CONNECTING TOURISM, ARCHAEOLOGICAL HERITAGE AND EDUCATION: A JOURNEY TOWARDS SUSTAINABILITY

Raquel Gil-Fernández[1]*, Antonio Javier Criado-Martín[1], Carmen Escribano-Muñoz[1], and María Cristina Fernández-Laso[2]

[1] Faculty of Education Sciences and Humanities, Universidad Internacional de La Rioja, Spain
[2] Faculty of Arts and Humanities, Universidad Rey Juan Carlos, Spain

ABSTRACT

*Corresponding author:
Raquel Gil-Fernández
raquel.gilfernandez@unir.net

This paper examines the intersection of tourism, archaeological heritage and education within projects and research initiatives that promote sustainable management policies. Its primary aim is to identify experiences and strategies that balance heritage, tourism, and education, granting them equal relevance in objectives, outcomes, and implications. An integrative systematic review was conducted using the PICOC framework to define research questions and the PRISMA protocol to guide the meta-analysis. Data were extracted from the Web of Science database for the period 2020–2024, resulting in a final sample of 35 studies. The review reveals a strong commitment to conserving and promoting archaeological heritage through diverse actions, such as the provision of educational resources and training programmes, fostering sustainable cultural tourism, and facilitating educational tourism experiences. Most of the initiatives advocate integrated management policies that reinforce each other when combined. These findings underscore the importance of holistic approaches that align heritage conservation with educational and tourism objectives, contributing to sustainable cultural development. This study highlights the need to broaden research efforts aimed at determining an appropriate balance among the different management policies, including administrative, economic, educational, cultural and social dimensions.

Keywords: Integrative systematic review; sustainability; educational tourism; archaeology didactics; archaeological heritage

1. INTRODUCTION AND THEORETICAL FOUNDATION

Tourism, archaeological heritage and education are three areas that are frequently linked in research, and which find a natural fit when it comes to promoting educational, socio-economic and cultural policies. However, in scientific literature, such a direct and balanced relationship between these three does not always exist, with one of these aspects being diffused or scarcely represented, either relegated to a secondary goal or as a collateral result. To underpin the main concepts on which this paper is based, it is worth looking at some aspects linked to educational tourism, didactics or the interpretation of heritage and the dissemination and revitalisation of archaeological elements, artefacts, sites or concepts to see how they converge in the pursuit of a common purpose.

Considering that tourism activities comprise one of the fastest growing and developing industries in the world (Evci & Kus Sahin, 2017), all aspects of tourism are relevant. For Spinnato (2021), educational tourism is thus a modern phenomenon with two strengths: it focuses on the basic needs of the individual learner (emotional, creative, social...), and it allows the tourist-student to assimilate concepts that would otherwise be difficult to grasp. This brings into play the concept of 'experiential learning' applied to cultural heritage, where tourists increasingly demand more resources, sometimes technological, to gain a deeper understanding of the richness of the places they visit (Casillo et al., 2022).

In this paper, the driving element is archaeological heritage, which is examined to see how its essence can permeate tourism and educational programmes to the same extent and in the same action/activity. This decision was based on the very essence of archaeological heritage by including both tangible and intangible heritage: archaeological sites express human, social and technical development through values related to civic, historical, artistic, spiritual, symbolic, educational, natural, ecological and economic practices (UNESCO, 2020a).

Archaeological sites and historical landscapes have long been the focus of tourism and its management policies, given their strong relationship with a national identity and the notion of progress in tourism, and to this end, interpretative information must be designed to educate the tourist (Ababneh, 2021). In this sense, authors such as Pallo-Hernández et al. (2024) believe that archaeological tourism must be backed by educational proposals geared towards both tourists and the local population in order to promote and, on occasion, rescue archaeological sites and motivate the local population to preserve them. Fancello et al. (2022) express the need to highlight the educational and tourist potential of archaeological sites in places that have previously been chosen as tourist destinations based on other attractions. In terms of experiential tourism, the emphasis lies on the construction of self-representation connected to the tourist's imagery according to the community to which they belong (Butler, 1980).

The focus on culture and heritage as drivers of sustainable development has led institutions responsible for the protection of heritage to become systemic elements connecting training, research and innovation (Siri et al., 2024). Thus, the 2030 Agenda (UNESCO, 2020b) recognises civilisations and cultures as relevant factors for sustainable development because of their environmental, social and economic role. This is why heritage education plays a crucial role in driving improvement and growth. Heritage education must implement innovative systems to transfer knowledge that requires cooperation with territories, universities and schools to have an optimal impact on cultural and social management (Council of the European Union, 2018). Authors such as Frisch (1998) stated that analysing and managing heritage elements produces connections to community memory and identity and is crucial to the acceptance and consolidation of conservation initiatives, and that these processes must be driven by innovation.

Heritage tourism, on the other hand, must give tourists the possibility to make the testimonies of the past sensorially perceptible and experientially recognisable in their context (Siri et al., 2024). In the same vein, for Kislan (2024), experimental archaeology and living history, as by-products of archaeological reconstruction, are suitable for both education and tourism and all three categories can be implemented at the same time or added after the main goal has been attained: archaeology can only recreate physical objects, but not emotions or thought processes, while recreation raises historical research questions and is therefore an ideal channel to link these categories (Gapps, 2009). Occasionally, the representation of the past for tourists and/or students is aided by technologies, which have been used for the development of, for example, historical games, didactic resources for the teaching-learning of history or archaeology, and in museums and interpretation centres for cultural tourism (Kee, 2014). All these elements need to be brought together through transdisciplinarity. According to Kargas et al. (2022), the visualisation of digital archaeological heritage must be based on archaeological rigour, be sustainable (economically and technologically) and scientifically transparent (Craft et al., 2017).

Educational practices in tourism and archaeology must be both technologically and ecologically sustainable, and have therefore evolved in line with philosophical, theoretical and scientific concepts. Scientific research is now enabling broader tourism and leisure proposals while, at the same time, promoting good practices in education (Trushkova et al., 2020). On the other hand, the relevance of educational projects and ad hoc instructional designs such as those based on archaeological excavations, which sometimes relegate archaeology to a secondary role, leads to the integration of pedagogical values into archaeological work and can offer social, economic and individual benefits to tourism (Kohn-Tavor, 2023). One element that connects these concepts is the training of tourism professionals, since it focuses on the transmission of heritage values, including archaeology. Curricular issues are widely debated in scientific literature devoted to tourism and hospitality (Altarawneh & Osam, 2019).

The main goal of this paper is therefore to detect experiences and initiatives that manage to equalise archaeological heritage, tourism and education, giving them similar importance in their goals, results and

implications, through an integrated systematic review of the literature. Thus, the common element, regardless of how the initiative is implemented, is that they are actions involving archaeological heritage and that they include, to the same extent, the didactic resources or training programmes with a clear educational intention for a target population, seeking, at the same time, direct implications in the development of sustainable cultural tourism or developing experiences related to educational tourism.

The proposal includes the following specific goals: (a) Mapping output, taking into account the temporal evolution of publications, authorship, media in which they were distributed and disseminated, type of work, research methods selected to study the topic of reference and the country studied; (b) Identifying the main themes linked to the search, as well as where to focus on the selected works; (c) Identifying the archaeological heritage element to which the work refers, establishing the origin of the initiatives, who the target audience is and the scope of the experience; (d) Specifying the goals pursued by this work, as well as the actions to be taken to meet them; (e) Analysing the means, resources or technologies that have been used to implement these initiatives, and determining whether there is a conscious commitment to implement some form of innovation; (f) Outlining the main results of the work, as well as the key implications that are raised.

2. METHODOLOGY

The methodology applied to meet these objectives is the systematic literature review (SLR) of scientific literature. SLRs compile research on a given topic from the analysis of primary studies. They are research papers in themselves, as they provide answers to research questions, systematically analyse a sample and guide the presentation of the results through a refined method (García-Peñalvo, 2022). This type of analysis organises the evidence and helps to detect gaps in the research. Revealing these gaps allows researchers to adopt new approaches and to channel the work in their respective disciplines (Maggio et al., 2020).

Such reviews are applied when it is appropriate to conduct mixed-model analyses. In this type of SLR, it is necessary to balance whether the emphasis is placed on the qualitative or quantitative aspect so that the pieces of evidence can interact with each other and provide answers to the mapping and research questions and thereby come up with a sample that allows the goals to be met (Saini & Shlonsky, 2012). Thus, the goals of this paper, together with the nature of the research questions that govern it, justify this choice, as it integrates the analysis of qualitative, quantitative or mixed papers (García-Peñalvo, 2022).

Social science studies often present a high degree of heterogeneity, for example, thematic or methodological (Harden & Thomas, 2010), which is why it is very appropriate to use the integrative review method on this type of sample. It is one of the broadest and most open approaches within SLR, as it allows the integration of both theoretical and empirical studies and qualitative, quantitative or mixed methods to detect, in an optimal and comprehensive manner, the evolution of a topic in different contexts and spatial environments (Doolen, 2017); it is a type of review that is frequently chosen for studies related to tourism (Campos-Quezada & Castillo-Ortiz, 2024) or education (Escribano-Muñoz et al., 2024; Gil-Fernández et al., 2023; Martínez-Gil et al., 2023).

The identification of archaeological sites is a key axis for understanding cultural evolution across diverse spatial contexts. In this regard, the systematic literature review (SLR) applied to archaeological studies enables the integration of qualitative and quantitative evidence from primary research, with the aim of mapping how material identities are linked to specific locations. This approach is particularly relevant in disciplines characterised by high thematic and methodological heterogeneity, such as archaeology, where correlating cultural traits with geographical settings requires an integrative analysis. The adoption of integrative reviews facilitates the detection of patterns and research gaps, revealing how the identity of archaeological sites is shaped by territorial, historical and social factors, and providing a comprehensive view of their evolution in different environments (Stutz, 2008).

This research process has used the parameters set forth by Duart-Montoliu et al. (2017): 1) Formulation of the problem; 2) Determining research goals and questions; 3) Searching for and selecting studies; 4) Coding of papers; 5) Data extraction process; 6) Analysis and presentation of results; 7) Discussion of results and conclusions.

The following semantic mapping questions have been defined to cover the contextual variables in a more quantitative manner (Kitchenham & Charters, 2007) with a view to completing the SLR:

MQ1. How many studies have been published between the established dates and how have they evolved? From which countries does scientific output originate?

MQ2. Who are the authors of the papers and what networks link them to each other?

MQ3. In what media has the research been published and disseminated?

MQ4. What are the areas and domains to which the studies belong?

MQ5. What themes are addressed and what types of work and methodologies have been used?

In terms of research questions, the PICO model was specifically created to design them in reviews related to the field of health sciences, to systematically establish the analysis of the evidence (Moher et al., 2009; Richardson et al., 1995). The variables considered are: (P) Population under study, (I) Interventions, (C) Comparison effects, and (O) Outcomes and results. Petticrew and Roberts (2005) extended it to the PICOC protocol by adding a key aspect to achieve greater precision: (C) Context, understood in a broad sense, which served to make this protocol more flexible and to allow it to be easily extrapolated to other fields, such as the social sciences. By following these guidelines, the comparison effects are clearer and the bias that occurs when contrasting such different studies is minimised. The Research Questions, following the guidelines of the PICOC protocol and the goals of this paper, are as follows:

RQ1. What are the main themes linked to the research, on what part of the selected papers is the focus placed, and on what kind of heritage elements is the work being undertaken?

RQ2. Where do the initiatives originate, who are the recipients and what is the scope of the interventions?

RQ3. What goals are pursued by the papers in the sample and what actions are planned to meet these goals?

RQ4. What means, resources or technologies have been used to implement these actions? Is there a conscious commitment to implement some types of innovation?

RQ5. What are the most notable results and implications?

To systematise the outcomes, a codebook was designed and used to analyse the results. The variables are shown in Table 1.

Table 1: Variables used in the codebook

Codebook		Variable
Identification		Author
		Title
Characteristics	Extrinsic variables (mapping of output)	Source of publication
		Year of publication
		Type of publication
		Country/scope (spatial) covered by the study
	Substantive variables	Work methodology
		Heritage element
		Origin
		Recipients
		Scope (educational)
	Methodological variables	Goals
		Action
		Resources/means/technologies
		Innovation
Results	Dependent variables	Group (theme)
		Focus
		Results/conclusions
		Implications

The search focused on one of the most relevant databases for social sciences and for scientific output in general, the Web of Science (WoS), a benchmark for quality in scientific literature. It provides access to the following databases: Current Contents Connect, Derwent Innovations Index, Grants Index, KCI-Korean Journal Database, MEDLINE, ProQuest Dissertation & Theses Index, SciELO Citation, and the Core Collection, comprising: Science Citation Index, Social Sciences Citation Index (SSCI), Arts & Humanities Citation Index (AHCI), Conference Proceedings Citation Index-Science (CPCI-S), Conference Proceedings Citation Index-Social Science & Humanities (CPCI-SSH), Book Citation Index-Science (BKCI-S), Book Citation Index-Social Sciences & Humanities (BKCI-SSH), Emerging Sources Citation Index (ESCI), Current Chemical Reactions (CCR-EXPANDED) and Index Chemicus (IC). This selection ensured, on the one hand, the quality of the articles and the robustness of the sample, but at the same time allowed access to grey literature, such as end of study theses or dissertations or funded projects.

They were accessed through the web portal of the Fundación Española para la Ciencia y la Tecnología (FECYT – Spanish Foundation for Science and Technology). The following search equation was used: touri*' (Topic) and 'educ*' (Topic) and 'archaeo*' (Topic). By using this simple research strategy, it was possible to adapt the review to the proposed goal regardless of the context and the target population of the intervention. A preliminary 366 results were obtained.

A single mechanical filter was applied based on the publication date, selecting a five-year period (2020–2024) to capture the most recent research trends. This initial search yielded 221 records (EC1). No additional filters available on the Web of Science were used, meaning that all document types (articles, books, theses, projects), from all WoS databases, research areas, languages, countries and access types were included. Given that the specificity of the research objectives was difficult for search engines to detect, the subsequent selection relied on manual screening. After reading the abstracts, 60 studies were excluded, leaving 161 records (EC2). A full-text review was then conducted, applying the eligibility criteria outlined in Table 2, which resulted in the exclusion of 126 papers (EC3). Finally, 17 additional studies were removed due to duplication or incomplete data (EC4), producing the final sample of 35 studies included in the review.

Table 2: Inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
IC1: papers on heritage elements related to archaeology that feature an action, experience or study in the field of formal or non-formal education and that are concerned with promoting tourism in a positive manner	
IC2: fields of knowledge: all. Language, type of source, type of document, countries, type of access: all	
IC3: years 2020 to 2024	EC1: all other years
	EC2: initiatives that address only one of the three fields covered and refer to the others in a tangential manner or as a secondary goal
	EC3: research on heritage elements that are not expressly and directly related to archaeology
	EC4: research that does not seek to improve tourism-related policies
	EC5: papers that do not have an express intention or do not include educational intentions in their goals

Once the SRL protocol was designed, three external experts from each of the three fields of study were asked to review it. The analysis of each article was conducted by the four judges who authored the paper. In the event of disagreement, an external opinion was sought, although this was only needed on four occasions. To structure the result of the review and meta-analysis, the protocol designed in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) was followed (Page et al., 2021). Figure 1 shows the resulting flow chart.
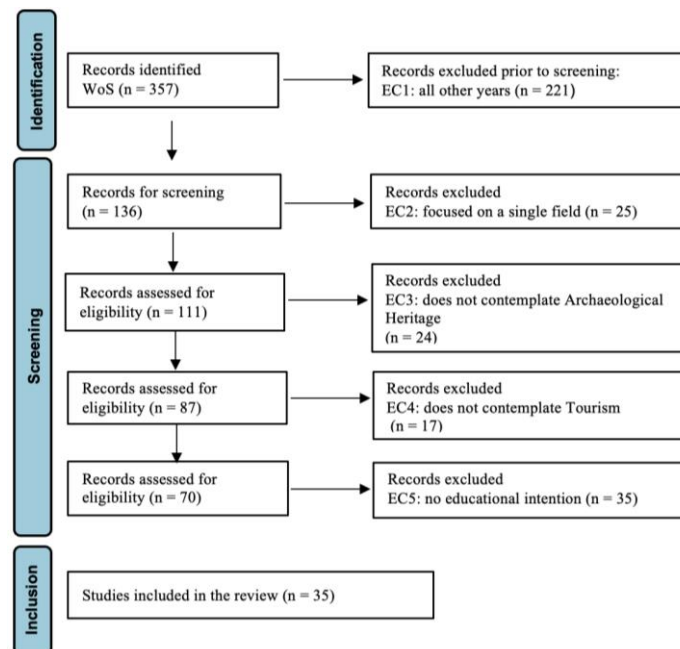

Figure 1: Flow chart of the sample collected according to The PRISMA 2020

The information selected from the databases was exported to the VOSviewer software (version 1.6.20) to detect clusters evidenced in graphical maps.

3. RESULTS AND DISCUSSION

Table 3 shows the resulting sample.

Table 3: Inclusion and exclusion criteria

Author(s)	Group/ Thematic cluster
Ababneh (2021) Baer (2024) Bristow and Taylor (2020) Casillo et al. (2022) Cozza et al. (2021) Fancello et al. (2022) Kargas et al. (2022) Loosley Leeming (2023) Miranda-Cruz et al. (2024) Pallo-Hernandez et al. (2024)	1. Research initiatives undertaken by the tourism sector, economic or governmental authorities for the conservation of heritage and its didactic/informational dissemination.
Barroso-Barcenilla et al. (2022) Benchekroun (2022) Cotes et al. (2021) Fileš and Vukelić (2021) Hoggarth et al. (2020) Kabassi et al. (2020) Peraza-Guzmán and Paredes-Guerrero (2021) Sospedra-Roca et al. (2023) Spinnato (2021) Stanga et al. (2023) Taha and Van der Kooij (2023) Urbańska and Charzyński (2021)	2. Research initiatives on archaeological heritage for the sustainability of tourism and education policies
Abahre (2021) Maté-González et al. (2023) Gómez-Ullate García de León and Vidal-Gonçalves (2024) Hartatik et al. (2024) Kislan (2024) Kohn-Tavor (2023) Lucchi (2023) Malanovicz (2023) Menkshi et al. (2021) Re et al. (2024) Siri et al. (2024) Torsi et al. (2020) Wilson (2023)	3. Initiatives conveyed by actions, instructional designs or educational programmes designed ad hoc, and/or analysis and evaluation of these.

3.1 Results of MQ1 to MQ5

Regarding the first MQ, namely the number of studies published between 2020–2024, how they have evolved and from which countries the scientific output originates, of the five years analysed, the most prolific were 2021 and 2023 and the least productive was 2020. The papers are distributed over time as follows: 2020 (n = 3), 2021 (n = 10), 2022 (n = 5), 2023 (n = 10), and 2024 (n = 7). Therefore, the bulk of the output is concentrated in these two years (57.15% of the total). Given the years of the selection, consideration was given to whether there was a spike in work driven by the 2020 global pandemic. While it is true that 2021 is one of the most productive years, only two papers mention this context and include among their goals mitigating the consequences of the health crisis: the funded project by Loosley Leeming (2023) and the paper by Siri et al. (2024).

In terms of the countries from which the study originates, Italy is the most prolific, with papers linked to classical archaeology (20%), followed by Spain and England (11.41% each). Latin American countries, although not very well represented individually, as a whole account for a significant output that includes countries such as Ecuador, Belize, Mexico, Brazil and Argentina, with papers usually associated with pre-Columbian archaeology. Around 14.28% of the papers refer to the United States, generally associated with industrial or colonial archaeology. Many of the papers originating from European countries are also related to

industrial archaeology, except for those from Greece, which are more closely associated with classical archaeology.

Regarding the second MQ, authors of the papers and the networks established, it is striking to note that the subject matter does not constitute a very clear and delimited trend in itself: no author has participated in more than one paper and the collaboration networks are internal, especially the projects or papers with a pronounced transdisciplinary focus. The 35 papers were prepared by 128 authors. The citation network taking the minimum n (<1) is shown in Figure 2.
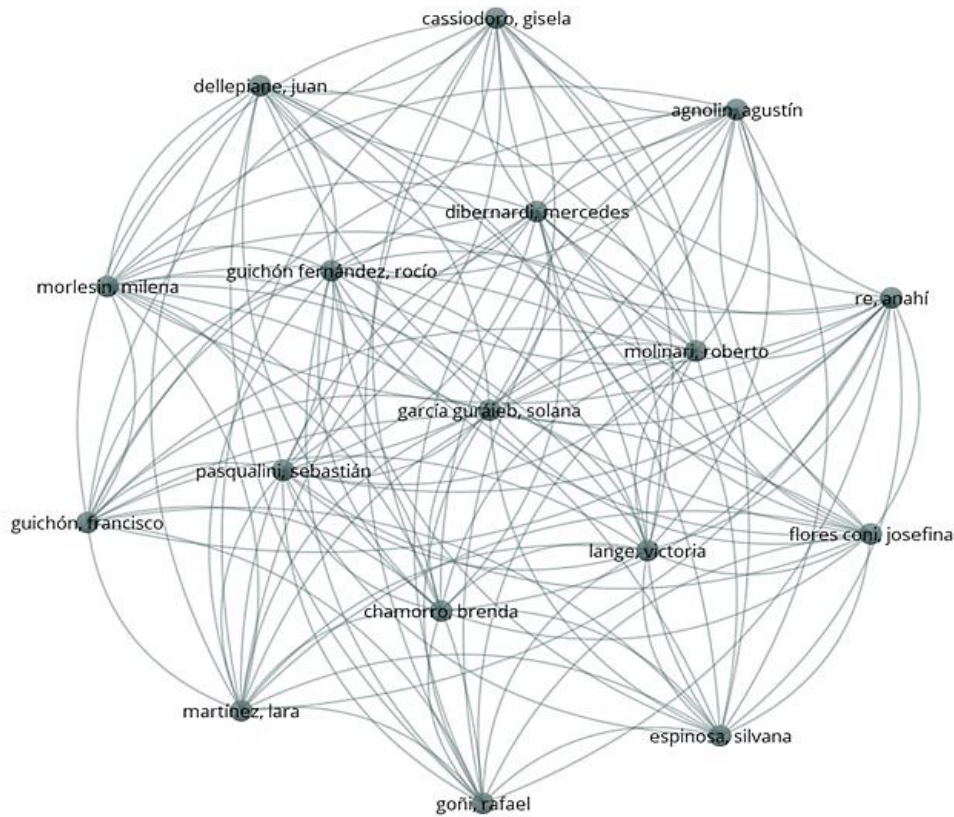

Figure 2: Citation network of the selected studies (VOSviewer)

Regarding MQ3, means of publication and dissemination, scientific output is seen to be highly polarised, with Heritage being the only journal to publish more than one article (11.42% of the sample). The most cited articles were Lucchi (2023), published in Sustainability, Torsi et al. (2020), disseminated by ACM Journal on Computing and Cultural Heritage, and Stanga et al. (2023), published by Drones. Considering relevance, according to WoS, the top ranked paper is by Gómez-Ullate García de León and Vidal-Gonçalves (2024), published in Pasos, followed by Hartatik et al. (2024), published in the Journal of Cultural Heritage Management and Sustainable Development, and Re et al. (2024), published in Revista del Museo de Antropología.

Regarding MQ4, on the areas and domains to which the studies belong, given the chosen subject matter and the different viewpoints from which the problem can be observed, the corresponding areas of the WoS are very varied. Arts, Humanities and others, Archaeology and Computer Science are prominent, while Sociology and Anthropology are also featured. In terms of domains, there is a predominance of Technology Sciences, which is significant in terms of the intention to involve technology/innovation, Social Sciences, which encompasses the three domains involved in the study, and Arts and Humanities.

Regarding MQ5, themes addressed and what types of work and methodologies have been used, in relation to the topics of interest for the research, which correspond to the themes of interest, the analysis performed with the VOSviewer software through the Keywords, Keywords+, title and abstract, revealed the existence of five clusters (shown in Figure 3) with the themes with the highest incidence; three of them can be considered as the most relevant and their visualisation and delimitation have been used to articulate the following section.
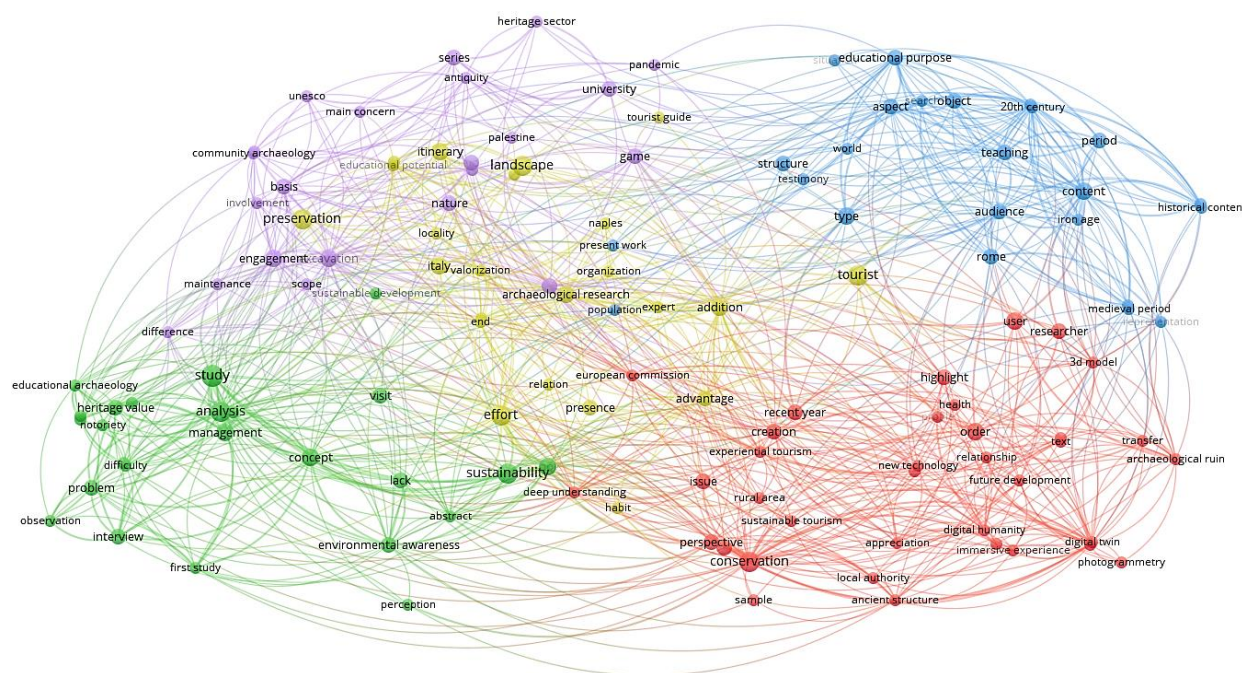
Figure 3: Thematic clusters

As we can see, the main themes of the central cluster in yellow are 'tourist', 'tourist guide', 'landscape', itinerary' or 'archaeological research', linking archaeology and tourism. The purple cluster contains terms such as 'engagement', 'university', 'community archaeology' or 'heritage sector', remaining more as connecting terms without defining a particular theme beyond referring to heritage. The strongest and broadest clusters are red, green and blue. The red cluster with terms such as 'conservation', 'perspective', 'new technology', 'digital humanity', 'experiential tourism' or 'sustainable tourism' relates certain aspects of tourism to technologies and digital humanities. The blue cluster with 'teaching', 'content', 'audience', 'object' or 'historical content' veers towards the more educational part of the cluster. Finally, the green cluster focuses on theoretical and conceptual aspects that relate to all constructs, with topics such as 'sustainability', 'study', 'analysis', 'concept', 'management' or 'environmental awareness'.

As for the types of documents, as indicated above, no filtering has been performed in this sense, so as to be able to detect grey literature. Thus, the majority (n = 28) are magazine articles; n = 3 are end-of-study theses or dissertations (from ProQuest Dissertations & Theses); n = 3 are conference papers, and one is a monograph. The latter are grey literature results and may be a good indicator that both junior researchers and those seeking funding for their projects have found a field of interest in the confluence of these three themes/fields of work. In relation with the methodologies used to address the work, a large part of the sample consists of in-depth, descriptive work or project presentations (68.5%), followed by analyses using mixed methodologies (27.1%) and, lastly, those using qualitative methodologies (5.7%).

3.2 Main theme and initiative

To articulate this section, we will use the main themes linked to the research, as well as the focus of the selected papers; these are two of the dependent variables and, therefore, define and structure the results.

Three groups have been established, which we will use as the backbone to describe the main characteristics of the sample. As explained above, the three groups have been established on the basis of the topics which, after analysis, have configured the different clusters—one group is made up of initiatives that originate from the tourism sector or are related to the administration or research and focus on archaeology and its didactics; the second group is made up of initiatives that originate from research on archaeological heritage to influence educational aspects and sustainable tourism; and the third group is made up of papers that propose educational programmes or instructional designs that favour tourism using archaeological sites, artefacts, cultures or heritage elements related to archaeology and its didactics as a guiding thread.

At first, it seems logical to think that the correlation between group and focus can be univocal, the focus of the first group being 'T' (Tourism), the second 'H' (Heritage) and the third 'E' (Education). And although in most instances this is the case, sometimes there are 'intrusions', and the work of a group focuses on a different

discipline to the initial discipline of the initiative. This can be interpreted as a willingness on the part of researchers, to balance the three areas in order to attain optimal results, irrespective of their field of expertise. Most of the papers reflect a conscious commitment to transdisciplinarity.

The three groups are fairly balanced in terms of number of papers (10, 12, and 13 respectively). The main characteristics of the three groups are described below:

Group 1: research initiatives undertaken by the tourism sector, economic or governmental authorities for the conservation of heritage and its didactic/informational dissemination. This group consists of 10 papers. The majority focus on tourism, although two of the papers focus on heritage and one on education. Based on their goals, those papers that seek to address certain management challenges with a view to promoting the sector deserve special mention. These include the article by Ababneh (2021), which analyses the management of heritage elements through a mixed analysis, using a Roman site in France as a reference; by Baer (2024), which through a mixed analysis of the local population and archaeologists seeks to promote the accessibility of archaeological data from a Mayan site using 3D modelling; Bristow and Taylor (2020), working with limited funds, present a recreation of the landscape with good educational and conservation perspectives, recreating water facilities in Massachusetts; Loosey Leeming (2023) presents a project to save the National Museum of Georgia from crisis and integrates didactic packages that include archaeology so that archaeology students can be trained in this field; Pallo-Hernandez et al. (2024), as is the case in some of the papers included in group 3, focus on the community, analysing the archaeological sites of Pacto-Pichincha from the perspective of tourism in order to promote proposals, particularly among the owners of the private land on which the sites are located, so that they can be trained in heritage tourism practices and can obtain benefits and employment. Lastly, Miranda-Cruz et al. (2024) analyse the perceptions of local communities regarding the importance of the presence of a colony of bats in the ruins of Uxmal (a Mayan culture) and introduces an educational programme to train and report on their importance in that culture.

Other papers deal with more specific aspects, using educational technology, in line with the indications of the Council of the European Union (2018), to explore experiential tourism, which is well suited to activate identity issues and self-interpretation processes, as pointed out by authors such as Butler (1980). This is the case of papers such as that published by Casillo et al. (2022), which advocates the use of digital resources to promote experiential learning among tourists and presents a chatbot for the Naples Archaeological Park; Kargas et al. (2022) present the development of a virtual application for tourists, teachers and researchers to explore Greek sites, including 3D modelling; Cozza et al. (2021) propose a serious game to raise awareness of the underwater archaeological heritage of the Mediterranean; and Fancello et al. (2022) present an itinerary that showcases the most unknown archaeological sites in Sardinia, selected for their educational and tourism potential, offering a detailed study of the geosites.

Thus, this group of papers, covering Latin America, Europe and the United States and focusing on heritage elements ranging from pre-Columbian and ancient to industrial and underwater archaeology, appeal to educational and experiential tourism to address the challenge of sustainability (UNESCO, 2020a, 2020b). This is a set of papers which, based on previous analysis of challenges, implement solutions, often based on technological innovations. They mostly target tourists and students, but also local communities. They exhibit a conscious commitment to innovation, not only in terms of the tools and resources used, but also in terms of the methodologies and analytics employed. The results underline the importance of education for sustainable tourism, cooperation and interaction, and aim to influence tourism/cultural and management policies, but with a strong environmental component.

Group 2: research initiatives on archaeological heritage for the sustainability of tourism and education policies. There are 12 papers that are based on heritage research and focus directly on heritage, its research and dissemination to generate implications for tourism, with the exception of two, which focus on tourism and education respectively. These abide by the principles put forward by authors such as Gapps (2009), in which questions regarding remains and experiences connected to ideologies and identities allow progress to be made in the three sectors. This group covers papers that develop projects or analyse, assess and test methodologies and techniques: Barroso-Barcenilla et al. (2022) develop a project at the Paleontological and Archaeological Interpretation Centre of Tamaján (Guadalajara, Spain) guided by didactic activities through real and virtual exhibition resources; in his thesis, Benchekroun (2022) explores accessible methods in digital archaeology to move towards the democratisation and decolonisation of research, using low-cost tools such as photogrammetry and LiDAR, to make them available for tourism and education; Fileš and Vukelić (2021) work on 'living history' as a tourist and educational activity, in the form of a communication process between the audience and the venue, providing a direct experience that involves the visitors interacting with the objects; Kabassi et al. (2020) assess the websites of museum conservation laboratories with a combination of decision-making methods and theories and classify them according to their content, usability and functionality for educational, research and tourism purposes; Sospedra-Roca et al. (2023) present a project on Spanish Civil

War poliorcetics with elements of didactic intermediation that make the knowledge accessible to users; Spinnato (2021) analyses Veneto's clay-related factories to enhance the industrial heritage for tourism and education; Stanga et al. (2023) use HBIM scanning and UAV (drone) photogrammetry to improve the depiction of archaeological ruins, focusing on the Claudius Anio Novus aqueduct in Tor Fiscale Park, Rome; and Urbańska and Charzyński (2021) work on industrial archaeology, in Polchem, to enhance the value of this heritage for tourism and educational purposes.

As with the other two groups, there are also community-driven initiatives, given that much of the work is concerned with very specific analyses to address future challenges and primarily geared towards providing the necessary skills and training to local communities. For Frisch (1998), such initiatives are key to connecting with memory and identity and provide the key to generating processes of acceptance and implementation of economic and cultural policies. This is the case of the article by Cotes et al. (2021), where the figure of an archaeologist (Nièd Guidon, a benchmark for the Serra da Capivara National Park, in Brazil), is used to develop a comprehensive training programme for future guides; and by Hoggarth et al. (2020), which analyses an archaeological project in Belize to determine the successes and challenges in cultural heritage management and public participation, training and education, with a view to implementing it in the training of archaeology and tourism professionals in Belize. Peraza-Guzmán and Paredes-Guerrero (2021) reflect on the efforts of various social, academic and trade organisations in relation to heritage education with the purpose of assessing the development and impact of heritage conservation in the city of Mérida (Spain). Lastly, Taha and Van der Kooij (2023) present a community archaeology project in Palestine involving local communities, university and government agencies that seeks to rehabilitate an archaeological site and turn it into an archaeological park for tourism benefits.

Most of the papers resulted in programmes for the promotion of heritage and tourism activities, vocational training and the expansion of economic opportunities in the sector. They rely primarily on situation and case analysis to identify challenges and weaknesses, although they also sometimes implement technological innovations such as photogrammetry or digital twins. The initiatives mostly focus on European or Latin American countries and on heritage elements related to classical, pre-Columbian or industrial archaeology.

Group 3: initiatives conveyed by actions, instructional designs or educational programmes designed ad hoc, and/or analysis and evaluation of these programmes. There are 13 papers that focus mainly on education, although three of them place the emphasis on heritage and two on tourism. These five papers are driven by the idea that the pedagogical values of archaeological work bring economic and individual benefits to society (Kohn-Tavor, 2023; UNESCO, 2020a).

With regard to higher education, there is the paper by Abahre (2021), which analyses the relationship between the Palestinian tourism industry, university programmes and the challenges and sustainability of future undergraduate programmes, linking the industry with academia; the paper by Lucchi (2023), intended for architecture students, in which he analyses the decision-making process for preserving and regenerating archaeological sites in a sustainable manner; the paper by Malanovicz (2023), which proposes an in loco itinerary for study trips for Roman Law students, and the project by Wilson (2023), which presents a training programme to raise the profile of urban landscape assets to support tourism and education.

Two papers target young students: the paper by Menkshi et al. (2021), which identifies and analyses the role of young people in the preservation and promotion of cultural heritage in Albania; and the paper by Torsi et al. (2020), which proposes a game for students and young tourists through which they can explore an archaeological site in Apulia, which was evaluated by tourist guides.

This group also contains numerous papers that are directed to the community in general (tourists and students) or to local communities in particular, namely the paper by Maté-González et al. (2023) presenting the Vettonia project on Iron Age heritage, geared towards students and tourists; the thesis by Kislan (2024) on colonial sites and living history and experiential tourism; and the paper by Kohn-Tavor (2023), presenting two educational archaeology projects; the paper by Re et al. (2024), describing the educational actions conducted on elements of Patagonia's archaeological heritage; and the paper by Siri et al. (2024), analysing access to Romanisation-related cultural heritage through non-formal settings. With regard to local communities, Gómez-Ullate García de León and Vidal- Gonçalves (2024) present a paper to provide widespread access to historical heritage in rural contexts, involving local communities and visitors to Toucas, Portugal; and Hartatik et al. (2024) conduct a study on mining heritage in Indonesia, to change negative community perceptions of Buren sites.

These papers primarily analyse programmes or present educational projects to promote educational and experiential tourism, and to raise awareness and educate the community by promoting sustainable tourism and heritage conservation. Technological innovations such as VR, 3D modelling, gamification, immersive experiences and digital humanities in general are sometimes used. Methodological innovations such as regenerative design are also used. On many occasions they address heritage related to ancient or medieval archaeology or mining heritage, and the areas targeted by the actions are mainly in Europe.

4. CONCLUSIONS

This article presents the outcomes of an integrative systematic literature review of papers published between 2020–2024, which address the confluence between archaeological heritage, tourism and education, to respond to the challenges of today's society.

Although archaeology, tourism and education are inherently transversal fields, the review indicates that integrated approaches remain limited. The initial search yielded 221 records, yet only 35 met the inclusion criteria after applying the screening process. This substantial reduction (84% excluded) suggests that most studies address these domains in isolation or with one field relegated to a secondary role, rather than achieving a balanced integration of all three.

Nevertheless, the results show a very fertile field, which emanates from several areas and domains and that a more balanced integration between the three fields is sought, integrating them, while maintaining their own essence, concepts and identities to pursue goals related to sustainable tourism, good educational practices and the care, defence and dissemination of archaeological heritage. The initiatives geared towards the community at large are very interesting; sometimes they are geared towards local communities oppressed by adverse situations, which can develop new opportunities through these proposals. It is also important to note the willingness to innovate. Authors also often assimilate innovation to the use of technologies, but in the sample, there are papers which, with more traditional resources, apply optics, goals and methodologies that make them innovative per se, as the common purpose of these, in fact, already implies a will to innovate and advance.

The findings of this review reveal that sustainable development is a recurring objective in initiatives that integrate archaeological heritage, tourism and education. Many of the projects analysed seek to enhance the cultural and environmental value of their surroundings by promoting responsible tourism practices, community engagement and educational programmes. These strategies not only aim to preserve archaeological sites but also to generate socio-economic opportunities for local populations, thereby reinforcing the link between heritage conservation and sustainable tourism. The key implication is that such integrative approaches can serve as catalysts for regional development, fostering resilience and cultural continuity while aligning with the principles of the 2030 Agenda and the Sustainable Development Goals. These findings reinforce the idea that sustainable development emerges not only as a contextual goal but as a direct outcome of integrated heritage–tourism–education initiatives. The systematic literature review has provided relevant insights for future research, although certain limitations remain. Expanding the scope to include earlier years, grey literature and additional databases could yield valuable information to address increasingly urgent challenges. Such efforts are essential to advance sustainable development objectives and strengthen the connection between heritage conservation, tourism and education.

DECLARATION

1. Conflict of interest

The authors declare no conflict of interest.

2. Generative AI and AI-assisted technologies in the writing process

The authors declare that no generative AI or AI-assisted technologies were used in the writing of this manuscript.

3. Data availability statement

No new data were generated or analysed in this study. All data derive from published sources included in the systematic literature review.

4. Ethics statement

Not applicable. This study is based exclusively on published literature and does not involve human participants or personal data.

5. Funding

Gil-Fernández, R., et al.

The Funding section has been updated to include the financial support received from the International University of La Rioja (UNIR), project LAB HD-IA (grant PPI10_25).

6. Contributor Role Taxonomy (CRediT)

Conceptualization: Raquel Gil-Fernández, Antonio Javier Criado-Martín

Methodology: Raquel Gil-Fernández, Antonio Javier Criado-Martín, Carmen Escribano-Muñoz

Formal analysis: Raquel Gil-Fernández, Antonio Javier Criado-Martín, Carmen Escribano-Muñoz, María Cristina Fernández-Laso

Investigation: Raquel Gil-Fernández, Antonio Javier Criado-Martín, Carmen Escribano-Muñoz, María Cristina Fernández-Laso

Writing–original draft: Raquel Gil-Fernández, Antonio Javier Criado-Martín, Carmen Escribano-Muñoz, María Cristina Fernández-Laso

Writing–review & editing: Raquel Gil-Fernández, Antonio Javier Criado-Martín, Carmen Escribano-Muñoz, María Cristina Fernández-Laso.

ORCID

Raquel Gil-Fernandez: https://orcid.org/0000-0001-9881-8641
Antonio Javier Criado-Martín: https://orcid.org/0000-0003-1886-9575
Carmen Escribano-Muñoz: https://orcid.org/0000-0001-9372-5331
María Cristina Fernández-Laso: https://orcid.org/0000-0001-5719-8888

REFERENCES

Ababneh, A. (2021). Archaeological sites' management, interpretation, and tourism development—A success story and future challenges: The case of Bibracte, France. *Heritage, 4*, 2261–2277. https://doi.org/10.3390/heritage4030128

Abahre, J. S. H. (2021). Reforming tourism and archaeology education in Palestine to meet industry expectations. *Journal of Teaching in Travel & Tourism, 21*(3), 248–267. https://doi.org/10.1080/15313220.2021.1898522

Altarawneh, M., & Osam, U. V. (2019). Tourism English training at the tertiary level in Jordan: Reality and expectations from a university context. *Journal of Hospitality Leisure Sport & Tourism Education, 24*, 155–167. https://doi.org/10.1016/j.jhlste.2019.02.005

Baer, K. J. (2024). *Investigating photogrammetry as a method of developing educational materials for archaeo-tourism and public education at Xunantunich, Belize* [Master's thesis, Northern Arizona University]. https://f718f5f6-ff16-4649-955b-b63b954ed46c.filesusr.com/ugd/f1e973_14650ea5da9b411e8a2da26c203ac783.pdf

Barroso-Barcenilla, F., Alcalde-Fuentes, M. R., Audije-Gil, J., Berrocal-Casero, M., Callapez, P. M., Ozkaya de Juanas, S., Pérez-Valera, J. A., dos Santos, V. F., & Segura, M. (2022). Discovering a project for the development of geotourism in rural areas: The paleontological and archaeological interpretation centre of Tamajón (CIPAT, Guadalajara, Spain). *Land, 11*(3), Article 444. https://doi.org/10.3390/land11030444

Benchekroun, S. (2022). *Preserving the past for an uncertain future: Low-cost, open-source methods for 3-D digital documentation in applied cultural heritage preservation* (Publication No. 29993977) [Master's thesis, San Diego State University]. ProQuest Dissertations and Theses. https://www.proquest.com/openview/5eee32285754cdd3a709b50e142823f8/1?pq-origsite=gscholar&cbl=18750&diss=y

Bristow, R. S., & Taylor, J. (2020). Recreating the Massasoit spring house with 3Dimensional modelling. *Conservation and Management of Archaeological Sites, 22*(3–6), 199–214. https://doi.org/10.1080/13505033.2021.1980265

Butler, R. W. (1980). The concept of a tourist area cycle of evolution: Implications for management of resources. *Canadian Geographies, 24*(1), 5–12. https://doi.org/10.1111/j.1541-0064.1980.tb00970.x

Campos-Quezada, A. R., & Castillo-Ortiz, I. (2024). La sostenibilidad en los estudios del turismo gastronómico: una revisión sistemática de literatura [Sustainability in food tourism studies: a systematic literature review]. *PASOS Revista de Turismo y Patrimonio Cultural, 22*(3), 595–614. https://doi.org/10.25145/j.pasos.2024.22.039 [in Spanish]

Casillo, M., De Santo, M., Mosca R., & Santaniello, D. (2022). An ontology-based chatbot to enhance experiential learning in a cultural heritage scenario. *Frontiers in Artificial Intelligence, 5*, Article 808281. https://doi.org/10.3389/frai.2022.808281

Cotes, M., Erler, D. M., Schiavetti, A., & Vieira do Nascimento, J. (2021). O legado de Nième Guidon no semiárido brasileiro: A percepção de condutores de visitantes do Parque Nacional Serra da Capivara [The legacy of Nième Guidon in the Brazilian semi-arid region: The perception of visitor guides at Serra da Capivara National Park]. *Antipoda. Revista de Antropología y Arqueología, 42*, 179–204. https://doi.org/10.7440/antipoda42.2021.08 [in Portuguese]

Council of the European Union. (2018). *Recommendation of the Council of the European Union on key competences for lifelong learning of 22 May 2018*. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018H0604(01)&rid=7

Cozza, M., Isabella, S., Di Cuia, P., Cozza, A., Peluso, R., Cosentino, V., Barbieri, L., Muzzupappa, M., & Bruno F. (2021). Dive in the past: A serious game to promote the underwater cultural heritage of the Mediterranean Sea. *Heritage, 4*(4), 4001–4016. https://doi.org/10.3390/heritage4040220

Craft, W., Ding, L., Prasad, D., Partridge, L., & Else, D. (2017). Development of a regenerative design model for building retrofits. *Procedia Engineering, 180*, 658–668. https://doi.org/10.1016/j.proeng.2017.04.225

Doolen, J. (2017). Meta-analysis, systematic, and integrative reviews: An overview. *Clinical Simulation in Nursing, 13*(1), 28–30. https://doi.org/10.1016/j.ecns.2016.10.003

Duart-Montoliu, J. M., Roig-Vila, R., Mengual-Andrés, S., & Maseda-Durán, M. A. (2017). The pedagogical quality of MOOCs based on a systematic review of JCR and Scopus publications (2013–2015). *Revista Española de Pedagogía, 75*(266), 29–46. https://revistas.unir.net/index.php/rep/article/view/1410

Escribano-Muñoz, C., Gil-Fernández, R., & Calderón-Garrido, D. (2024). Confluencias entre pensamiento crítico y redes sociales en el ámbito educativo. Mapeo de experiencias y detección de desafíos a través de una revisión sistemática [Confluences between critical thinking and social media in education: Mapping experiences and identifying challenges through a systematic review]. *Revista Complutense de Educación, 35*(2), 363–379. https://doi.org/10.5209/rced.85615 [in Spanish]

Evci, A., & Kus Sahin, C. (2017). Bedensel Engelli Bireylerin Erişilebilir Turizmi Değerlendirmesi Üzerine Bir Araştırma [A research on assessment of accessible tourism by physically handicapped individuals]. *Nevşehir Journal of Science and Technology, 6*(2), 681–689. http://dx.doi.org/10.17100/nevbiltek.334625 [in Turkish]

Fancello, D., Columbu, S., Cruciani, G., Dulcetta, L., & Franceschelli, M. (2022). Geological and archaeological heritage in the Mediterranean coasts: Proposal and quantitative assessment of new geosites in SW Sardinia (Italy). *Frontiers in Earth Science, 10*, Article 910990. https://doi.org/10.3389/feart.2022.910990

Fileš, M., & Vukelić, D. (2021). Living history and the communication of archaeology with the public. *Annales Instituti Archaeologici, 17*, 247–254. https://hrcak.srce.hr/file/391488

Frisch, M. (1998). De-, Re-, and post-industrialization: Industrial heritage as contested memorial terrain. *Journal of Folklore Research, 35*(3), 241–249. https://www.jstor.org/stable/3814656

Gapps, S. (2009). Mobile monuments: A view of historical reenactment and authenticity from inside the costume cupboard of history. *Rethinking History, 13*(3), 395–409. https://doi.org/10.1080/13642520903091159

García-Peñalvo, F. J. (2022). Desarrollo de estados de la cuestión robustos: Revisiones Sistemáticas de Literatura [Developing robust state-of-the-art reviews: Systematic literature reviews]. *Education in the Knowledge Society, 23*, Article e28600. https://doi.org/10.14201/eks.28600 [in Spanish]

Gil-Fernández, R., Calderón-Garrido, D., & Martín-Piñol, C. (2023). Explorando el efecto de las redes sociales en Entornos Personales de Aprendizaje en el ámbito universitario: análisis de experiencias y detección de futuros desafíos [Exploring the effect of social media in Personal Learning Environments in the university settings: Analysing experiences and detecting future challenges]. *Revista de Educación a Distancia, 23*(71), Article 4. http://dx.doi.org/10.6018/red.526311 [in Spanish]

Gómez-Ullate García de León, M., & Vidal-Gonçalves, G. (2024). Ruralidades, património cultural, associativismo e turismo nos tempos das humanidades digitais [Ruralities, cultural heritage, associativism and tourism in the age of digital humanities]. *PASOS. Revista de Turismo y Patrimonio Cultural, 22*(3), 615–624. https://doi.org/10.25145/j.pasos.2024.22.040 [in Portuguese]

Harden, A., & Thomas, J. (2010). Mixed methods and systematic reviews: Examples and emerging issues. In A. Tashakkori & C. Teddlie (Eds.), *Sage handbook of mixed methods in social & behavioral research* (pp. 749–774). Sage.

Hartatik, H., Wahyu, W., Ruslan, M., & Putro, H. P. N. (2024). Community's perception of *buren* site conservation in Upper Barito, Kalimantan, Indonesia. *Journal of Cultural Heritage Management and Sustainable Development*. Advance online publication. https://doi.org/10.1108/JCHMSD-05-2023-0056

Hoggarth, J. A., Awe, J. J., Ebert, C. E., Guerra, R. A., Beardall, A., Watkins, T. B., & Walden, J. P. (2020). Thirty-two years of integrating archaeology and heritage management in Belize: A brief history of the Belize Valley Archaeological Reconnaissance (BVAR) project's engagement with the public. *Heritage, 3*(3), 699–732. https://doi.org/10.3390/heritage3030040

Kabassi, K., Botonis, A., & Karydis, C. (2020). Evaluating websites of specialized cultural content using fuzzy multi-criteria decision-making theories. *Informatica, 44*(1), 45–54. https://doi.org/10.31449/inf.v44i1.2689

Kargas, A., Loumos, G., Mamakou, I., & Varoutas, D. (2022). Digital routes in Greek history's paths. *Heritage, 5*(2), 742–755. https://doi.org/10.3390/heritage5020041

Kee, K. (Ed.). (2014). *Pastplay: Teaching and learning history with technology*. University of Michigan Press.

Kislan, E. (2024). *Living historic sites: By product of archaeological reconstruction?* [Master's thesis, The George Washington University]. https://ecommerce.saa.org/common/Uploaded%20files/saadocs/Annual Meeting/Final%20Program/2025_saa-final-program_final.pdf

Kitchenham, B., & Charters, S. (2007). *Guidelines for performing systematic literature reviews in software engineering*. Keele University & Durham University. https://www.elsevier.com/__data/promis_misc/525444systematicreviewsguide.pdf

Kohn-Tavor, A. (2023). The finder, not the find: Presenting educational archaeology. *Near Eastern Archaeology, 86*(1), 64–73. https://doi.org/10.1086/723460

Loosley Leeming, E. (2023). *Widening participation and increasing access to cultural heritage and natural science activities in Georgia* [Project Reference: AH/S003541/1]. Department of Theology and Religion, University of Exeter.

Lucchi, E. (2023). Regenerative design of archaeological sites: A pedagogical approach to boost environmental sustainability and social engagement. *Sustainability, 15*(4), Article 3783. https://doi.org/10.3390/su15043783

Maggio, L. A., Costello, J. A., Norton, C., Driessen, E. W., & Artino, A. R. (2020). Knowledge syntheses in medical education: A bibliometric analysis. *Perspectives on Medical Education, 10*(2), 79–87. https://pmejournal.org/articles/10.1007/S40037-020-00626-9

Malanovicz, A. V. (2023). Itinerário para viagem de estudos: Direito Romano in loco [Itinerary for a study trip: Roman law in loco]. *Rosa dos Ventos. Turismo e Hospitalidade, 15*(2), 488–508. https://scispace.com/pdf/itinerario-para-viagem-de-estudos-direito-romano-in-loco-2gpudkpx.pdf [in Portuguese]

Martínez-Gil, T., Gil-Fernández, R., Calderón-Garrido, D., & Martín-Piñol, C. (2023). Virtual learning communities mediated through Instagram: Pre-teachers as creators of environments through visual narratives. *International Journal of Instruction, 16*(4), 827–844. https://doi.org/10.29333/iji.2023.16446a

Maté-González, M. A., Rodríguez-Hernández, J., Blázquez, C. S., Aparicio, L. J. S., López-Cuervo Medina, S., Torralba, L. T., Llauradó, P. V., Picado, J. A., González, E. G., Tejedor, T. R. H., González-Aguilera, D., Álvarez-Sanchís, J. R., & Zapatero, G. R. (2023). Vettonia project: A virtual environment for the educational dissemination of the iron age. *The International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences, XLVIII-M-2-2023*, 1043–1050. https://doi.org/10.5194/isprs-archives-XLVIII-M-2-2023-1043-2023

Menkshi, E., Braholli, E., Çobani, S., & Shehu, D. (2021). Assessing youth engagement in the preservation and promotion of culture heritage: A case study in Korça City, Albania. *Quaestiones Geographicae, 40*(1), 109–125. https://doi.org/10.2478/quageo-2021-0009

Miranda-Cruz, L., Ortega-Reyes, J., & Medellín, X. L. (2024). The importance of socio-environmental perceptions of a bat colony in the Mayan ruins of Uxmal to promote environmental awareness and sustainable tourism. *El Periplo Sustentable, 46*, 201–219. https://doi.org/10.36677/elperiplo.v0i46.19554

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLoS Medicine, 6*(7), Article e1000097. https://doi.org/10.1371/journal.pmed.1000097

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., & Mulrow, C. D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ, 372*, Article n71. https://doi.org/10.1136/bmj.n71

Pallo-Hernandez, D. J., Quezada-Sarmiento, P. A., Herrera-Diaz, S., Monge-Amores, L. E., Chango-Cañaveral, P. M., & Salas-Álvarez, W. T. (2024). Archaeological tourism in Pacto-Pichincha based in a tourist educational proposal. In A. Abreu, J. V. Carvalho, P. Liberato, & H. C. Monroy (Eds.), *Advances in tourism, technology and systems. ICOTTS 2023. Smart Innovation, Systems and Technologies, vol 383* (pp. 245–253). Springer. https://doi.org/10.1007/978-981-99-9765-7_22

Peraza-Guzmán, M. T., & Paredes-Guerrero, B. (2021). La gestión ciudadana en las iniciativas de regeneración del centro histórico de Mérida y su impacto turístico [Citizen management in initiatives for the regeneration of Mérida's historic center and its tourism impact]. *Península, 16*(2), 167–183. https://doi.org/10.22201/cephcis.25942743e.2021.16.2.80128 [in Spanish]

Petticrew, M., & Roberts, H. (2005). *Systematic reviews in the social sciences: A practical guide*. Blackwell Publishing.

Re, A., Cassiodoro, G., Flores-Coni, J., Espinosa, S., Goñi, R., Solana-García, G., Molinari, R., Lange, V., Agnolin, A., Dellepiane, J., Guichón, F., Guichón-Fernández, R., Morlesin, M., Pasqualini, S., Chamorro, B., Martínez, L., & Dibernardi, M. (2024). Comunicación pública de la ciencia y arqueología del centro-oeste de la provincia de Santa Cruz [Public communication of science and archaeology in the central-western region of Santa Cruz Province]. *Revista del Museo de Antropología, 17*(1), 233–246. https://dx.doi.org/10.31048/1852.4826.v17.n1.43569 [in Spanish]

Richardson, W. S., Wilson, M. C., Nishikawa, J., & Hayward, R. S. (1995). The well-built clinical question: A key to evidence-based decisions. *ACP J Club, 123*(3), A12–A13. https://pubmed.ncbi.nlm.nih.gov/7582737/

Saini, M., & Shlonsky, A. (2012). *Systematic synthesis of qualitative research*. Oxford University Press.

Siri, A., Di Nuzzo, A., & Marchesini, S. (2024). Playing with the cultural pilgrimage to stimulate tourism: The xFORMAL project on cultural heritage and informal learning. *Open Research Europe, 3*, Article 93. https://doi.org/10.12688/openreseurope.15321.3

Sospedra-Roca, R., Hernàndez-Cardona, F. X., Boj-Cullel, I., & Íñiguez, D. (2023) Virtual approach to a battlefield: Fatarella Ridge 1938. Spanish Civil War. *Cogent Arts & Humanities, 10*(1), Article 2172807. https://doi.org/10.1080/23311983.2023.2172807

Spinnato, S. (2021). La storia della lavorazione dell'argilla nel bacino di Venetico - Fondachello. Un profilo del territorio tra archeologia industriale e turismo educativo [The history of clay processing in the Venetico–Fondachello basin: A territorial profile between industrial archaeology and educational tourism]. *Atti della Accademia Peloritana dei Pericolanti - Classe di Scienze Fisiche, Matematiche e Naturali, 99*(S1), Article A10. https://doi.org/10.1478/AAPP.99S1A10 [in Italian]

Stanga, C., Banfi, F., & Roascio, S. (2023). Enhancing building archaeology: Drawing, UAV Photogrammetry and Scan-to-BIM-to-VR Process of Ancient Roman Ruins. *Drones, 7*(8), Article 521. https://doi.org/10.3390/drones7080521

Stutz, L. (2008). Archaeology, identity, and the right to culture: Anthropological perspectives on repatriation. *Current Swedish Archaeology, 16*(1), 157–172. https://doi.org/10.37718/CSA.2008.09

Taha, H., & Van der Kooij, G. (2023). Community archaeology at Tell Balata, Palestine. In R. Bonnie, M. Lorenzon, & S. Thomas (Eds.), *Living communities and their archaeologies in the middle east* (pp. 121–151). Helsinki University Press. https://doi.org/10.33134/HUP-19-6

Torsi, S., Ardito, C., & Rebek, C. (2020). An interactive narrative to improve cultural heritage experience in elementary school children. *Journal on Computing and Cultural Heritage, 13*(3), 1–14. https://doi.org/10.1145/3382771

Trushkova, I. Y., Grachev. S. P., Flaksman, A. L., & Prigarin, A. A. (2020). CAD-technologies in archaeological reconstructions: scientific and educational experience of Vyatka State University. *IOP Conference Series: Materials Science and Engineering, 971*, Article 032060. https://doi.org/10.1088/1757-899X/971/3/032060

UNESCO. (2020a). *What is meant by "cultural heritage"?* https://www.unesco.org/en/query-list/c/421034

UNESCO. (2020b). *Education for sustainable development: A roadmap*. https://unesdoc.unesco.org/ark:/48223/pf0000374896

Urbańska, M., & Charzyński, P. (2021). SUITMAs as an archive of the human past: Educational implications. *Journal of Soils & Sediments, 21*, 1928–1937. https://doi.org/10.1007/s11368-021-02886-2

Wilson, A. (2023). *Kilmallock - Derry - Bradford: Twinning North-South Irish Walled Towns and UK Cities of Culture'*. UK Research and Innovation. https://gtr.ukri.org/projects?ref=AH%2FY007409%2F1