

# Identification of “Karst Geopark” Singgahan District, Tuban as Outdoor Learning Laboratory of Social Sciences

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## ABSTRACT

This research is an exploratory study that focuses on how to analyse locations in Singgahan Tuban District as Karst Geoparks to be used as an outdoor learning laboratory for social science material. From this analysis, this research will include: ((1) identification of the requirements and identification of suitable IPS outdoor laboratory locations; in Singgahan Tuban District as a Karst Geopark (2) Response to learning with an outdoor learning laboratory. This study involved 40 Social science teachers at SMP in Tuban-Bojonegoro through Forum Group Discussion (FGD) activities. The data collection techniques used were; (1) content analysis (2) observation; (3) interviews, and (4) FGD. Data analysis techniques referred to Milles and Hubberman [1]), namely data presentation, data reduction, and verification. While quantitative descriptive analysis obtained from data collection techniques will be calculated the percentage. Identification of geopark karst in Singgahan-Tuban sub-district, a location that meets the requirements to be used as outdoor learning for subjects. Social science teachers do not have much experience in implementing outdoor learning due to time, cost, transportation, and guidebook

**Keywords:** *Outdoor learning, Social Sciences, Karst, Geopark*

## 1. INTRODUCTION

This template, modified in MS Word 2007 and saved as an “In its implementation, the 2013 curriculum uses three approaches, namely the scientific approach, inquiry, and project method. Using the real environment as a learning resource by inviting students to make field observations in accordance with one of the 2013 curriculum approaches, namely the scientific approach. Prioritizing a scientific approach because can lead students not to stop at knowledge, but continue to skills and attitude formation [2]. By conducting field observations students will get the most concrete level of

experience because they directly see facts, ideas, events, and real events in the field of the environment.

Social science learning based on real environmental conditions can provide motivation, interest, contextual, relevant, and accessible activities in learning outside the classroom [3]. Understanding environmental conditions as a source of learning will be able to raise awareness of students about the importance of maintaining the harmonization of the community environment to the natural environment. A deep understanding of social science is one of the requirements in realizing a professional social science teacher.

Identification of the problems faced in social science learning, among others: 1) lack of understanding of social science about social science material that is contextual around its own area (East Java); 2) Social science learning materials are static and only rely on books; 3) Social science learning only takes place in the classroom (indoor learning).

The condition of this situation will affect the learning process in schools because social science subjects for certain abstract materials require concrete and contextual learning resources. Social science learning should not be dry and stop at the material in the classroom. Social science teachers need to broaden their understanding of the material by examining the phenomena that exist in the field directly as a result of human intervention. For this reason, it is necessary to have learning activities outside the classroom that explore the potential of the real environment as a dynamic social science material. For this reason, it is very urgent to strive to increase the mastery of integrated social science material for social science teachers. One of the efforts to improve the mastery of integrated social science material is to learn through the use of learning activities outside the classroom.

So far, outdoor learning for students of Social Sciences Education has never been carried out. As long as the Social Sciences Education S1 study program was established from 2017 to 2021, students had never carried out any extracurricular learning at all. Social science learning feels dry and only stops at theory in college without any direct implementation in the field. Therefore, efforts to explore the potential of studies for learning outside the classroom in the East Java Province are very urgent to do.

Related to the above, this study seeks to explore the potential of studies in the East Java area which has study potential that can be used as an outdoor laboratory for social science learning. If this can be done, it can be expected that learning outside the classroom can be carried out more efficiently, namely with cheaper funds, shorter travel times, and what is also important is being able to carry out contextual field learning by utilizing the potential of studies in the surrounding area, namely East Java Province.

Theoretically, the Singgahan-Tuban District has a unique diversity of learning resources because the Singgahan District is part of the Karst topography (lime lithology) of South Tuban which is rich in features such as caves, water sources, dolina, hot springs, waterfalls, ponor, etc. The people of Singgahan-Tuban Subdistrict also have various patterns of life in various livelihoods, tourism, culture, religion, and society in order to adapt to the natural conditions of the karst topography. Karst potential in Singgahan District can be identified as a "Geopark" to be used as an outdoor learning social science laboratory. Therefore, this study aims to identify

the "Karst Geopark" in Singgahan District as a potential study for the Social Sciences outdoor learning laboratory. If based on the results of the identification of the area it is suitable to be used as an outdoor learning social science laboratory, it will be continued with the preparation of a set of instruments and structured activities for its use.

This research is an exploratory study that focuses on how to analyse locations in Singgahan Tuban District as Karst Geoparks to be used as an outdoor learning laboratory for social science material. From this analysis, this research will cover (1) identification of requirements and identification of suitable IPS outdoor laboratory locations; in Singgahan Tuban Sub-district as a Karst Geopark (2) Response to learning with an outdoor learning laboratory.

## **2. METHOD**

This research is exploratory research using a quantitative approach which is supported by a qualitative approach. The purpose of this exploratory research is to explore and collect data and information as material to analyze the potential of Karst Geopark in Singgahan-Tuban District as an outdoor learning social science.

This research was conducted in Singgahan District, Tuban Regency. This area has a Karst Geopark phenomenon because there are various unique limestone lithological phenomena, such as the Nglirip waterfall, Lowo Cave, Krawak springs, Nganget hot springs, tower karst / limestone cliffs of Goa Continues, limestone lakes (dolina), and so on. These locations will be identified and analyzed for their potential to be used as IPS outdoor learning laboratories.

This study involved 40 junior high school social science teachers in Tuban-Bojonegoro Regency through Forum Group Discussion (FGD) activities. The data collection technique used is a questionnaire with a Likert scale and interview guidelines for residents in adapting to the surrounding physical environment, especially regarding economic livelihoods, socio-cultural conditions, religion, and the use of Karst Geoparks for tourism.

The data collection techniques used are; (1) content analysis (2) observation; (3) interviews, and (4) FGDs. The data analysis technique refers to Milles and Hubberman[1], namely data presentation, data reduction, and verification. While the quantitative descriptive analysis obtained from data collection techniques will be calculated the percentage.

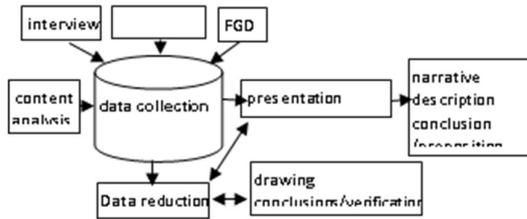


Figure. 1. Data collection and analysis techniques. adapted from Milles and Hubberman [1]

### 3. RESULTS AND DISCUSSION

#### 1). Identify the appropriate IPS outdoor laboratory requirements and locations

To identify the appropriate social science laboratory requirements, it must be adjusted to the analysis of the social science material content, so that the social science learning objectives will be constructed through this outdoor laboratory learning activity. Of course, some locations are dominated by social science discipline content, such as history, geography, sociology, economics, and so on. However, an interdisciplinary approach will make each location integrated learning [4].

Table 1. Location of the outdoor learning laboratory in karst geopark, singgahan tuban subdistrict and compatibility with social science content

No	Location	Content
1	Nglirip Water fall Makam Mbah Buyut "Jabar" dan Mbah "Ganyong" Batu Van Tuban	Analysis of socio-economic, religious, cultural, historical, geographical interdisciplinary and its influence on the lives of the surrounding population.
2	Krawak Springs	Interdisciplinary analysis of exam ecology, tourism, socio-economic and its effect on the lives of the surrounding population.
3	Ndodol dam	Interdisciplinary analysis of morphology, economic-agriculture and its effect on the lives of the surrounding population.
4	Nganget hot spring	Interdisciplinary analysis of geology, socio-economic, tourism and its effects on the lives of the surrounding population.
5	Putri Cave	Interdisciplinary analysis of geology, tourism, socio-economic and its effect on the lives of the surrounding population.
6	Lowo Cave	Interdisciplinary analysis of geology, tourism, socio-economic and its effect on the lives of the surrounding population.
7	Goa Terus tower karst	Interdisciplinary analysis of geology, special interest tourism, socio-economic



Figure.2. location of the Social Sciences outdoor learning laboratory in Singgahan District, Tuban.

The selection of the area for the location of the outdoor learning laboratory in its own area, namely Singgahan-Tuban District is not only more efficient in terms of funding and time but also related to the implementation of contextual learning. This learning will be more meaningful by using sources and or learning media that exist in the natural surroundings of one's own place of residence (East Java) rather than utilizing the potential that exists in other provinces. Based on the description above, the Singgahan-Tuban sub-district area is chosen as an area that is planned as an outdoor learning laboratory for social science subjects.

A unique natural phenomenon in limestone (karst) in Singgahan-Tuban District, of course, will spur humans to adapt to their environment. Various social, cultural, economic activities, tourism, religion, agriculture, trade, and so on continue to develop as a response to the limestone environment that exists around the community.

#### 2). Identification of Outdoor learning Laboratory Strategies

In implementing the K-13 curriculum, it is highly recommended to use innovative learning strategies, namely student-cantered and project-based, and inquiry-based. This learning strategy is very suitable when integrated into outdoor learning activities because it can improve higher-order thinking skills.

Systems Thinking Skills (STS) can be adopted in outdoor learning activities to achieve higher-order thinking skills. STS is a system that contains about how to implement outdoor learning activities in integrating

various relationships between components. This is very much in line with the interdisciplinary approach to social science learning. The following are the stages of STS.

**Table 2.** Systems thinking skills [5]

Stages	STS
STS 1. Identifying the meaning and aspects of sustainability	To be able to identify relationships between the environment, economy and society, thinking about the future, equality, diversity (biological, social, economic, cultural, and religious), quality of life, and justice [6]
STS-2. Seeing nature as a system	To be able to see nature as a system taking into account all the components. These skills are related to integral ecological characteristics and a mechanistic or holistic view of nature. (Hargens, 2005); (Capra, 1999).[7];[8]
STS-3. Identifying components of a system	To be able to identify the components in a system [9]. These systems can be natural, social, or economic systems
STS-4. Analyzing the interconnections among the aspects of sustainability	To be able to analyze the sustainability interconnections between social, economic, and environmental aspects by considering the causes and effects of problems [10].
STS-5. Recognizing the hidden dimensions in a system	To be able to recognize patterns and relationships that are not visible on the surface [11].
STS-6. Recognizing own responsibility in the system	To be able to realize a personal role in the system and take responsibility for the choices made in everyday life ([12];[13]; [14].
STS-7. Considering the relationship between past, present, and future actions	To be able to take lessons from past experiences and consider the results of those experiences for the future. Individuals can make connections between past, present and future actions [9]; [13]; [14]).
STS-8. Recognizing the cyclical nature of the system:	can recognize natural systems that work in cycles [9]).
STS-9. Developing empathy with other people	To be able to see problems from the point of view of others and understand the needs or reasons behind their actions ([12];[15]; [14])
STS-10. Developing empathy with non-human beings	To be able to feel empathy for non-human beings. Feeling connected to nature; Develop emotions, feelings, and awe [12].
STS-11. Developing a sense of place	Able to describe a place from complex and multiple perspectives and establish interconnections between biophysical, psychological, and socio-cultural dimensions [16]
STS-12. Adapting systems thinking perspective to personal life	To be able to take personal action for sustainability. Investigate specific and transformative ways of action and integrate these actions into personal life ([12]; [14].

STS is very important to be able to apply an interdisciplinary approach in social science because it directs students to think systemically. Systematic thinking is an activity framework for understanding the whole system and the interactions within the system, for seeing the big picture, considering long-term solutions,

and feeling part of a larger system (eg [8]; [17];[12]; [13];[15]).

**3). The teacher's response to learning with an outdoor learning laboratory.**

After identifying the requirements and location of the outdoor learning laboratory, the research activity was continued with a Forum Group Discussion (FGD) with the social science teacher. In this FGD activity were brainstorming, lectures, questions, and answers, analysis of Core Competencies (CC) – Basic Competencies (BC), Competency Achievement Indicators (GPA) and presentation of the IPS outdoor learning laboratory observation guide.

*a). Teacher's Response to the outdoor learning experience.*

During the Brainstorming, social science teachers had the opportunity to reflect and convey the experiences they had experienced in the learning process that had been carried out by the social science teachers. The following is a summary of the teacher's experience in outdoor learning activities.

**Table 3.** Utilization of the outdoor learning laboratory by social science teachers

Question	Response (%)			
	Never	Once	Seldom	often
Visiting outdoor learning locations in Singgahan District, Tuban	0	15	25	60
Carrying out outdoor learning in Singgahan-Tuban District	80	15	5	0
Equipping students with learning guidelines/tasks when doing independent work	70	20	10	0

Based on the results of the responses in table 3, most of the social science teachers have never used the environment in Singgahan-Tuban as a social science laboratory. Nevertheless, social studies teachers often visit the area in Singgahan-Tuban but they rarely use it as an outdoor learning activity. When the social studies teacher gave assignments to students to carry out activities outside the classroom independently, there was never a manual to direct these activities. This results in out-of-class learning projects that are carried out independently by students to be undirected

*b) The teacher's response to the difficulties in implementing outdoor learning*

Most teachers find it difficult to use an outdoor learning laboratory to be applied in social science

learning. Based on these results, it is very necessary to know the constraints that are worried by the social science teachers. In-depth interviews were conducted with social studies teachers to reveal the teacher's perception of obstacles when implementing an outdoor laboratory. Most of them are interested in carrying out outdoor learning activities because it can increase student motivation and learning outcomes, but on the other hand, outdoor learning activities have many obstacles. The results can be summarized in table 4 below.

**Table 4.** Results of identification of teacher difficulties in utilizing the outdoor learning laboratory

<b>Difficulty</b>	<b>Description</b>
Time	Social science teachers assume that outdoor learning activities require a lot of time so that it takes up normal lesson hours. This causes outdoor learning activities to be carried out outside of school hours by creating a field trip program.
Transportation	Outdoor learning activities definitely require transportation. Meanwhile, not all schools have their own means of transportation, so getting transportation requires a lot of rent.
Guidebook	The manual provides instructions on how outdoor learning activities will be carried out. It is not easy to compile a guidebook used for outdoor learning. Preliminary survey activities are needed to the location, then plan carefully, so that the needs and objectives of social studies learning can be achieved.
Cost	Outdoor learning activities will definitely cost money. In general, fees will be charged to students. Teachers are worried that outdoor learning activities will be carried out, the more burdensome the costs.
Coordination	In every junior high school, social studies teachers generally teach in several classes. If the teacher will carry out outdoor learning, it is necessary to coordinate with the principal, parents of students, and other teachers who are willing to be a companion. A large number of participants requires careful coordination so that the implementation of outdoor learning becomes optimal

Outdoor learning activities are constrained by inefficient time planning. The implementation of activities outside of school hours is the right solution according to the social studies teacher. However, it is necessary to pay more attention to the academic calendar so that it does not clash with other academic agendas. The

field trip program can be used as an outdoor learning implementation solution but requires careful technical planning to make it happen. No small amount of money is needed for adequate transportation facilities, and student manuals or worksheets so that outdoor learning activities can be carried out properly. As for social studies teachers, it is quite difficult to collect fees, provide transportation facilities and compile guidebooks.[18];[19], that carrying out learning with outdoor learning is not more efficient than lectures, because outdoor learning spends a lot of time and money. Teachers must be able to manage time and costs so that outdoor learning activities are more efficient.

The obstacles faced by teachers when carrying out outdoor learning in learning are classroom management, it is difficult to condition students, reduced student concentration, teachers find it difficult to coordinate students well, and learning is not timely.

With many obstacles, social studies teachers rarely carry out outdoor activities in learning because outdoor learning is considered a difficult activity, not more effective and efficient than other methods, and its implementation takes a long time. By looking at the obstacles to outdoor learning and the lack of teachers carrying out these activities, it is recommended that outdoor learning activities can be carried out, they must get support and coordination of cooperation from all parties.

#### **4. CONCLUSION**

Based on the results of the analysis it can be concluded that. Identification of karst Geopark Singgahan-Tuban sub-district has several locations that meet the requirements to be used as outdoor learning for social science subjects. Project-based and inquiry-based strategies are alternatives for integration into outdoor learning activities. The interdisciplinary approach of Social Sciences is very suitable to be applied so that students have the ability of Systems Thinking Skills (STS) when they do outdoor learning activities. The social science teacher's response was minimal in the implementation of outdoor learning. The difficulty of using outdoor learning is constrained by time, transportation, costs, and guidebooks.

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