

## Analysis of Singgahan-Tuban Karst Geopark as a Social Science Learning Resource Facility in Outdoor Learning Activities

Sukma Perdana Prasetya<sup>1\*</sup>, Sarmini<sup>2</sup>, Ita Mardiani Zein<sup>3</sup>, Artono<sup>4</sup>, FX Sri Sadewo<sup>5</sup>,  
and Hanifah Mahat<sup>6</sup>

<sup>1,2,3,4,5</sup>Universitas Negeri Surabaya, Indonesia

<sup>6</sup>Universiti Pendidikan Sultan Idris, Malaysia

\*e-mail: [sukmaperdana@unesa.ac.id](mailto:sukmaperdana@unesa.ac.id)

### ABSTRACT

*This study aimed to explore the potential of geopark karst as a source of social studies learning in outdoor learning activities. The subjects of the study were 25 social studies teachers. Primary data in the form of direct observation and participation in the field, as well as the results of interviews with several key informants and supporters. Data analysis was obtained through three stages: data reduction, data presentation, and concluding. The following analysis technique uses SWOT analysis which produces a strategy formulation in utilizing the karst potential of the Singgahan Geopark as a source of social studies learning in outdoor learning activities. The most significant potential strength factor is the many variations of population adaptation to karst phenomena in outdoor learning locations, so it is interesting to study from the aspect of social interaction and the environment.*

### Keywords:

Karst Geopark; Social Science Learning; Outdoor Learning; SWOT.

### ABSTRAK

*Tujuan dari penelitian ini adalah untuk mengeksplorasi potensi karst Geopark di Kecamatan Singgahan sumber belajar IPS dalam kegiatan outdoor learning. Subjek penelitian adalah guru IPS sejumlah 25 orang dari kabupaten Tuban dan Bojonegoro. Data primer berupa observasi langsung dan partisipasi ke lapangan serta hasil wawancara dengan beberapa informan kunci. Analisis data diperoleh melalui tiga tahap, yaitu reduksi data, penyajian data, dan penarikan kesimpulan. Teknik analisis selanjutnya menggunakan analisis SWOT yang menghasilkan rumusan strategi dalam memanfaatkan potensi karst Geopark Singgahan sebagai sumber*

*pembelajaran IPS dalam kegiatan outdoor learning. Faktor potensi kekuatan terbesar adalah banyaknya variasi adaptasi penduduk terhadap fenomena karst di lokasi outdoor learning sehingga menarik untuk dikaji dari aspek interaksi sosial dan lingkungannya.*

***Kata Kunci:***

Karst Geopark; Pendidikan Ilmu Pengetahuan Sosial; Outdoor Learning; SWOT.

## **1. Introduction**

Social science learning is related to human life, involving all their behavior and needs. Social science also describes the interactions between individuals in the natural and community environments. Social science, better known as social learning and social education, shapes students' attitudes and behavior. To realize social learning, sources and learning models are needed that actively involve students in learning and focus on students' experiences in their environment. The application of learning makes the surrounding environment a source of learning so that students can learn actively, creatively, independently, and familiarly with the environment.

The various challenges above need to be noted for every education practitioner in all regions, one of which is social science learning. Social science learning is still tied to theory but has not yet been implemented in the field by utilizing the surrounding environment as a social study learning resource. Utilization of the surrounding environment is a form of contextual social science learning. Social science teachers, especially those in Tuban and Bojonegoro regencies, East Java province, can take advantage of the Singgahan-Tuban geopark karst area as a social study learning resource for outdoor learning activities.

The location of the Singgahan-Tuban geopark karst area can be a reference for teachers in implementing integrative and environmentally friendly social science learning so that it has the potential to be used as a social science learning resource. But in fact, the environment's potential has not been utilized properly. Learning still seems monotonous and has not been able to direct students to critical thinking patterns, only reviewing phenomena contained in books/internets without seeing the environment's appearance directly so that it has an impact on decreasing intelligence to be aware of the environment (ecology). Efforts to integrate the values of social science, economics, geography, history, education, as well as the use of the natural, social, and local cultural environment that are still difficult to apply are points of concern to obtain solutions in achieving conducive and integrated social science learning goals/targets. Meanwhile, learning efforts that are too dependent on technology make it challenging to master the material for students and teachers. They often shut themselves off from the interaction of the community environment, so they don't care about the phenomena and potentials in the surrounding environment.

Meanwhile, learning efforts that are too dependent on technology make it difficult for students and teachers to master the material. They often close themselves off from the interaction of the community environment, so they do not care about the phenomena and potentials in their surrounding environment. Research conducted by Rojuli (2016) states that efforts to apply and familiarize

democratic experiences are still lacking, the values of social life by involving students and the school community in various classroom activities are also still limited, in presenting facts and concepts they are also still using the rote method. It is also complex, tedious, impractical, and offers only various information. At the same time, students do not understand, more indoctrinating the values of the teacher itself than the "hidden curriculum" that exists in students, which is full of values as well. These problems can cause failure to achieve social studies learning targets, so it is necessary to make improvements and optimizations one by one. This problem has the potential to cause failure in achieving social science learning targets, so it is necessary to make improvements and optimizations one by one.

Based on these conditions, with a variety of scientific challenges and skills that are relentless as it is today, it is very necessary to make efforts to maintain a conducive and integrative education through planting around local social, environmental and cultural insights and values for students, one of which is by how to take advantage of the potential of the local environment as a learning resource for Social Sciences (IPS). This is confirmed by the statement of Januszewski and Molenda (2008), stating that all sources, be it data, people, or objects that provide facilities to facilitate student learning activities, are categorized as learning resources. Therefore, a suitable learning resource to support social science learning is in the form of identifying the social science values contained in the potential of the Singgahan Kart Geopark. Meanwhile, Dymment et al. (2018) state that the environment has a major role in shaping individual growth and development. The essence is that it is proper for families to care for and raise children, like schools that play a role in educating students, like people who play a role in socializing and playing activities for children in daily life, as well as the natural conditions around them and their social environment.

Conceptually, social science subjects are close to the environment. Therefore, social science learning should optimize the environment's potential to make it more meaningful. The added value of learning local potential is to make it easier for them to understand various social science concepts and phenomena in their environment and increase students' appreciation of their local environment. Teachers must also be able to facilitate the learning process by using learning resources. One of the social science learning resources that can support students to learn independently is by using Karst Geopark Singgahan for social science outdoor learning activities. Besides being used to assist teachers in carrying out social science learning activities, this resource is expected to be able to realize social science learning that is integrative, coherent, and easy to understand. Based on the description above, the Karst Geopark-Tuban area, with its various potentials, is expected to be a source of learning in Social Sciences (IPS). Thus, with the convenience provided through this learning resource, it is hoped that it can spur intellectual skills and interactive relationships between students.

Social science learning resources in identifying social science values are intended to contribute insight and inspiration for tourism managers and education practitioners to practice curriculum and learning that focuses on preserving the natural environment and historical and cultural values. According to McKeown (2012), learning resources need to integrate development into educational programs, so it is necessary to reorient teacher education programs because teachers are key agents that shape the ability of new generations to create a sustainable society. In addition, it also aims to facilitate students in completing assignments through the application of the ZPD (Zone of Proximal

Development) concept carried out by the teacher. The emphasis of this concept focuses on the social aspect, where the learning process will occur if students can handle tasks that have not been studied while the task is still within their reach. This is called the zone of proximal development/ZPD (Ardoin, 2006). This study aims to dig deeper into the potential and management of the Singgahan karst geopark and to analyze the potential management and utilization of edutourism activities as a means of education and social science learning resources in outdoor learning activities.

## 2. Methods

The research approach used is qualitative. At the same time, the type of research used is descriptive analysis. This study reviews two objectives: 1) How to review the process of managing and utilizing the karst potential of the Singgahan geopark by exploring social, cultural, environmental, and tourism values that can be utilized; 2) How the results of the review can be used as a source of social science learning that is developed, as one of the teacher's efforts in realizing an innovative learning process, with character, and with socio-cultural insight. According to Sarwono (2018) according to Sarwono (2018), qualitative research focuses on humans and all cultures and their environment.

The research location is in Singgahan District, Tuban Regency, East Java Province. The research location is divided into several points: Nglirip Waterfall, Krawak Water Source, Gowa Lowo, Gowa Putri, Ndodol Dam, Nganget Hot Springs, and Guwoterus karst tower (Fig 1).

The data and data sources used for the determination of the subject are intended to be able to obtain accurate data. They are divided into two parts, including primary data sources in the form of interviews with several visitors, tourist location managers, and several social science teachers (25 people) from the Tuban and Bojonegoro districts. In comparison, secondary data sources are research results from relevant scientific journals or articles, archives, books, news, scientific magazines, or documentary data obtained by submitting a permit application to related parties. Hardani et al. (2020) raise the requirement that research data must be objective, represent all sample issues, and be timely (up to date). The subject of this research is centered on several parties and resource persons involved in the management and utilization of the Singgahan karst geopark, including the manager of the tourist area, several local caretakers, and the local community. At the same time, the object of this research is assumed to have the potential to be used as a source of social science learning, especially in outdoor learning activities.

Data collection techniques used are observation (observation), interviews (interviews), and documentary studies. Observations are centered on the process of managing the potential utilization of the Singgahan karst geopark by the parties involved. Interviews focused on environmental management issues, and the use of their values for social science learning resources by asking questions to several predetermined sources, and documentary studies focused on writing, such as diaries, life histories, stories, biographies, regulations or policies; and image documentation in the form of photos and others that are still relevant to the specified research activities, especially in the Singgahan karst geopark environment.



**Figure 1.** Location of the social sciences outdoor learning laboratory in Singgahan district, Tuban

The data analysis technique used is descriptive data analysis with the data analysis model by Miles, Huberman, M., & Saldana (2020), including data reduction (data reduction), data presentation (data display), and conclusions or verification (conclusion drawing/ verification) which is to present a description of how the situation description of the Singgahan karst geopark, starting from its environment and geographical conditions, exposure to recorded interviews with selected sources, exposure to observations on student learning activities, to linkages with selected theories. The entire data obtained are compiled into an expanded text and uses literature references from various sources, including journals, relevant documents, and pictures/photos as supporting evidence.

In addition, this study also uses a SWOT analysis technique based on the karst potential of the Singgahan Geopark for social science learning resources. From the potential analysis above, it will be used to formulate appropriate strategies in planning to form environmental-based educational learning resources for social science learning. Although this analysis is dominantly used to plan business strategies, not a few tourism and education researchers use it because the two are interrelated. Rangkuti (2015) states that 4 SWOT analysis strategies can facilitate a person in formulating a strategic plan that is carried out, including the description of problems based on internal factors (Strengths, Weaknesses) and external factors (Opportunities, Threats) contained in the process of managing the karst potential of the Singgahan geopark. The factors that have been evaluated will be used as a reference in formulating strategic planning in the form of strategies for optimizing and managing the Singgahan karst environment as a means of education and social science learning resources.

### 3. Results and Discussion

The outdoor learning location is in Singgahan District, which has a source from Krawak with an altitude of 124 masl. The average air temperature is 25<sup>0</sup>C-35<sup>0</sup>C. The annual rainfall is estimated at 1,936 mm, divided into two seasons: the rainy season (around November-May) and the dry season (June-October). The average monthly rainfall is around 440 mm during high rainfall during the rainy period and 0 mm during the dry month during the dry season (Singgahan District in 2015 figures). Singgahan District is 125 km from the city of Surabaya, the capital city of East Java. Singgahan sub-district has an area of 14.62 km<sup>2</sup>, excluding state forest. Some of the areas that are the locations for outdoor learning are in the form of forests under the ownership of Perum Perhutani KPH Parengan. Singgahan District's forest is a tropical rain forest that is a water catchment area and water source for the area.

#### 3.1. Potential Kars Geopark Singgahan

Locations in the Karst Geopark Singgahan area were identified as social science learning resources. A description of the potential locations and their relevance to the scope of the IPS will be presented in the following description:

##### 3.1.1 Nglirip Waterfall

Nglirip waterfall is located in the village of Mulyoagung, Singgahan District, Tuban Regency. It is one of the attractions that offer very exotic natural scenery, and the natural beauty is still really well preserved; no wonder it is so crowded with local tourists and tourists coming from out of town. Some of the interviewed visitors came from the Rembang, Pati district; some were from Kudus. They generally come from out of town in groups and have visited the Nglirip waterfall dozens of times. In addition to visiting the Nglirip waterfall, they also carry out religious tourism around the tourist complex, namely visiting the tombs of Mbah Jabbar and Mbah Ganyong. According to public belief, they are " *Waliulloh*" and propagators of Islam in the Singgahan District.

This waterfall has a unique and enchanting water nature. It looks like the water is turquoise green as a result of being reflected by the color of the moss that underlies and underlies the waterfall. The height of the Nglirip waterfall reaches 25 meters with a width of about 15 meters, where the water source comes from the Karawak forest and is located in the limestone mountains in southern Tuban. When the dry season arrives, the amount of waterfall discharge does not experience a significant decrease, although it still experiences a decrease in water flow. According to local residents, the beauty of the waterfall is maximized when entering the dry season, and this is because the view of the waterfall is green tosca and has very clear bluish water.

As in other natural attractions in Indonesia, Tuban's natural attractions also have myths that have been known for generations. The story of the origin of the Nglirip waterfall in ancient times was a village woman with a very beautiful face. One of the dukes of Tuban (in the era before the Majapahit kingdom was captivated by the beauty of the village girl. From their marriage, a boy was born named Joko Lelono. After growing up, Joko Lelono had an idol who came from a low-income family. Of course, duke Tuban was angry at that time and did not agree with his son's relationship with the girl.

As a result of the dispute, Joko Lelono ran away from the house without saying goodbye to his parents. This made Joko Lelono's father even angrier, then ordered the soldiers to kill Joko Lelono. a poor girl went to a cave around the Nglirip waterfall to meditate. It was because she felt a very deep heartbreak, so she preferred to calm down in the cave; no one even wanted to be found. Locals believed that the princess Nglirip appeared to take the water in the waterfall. As a result of the tragedy until now, the myth of a Nglirip waterfall is developing, prohibiting people who are still dating status from vacationing there. If a dating partner violates this myth, it is said that the couple disturbs the princess, and even the appearance of the daughter of Nglirip often occurs. Even worse, it is believed that the dating couple will break up after 40 days of visiting the place. The myth does not apply to legal couples in a legal marriage.

Local residents take advantage of the existence of the Nglirip waterfall with various economic activities. Generally, residents' economic activities are establishing dozens of food-beverage stalls, toilets and prayer rooms, and parking lots. Typical culinary delights always attract visitors are sweet "rujak" and coconut water ice.

### *3.1.2 The graves of Mbah Jabbar and Mbah Ganyong*

According to the belief of the Singgahan community, Mbah Jabbar and Mbah Ganyong were students and teachers who spread Islam in the Singgahan-Tuban area. The existence of the two tombs is located around the Nglirip waterfall. It remains above the west side of the Nglirip waterfall by about 50 meters. The uniqueness of this tomb is that it always spreads a fragrant aroma, according to the narrative of the pilgrims. According to local people's beliefs, when they were going to be buried, suddenly there was a fragrant and refreshing smell to the congregation who attended the funeral. Mbak Jabbar's tomb is not opened every day but on the 17th of Muharram to coincide with her "haul." But only for pilgrimages outside the fence of his tomb; every day, he is welcome to make a pilgrimage. In the 1 "Muharram" or 1 "Suro" tradition, an annual event is commemorated around the tomb complex. Thousands of residents, both from local residents and outside the area, crowded the tomb area to take part in the religious activities held in the tomb area.

Mbak Jabbar is well-known as a scholar who introduced Islam to the Singgahan-Tuban community for the first time. According to some community leaders, his struggle and sweat are a picture of the knowledge emitted. Mbah Jabbar, whose real name is Sumoyudo, besides spreading Islam in the Singgahan area, is also one of the warlords against the invaders. Many stories are circulating from the community, including where I live, that the figure of mbah Jabbar is one of the biggest enemies of the Company. This can also be proven by the existence of a place that is not far from home. The place is called Kedungbanteng, which is on the north side of the Kerawak spring.

Kedungbanteng is a center for weapons and a place for storing royal goods. In addition, this place is proof that Ms. Jabbar used the place as a hermitage and the headquarters of Sheikh Abdul Jabbar's aggression against the Dutch Company. Now the place is used as a tourist and many visitors during the holiday season because the water is clear and many large rocks are in the water flow.

### 3.1.3 Krawak Water Source

This spring, which is located in Krawak, Singgahan, Guwoterus, Montong, Tuban Regency, East Java, has excellent water clarity. The location not far from the Nglirip Waterfall tour is easy to visit by tourists who want to take pictures, bathe or enjoy the charm of nature. Residents around Krawak can be used for drinking water, irrigation, and tourism. The existence of the Krawak water source is in the middle of the forest. The surrounding nature is still very natural and beautiful, so the cool atmosphere adds to the attraction of this object.

The local community has developed economic activities that utilize krawak water sources such as stalls, toilets, and parking areas. The entry ticket price is Rp. 5,000, - and the parking fee for the car is Rp. 5,000, - and a motorbike Rp. 2,000,-. The disadvantage of managing this object is that there is a lot of garbage scattered in water sources, especially waste used for soap and shampoo wrappers when visitors are bathing or swimming, producing the rest of the packs randomly. The manager should provide a trash can to accommodate the remnants of the soap and shampoo wrappers.

### 3.1.4 Ngaget hot spring

This warm spring tour has three bathing pools and a camping area. All three have different hot water temperatures. The main pool with a diameter of 10 meters is estimated to be the main source of hot water with a strong sulfur smell. The next pool has a temperature that is not as hot as the first pool. The last pool often called the lanang pool, has the lowest temperature. Visitors can soak the longest in this pool. This place also has some facilities, such as changing rooms, toilets, gazebos, and food and beverage shops.

### 3.1.5 Lowo Cave and Putri Cave

Lowo Cave and Putri Cave are not far from the Krawak water source, about 2 km towards Montong. Go to the Lowo Cave location, approximately 32 km from the city of Tuban. Lowo Cave is a fantastic work of nature, with incredible natural stalactites and stalagmite ornaments. Lowo Cave and Putri Cave are favorite caves for nature lovers to conquer. At least the existence of Lowo Cave and Putri cave is a complement to the revival of the tourism sector in Tuban Regency because the existence of Lowo cave and Putri cave is very appropriate to be presented as tourist destinations. The parking area and toilets have not been built at all.

In the Lowo and Putri caves, many beautiful and continuous stalagmite and stalactite stone ornaments have stone ornaments that make a sound like a "*gamelan*" musical instrument. According to one local resident, "The stalagmite-stalactite ornamentation is beautiful and connects from the bottom up. And when it is beaten, it makes sounds like gamelan," he explained. Furthermore, for the time being, the length of the cave that can be reached is approximately 20 meters, but it is estimated that the length could be more. Because in this cave, it is dark, and there are no adequate tools to map the cave. He hopes the government will pay attention to this cave, especially the village government.

### *3.1.6 Ndodol Dam*

The location of Ndodol Dam is in the limestone hills of Singgahan-Tuban, exactly 15 meters west of SMAN 1 Singgahan-Tuban. The existence of the Ndodol Dam is actually a dolina sub which is a Karst basin in a limestone area that can accommodate rainwater. Dam ndodol or Dolina in the Singgahan community is often referred to as 'Embung,' which is a place to collect natural water during the rainy season to prevent flooding and harvest it during the dry season for irrigation activities and other basic needs such as drinking, cooking and bathing.

Singgahan District is a Karst Landscape area. Dolina is a closed indentation on the surface due to the dissolution and collapse process, which varies in size with a depth of 2 to 100 meters and a diameter of 10 to 1,000 meters. As a result of the limestone dissolving process, Dolina makes hollows (funnel-shaped holes).

Dolina or infiltration is a closed depression resulting from dissolution with a diameter ranging from a few meters to several kilometers, a depth of up to hundreds of meters, and a round, oval and irregular shape. Some dolinas are soft grassy basins, and others are rocky cliff-lined basins. Some are created by the direct solution of the limestone surface zone (Solution Dolines), and those formed by the collapse of the cave roof (Collapse Dolines).

## *3.2 Utilization of Singgahan Karst Geopark as a Social Science Learning Resource*

Based on the overall description of the potential of Karst Geopark Singgahan, it can be concluded that Karst Geopark Singgahan has tourism potential based on the natural environment with karst topography. This location can be used as a source of social science learning because of its potential that is related to the scope of social science learning, according to the Minister of National Education Number 22 of 2006, which states that there are four aspects in the scope of social science subjects including:

### *3.2.1 People, Place, and Environment*

This context contains the interaction and influence between individuals and what characteristics are obtained, considering that every individual in Indonesia has unique diversity in nature, character, race, ethnicity, customs, culture, language, etc. In addition, the human context also reviews how individuals can defend themselves and adapt to their environment, including how they can be interpreted as human sociality (social beings). On the other hand, this context is reflected in the Kars Geopark Singgahan, which can form and develop due to human resources and the environment. The character of the Singgahan District community influences each other, one of which is through environmental adaptation innovation efforts to create a fairly sustainable tourist environment. The location in the limestone area, fertile land and agricultural land assets, favorable weather, and asset management by local farmers make this area tourist and agricultural environmental asset.

### 3.2.2 *Time, Sustainability, and Change*

This context contains the time dimension that includes the past and present, how the process occurred, and what changes were caused during that period. So there is a continuous process in it. This emphasizes the understanding that an event that happened in the past will determine what happens in the present. Likewise, the various events that are happening now will also determine what will happen in the future. Therefore, the concept is called a historical event. This context is reflected in past events before the Majapahit era, the Hindu-Buddhist period, and the Islamic life period until the Dutch colonial occupation. This shows continuity and can show change, from what was previously simple to more developed. As for this historical event, it happened because of the movement of each individual and its supporting elements, which were continuous over time and wherever they were.

### 3.2.3 *Social and Cultural System*

This context contains the relationship between individuals and groups in the community. It was emphasized by the Ministry of Social (2020) that the socio-cultural system focuses more on individual and group relationships that most people accept because they originate from cultural values that have become part of the community's daily lifestyle. This is reflected in one of the characteristics of the Singgahan community environment, which tends to be dominated by high solidarity values. The factor causing the emergence of this solidarity value is the inherent habits of rural communities in the form of an attitude of cooperation, mutual cooperation, and empathy in building the Singgahan area.

### 3.2.4 *Economic Behavior and Welfare*

This context contains a variety of human activities in meeting their needs through production, consumption, and distribution activities. How much effort is needed to produce goods and services? What activities are carried out so that the needs can be met evenly? And how to distribute goods and services evenly from producers to consumers so that there is no need gap between regions? The scope of the subject is included in the concept of economics material. This is reflected in the Singgahan community's activities, which try to meet their needs through agriculture and tourism. Most of the people make a living as farmers and traders and take advantage of tourist sites. So based on the description above, it can be concluded that the karst environment of the Singgahan Geopark and all its community elements has the potential to be used as a social science learning resource.

Social science is an integrated study material that is a simplification, adaptation, selection, and modification organized from the concepts and skills of History, Geography, Sociology, Anthropology, and Economics. Social science is given starting from Elementary School to Junior High School so that this subject is expected to be able to direct students to be able to support the competence of citizens in terms of knowledge, intellectual processes, and democratic character in order to trigger the active involvement of students in public life. Today's social science learning is still strictly focused on taking notes, memorizing, answering teacher questions, and not being directed at gathering information and interactive discussions, of course, hindering the development of skills/values in students.

Learning resources designed to identify social science values will be adjusted to the relevant basic competencies of social science subjects so that it can facilitate teachers and students in implementing interactive social science learning, environmentally friendly as well as being able to learn how to manage processes and efforts to preserve the natural environment and cultural assets sustainably. Meanwhile, the Singgahan Geopark karst area's components can bring up a source of value that can be used as a reference in social science learning, especially in equipping the character, knowledge, and skills of students. According to Sujarwo (2017), Affirmation values are interpreted as an important foundation in determining the character of society and the nation. Values do not grow by themselves but through a process of dissemination and awareness, one of which is through education in schools. These values include environmental, religious, philosophical, educational, theoretical, social, and economic values.

The identification of social science values focuses on developing ecological intelligence (eco-literacy) and developing an understanding of local history-literacy. Meanwhile, the emphasis on caring for, managing, and interpreting the natural environment, history, and local culture must be an upgrading style for today's students so that they are equipped to anticipate environmental damage and cultural crises in the future.

### *3.3. SWOT Analysis Karst Geoparks Singgahan as a Social Science Education and Learning Resource*

Before conducting a SWOT analysis, the first step that must be done is to identify internal factors in the form of the formulation of strengths and weaknesses, which are then used again as a reference for consideration in determining the optimization strategy for managing the karst potential of the Singgahan Geopark as a source of social science learning. At the same time, the identification phase of external factors focuses on efforts to obtain key factors in the form of opportunities and threats for managing the karst potential of the Singgahan Geopark to facilitate efforts to formulate strategies for managing the karst potential of the Singgahan Geopark as a source of social science learning for educational institutions and the local community. Based on the analysis, a description of the internal and external factors in the Singgahan Geopark karst was obtained. The internal factors can be classified into strengths and weaknesses of the efforts to manage the karst potential of the Singgahan Geopark. Based on the results of interviews with 25 social science teachers from the Tuban and Bojonegoro districts, the results are as follows:

The strength factor is viewed from several potential management of the Singgahan Geopark karst potential, which can influence the process of compiling social science learning resources and create educational facilities for education practitioners and the local community.

The strength factor is divided into several components as follows: 1) location proximity, (2) completeness of the karst phenomenon, (3) site management, and (4) variations in population adaptation at the site. Meanwhile, the weakness factor (weakness) is viewed from several obstacles in managing the karst potential of the Singgahan Geopark, so that it also affects efforts to prepare social science learning resources and becomes an obstacle to efforts to realize educative natural tourism facilities for education practitioners and the local community. The weakness factors are

divided into several components as follows: (1) the cost of outdoor learning activities is expensive, (2) the time allocation for activities is large, (3) the availability of transportation and accommodation facilities, and (4) the absence of a guide book.

Meanwhile, external factors can be classified as threats and opportunities from efforts to manage the karst potential of the Singgahan Geopark. Threat factors (threats) are viewed from all possible bad things that may occur in efforts to manage the karst potential of the Singgahan Geopark so that it becomes an obstacle in the process of compiling social science learning resources. This needs to be followed up in order to obtain the expected benefits and objectives. Threat factors are divided into several components as follows: (1) the K-13 curriculum that leads to innovative learning such as PjBl, inquiry learning, (2) improving abilities: cognitive, affective, social/interpersonal, and physical/behavioral, (3) holding local cultural activities at outdoor learning locations, (4) can be a nature-based tourism object, education, culture, and special interests (religion, rock climbing, rapids, outbound). Meanwhile, the opportunity factor is viewed from all potentials that can be utilized to manage the karst potential of the Singgahan Geopark so that it can support the process of compiling social science learning resources. The existing potential should be utilized to the maximum to achieve the expected goals. The opportunity factor is divided into several components as follows: (1) environmental damage due to deforestation in upstream areas/water sources, (2) awareness of residents and visitors in maintaining environmental cleanliness, such as waste management, (3) covid 19 unfinished pandemic business, and (4) floods and landslides during the rainy season, and drought in the dry season.

Based on the presentation of the results of the analysis of internal factors and external factors above, a qualitative SWOT matrix can be formulated in tabular form Table 1. Based on the SWOT analysis showing strong potential, the strategy recommendations given are Progressive, meaning that the potential is in prime and steady condition so that it is possible to continue to expand, increase growth and achieve maximum progress. This quadrant lies between external opportunities and internal strengths (growth strategy), namely the potential designed to achieve social science learning resources. The potential of the Karst Geopark area, Singgahan District, is a source of social science learning, including the rapid growth strategy, which is a strong factor in maximizing the use of all opportunities.

Based on the qualitative analysis, the internal supporting factors in the form of outdoor learning locations close to each other in one sub-district and the many variations in population adaptation to the karst phenomenon in outdoor learning locations are the main strength factors that make this area an outdoor learning social science laboratory. The close proximity of outdoor learning locations and variations in population adaptation in dealing with environmental conditions are unique "local potentials" in each region.

The local potential is a resource that exists in a certain area. The local potential has meaning as a source/strength possessed by each region to be utilized in certain activities. Rickinson et al., (2004). Local potential develops from the wisdom tradition possessed by an unpretentious society as part of its culture. Juniati and Sari (2016) explained that learning based on local potential can be a contextual learning tool, utilizing and preserving local potential and forming good student character, especially for the environment. Local potential-based learning can also increase students' living values ,

including the character of honesty, cooperation, and responsibility (Prasetya et al., 2020; Del Rosario and Galang, 2021). Webster & Sell (2014) also mentions that regional potential can be developed through teaching materials. Implementation of local potential-based learning can be delivered with learning strategies outside the classroom so that students gain hands-on experience.

**Table 1.** Krast Geoprak Singgahan Potential Swot Matrix Analysis

<b>Internal factors</b>	<i>Strength (S)</i>	<i>Weakness (W)</i>
	<b>SO strategy</b>	<b>WO strategy</b>
<b>Opportunity (O)</b>	<ol style="list-style-type: none"> <li>1. Make travel routes to outdoor learning locations close to each other in one sub-district</li> <li>2. Implementation of tourism management activity programs with educational institutions to carry out edutourism activities.</li> <li>3. Providing insight/skills and disseminating information to local communities regarding the potential of Karst Geopark</li> <li>4. Designing environmental, social, cultural tourism educational resources and components of values that can be integrated into social science learning</li> </ol>	<ol style="list-style-type: none"> <li>1. Develop a well-thought-out activity plan to streamline outdoor learning time and costs</li> <li>2. Provide transportation that reaches all location objects</li> <li>3. Compiling a guide book for outdoor learning activities.</li> <li>4. Conducting a program of guidance and assistance to local educators regarding the use of the Singgahan karst geopark in social science learning.</li> </ol>
	<b>ST strategy</b>	<b>WT strategy</b>
<b>Threat (T)</b>	<ol style="list-style-type: none"> <li>1. Implementation of the K-13 curriculum that leads to innovative learning such as PjBl, inquiry learning, and so on.</li> <li>2. Socialization and innovative learning workshops to improve students' abilities in cognitive, affective, social/interpersonal and physical/behavioral aspects.</li> <li>3. Routinely organize local cultural activities at outdoor learning locations.</li> <li>4. Promote nature-based tourism, education, culture, and special interests (religion, rock climbing, rapids, outbound)</li> </ol>	<ol style="list-style-type: none"> <li>1. Make strict rules and sanctions for forest destroyers to prevent environmental degradation due to logging in upstream areas/water sources</li> <li>2. Provide supporting facilities and infrastructure such as transportation, accommodation and trash bins to keep the environment clean.</li> <li>3. Carry out strict health protocols to prevent the covid 19 pandemic</li> <li>4. Carry out reforestation to prevent floods and landslides during the rainy season, and drought in the dry season</li> </ol>

3.4. *Realization of the Potential Value of Singgahan Karst Geopark as a Social Science Learning Source*

**Table 2.** The Embodiment of the Potential Value of Karst Geopark as a Social Science Learning Source

NO.	Value Form	Embodiment of Value
1	Environmental values	<p>The Singgahan community conserves the forest around the water source of Krawak and in the river as an effort to preserve the green and beautiful environment.</p> <p>Local people maintain mythology/sacredness in the environment to preserve the environment.</p> <p>Communities keep water sources clear through preventing deforestation and providing trash cans at tourist sites</p>
2	Religious Value	<p>The community still preserves various rituals in the tomb area of "Waliyulloh" Mbah Jabbar and Mbah Ganyong. Many pilgrims from outside the area who visit and pray at the tomb. At the beginning of the month of "suro" (tradition of 1 Muharram), the tomb area of <i>Waliyulloh Mbah Jabbar and Mbah Ganyong</i> became the peak density of thousands of visitors who made pilgrimages.</p>
3	Symbolic Philosophical Values	<p>The various stories of life between Ms. Jabbar and Ms. Ganyong in spreading Islam and keeping the forest environment and water sources sustainable are suggestions that humans always live in harmony between the relationship with God, the relationship between humans, and the relationship with their environment in order to create a prosperous life.</p>
4	Educational Value	<p>The existence of Waliyullah mbah Jabbar and Mbah Ganyong has a unique historical background. Remembering and reviewing local history in the past, how Islam spread in the Singgahan area, as well as the roles of the figures Mbah Jabbar and Mbah Ganyong in fomenting resistance during the Dutch colonial period is one of the efforts to learn to interpret the struggles of the ancestors.</p>
5	Theoretical Value	<p>The context of the historical background and all the phenomena that occur in the activities of the local community. For example, why the shape of the concept of Islamic belief? This can be used as material for analysis with relevant theories.</p>
6	Social Value	<p>Local community cooperation in protecting the environment, traditions, and beliefs are mobilized to preserve the environment, culture, and religion.</p> <p>Interactive tolerance can also be seen from visitors from various regions who interact and try to get to know each other even though they have different needs, be it the need to pray, give offerings, or just visit.</p>
7	Economic Value	<p>The efforts of the community around the Singgahan Karst Geopark in conducting entrepreneurship. The potential for tourism that has an existence and is known to the wider community has a quite beneficial impact for traders, be it in agriculture, or providing other services.</p>

The arranged learning resources contain one important context in the form of social science values that can be integrated in social science learning, affect cognitive development, and stimulate interaction between students. The forms of values contained in the potential management of the Singgahan Karst Geopark area that can be integrated as a social science learning resource are presented in the following Table 2.

Based on the description above, it can be concluded that the social science learning resources in the form of identification of social science values that have been compiled are at least able to realize the following learning indicators: 1) Identify the natural and social potentials in the Singgahan geopark karst area; 2) Identify environmental management and tourism potential; 3) Describe the relationship between the management of the Singgahan karst geopark potential as a social science learning resource; and 4) Describe the environmental, social and cultural values in each potential karst geopark Singgahan which can be a reflection of positive actions in everyday life. Based on these indicators, students have experience analyzing phenomena and elements of the environment, history and culture that are real. In this way, it is hoped that the younger generation will be able to have life skills, especially in preserving the potential of the environment and cultural history in the community.

This research is in line with Schuler et al. (2018) that the social, cultural, economic, and environmental aspects that develop in society must be understood to build a sustainable future. For example, to understand environmental degradation, individuals need to see the environment as a system and understand the interrelationships between elements of environmental change such as economy, culture, beliefs, geographical conditions, and social life (Booth-Sweeney, 2017; Shanie, 2020).

Through the exploration of the karst potential of the Singgahan Tuban Geopark in outdoor learning activities, it can support students' ability to explore values which in turn can think systematically. Outdoor learning education is an important tool for learning and teaching systems thinking (Assaraf & Orion, 2010; Keynan et al., 2014). Outdoor learning activities increase the ability to integrate sustainability issues and location-based socio-ecological approaches (Beames, Higgins, & Nicol, 2012; Hill, 2012).

#### **4. Conclusion**

The existence of the Singgahan Karst Geopark has had a positive impact on the economy of the surrounding community. The community uses it as agricultural land and tourism and has the potential to be used as a social science learning resource. This research produces a solution that can be used as an alternative for teachers in realizing innovative and integrative social science learning. The preparation of the identification of IPS values is carried out by conducting an analytical study of the karst potential of the Singgahan District Geopark. The potential of Karst Geopark in Singgahan-Tuban District as an appropriate source of social science learning based on a SWOT analysis shows a strong and potential condition, the strategic recommendations given are progressive, meaning that the organization is in prime and steady condition, so it is possible to continue to expand, increase growth and achieve maximum progress. The internal factors that are the biggest potential strengths are outdoor learning locations close to each other in one sub-district and the many variations of population adaptation to the karst phenomenon in outdoor learning locations.

In contrast, the internal factor that is the most weakness in developing potential as a source of social science learning in outdoor learning activities is the financing of activities that are not cheap when compared to other learning models. The external factor that is the most potential opportunity is that the outdoor learning location area can become a tourism object based on nature, education,

culture, and special interests (religion, rock climbing, rapids, outbound). Meanwhile, the external factor still a threat is that the spread of the COVID-19 pandemic has not yet ended. The management of the Singgahan karst geopark potential can be used as a means of education and social science learning resource in outdoor learning activities while exploring in depth the potential elements that support values. IPS values being able to form individuals who are interactive with the environment to answer the challenges of 21st-century skills.

#### 4.1. Acknowledgments

Acknowledgments submitted to the Rector Universitas Negeri Surabaya (Prof. Dr. Nurhasan, M.Pd), which has provided research funding, 2021 regarding the Determination of Policy Research Recipients of the Faculty of Social Sciences and Law, Universitas Negeri Surabaya, PNBP funds for 2021.

## 5. References

- Ardoin, N. M. (2006). Toward an Interdisciplinary Understanding of Place: Lessons for Environmental Education, *Canadian Journal of Environmental Education (CJEE)*, 11 (1), 53-67.
- Assaraf, O., & Orion, N. (2010). Four Case Studies Six Years Later: Developing Systems Thinking Skills in Junior High School and Sustaining Them Over Time, *Journal of Research in Science Teaching*, 47(10), 1253-1280.
- Beames, S, Higgins, P, & Nicol, R. (2012). *Learning Outside the Classroom. Theory and Guidelines for Practice*. Newyork and London: Routledge.
- Booth-Sweeney, L. (2017). *All Systems go. in Developing a Generation of Systems Smart Kids*. Retrieved from [http://lindaboothsweeney.net/SOW17\\_chap12\\_systems-thinking.pdf](http://lindaboothsweeney.net/SOW17_chap12_systems-thinking.pdf)
- Del Rosario, A,G and Galang, C,P. (2021). Thriving Amidst the Pandemic: Examining the Lived Experiences of Work from Home Filipino Teachers. *International Journal of Social Learning*. 2 (1), 39-54.
- Dyment, J. E., Chick, H. L., Walker, C. T., & Macqueen, T. P. N. (2018). Pedagogical Content Knowledge and the Teaching of Outdoor Education. *Journal of Adventure Education and Outdoor Learning*, 18(2):1-20, <https://doi.org/10.1080/14729679.2018.1451756>.
- Hardani, Auliya, N. H., Andriani, H., Fardani, R. A., Ustiawaty, J., Utami, F. E., et al. (2020). Metode Penelitian Kualitatif dan Kuantitatif. Yogyakarta: Penerbit Pustaka Ilmu.
- Hill, A. (2012). Developing Approaches to Outdoor Education that Promote Sustainability Education. *Australian Journal of Outdoor Education*, 16(1), 15–27.
- Januszewski, A & Molenda, M. (2008). *Educational Technology: A Definition with Commentary*. New York: Routledge.
- Juniati, E., & Sari, W.P. 2016. *Integrasi Potensi Lokal Pada Pembelajaran SL Terhadap Pembentukan Learner Softskills Untuk Memecahkan Permasalahan Lingkungan*. Makalah Disajikan Pada Symposium on Biology education, Prodi Pendidikan Biologi, FKIP, Universitas Ahmad Dahlan.
- Keynan, A., Assaraf, OBZ, & Goldman, D. (2014). The Repertory Grid as a Tool for Evaluating the Development of Students' Ecological System Thinking Abilities. *Studies in Educational Evaluation*. 41 (1), 90–105.

- McKeown, R. 2002. *ESD Toolkit*. Retrieved. <http://www.esdtoolkit.org/>
- Miles, M. B., Huberman, M., & Saldana, J. (2020). *Qualitative Data Analysis-A Methods Sourcebook* -4<sup>th</sup> edition. London: SAGE.
- Ministry of Social. (2020). *Annual Report*
- Prasetya, S.P. Segara N.B, Imron A. (2020). Effectiveness Of Outdoor Learning Optimization Program In Learning Social Studies, *JPI (Jurnal Pendidikan Indonesia)*, 9 (2), 314-327.
- Rangkuti, F. (2015). *SWOT Analysis*. Jakarta : PT Gramedia Pustaka Utama.
- Rickinson, M., Dillon, J., Teamey, K., Morris, M., Young Choi, M., Sanders, D., & Benefield, P. (2004). *A Review of Research on Outdoor Learning*. National Foundation for Educational Research and King's College London. Retrieved from [https://www.field-studies-council.org/media/268859/2004\\_a\\_review\\_of\\_research\\_on\\_outdoor\\_learning.pdf](https://www.field-studies-council.org/media/268859/2004_a_review_of_research_on_outdoor_learning.pdf).
- Rojuli, S. (2016). *Strategi Pembelajaran Pendidikan IPS*. Surabaya: CV Garuda Mas Sejahtera.
- Sarwono. J. (2018). *Statistics for Thesis Research*. Yogyakarta: ANDI.
- Schuler, S., Fanta, D., Rosenkraenzer, F., & Riess, W. (2018). Systems Thinking Within The Scope of Education for Sustainable Development (ESD)- A Heuristic Competence Model as a Basis for (Science) teacher education. *Journal of Geography in Higher Education*, 42(2), 192–204.
- Shanie, Arsan. (2020). Art Education Phenomena in The School Environment (a case study of the application of art education in a school environment). *International Journal of Social Learning*. 1 (1), 35-41.
- Sujarwo. (2017). Penanaman Nilai-Nilai dalam Pendekatan Saintifik pada Pembelajaran Ilmu Pengetahuan Sosial (Studi Kasus Pembelajaran IPS di SMP 37 Jakarta Selatan), *Edukasi IPS*, 01(1), 41–52. <https://doi.org/https://doi.org/10.21009/EIPS.01102>.
- Webster, M., Jr., & Sell, J. (2014). *Laboratory Experiments in the Social Sciences* (2nd ed.). London: Elsevier Academic Press.