

# **A NEW EDUCATIONAL ESCAPE-ROOM-BASED MODEL FOR THE SUSTAINABLE VALORIZATION AND MANAGEMENT OF CULTURAL AND NATURAL HERITAGE**

***Emanuele Palla\*, Alejandro Gonzalez Lopez, David Gil Aviles, Maria Angeles Sanchez Martinez***

IES, Marketing y Turismo Alcalà de Henares, Madrid, España

*Keywords:* Spanish civil war, history, memory, conservation, natural environment.

## **1. Introduction**

Since 1950, tourism throughout the world has changed considerably thanks to improvements in transport, conservation, working conditions and the cultural use and enjoyment of historic sites. Previously, it was only the well-off who travelled due to the expense it entailed, but from 1970 to the beginning of 2000, the number of tourists has constantly grown, as travelling has become increasingly more affordable and more popular (Figure 1). As a result of the increase in people travelling for tourism, countries, cities, towns, districts and tourist sites and attractions have adapted themselves to the needs of the local people and visitors [1].

Tourism produces diverse positive effects when people are able to spend a short period of time away from home. It can improve the quality of life of the local people, it generates employment and the circulation of money that induces regional and national governments to create new jobs and professions in other sectors and ultimately contributes to economic growth. Nevertheless, as well as the positive effects, there are negative ones to be taken into consideration. In fact, one of the big problems of tourism is that it leads to an increase in pollution, which in turn leads to other negative effects in the field of culture, politics and the natural environment, etc. [2].

Firstly, in speaking of cultural problems relating to tourism, trouble often arises between the local community and tourists, because visitors are not always welcome in the place they choose to spend their holidays. This is because, sometimes, life is more expensive for the locals and rents can rise noticeably, inevitably resulting in a general increase in the cost of living.

Just as the many interests relating to tourism can influence the socio-economic aspects of a nation, so can its local and national politics impact the sector. Politicians and all key players therefore represent an essential reference point in the development of leisure activities.

In the last ten years, terrorist attacks have unfortunately transformed safety and security measures throughout the world, with some states building walls and establishing

---

\* Corresponding author: pallaemanu@gmail.com

tighter limits between countries and even introducing special squads to make checks in certain high-risk areas.

As regards the environmental issue, it can be said that tourism and related human activities have geo-morphologically changed cities, countries and neighborhoods. In fact, transport networks have been improved and highways built, but at the same time they have damaged natural environments, parks and rivers, and produced all kinds of pollution in the earth's seas, oceans, soil and air. It is consequently necessary for cultural, political and environmental aspects to be considered jointly, in order that the appropriate bodies intervene to regulate visitor traffic to sites, e.g. by limiting numbers, setting strict visiting times, and so define a suitable sustainable programme that embraces visitor enjoyment as well as the conservation of cultural resources [3].

In order to counteract the above-mentioned problems to some degree, a model of sustainable conservation was designed for the historic battlefield site of Jarama, situated east of the city of Madrid, in Spain.

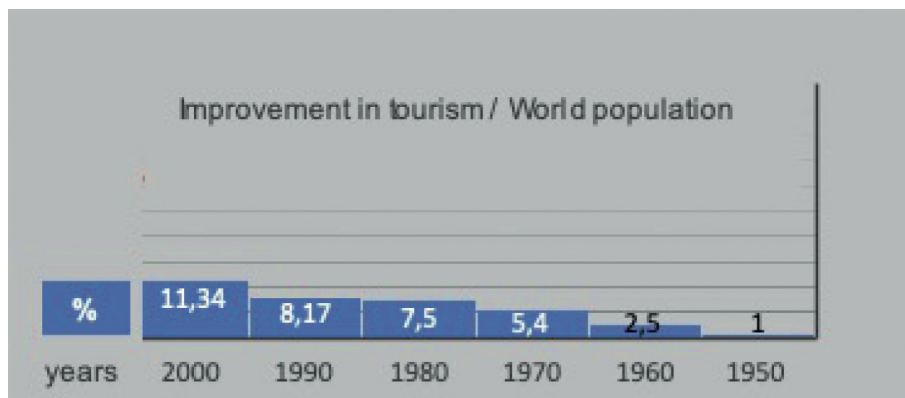


Figure 1. Increase in tourism: global population from 1950 up to beginning of 2000 (source: Tourism Growth Forces)

## 2. The Battle of Jarama

In 1937, during the Spanish Civil War, General Francisco Franco decided to attack an area in the south-east part of Madrid, Rivas-vaciamadrid, which was being defended by the Republican side. The attack took place in the area between two rivers, the Jarama and the Manzanares. It was declared the first modern battle in Spain in which accomplished cavalry and infantry forces, tanks and aircraft were deployed [4]. Today, little has changed on the site overlooking the valley of Jarama, where the trenches and the bunkers used by both sides are almost intact, serving as a reminder of the past conflict. The only sign of the 21st century is Madrid gleaming in the far distance beneath the snow-capped peaks of the Sierra de Guadarrama and the occasional vehicle that passes on the nearby road. Even today, the natural environment is well-preserved, the hills around the Jarama River abounding with the wild thyme and lavender that flourish in the surrounding olive groves [4].

This work presents a model which proposes a way to save this natural environment and the cultural assets found on the site. To this end, an enterprise was instituted, regulated by competent bodies whose aim is to protect and enhance the use of this cultural site which contains artefacts from the Spanish Civil War, due to the fact that the area lacks any adequate system for its conservation (Figure 2).



Figure 2. Geo-localization of the “Rivas-vaciamadrid” site (Google maps). The “Cerro de la Oliva” trench: the area of activity is highlighted by the red dots.

### 3. The model

The principle used in this work to illustrate the history of the cultural/natural/historical site is based on an “Escape room” activity [5] – a game that has become viral because it enables access to a large number of people from around the world and may thus increase interest from both a social and environmental perspective.

Another reason for this idea is to complement this particular natural space with leisure activities to earn economic resources which can be re-invested in maintaining and safeguarding the area. There is consequently, an expected economic return for both the territory with the involvement of the interested territorial forces.

#### 3.1. Escape room activity

The activity will be based on numerous discussions held between three people (who will manage the site and participants) representing the three generals on the Republican side: General Campesino, Lister and Gall.

The activity consists of the following steps:

*Step 1.* In this activity, at least 6 to a maximum of 10 participants will be directly involved in creating a team; they will be provided with a disposable uniform which plays a part in the reproduction of the battle (Figure 3).



*Figure 3. Step 1: Starting activity: description of history and game.*

*Step 2.* The second point of the activity is reached by following a defined path where there is a bunker. Here, the participants discover and solve a clue similar to that in an escape room activity. Even children can participate in this fun game: Fake Bomb (Figure 4).



*Figure 4. Step 2: Historic contextualization and description of the bunker; first clue solving.*

*Step 3.* In the third part, participants are instructed by the guide to bring out the fake bomb and transport it to a historical bridge. At this point they have to solve another clue which leads them to a safe they have to open; inside is important information (Figure 5).



*Figure 5. Step 3: Arriving at the third point and solving the second clue.*

*Step 4.* This is a riddle in which participants must return to the third point to open the safe using the barcode obtained at the fourth point, to gain strategic information about the last moves made in the formation of Franco's troops (Figure 6).



*Figure 6. Step 4: Historic description and solving the third clue using a barcode.*

*Step 5.* At this historical moment in time, the Republican side was in trouble because they had suffered many losses and there was a shortage of supplies, so Franco's troops had the upper hand. The three Republican generals, Lister, Gall and Campesino are informed of there being only a slight possibility of standing up to the large number of Nationalist troops and are forced to abandon the battlefield. The activity ends when the Republican troops retreat and lose the battle (Figure 7).



Figure 7. Step 5: Retreat from battle; end of activity.

The conclusive part of the activity has the purpose of commemorating the fallen and those who sacrificed their lives fighting the dictatorship for “FREEDOM”.

The “escape-room-based” model described in Figures 3-7 is summarized in Figure 8.

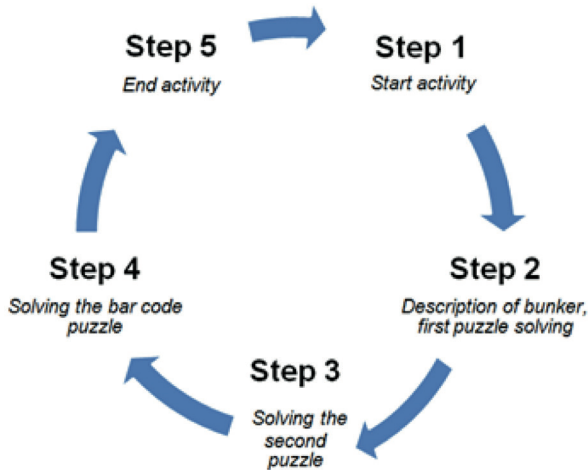


Figure 8. The “escape-room-based civil war” activity

#### 4. Survey on potential target participants

Today, there is no doubt that an integrated approach between research, conservative rigor, valorization and the application of technologies is required within the context of innovation and should characterize the management of cultural and environmental heritage; this model of possible change will have an important well-defined space in tomorrow's Smart cities.

Therefore, to understand and, at the same time, catalyze and encourage the interest of potential participants in the model described above, the study included a survey in the form of a questionnaire, drawn up online. The questionnaire was put online at an international level and was compiled by 44 potential participants from EU and non-EU countries, namely, Italy, Spain, Argentina, Brazil, Colombia and Panama.

The survey was performed at the beginning of this study, in order to understand participants thoughts about the nature and the sustainability of this heritage and to identify the potential target. Results are reported in Figure 9.

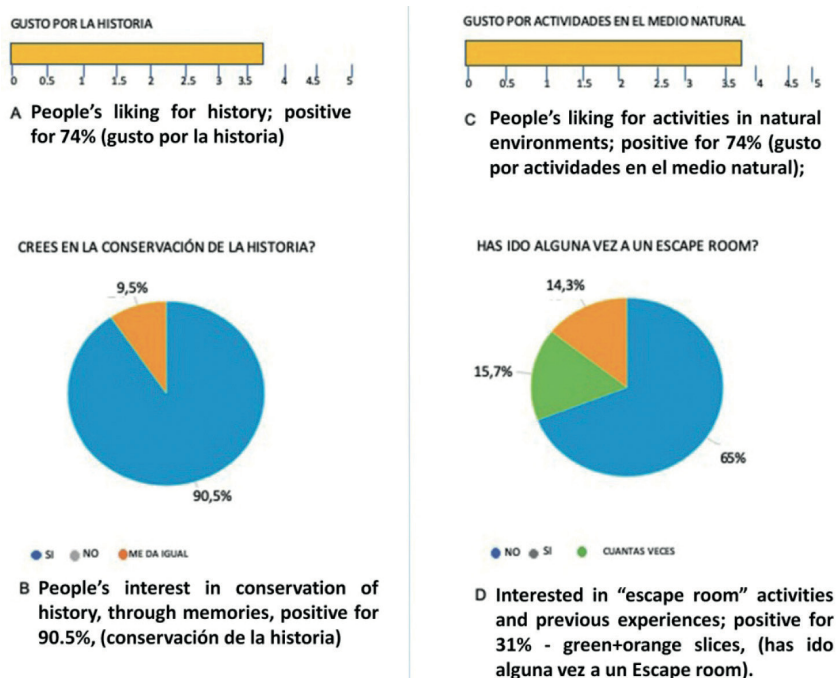


Figure 9. Survey results based on people's interest and identification of potential target

#### 5. Value of Rivas-vaciamadrid as a natural site

Rivas-vaciamadrid, as previously described, is not only a place of historical significance and memories for its involvement in the Spanish civil war, it must also be considered for its great eco-value as a natural heritage site. Indeed, the area is part

of the Lower Manzanares and Jarama Rivers Regional Park (*Parque Regional del Sureste*) and the point where the two rivers converge; it is a privileged territory owing to its geology, stratigraphy, palaeontology and geomorphology. In the fertile land near the rivers, moreover, lies the area where the siliceous gravel deposits of the Sierra formed over millions of years ago. In the Miocene period, there was an evident change in the lithological characteristics of the materials, which was followed by the heterogeneous development of the rock surface during the Quaternary period. Today, these deposits constitute an important resource which is mined and then employed in the construction sector. The subsoil itself contains important palaeontological and archaeological evidence of the past, a real treasure for the region and especially for Madrid's historical heritage.

In this context, water is an essential element in the lower valley of the Jarama. From the Tertiary age to the present day, the Jarama river and its tributaries (Manzanares, Henares and Tajuña) have favoured the flourishing of different varieties and species of flora and fauna.

In addition, several artificial and natural lakes have had a positive influence on the ecosystem, increasing its well-being and favouring the coexistence of more than 120 different species of birds and different animal species [6-7]. The Mediterranean climate also contributes to the presence of many trees with dense foliage and the vegetation is considered to be peculiar to the Community of Madrid and the big open spaces provide a valuable natural environment for steppe birds in particular, to inhabit.

Although the area of the Sierra is surrounded by 16 municipalities with several industries in constant expansion, there still exists a peculiar biodiversity, consisting of a large number of wild pine species and a variety of fauna, which includes foxes, snakes, eagles and rabbits [8].

To protect this valuable area, with its historic, cultural and natural heritage, in 1994 the Spanish government established a law relating to the territory surrounding the Jarama and Manzanares rivers (ref. BOE-A-1994-19704).

## 6. Conclusions

The activity described in this study highlights one of the most ferocious battles in the history of the Spanish Civil War, fought in the area of Rivas-vaciamadrid in February 1937. It was a strategic point for both sides due to its proximity to the A-3 highway that connected the Centre of Madrid to one of the most important military and strategic cities in this area, Alcalá de Henares [9-10].

The activity enables all kinds of participants – children, adults, scholars – to gain deeper knowledge of the history of the Spanish Civil War, based on an innovative way of using the historic site. The game has been tailored to support all kinds of participants and can be adapted to the specific user. It takes the form of an educational fun game aimed at teaching children the historical facts hands-on and raising awareness among adults.

It should be noted that for a long time, talking about the Civil War was prohibited, representing a taboo for local people. However, thanks to the current post-Francoist policy, implemented in recent decades, the situation has changed. Indeed, it is very important to know what happened in the past to avoid recurrences, as expressed in the sentence, "*Los pueblos que desconocen su Historia están condenados a repetirla*" ("*Those who do not know their history are doomed to repeat it*").



The Rivas-vaciamadrid site also contains a plethora of information concerning geological and natural aspects as well as historical-artistic features describing daily life or leisure activities in ancient times. For example, the *Porphyrio porphyrio*, (western swamphen), currently a bird species considered at risk, has a well-known past, and is recognizable through the wonderful mosaics in the Villa Romana del Casale in Piazza Armerina, Sicily (Italy) (Figure 10) and in the church of S. Vitale in Ravenna, Italy [11]. In addition, Aristotle described this bird in great scientific detail in his *History of Animals* (4<sup>th</sup> century BC) and Pliny the Elder represented it his notes on natural history (1<sup>st</sup> century BC) [12].

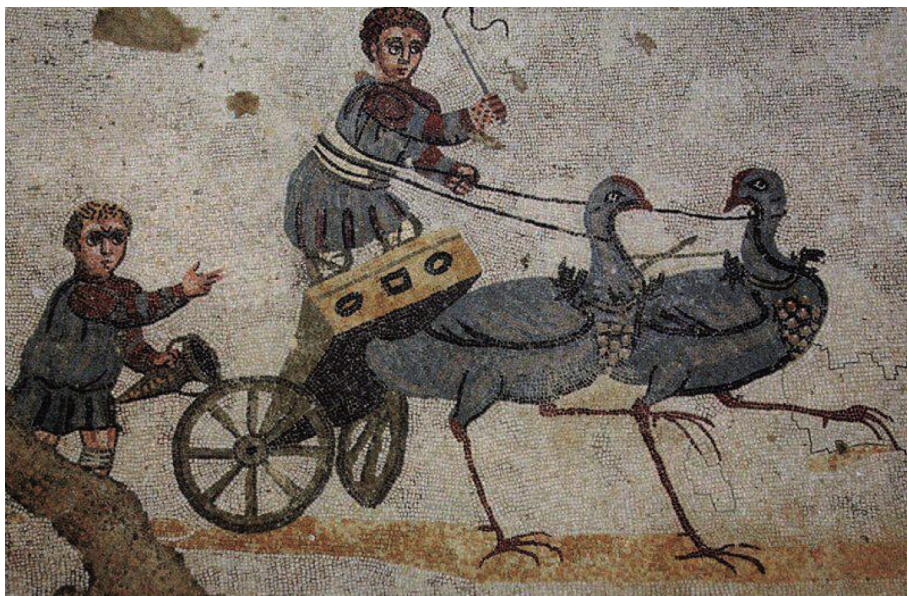


Figure 10. Two birds pulling a chariot, south apartment, Roman mosaic from the Villa Romana del Casale, Piazza Armerina in Sicily, Italy (c. 300 AD).

### Acknowledgements

The Authors thank the Director and the Teaching staff of IES Tourism and Marketing in Alcalà de Henares, Madrid, Spain.

### References

- [1] De Loyola I. (2001), European Tourism Industry, European Commission Conference, Brussels, February 27, 2001, Brussels. Pp, 1-8.
- [2] Vu, J.C, Turner, L. (2009) The economic structure of world tourism. *Tourism Economics*, 15, pp. 5-21.
- [3] Archer, B., Cooper, P., Ruhanen, L. (2005) Positive and negative impacts of Tourism. In: *Global Tourism – 3<sup>rd</sup> edition*. London: Elsevier, pp. 79-102.

- [4] Beevor, A. (2006). The battle for Spain – the Spanish civil war 1936-1939. London: Weidenfeld and Nicolson Ltd.
- [5] Takagi, T., (2004), A brief history of live Escape games, History and origin of Escape games: Available at: <https://lockacademy.com/en/history-and-origin-of-escape-games>.
- [6] López Nieva, P. (2005) Atlas básico del Parque Regional del Sureste. Madrid: Consejería de Medio ambiente y Ordenación de Territorio de la Comunidad de Madrid, pp. 1-96.
- [7] Alvear, E., Lopez Colon, J., Loreto, G., Fernandez, M. (2005) *Guía de la Naturaleza en Parque Regional del Sureste, Madrid: Grupo Naumanni, pp. 1-285.*
- [8] García Pérez, M., Palomar Mantero, V., Tarancón Palomar, M., Álvarez Ruiz, T., Berrueta García, A., Chivite López, A. Fernanz Gómez, J., García-Monge, A. J., González Blanco, Y. (2010) *Guía de Fauna del Parque Regional del Sureste.* Madrid: Dirección General del Medio Ambiente, pp. 1-60.
- [9] Suarez F., Rialp S.A. ed. (2000). Manuel Azaña y la guerra de 1936, Madrid: Ediciones Rialp.
- [10] Lledo' Collada, P. (1999) Alcalà en guerra. Alcalà de Henares: Editorial Brocar.
- [11] Cantamessa, G. (2013) La Villa Romana del Casale di Piazza Armerina - guida all'interpretazione degli ornati musivi mito e realtà tra gli ambienti della residenza tardoantica. Palermo: Editorial group Kalos, pp. 193-195.
- [12] Plinio II Vecchio, (APROX. 77 D.C) *Naturalis historia*: book X, paragraphs 1-14.

### Biographical notes

**Emanuele Palla** graduated in “Tourism and Marketing”, in Madrid in 2019 and collaborated as a member of the Alcalà de Henares team in the “International Touristic Expo” Ifema, Madrid, Spain; he was part of the management team training for “*El tenedor Manager*”. He also completed a traineeship where he was responsible for the front office reception and back office administration at the “Hotel de Trois Couronnes” in Carcassonne (France). He did a traineeship in Tourism and communication, for sustainable and upcycling selling enterprise in Lisbon, part of “Erasmus Plus KA1 - mobility of VET learners” in 2017. He is fluent in English, Spanish, French and Portuguese. He is currently a student in business and administration economics at the University of Palermo in Italy.

**Alejandro Gonzalez Lopez** graduated in “Tourism and Marketing” in Madrid in 2019; during his studies there, he was a collaborator on the Alcalà de Henares team and the “International Turistic Expo” Ifema, Madrid; he was also a member of the management team training for “El tenedor Manager. He did a traineeship as a receptionist in the “Hotel Iluniuon”, Conil, Spain. He is fluent in English.

**David Gil Aviles** graduated in “Tourism and Marketing”, in Madrid in 2019, during his studies there, he was a collaborator with the Alcalà de Henares team and the “International Touristic Expo” Ifema, Madrid; he was also a member of the management team training for “*El tenedor Manager*”; he did a traineeship as a receptionist in the Best Western Hotel, in Birmingham, England. He is currently a student on the Master in Tourism, Getafe, Spain.

**Maria Angeles Sanchez Martinez** graduated in Job Science at the *Universitat Oberta de Catalunya* (UOC), Barcelona, in 2012. She completed a Master in Enterprise Management and Tourism at the IE Business School in 2008. She is the author of “*Marketing in Tourism*” 2009, Madrid. She was Quality and innovation Director Manager for the Online Travel Agency (Viajar.com), Department of Investigation, development and innovation (I+D+I), in 2009. From 2010 on, she has taught tourism and marketing at the “Tourism and Marketing Academy” in Madrid, Spain.

### Summary

Based on the model of the “escape room” game, the activity proposed in this paper centres on the historical site of one of the fiercest battles of the Spanish Civil War (February 1937). The battle site is in the area of Rivas-vaciamadrid, the focal point of the Francoist and Republican camps, which connected the centre of Madrid with one of the city’s most important logistics and military facilities, Alcalà de Henares. The study proposes a new way to use the site and, in particular, proposes a live game aimed at involving different types of participants, aligning it with their specific profiles, whether children, adults or scholars. Its main aim is to propose an activity for the sustainable valorization of this heritage and to raise awareness in participants about this significant piece of history as well as its preservation in the long-term. It should be kept in mind that “*Los pueblos que desconocen su Historia están condenados a repetirla*”, i.e. “*Those who do not know their history are doomed to repeat it*”.

The Rivas-vaciamadrid site is also a source of information and study regarding geological, natural and historical-artistic aspects. One example is the *Porphyrio porphyrio* (western swamphen), present in the ecosystem of Rivas-vaciamadrid, which has a noteworthy past having been depicted in the mosaics of both the “Villa Romana del Casale” in Sicily and the Church of “San Vitale”, in Ravenna, Italy as well as being reported in writings by Aristotle and Pliny the Elder.

### Riassunto

L'attività evidenzia la storia di una delle battaglie più feroci della guerra civile Spagnola (febbraio 1937) che si svolse nell'area di Rivas-vaciamadrid, punto nevralgico per gli schieramenti Franchista e Repubblicano, che collegava il centro di Madrid con una delle città logistiche e militari più importanti dell'area (Alcalà de Henares). Lo studio propone un modo nuovo di fruizione del sito e, in particolare, un gioco dal vivo rivolto a diverse tipologie di partecipanti, allineandola ai loro profili (bambini, adulti, studiosi).

Il sito di Rivas-vaciamadrid è anche fonte d'informazione e studio per quanto riguarda aspetti geologici, naturali e storico-artistici. Il “Pollo sultano” (*Porphyrio porphyrio*) presente nell'ecosistema di Rivas-vaciamadrid, ha avuto un passato notorio, come descritto nei mosaici sia della “Villa Romana del Casale” e della Chiesa di “San Vitale” – Ravenna, oltre che riportato nei trattati di Aristotele e nelle “fabulae” di Plinio il Vecchio (IV secolo a.C.).