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Review Article

A Preliminary Discussion on Geological Tourism Teaching

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Abstract

The geological environment includes various monuments, resources, and geoparks built on these natural relics and resources. Geological tourism (Geotourism) teaching is a significant component of the college tourism specialty. Teachers stress that geological environments are non-renewable and guide students to learn Study Tourism and knowledge of geoparks. Study tourism is the combination of research, learning, and tourism experience. The Paleo Marine Geography and Biological Evolution Research Tour of the Sichuan Basin is a good example. China formulates standards for the construction of national geoparks. National Geoparks must have sound geopark planning and geological heritage protection measures. The on-site investigation is functional. Geotourism teaching can combine teacher's lectures and class group discussions.

Keywords: Geological environment, teaching, relics, geoparks, tourism.

1. INTRODUCTION

The geological environment is composed of lithosphere, hydrosphere, and atmosphere. It results from long-term geological evolution and various geological activities [1]. From the perspective of tourism, the geological environment includes various geological monuments, geological resources, and geological parks built on these natural relics and resources. Geological relics include standard geological profiles, such as the middle and upper Proterozoic stratigraphic profiles of Jixian County, Tianjin, China. Paleontological fossil sites embrace dinosaur skeleton fossils and dinosaur egg fossils. Geological formations include Brahmaputra Grand Canyon and Colorado Grand Canyon. Geological and geomorphological landscapes include Lu Nan Stone Forest in Yunnan, China. Geological disaster relics include Pompeii, Italy's earthquake remains, and the Wenchuan earthquake's site in Beichuan City, China. Geological resources refer to all materials available for human use in the geological environment, including mineral, energy, building, land, water, and geological landscape resources. Geological relics and geological resources are non-renewable. They are physical materials for studying geological processes and causes and are employed for tourism destinations.

Chen *et al.*, write that geotourism focuses on geological and geomorphic landscapes, including the remains of ancient life, minerals, volcanoes, glaciers, earthquakes, deserts, coasts, islands, caves, lakes, rivers, springs, ornamental stones, and gemstones. It is a scientific tourism activity [2]. In general, geological tourism refers to various geological tourism activities [3, 4]. It is organized by relying on geological relics, resources, and parks. Geotourism activities include geological research investigations, such as investigating the reasons for the formation of the Three Gorges of the Yangtze River, the reasons for the concentration of Zigong dinosaur fossils, and the reasons for marine life fossils in Jiuzhaigou. Also, Guizhou Huangguoshu Waterfall tourism is a type of geological view enjoyment. Jinsha River canyon rafting and cave travel are geological expeditions and geological curiosity, respectively. Rock climbing and mountaineering belong to geological sports and fitness. Visiting the remains of large landslides, learning the causes of landslides, and how to avoid or prevent landslide disasters are within the scope of geotourism security.

College tourism management specialty usually offers tourism resources, economics, environment, and planning courses. This paper presents the significant contents and methods of geotourism teaching.

2. Significant Teaching Contents of Geotourism

2.1 Non-Renewable Geological Relics and Resources

The geological environment is non-renewable. Humans cannot restore geological remains, resources, or landscapes that have been destroyed. Jiuzhaigou Scenic Area is a famous 5A-level natural scenic spot in China and a world natural heritage. On August 8, 2017, a 7.0-magnitude earthquake struck Jiuzhaigou Scenic Area, northern Sichuan Province. After the earthquake, the Norilang Waterfall, formed tens of thousands of years ago due to various geological activities, was so severely damaged that it almost "disappeared." The Sea of Sparks (a small lake) was also seriously injured. The lake significantly lost its water body, the soil and tree roots at the bottom of the lake were exposed, the surrounding mountains collapsed, and the beauty no longer existed. However, we must be clear that Jiuzhaigou is beautiful because, in the long geological history, orogeny, the sinking of the earth's crust, and frequent earthquakes have created mountains, plateaus, waterfalls, and small lakes. Therefore, although some famous geological relics and resources in Jiuzhaigou were damaged and disappeared after the earthquake, much new natural scenery was born. Some have proposed that humans reconstruct these geological monuments and sites damaged by the earthquake. Humanity is powerless to rebuild. Even if many human resources, materials, and money were spent on rebuilding, the original ruins and attractions no longer existed. Consequently, reconstruction is meaningless.

2.2 Study Tourism

Study tourism is the combination of research, learning, and tourism experience. Under the guidance of teachers or tour guides, tourists determine the theme of study and the destination of tourism. Visitors conduct field experiences, discuss with each other, document scientific discoveries and travel experiences, and give lectures.

Located in the hinterland of China, including Sichuan Province and Chongqing Municipality, the Sichuan Basin is a good destination for research on pale marine geography and biological evolution. In 2018, Jiangyou, in the northern Sichuan Basin, Chengdu University of Technology found that on a cliff more than 20 meters high, 1960 meters above sea level, there are water patterns left by the ancient ocean. The ridges are the old sea level position, confirming that the Sichuan Basin was once the sea. Fossils of corals, bow swallows, and maple swallows have been found nearby, with fossils dating from 4.5 billion years. The Sichuan Basin is part of the Yangtze Land, which began more than 500 million years ago in the Cambrian period and continued to sink to form an ocean basin. At the end of the Carboniferous period 270 million years ago, a second sea flooding occurred, and the sea waters once again occupied the basin. During the Triassic period, 190 million years ago, the Indochinese movement gradually uplifted the basin's edge into mountains, the area submerged by the sea slowly rose to land, and the Sichuan Basin became a vast lake basin. The lake water occupies almost the entire territory of the present-day Sichuan Basin. Until the end of the Cretaceous period 70 million years ago, the solid crustal movement caused the mountains around the basin to continue to rise while producing many significant faults. The lake area of the bay was greatly reduced to 20,000 square kilometers.

The Paleo Marine Geography and Biological Evolution Research Tour of the Sichuan Basin is to learn paleo marine geography and biological evolution. It aims to recognize the changing geological. It tries to guide visitors to protect and care for non-renewable geological relics, resources, and beautiful natural scenery. The theme could be: the Sichuan Basin is currently landlocked, and there may be several large-scale marine intrusions in geological history. Seawater occupied the Sichuan Basin. In the northern part of the Sichuan Basin, Jiangyou is an ideal tourist destination. The withdrawal of seawater in the Sichuan Basin is related to the formation of the Three Gorges of the Yangtze River.

2.3 Geoparks teaching

The construction of geoparks in China is a work initiated in 2000 under the auspices of the Ministry of Natural Resources in response to UNESCO's initiative to establish the "Global Geoparks Network System." As of March 2020, China has officially named 220 national geoparks, granted 57 national geopark qualifications, and approved the establishment of 300 provincial geoparks.

China formulates standards for the construction of national geoparks [5]. If a geopark has not established a particular geopark management organization, has not prepared a geopark plan, or has not set up a geopark museum, the assessment result will be Unqualified.

National Geoparks must have sound geopark planning and geological heritage protection measures [6]. Geoparks must have an interpretation and identification system. Geoscience tour guides must participate in the professional training of geopark tour guides and obtain the corresponding training certificates. The content of the geopark guide is scientific, accurate, and easy to understand. Geoparks must carry out scientific research, scientific popularization, and exchange. There are perfect geopark management organization and information construction. There are stable and sufficient funds for the construction of geoparks and the protection of geological relics. There are clear geopark benefits, including social, economic, and environmental benefits. A list of geological relics and a complete archive of geological relics have been established. The boundaries of the Geopark are clear, and there are no mining and commercial prospecting rights in the park.

3. Geotourism Teaching Methods

3.1 On-Site Geological Investigation and Study

On-site geological investigation and learning are an essential part of geotourism teaching. Due to the complexity of the geological environment, students must construct spatial concepts and cognition of geological phenomena, which is impossible in the classroom. For example, in school, students cannot create intuitive impressions of the following geological things: Mountain anticline, rock formation and overturning, geological fault zones, stratigraphic age, rock and mineral types, remains of ancient landslides, and paleontological fossils. Teachers can lead students' on-site geological study tours on weekends or holidays.

3.2 A combination of teacher's lectures and class group discussion

The teacher can take about 20 minutes to offer lectures. Classroom teaching forms should vary. Teachers use PPT to teach, show, and play various pictures and videos of geological relics, resources, and geoparks [7]. Each group has 6-8 students. In class group discussions, the teacher raised various discussion topics; such as after earthquakes have destroyed geological monuments, is it necessary for humans to restore these remains? How to promote the sustainable development of the Giant Panda National Geopark? After the discussion, students will submit a brief discussion report. Teachers should grade and comment on these reports. Enable teaching and learning interaction between teachers and students are necessary.

4. CONCLUSION

The geological environment includes various monuments, resources, and geoparks built on these natural relics and resources. Geotourism teaching is a significant component of the college tourism specialty. Teachers stress that geological environments are non-renewable. After an earthquake, although some famous geological relics were damaged and disappeared, humanity is powerless to rebuild. Hence, reconstruction is meaningless. The Paleo Marine Geography and Biological Evolution Research Tour of the Sichuan Basin are meaningful. The on-site geological investigation is functional. Geotourism teaching can combine teacher's lectures and class group discussions.

The paper proposes various forms of classroom teaching, such as teachers' lectures displaying and playing pictures and videos of different geological relics, resources, and geoparks. The group discussion should be question- oriented; for example, after earthquakes have destroyed geological monuments, is it necessary for humans to restore these remains? How to promote the sustainable development of the Giant Panda National Geopark? Finally, it proposes encouraging pedagogical interaction between teachers and students.

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