

Education in domestic tourism - The BakonyBalaton Geopark

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Abstract.

The essay is dealing with the development of a special form of education in the Northern-Balaton region of Hungary. There are some kinds of tourism products and education techniques that are characterized by the area of Balaton-Uplands Nature Reserve. The mentioned region became one of the most attractive destinations from the aspect of recreational ways and cultural sites. First of all the geological and geomorphological shapes and sites in addition to other cultural factors introduce the visitor into the scientific examination. The investigated factors of the proposed paper are extended and include site typology, complex research of tourism supply and demand, integration into the school program, tourism management inquests among others. I used primary and secondary sources in methodology such as online mapping, measurement and locating geosites through GPS coordinates, audio-and photo recording, academic literature analyzing. Balaton Uplands has a uniqueness in the tourism market, and in this lecture, I try to illustrate them partially through the best practices. In the case of this study, it provides some information about strengths, weaknesses, and opportunities of these regions and shows other touristic potentials of the rural and urban areas. However, it is necessary to interpret the comprehensive relations between the core product (geotour) and the related facilities. The researched aspect in question is how strong is the relation to natural values, sports facilities, cultural heritage, and gastronomy. From another perspective, it is also considerable, how could we integrate efficiently the educational techniques into the school programs?

Keywords: Bakony-Balaton Geopark; geo-education; geotrails; sustainable education; sustainable tourism

1. Introduction (TNR 14pt., bold)

When people are talking about nature values and their protection in general, most of them are realizing the rich wildlife of the rainforest for the first time, including its exquisite examples of species and biodiversity, involving thousands of birds and special flowers, that appear in different colors. In addition an adequate question turns up, that how do we recognize the formation of the rocks, cliffs, and minerals that are emerging from the surface and show us

millions of year's geological evolution. If mankind has created the terminology of "biodiversity", why should not the concept of "geodiversity" exist [11]?

After the thread of this kind of thought, the geopark network comes into fruition, and which was to protect and present our unliving natural heritage (geoheritage) to the common public (Horváth G. 2019). The 75 geoparks which are currently operating in Europe which have been founded in territorial zones with a large number of geological and geomorphological manifestations of outstanding scientific-educational significance and aesthetic appearance [12].

In addition, the geoparks - cooperated with local non-governmental organizations – are working on transmit historical, cultural and ecological knowledge for the public (Kiss G. - Horváth G. 2006), thus play an important role in the development of the local economy. Accordingly, a geopark itself is much more than a spatial organization encompassed by a new set of institutional regulations, or a geological theme park – signifying not only a simple collection of fossils or a network of hiking trails. The study observes an educational dimension among the main tasks and features of geoparks. The author is looking for an answer to how these geoparks validate their work in the public education and online marketing of earth sciences in Hungary. The study is to present some case studies to introduce the educational forms used in the Bakony-Balaton Geopark with experiential and practical demonstrations.

2. Geotourism and education

Introducing or revealing organic ecosystems and inorganic networks to a wide range of public is an integrated component of the development in geotourism. To use the definition of McKeever and Zouros (2005), that geoparks are those places, where an expert can share a really fascinating story about the Earth's undersurface processes to the audience without using the scientific terminology. There are many excellent practices that already do exist in favor of supporting this conception. A wide range of these examples is extended and covers such things as interactive museums, visitor centers, hiking geo-trails, guided geo-tours, publications, conferences organized and operated by geoparks. These attractions are able to attract more people using modern multimedia tools. Their success is determined not only by the content of tourist packages but also by the cooperation with the local population, promotion of the media and the decision-making mechanism. The tendency of cooperation with communities and the growing capacity of the properties promotes social acceptance and the positioning on the tourism market, but the fact, that the social involvement of the local population is the key to the successful operation is cannot be repeated enough.

Hungarian geoparks are also playing an important role in the practical way of nature-close education in an open-air classroom. According to a citation that appeared at the BakonyBalaton Geopark's website: "The primary mission of geoparks is to preserve and present our rich geological heritage, involving local people and communities, and launching various educational and geotourism programs. The geopark management body and their partners are getting involved in the education, the scientific research, and the marketing management of geological values "[11]. These principles were emphasized by the Balaton Uplands National Park

Directorate at the time of joining the European Geopark Network and geopark exhibition sites (Budai T. et al 2011).

An uprising challenge is the acquirement of earth sciences at the local level, and that is the reason, why the emphasis is so strong, that has been provided for pupils with a sufficient quantity and quality of information about local earth-biological-cultural relations. The geopark strives to show nature's beauties to all age segments. In addition to the visited geological sites, nature trails, geo- and natural hiking trails, seasonal summer camps also take place in the zone. It so-called geo-camps, where students can broaden their horizons about the importance of natural value protection.

A new initiative is the guide training, which has been operating since 2009, thanks to the cooperation with the Pangea Cultural and Environmental Association, the Friends of Bakonyalja Group and the Spring Water Association. This coached professional training provides comprehensive knowledge, which provides a qualification for becoming a tour guide. The training is provided by theoretical and practical-oriented lessons in a spatial and circular network. It means that the location of the target regions in the geopark can be periodically changed, depending on the geo-trails, that have been completed or acquired by the tour guide itself (P. Máltesics 2014).

3. Introduction into geotrips

The Bakony-Balaton Geopark contains all the natural beauty of the Balaton Highlands, creating a marvelous environment for doing excursions that motivates many hikers. An important task of the geopark is to guide the visitor through an interactive lesson by an organized geo-event, meanwhile observing natural and cultural values, within a traditional context. The geopark management employs certified tour guides, that have got many years of the educational experience.

Table 1: The names, dates, and number of participants of the two geotours we examined

Tour name	Date of tour	Number of participants
Tihany Anniversary Geotour	29th December 2018	75 visitors
Geotour of Felsőörs	16th October 2018	24 visitors

Proper Resource

During the first tour, participants could admire the *Roman Viewtower (own picture)* values on the surface of an unusual volcanic cone on the Tihany Peninsula. The starting point was the abandoned ruin of Medieval Abbey belonged to the Saint Paul's Order after the group also visited a Roman Watchtower (Fig1) and the Lavender field of Tihany. From the second half, which started from the Lavender

Figure 1: Landscape of Füredi-bay from



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House Visitor Centre, our group had the opportunity to observe the habitat of the local gray cattle.

The tour guide's presentation had references about the features of the historical Hungarian tree husbandry, that made to keep the forestry zone pure. Forestry conditions reveal the vegetation of past time, as we can see the remaining trees from the last century. At the spot, called Golden cone named after Mór Jókai, the audience has been informed about the surfaceforming activity of the thermal waters. After the on-situ observation of the Tihanyi springs, the tour ended at Kiserdő-plateau. The following table (Tab2) shows the lithological and other phenomena.

Table 2: Geographical and cultural phenomena observed at the Tihany Staging of Geotourism.

Stages of the tour	Observed geographical concepts and processes	Course connections
Medieval Abbey	Lithology (Limestone from different eras)	
Roman Watchtower	Earth history (Localisation of Balaton 8 million years ago)	Biology (Wildlife around Lake Pannonia)
Lavender Field		History (Gyula Bittera's activity)
The slope between Saddle Mountain and Peak Mountain	Volcanic pro-mechanisms (geysers and thermal springs); Lithology (Created by geysers and thermal waters)	
The southern shore of Inner Lake		History and ethnography (forest husbandry); biology (gray cattle)
Golden cone	Lithology (Rocks created by thermal waters)	Literature (The Life of Mór Jókai); Biology (coexistence of lichens and algae)
The ditch of Lake Balaton and Tihany	Water and wind surface formation (ditch formation)	

Kiserdő Plateau	Lithology (Red sandstone, Triassic limestone, and dolomite, Pannonian sandstone, and basalt)	
Kiserdő Plateau	Plate tectonics (plate movements at Lake Balaton)	

Proper resource

In the case of another geotrack in Felsőörs municipality, our group followed the trail of the "Prehistoric paint mine". An ancient mine was founded in the investigated zone, where experts excavated approximately 11.750 years old archaeological finds. Specialists found mainly handtools made by stone since the 1950s (Molnár Gy. 1978). Ancestors used stone bowls in order to possess red color paint found here, which was often used for mask drawing, protection against mosquitoes, and also for ritual purposes. On the spot, tour participants took part in an interactive program, used water to paint creation with bare hands, and used their finger to shape their own picture (Fig2).

After this interactive experience, visitors get traveled back in time so far into the geochronological Triassic age on the so-called 'Time trail' which is a footpath alongside the Séd Brook. When people walk on the footpath, the geological environment becomes younger step by step in the sequence as the rocks are created. On the banks of the creek, tourists can catch the opportunity to observe the formation of calcareous tuff dikes, that have been crusted on the objects fell down into the water. At the spot of the spring curve, the tour guide demonstrated an attempt with carbonic acid, hydrochloric acid, and excavated sample, so with these tools, she showed that the group is actually standing on a stratigraphical layer of limestone, but 10 meters further away the calciferous substance got decreased. At the reach of the dried tributary of the Séd creek, visitors catch sight of the former waterflood activity, then reached a geological excavation at Forrás-hill (Fig3), where the Middle Triassic stones are located (e.g. limestone outcrops share information about the geochronology in the Balaton region). At the last stop in Felsőörs, the group saw some parochial buildings and a church. The following table (Tab3) shows the natural and social geographical sites, that have been noted on this geotrip.

Table 3: Geographical and cultural phenomena observed at Felsőörs geotrip spots.

Stages of the tour	Observed geographical concepts and processes	Course connections
Prehistorical Red Paint Mine		History (life of pre-historic people); Arts (painting with local material)
The Time Trail	Geological history (time travel from Triassic age)	
The bench of Sed Brook	Lithology (tuff formation)	
Geological excavation at Forrás-hill	Geological history (Middle Triassic limestone outcrops), volcanic activity in the Balaton Uplands	Biology (Upper Triassic fauna - mollusks)
The spot at the village of Felsőörs	Lithology (Perm Red Sandstone and Triassic Limestone)	History, ethnography (story of Batthyány family, Church architecture)

Proper resource

The hiking trails include twofold geography and the main subject focuses on natural geography - especially geomorphology, but we can also realize that a special holistic approach has also been appointed. Tables Fig3 and Fig6 also represent that the educational role of guided tours is very complex and diverse with an additional viewpoint, that geotourism does not provide only geographic knowledge, but also has a scope of competency improvement.

*Figure 2: Art Demonstration with Red
Paint (own picture)*



Figure 3: A geological excavation at Forrás-hill (own picture)



4. Geotrips, as best practices for a competency improvement

The geo-guided field presentations and explanations contain essential knowledge about the spatial characters, environmental conditions, and additional specificity in a logical way to understand the main processing. The tour guide also demonstrates geological progressions and contexts at the in-situ locations and tries to get the audience involved in the flow of interactive demonstration.

After that, the information forms an image in the visitor's visual world, which is audible, visible and tangible as the latest information shaped and transformed into pure knowledge that anybody can preserve and hand pass to other people. The main target of geology - tourism is to make sure, that the preservation and transmission of our geographic attractions might be a really important fundamental need for all upcoming generations, therefore we should not allow that this need will ever fade. Additionally, the significance of the demonstration during the tour has also a great advantage, as participants have the opportunity to be active in the learning process and the tour guide takes on an important part of the successful teaching (Farsang A. 2011). During the hikes, visitors can see the samplings of geological elements at the place of origin,

and they get involved in experiments that help to understand the often complex geological processes and to gain motivation. A key-role component of geotours is the historical, cultural context, and folk traditions of the visited areas. Hikers can see through easily the former forestry techniques until the 19th century, get an insight into the history of lavender cultivation in Hungary, and hear anecdotes from our famous writers and poets.



Fig4: „Geological salad mix:” 1: volcanic basalt;

2: sarmatic limestone; 3: small channells created by carbonated solution, 4: red sandstone (own)

The local entity of geotours give an interdisciplinary, holistic character, and helps to encourage hikers who are less interested in geography to be more active. The complex presentation of Hungary's natural and social values highlights the inseparable relationship between man and nature and promotes to preserve traditions and traditional knowledge.

5. Conclusion

As both of the case studies have attempted to emphasize, geoparks are significant spatial manifestations, that are trying to enhance human knowledge: geological formations and terrestrial forms, as well as other geography-related natural elements such as flora and fauna. Beyond the exploration of natural conditions, the social and cultural perspective also plays a significant role. The traditional way of life shows a stratified and diverse picture that can meet with direct and indirect forms of the rural worldview and promote the principles of sustainability and sustainable development. Highlighting these facts we believe that the interpretation of geotourism as a tourism product within the educational framework of Hungary may open up a new kind of innovation, a new approach which is softer, more personal on the human scale. During the secondary analysis of the processed bibliography, we found relatively a less amount of research studies about the geopark's education program, because the author has interests about participants' knowledge and attitudes toward geology, social science, and environmental awareness. Further research could analyze the development of the visitors' competencies

through pre-analysis and post measurements. To integrate geoparks into the education structure is essential and international models can help to achieve this practice (T. Akima 2016).

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