a good location to see bromo tengger caldera. Volcanic cone views can be packaged as a place to observe physical potential in general. Gunung Penanjakan area also has a diversity of community activities. Observation of economic and cultural potential can be done by interacting with economic actors in the Mount Penanjakan Area.

Educational tour starts from the top of Mount Penanjakan. Visitors can observe the shape of volcanic land in general (morphology of craters, seas of sand and cones sinder Mount Batok). This area has a diversity of economic activities involving local residents. Students can learn about economic activities in sustainable National Park tourist areas.

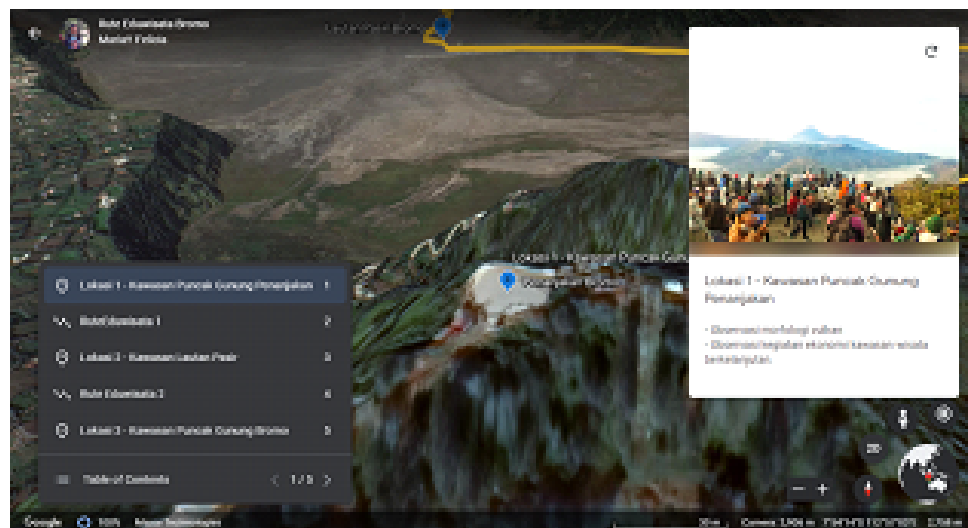


Figure 2: Location of 1 Mount Penanjakan.

2. Sand Sea Area

Visitors can continue the journey to the 2nd location of the sand sea area. Along the way students can observe the cliff walls of Tengger Caldera. There is a vertical arrangement of volcanic deposits that become a characteristic of volcanoes with sinder cones in the caldera [4]. Then visitors can observe the shape of the sand sea land. Bromo Tengger Semeru National Park is the only conservation area that has a wide sand sea at an altitude above 2000 meters above sea level.

The area of sand sea is worth developing for geography learning because it has the characteristic of volcanic land. In addition, visitors can also learn the history of mount

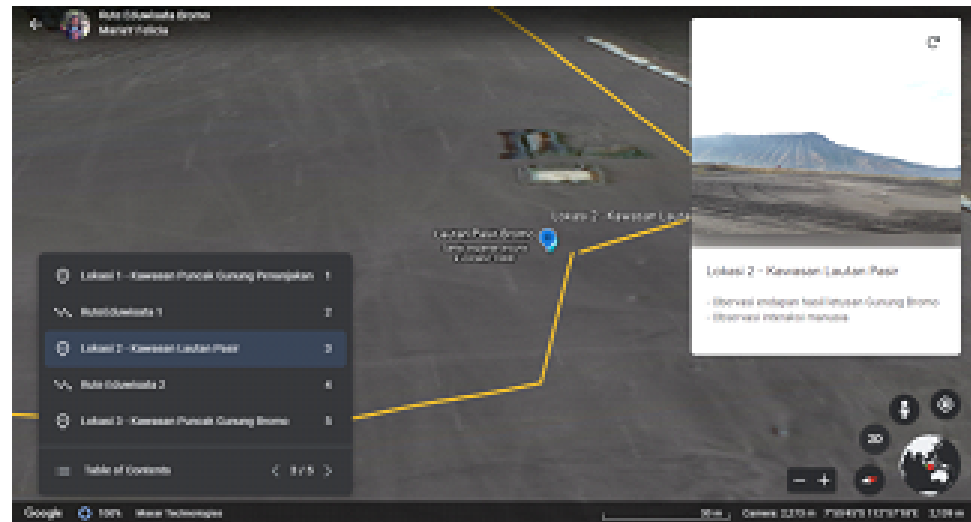


Figure 3: Location of 2 Seas of Sand.

Bromo eruption based on the coating of rocks on the cliff wall on the way down to the sea of sand. Visitors also have the opportunity to observe human interaction with extreme volcanic landscapes (prone to disasters).

3. Mount Bromo Area

Next, visitors can go to the mount Bromo area. Visitors can interact with horse owners or walk to the top of Mount Bromo. This activity can provide an understanding of land use efforts by humans. Engunjung can also analyze volcanic activity and volcanic land forms.

Mount Bromo Peak area is worth developing for geography learning because it has a morphology of craters, crater lakes and solfatara that can be observed. In addition, students can also analyze human interaction with nature in relation to the Kasada Ceremony held at the top of Mount Bromo. Visitors can also observe the unique biodiversity of cantigi trees and edelwais flowers.

4. Conclusion

Utilization of the area has a variety of risks. In conservation areas if land use has not been able to maintain and make sustainable development efforts can lead to the loss of uniqueness and variety of geological, biological and cultural wealth. Sustainable development for conservation areas requires an appropriate educational role with the aim of conserving the area, especially in Bromo Tengger Semeru National Park.

The role of education in the development of a tourist area can be done by providing educational information. Educational information can raise conservation awareness for

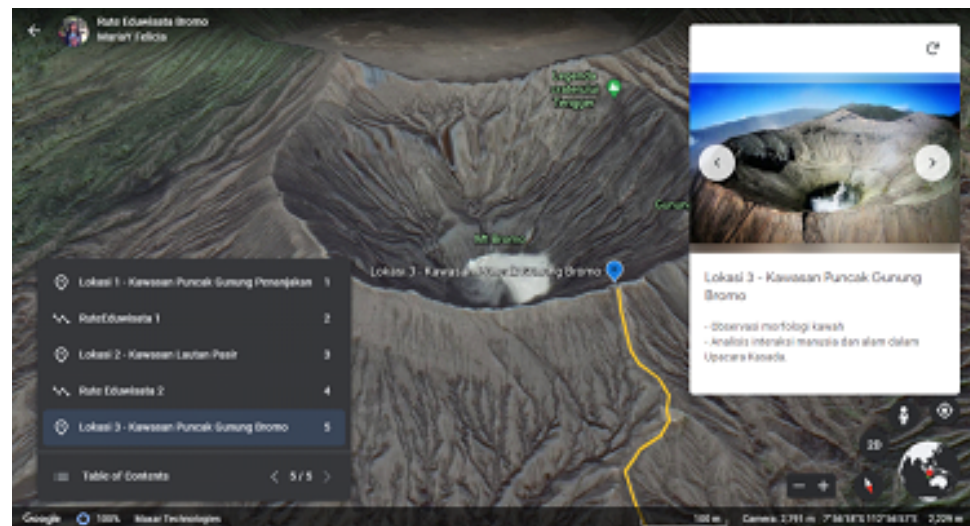


Figure 4: Location of 3 Seas of Sand.

visitors to a national park. Bromo Tengger Semeru National Park already has good tourism potential in the area of Mount Penanjakan, the sand sea area, and the Mount Bromo area. Educational information that corresponds to popular tourist trails in the national park area can provide a more valuable travel experience.

References

- [1] Abdullah R. Pembelajaran berbasis pemanfaatan sumber belajar. *Jurnal Ilmiah Didaktika*. 2012;12(2):216–231. <https://doi.org/10.22373/jid.v12i2.449>
- [2] Hendratno A. Kajian eko-geologi kaldera bromo tengger sebagai sumberdaya geowisata dan geological site heritage. Paper presented at: Proceedings Joint Convention Surabaya HAGI IAGI PERHAPI Annual Conference and Exhibition; . 2005 Jun 17; Surabaya, Indonesia.
- [3] Baygin M; Yetis H; Karakose M; Akin E. An effect analysis of industry 4.0 to higher education. *International Conference on Information Technology Based Higher Education and Training, ITHET* [Internet]; 2016 Sep 8-10; Istanbul, Turkey. United States: Institute of Electrical and Electronics Engineers; 2016 [cited 2020 Sep 17]. Available from: <https://ieeexplore.ieee.org/document/7760744/authors#authors>
- [4] Marsono. Pendidikan karakter berbasis nilai budaya di era milenial. 2019:51–58.
- [5] Powell RB, Kellert SR, Ham SH. Interactional theory and the sustainable nature-based tourism experience. *Society and Natural Resources*. 2009;22(8):761–776. <https://doi.org/10.1080/08941920802017560>

- [6] Walid M. Model Pendidikan karakter di perguruan tinggi agama Islam (Studi tentang pendidikan karakter berbasis ulul albab di Universitas Islam Negeri Maulana Malik Ibrahim Malang). *El-QUDWAH*. 2011:115–156.
- [7] Yamin M, Syahrir S. Pembangunan pendidikan merdeka belajar (Telaah metode pembelajaran). *Jurnal Ilmiah Mandala Education*. 2020;6(1). <https://doi.org/10.36312/jime.v6i1.1121>
- [8] Zubaidah S. SitiZubaidah-STKIPSintang-10Des2016. Paper presented at: Seminar Nasional Pendidikan. 2016;2:1–17.