

THE ROLE OF THE EDUCATIONAL PROGRAMS ON TOURISM DEVELOPMENT OF NATURTEJO AND AROUCA GEOPARKS

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1. Introduction

Naturtejo and Arouca geoparks are the two Portuguese geoparks integrated in the European and Global UNESCO Geoparks Network since 2006 and 2009, respectively.

Naturtejo Geopark is located in central Portugal near the eastern Portuguese-Spanish border. The Naturtejo's territory comprises 4617 km² and includes six municipalities: Idanha-a-Nova, Castelo Branco, Proença-a-Nova, Oleiros, Vila Velha de Ródão and Nisa, with 96 337 inhabitants (Census, 2001). The management structure of the Naturtejo Geopark – “Naturtejo – Empresa de Turismo” (Tourism Company) - is an intermunicipal major state-owned company with 7 public institutions and 25 private enterprises, established in 2004. Arouca Geopark is located in the north of Portugal and has an area of 328 Km², corresponding to the area of the municipality of Arouca. According to the data from Statistics National Institute (2001), Arouca has got a population of 24.228 inhabitants. AGA – Arouca Geopark Association - is an entity created in 2008 to manage the Arouca Geopark. It is constituted by 18 associates (7 public institutions and 11 private companies).

This work aims to give an idea about the applicability of the Educational Programs in the Portuguese EGN geoparks, and their positive impact on tourism, geosciences education, nature's preservation and the sustainable economic development of their territories.

2. The Educational Programs of Naturtejo and Arouca Geoparks

2.1. Educational Programs characterization

According to the EGN and GGN, a Geopark is a territory with well defined boundaries comprising a wide area which allows a local sustainable social, economic, cultural and environmental development. These territories must include geosites of scientific, educational and aesthetic relevance, of rare occurrence, associated to ecologic, archaeological, historic and cultural values (Zouros, 2004; 2006; Eder & Patzak, 2004). In order to preserve geological heritage we must educate and raise the scholar public's awareness for the preservation and respect for nature/wildlife within a holistic perspective. Thus, with the goal of approximating schools and calling the educational community's attention for the natural and cultural treasures from Naturtejo and Arouca geoparks, Educational Programs were created by those geoparks in the school years of 2007/2008 and 2008/2009, respectively. To conceive the mentioned programs, one has regarded the curricula programs from the Portuguese Ministry of Education with the aim of complementing them and providing teachers and pupils with useful tools.

Two types of educational programs were created by the Naturtejo Geopark: “Geopark Goes to School” (GGS) and “School Meets the Geopark” (SMG), in October 2007. The Arouca Geopark in November 2008 decides to adopt these two types of programs, but with adaptations. In the first program, the geopark's team goes to a school and operates activities inside the classroom or in an outdoor area near the school building. In the second one, the teachers and their pupils go to specific places of the geopark and take part in field trips organized by the geopark trained staff. Both programs are addressed to teachers and pupils from the Nursery School level, the 1st, 2nd and 3rd levels of Primary School; the Secondary level, the Professional Teaching and also from the University. Those schools belong to the Geoparks' territory, to the ones from the rest of the national territory and those from abroad. Therefore,

there is an urge for an adjustment and adaptation of language and scientific content to the school level. The monitors of the Educational Programs are qualified technicians with a degree and pedagogic training in Geosciences and/or Geological Heritage. Despite the focus on Earth Sciences, the programs approach is a multidisciplinary one, once Biology, Wildlife Conservation, History, Physical Education, Tourism and Culture, among others, are also mentioned subjects. Each Geopark has created its own booklet for the promotion of the Educational Programs which were sent to Portuguese schools in 2008 via mail or presented in both Geopark websites: www.geoparknaturtejo.com and www.geoparquearouca.com.

Naturtejo Geopark has implemented its Educational Programs in the school year of 2007/2008, starting in October 2007 (Catana & Caetano Alves, 2008). In the two kinds of programs the Naturtejo Geopark provides one qualified Monitor for each 30 pupils. That same school year, the Educational Program School Meets the Geopark comprised five interdisciplinary field trips: A – “In the fossils trail of *Penha Garcia* searching for the trilobite trace fossils”; B- “In the granitic *inselberg* of *Monsanto*”; C- “The *Penha Garcia* fossils and the granitic boulders of *Monsanto*”; D- “The Natural Monument of *Portas de Ródão* and the Tagus valley”; E- “The forest in the Living Science Centre, the secrets of the *Mourão Valley* and the fossil trunks on the Tagus House of Arts and Culture” (Catana, 2008). During the school year of 2008/2009 four new field trips were added: F- “Meeting the singular granitic forms of *Castelo Velho* at *Serra da Gardunha* (Gardunha’s Mountain Ridge)”; G- “Exploring the trails that lead to the Roman gold mine of *Conhal do Arneiro*”; H- “Searching for the Waters”; I- “Searching for the Rocks”. The field trips can last for half day, one or two or even more days. As far as the other educational program is concerned – Geopark Goes to School – a proposal for a field trip was presented and named J- “Geodiversity around our School”, free from charge and addressed to schools from the Naturtejo territory (Catana, 2008a). Those schools are invited to participate actively in the celebrations of thematic days and in the activities of the European Geoparks Week (Catana & Caetano Alves, 2008a). This way, schools are able to develop their annual Educational Projects (e.g. Project *Anim’a Rocha*). In the school year of 2008/2009 the Naturtejo Geopark has developed two annual projects called *Discover the Geosites in your Municipality* and the Workshop *Rock Detectives*. The first project was put into practice with the collaboration of Idanha-a-Nova Municipality and eight of its 1st level Primary Schools. The pupils had a pre-field trip class at school, a field trip to meet some geosites in the Municipality of Idanha-a-Nova, a workshop on fossils moulding and an Environmental Festivity in the *Inselberg* of *Monsanto*, on the International Environment Day (with all the participants in the project - pupils and teachers). The Workshop *Rock Detectives* was organized by the Naturtejo Geopark in collaboration with the Studies of High Tagus Association for pupils of the 2nd level of Primary School from the Municipality of Vila Velha de Ródão. The activities comprised a pre-field trip class and a field trip about the geological heritage of *Portas do Ródão*. During the school year that pupils were invited in the Visual and Technological Education discipline to develop the illustrations for the book “*Ródão – A mais fantástica viagem de um grão de areia*” (= *Ródão – The most amazing travel of a sand grain*) recently published about the newly protected *Portas de Ródão* Natural Monument.

On the 24th November 2008 – the National Day of Scientific Culture – the Educational Programs of Arouca Geopark were officially implemented. However, since the beginning of the school year, much before the date above-mentioned, the Geopark monitors had already developed some educational activities.

Regarding the Educational Program “School Meets the Geopark”, there are five one-day field trips and one visit for two days. The former were entitled: A- “Discovering the Geological Heritage of Arouca Geopark”; B- “*Serra da Freita*: endless landscapes”; C- “The mines of *Regoufe* and of *Rio de Frades*: enemies joined by wolfram”; D- “The Palaeozoic trail”; E- “Arouca Geopark: stories of the Gondwana and the Pangaea”. The field trip F organized for

two days was also named after the field trip A. This is a program which reunites several visiting points from the one-day scheduled visits (Rocha, 2008).

As far as the Educational Program “Geopark Goes to School” is concerned, Arouca Geopark organized six thematic meetings fitting different school levels with the duration of approximately 1H30. They were called “Let’s find Arouca Geopark!”, “Build your Trilobite!”, “The Geopark and the Natural Heritage of Arouca”, “Trilobites: three times older than the Dinosaurs!”, “The Geopark and the Conservation of the Geological Heritage of Arouca” and “Geoconservation in Portugal” (Rocha, 2008).

Throughout the school year an Educational Project named “*Geoteca*” (“Geolibrary”) was developed. With it the Geopark trained staff aimed at going to 1st level school libraries and creating a physical area devoted to Geology and Arouca Geopark.

2.2. Presentation and analysis of the Educational Programs data

The number of participants on both Geoparks Educational Programs is shown on the tables below (School Meets the Geopark – SMG and Geopark goes to School – GGS).

NUMBER OF PARTICIPANTS IN THE EDUCATIONAL PROGRAMS OF NATURTEJO GEOPARK						
School year	Pupils			Teachers		
	SMG	GGS	SMG + GGS	SMG	GGS	SMG + GGS
2007/2008	732	186	918	66	17	83
2008/2009	1950	567	2517	148	147	295
Total	2682	753	3435	214	164	378

Table I

NUMBER OF PARTICIPANTS IN THE EDUCATIONAL PROGRAMS OF AROUCA GEOPARK						
School Year	Pupils			Teachers		
	SMG	GGS	SMG + GGS	SMG	GGS	SMG + GGS
2008/2009	3078	878	3956	277	54	331

Table II

On the analysis of tables I and II, one may conclude that the number of pupils and teachers who have taken part in the program “School Meets the Geopark” is higher compared to the program “Geopark Goes to School” in both geoparks. This happens because the latter was not too much put into action at schools, especially those outside their territories and also because the majority of schools requested to visit the geoparks.

Considering the capacity of attracting tourists, both programs have a great potential, but one has decided to make a careful data analysis on the program “School Meets the Geopark, once the number of participants is more significant and that the program seems to be more appealing, since the participants get in touch with wildlife and have the opportunity to explore the geosites, which enables them to apply the theoretical knowledge learnt in the classroom along with the practice of Nature sports. They are able to spread the word about something they have already experienced, which will be more effective in others as far as promotion is concerned. Moreover, some schools belong to the Geoparks territory and others come from other places, allowing a wide geographic promotion, both in Portugal and abroad. The participants in the Program “Geopark Goes to School” are mainly from schools of the Geoparks territory.

During the school year of 2007/2008, between February and July 2008, there were 18 field trips in the Naturtejo’s territory. The participants from 15 different schools belonged to 4

Portuguese districts. They came from Castelo Branco (nine field trips=FT), Braga (five FT), Lisbon (three FT) and from the district of Aveiro (one FT).

In the school year of 2008/2009, between November 2008 and June 2009, Naturtejo Geopark has already organized 44 field trips, with participants from 48 schools belonging to 9 Portuguese districts and 3 from Spain. There again the majority of participants came from the district of Castelo Branco (20 field trips), then from the districts of Santarém (four FT), Lisbon (three FT), Portalegre (two FT), Leiria (two FT), Braga (two FT), Beja (two FT), Setúbal (two FT) and Coimbra (one FT). From Spain came the students and their teachers from the Universities of Madrid (three FT) and Murcia (two FT) and a group of teachers from Extremadura (one FT).

Arouca Geopark organized 61 field trips during the school year of 2008/2009, between September 2008 and June 2009, with participants from 46 different schools belonging to 8 districts: Aveiro (20 field trips), Porto (19), Braga (9), Viseu (4), Coimbra (3), Viana do Castelo (3), Lisbon (2), Leiria (1). We therefore deduce that the Arouca Geopark welcomed visitors from a range of 300 km.

Data shown in the graph below (Fig. 1 and Fig. 2) contain the number of participants in the program “School Meets the Geopark”

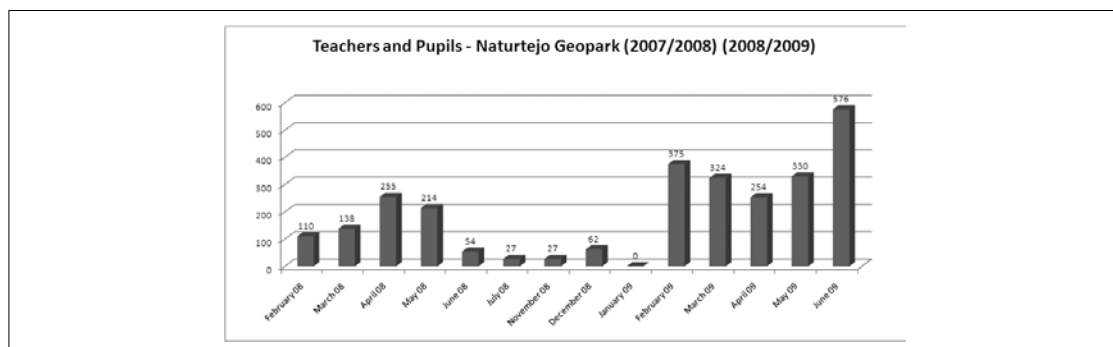


FIGURE 1: Number of participants in the program “School Meets the Geopark” (School years of 2007/2008 and 2008/2009).

A total of 798 pupils and teachers engaged in the Program “School Meets the Geopark” of Naturtejo Geopark, but the number rise to 1948 participant pupils and teachers in the school year of 2008/2009. From the data analysis one can see an increase of 144% of that number, when comparing the second year with the first one of that program’s implementation. This occurs due to the fact that there was a higher participation in more months thanks to the promotion of the Educational Programs prior to the beginning of the school year of 2008/2009. This numbers are impressive since Naturtejo Geopark is at least 250 km away from the biggest and over populated cities of the Portuguese coast.

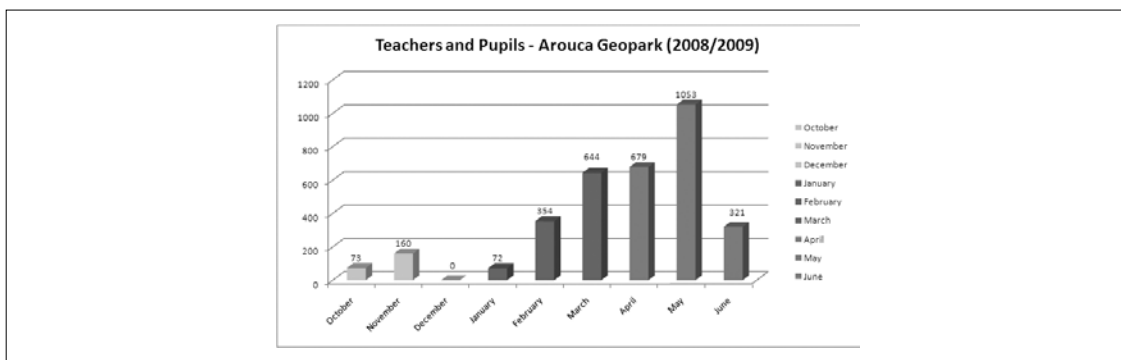


FIGURE 2: Number of participants in the program “School Meets the Geopark” (School year of 2008/2009)

A total of 3078 pupils and 277 teachers engaged in the program “School Meets the Geopark” of Arouca Geopark and after an analysis of the frequency all through the school year depicted in the graph of Fig. 2, one can infer that, despite rare exceptions due to schooling restrictions, there was a gradual increase of the school visitors number to Arouca Geopark. This increment makes us predict that the successful program is firmly expanding.

3. Conclusion

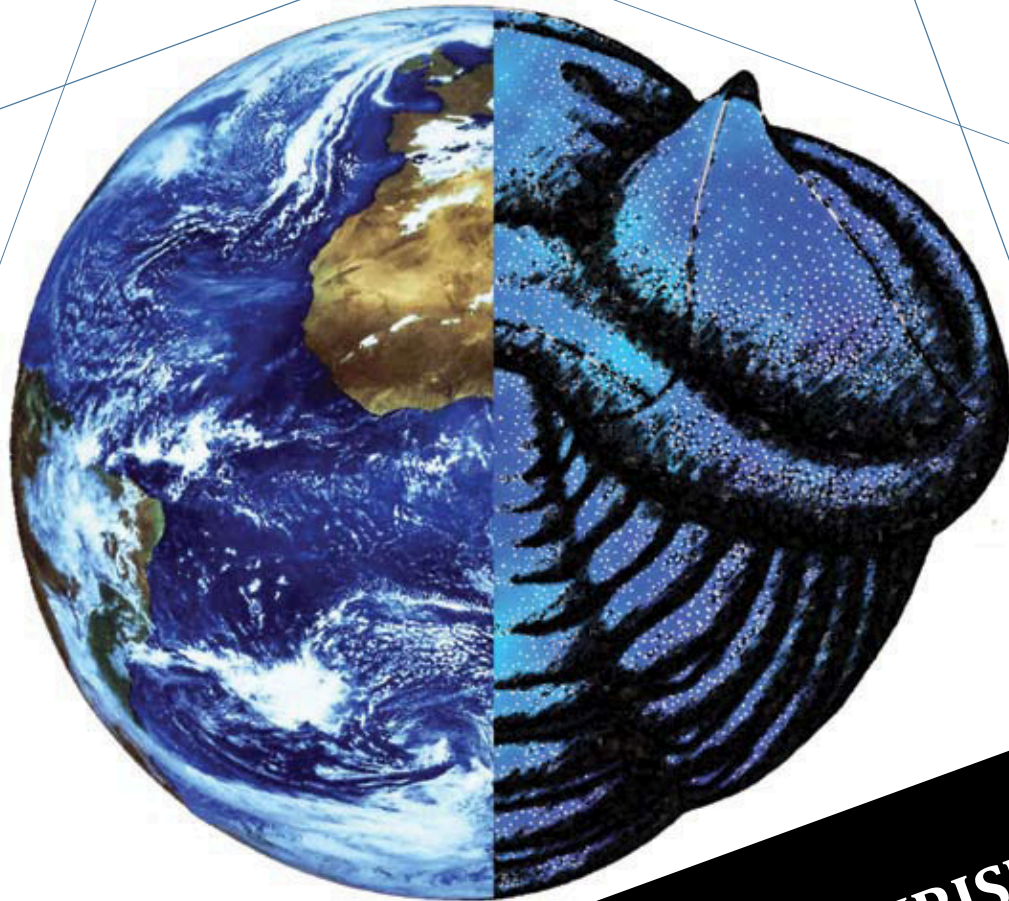
In the end of each field trip both pupils and teachers fill in a questionnaire on it, leading to its subsequent improvement. The geopark’s promotional materials, such as geographic maps, a geotourist map, and promotion leaflets with the distinctive types of the geopark’s heritage are taken by pupils and teachers and shared with their families and friends. They are also invited to visit the geopark’s website as well as both EGN and GGN ones. A booklet with programs for tourists is handed out to teachers and schools.

After a data analysis of the two Educational Programs one may infer that the participants who come from different Portuguese districts or from Spain may be elements for the promotion of the Geoparks. They lead to a rise of the tourist flows that visit them and stay there, increasing their economic status. Furthermore, the participants in the Educational Program “School Meets the Geopark” contribute directly for a sustainable economic development of geopark territories, through the use of restaurants, accommodation, museums, handcraft, traditional products along with the practice of Nature sports.

Today’s pupils and teachers will certainly be tomorrow’s tourists bringing their families and another friend!

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NEW CHALLENGES WITH GEOTOURISM

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