ARCHAEOLOGICAL TOURISM AND ITS INCLUSIVE ECONOMIC AND CULTURAL VALUE: APPLICATION OF THIS KNOWLEDGE IN EDUCATION, SCIENCE TEACHING, MATHEMATICS AND GEOGRAPHY

Ricardo Aparecido Campos[1], Carla Holanda da Silva[2], Gabriela Helena Geraldo Issa Mendes[3], Amália Rebouças de Paiva e Oliveira[4], Carla Gomes de Araujo[5], Coaracy Eleutério da Luz[6], Juliana Telles Faria Suzuki[7], Jully Gabriela Retzlaf de Oliveira[8], Taíse Ferreira da Conceição Nishikawa[9] and Crislaine Santos da Silva[10]

ABSTRACT

This article addresses the relationship between archaeological tourism and its application in local development, with a focus on social inclusion and cultural and historical preservation. It seeks to explore the economic, inclusive, and cultural value of archaeological tourism, analyzing how this field of knowledge can be applied in education and the teaching of subjects such as Science, Mathematics, and Geography. From the analysis of projects such as TURARQ and the Caiçara Network, the importance of the active participation of the local community in the process of structuring and managing tourism is highlighted, ensuring that development is sustainable and respects the cultural identity of the territories. In addition, the article discusses how the teaching of Science, Mathematics, and Geography can be integrated with archaeological tourism, with an emphasis on inclusive teaching, meeting the needs of students with Autism Spectrum Disorder (ASD), Attention Deficit Hyperactivity Disorder (ADHD), and High Abilities. It is concluded that

[1] Dr in Geography
State University of Northern Paraná (UENP)
E-mail: rcampos@uenp.edu.br

[2] Dr in Geography
State University of Northern Paraná (UENP)
E-mail: carlaholanda@uenp.edu.br

[3] Doctor in Science Teaching and Mathematics Education
State University of Northern Paraná (UENP)
E-mail: gabriela.mendes@uenp.edu.br

[4] Dr in Special Education
State University of Northern Paraná (UENP)
Email: amalia.oliveira@uenp.edu.br

[5] Dr in Biological Sciences
State University of Northern Paraná (UENP)
E-mail: carlacgabio@uenpo.edu.br

[6] Dr in Geography
State University of Northern Paraná (UENP)
Email: coaracyluz@uenp.edu.br

[7] Dr in Methodologies for the Teaching of Languages and their Technologies
State University of Northern Paraná (UENP)
E-mail: julianasuzuki@uenp.edu.br

[8] Dr in Agronomy
State University of Northern Paraná (UENP)
E-mail: jullyoliveira@uenp.edu.br

[9] Dr in History
State University of Northern Paraná (UENP)
Email: taise@uenp.edu.br

[10] Degree in Geography
State University of Northern Paraná (UENP)
E-mail: crislaine.silva1837@gmail.com

archaeological tourism, combined with inclusive education and the appreciation of cultural heritage, can promote a fairer, more sustainable, and socially responsible development.

Keywords: Archaeological Tourism. Local Development. Social inclusion. Cultural Preservation. Inclusive Education. Science Teaching.

INTRODUCTION

In recent years, archaeological tourism has been consolidated as an important tool for valuing cultural heritage and sustainable economic development. In addition to providing immersive experiences for visitors, this tourist segment stimulates awareness of the importance of historic preservation and encourages the participation of local communities in heritage management. In this way, archaeological tourism not only rescues the collective memory but also presents itself as an opportunity for economic growth and social inclusion, promoting sustainable practices that are respectful of the environment and local cultures.

This article seeks to explore the economic, inclusive, and cultural value of archaeological tourism, analyzing how this field of knowledge can be applied in education and in the teaching of disciplines such as Science, Mathematics, and Geography. The relationship between tourism and education allows the construction of innovative methodologies, which integrate practical experience with formal education, contributing to a more meaningful learning. In addition, the importance of inclusive practices in the educational context is highlighted, ensuring that students with different learning profiles have access to knowledge and appreciation of archaeological heritage.

Among the examples analyzed, initiatives such as the TURARQ project and the Caiçara Network stand out, which demonstrate how archaeological tourism can be a vector of local development. The active participation of communities in structuring these practices ensures that economic and cultural benefits are distributed equitably, strengthening the sense of belonging and local identity. In this sense, the connection between tourism, education, and social inclusion becomes essential to promote a sustainable and responsible development model.

According to Barreto (2000), tourism can be understood as an act practiced by tourists, that is, individuals who temporarily move from their place of residence to other destinations, motivated by leisure, culture, or business. The practice of tourism obeys different motivations, which vary according to the individual's personality, daily life, type of work, level of education, social position, worldview, and culture. Thus, it is a practice that originates on the personal level, driven by desires and ambitions, and is materialized in the collective, manifesting itself in actions

such as the purchase of tickets, the reservation of hotels, and the study of the local culture of the planned destination.

In contrast, Widmer (2009, p. 67) says that

> Archaeological tourism can be defined as a segment in which there is the voluntary and temporary displacement of individuals, motivated by the interest or desire to know aspects pertinent to past cultures, to places where there are material traces representative of the evolutionary process of man on the planet, left by past societies.

This type of tourism is part of cultural tourism, which implies practices that involve value, care, and respect for the places visited, such as archaeological and heritage sites. This practice is often influenced by archaeologists, who promote the visibility of these sites and seek greater investment in research (Serrão, 2007).

Tresserras (2004) observes that, when it comes to archaeological tourism, the most traditional destinations are located in Egypt, Greece, Italy, Tunisia, Turkey, Mexico, and Peru, among others. These classic destinations, rich in history, play a key role in understanding the ancient world, which in turn contributes to the development of the contemporary world in various areas, such as legislation, politics, agriculture, and architecture.

In the contemporary context, characterized by globalization and the fluidity of values and social interactions, as Bauman (2001) points out, a worrying trend can be observed: the prevalence of a superficial culture, centered on the incessant search for validation in various spheres of life, especially in social networks. In this scenario, many individuals prioritize the construction of an idealized image, often detached from depth and authenticity. However, when we turn our gaze to the field of archaeological tourism, we perceive a different dynamic. As López and Moreno (2018, p. 601) point out, "[...] some tourists who access the Archaeological Heritage, do so in the context of knowing and not just visiting a relatively distant unknown place".

Several types of destinations are available; however, these, in particular, are characterized by short stays, as the archaeological sites are preserved by government agencies and are continuous fields of research. Given this, most tourists visit these places in order to learn about the local culture, seeking a deeper understanding of the history of the ancestors, whether in the way of life or in the destinations that led to their extinction. That is the true value of archaeological tourism: a respectful process of understanding, without haste or judgment.

Tourism, in this context, can be considered a vehicle for identity, preservation, and inclusion. When implementing tourist routes and itineraries that aim to enhance a place, it is essential that the community that lives there also recognizes the importance of integrating this heritage into its cultural identity (Menéndez, Guerra & Monteiro, 2015). Therefore, the objective

of this article is to explore the true value of tourism, especially archaeological tourism, analyzing its impact on the local community, its relationship with the preservation of heritage, the promotion of social inclusion, and its potential for the teaching of Science, Geography, and Mathematics. The methodology adopted for the research includes a bibliographic survey, analysis of statistical data, such as graphs, and the study of specific cases of archaeological tourism.

ECONOMIC IMPACT OF ARCHAEOLOGICAL TOURISM

According to Rebollo (1997) and Passanoto Netto (2007), tourism is no longer characterized as an isolated and linear economic factor but is specialized and complex in its multiple relationships and facets. The practice of tourism generates a globalized economy and extends through a network of flows, involving everything from transportation, lodging, and itineraries to complementary services, such as insurance and food. Palomeque (2001) highlights that the economic relevance of tourism is evidenced by its complexity, which encompasses several economic subsectors, such as demand, supply, market operators, and the tourist destination as a geographical space, interacting with different sectors.

This view is corroborated by the World Tourism Organization (UNWTO, 2022), which points to the continuous growth in the flow of tourists, reaching annual records. In 2007, about 898 million visitors were registered, with an increase of 6.2% over the previous year. Guimarães and Brandão (2009) explain that growth is mainly due to emerging markets and developing economies. However, for tourism to effectively contribute to the development of countries, regions, or localities, it is necessary to evaluate more than supply, demand, and taxes collected. It is necessary to use economic indicators as sustainable planning instruments to improve the quality of life of local communities, especially those in tourist destinations.

Despite its economic potential, tourism presents challenges such as seasonality, the disarticulation of traditional economic activities, and changes in the structure of work (Dias, 2003). Tourism is not continuous, taking place during specific periods, such as vacations, holidays, or weekends, and is affected by external variables, such as the weather and, more recently, by the COVID-19 pandemic. The graph (figure 1) illustrates that the sector's production fell by 44% in the first three months of 2020 compared to the period before the pandemic, with a gradual recovery in the subsequent months.

Figure 1. Potential for revenue generation in tourism.

POTENCIAL MENSAL DE GERAÇÃO DE RECEITAS NO TURISMO
(% gerado em relação à capacidade mensal)

mar/20: 65,3 | abr/20: 29,8 | mai/20: 32,0 | jun/20: 35,6 | jul/20: 36,1 | ago/20: 47,0 | set/20: 52,4 | out/20: 60,4 | nov/20: 63,2 | dez/20: 63,8 | jan/21: 62,1 | fev/21: 61,5 | mar/21: 61,4

Fonte: CNC

Source: National Confederation of Trade in Goods, Services and Tourism (CNC, 2021).

In addition, festivities, such as the Carnival, represent important sources of revenue in tourism. Farias (2003) observes that these celebrations are central symbols of the Brazilian cultural tradition, promoting the circulation of symbols and the redefinition of urban spaces, stimulating the leisure and entertainment trade.

This year, 2025, about 8 million people visited the state of Rio de Janeiro to enjoy Carnival, at least 160 countries were represented, as highlighted by Nilo Félix, undersecretary of state for Tourism According to O Globo (2025), the economic impact of this event is significant, as evidenced by the undersecretary, the party moved about US$ 6.5 billion, and R$ 5 billion were moved only in the capital of Rio de Janeiro. The 2025 Rio de Janeiro Carnival generated around 50 thousand jobs related to both the preparation and the realization of the event.

> Observing the chain promoted in recent decades, it is perceived that tourist materiality has given consistency to travel niches and tourist places and these have increasingly come to correspond to spaces of intense circulation and dense functional integration of the global capitalist economy, spaces that are demarcated as territories of undefined borders, permeated by the signs of modern civilization, through the materiality of its utensils and the regulation of its cosmopolitan institutions, nested in the transnational consumption network (Farias, 2005, p. 665).

Farias (2005) also points out that, in Brazil, tourism adapts to the local geographical and ethnic-historical characteristics. Graphs such as the one presented in Figure 2 show hotel occupancy rates in Rio de Janeiro between 2019 and 2023. The city reached 90% occupancy in 2019, with a slight drop in 2022 due to the suspension of Carnival, but a significant recovery in 2023, when rates reached 96%.

Figure 2. Hotel occupancy in the Rio de Janeiro Carnival in the years 2019, 2020, 2022, and 2023.
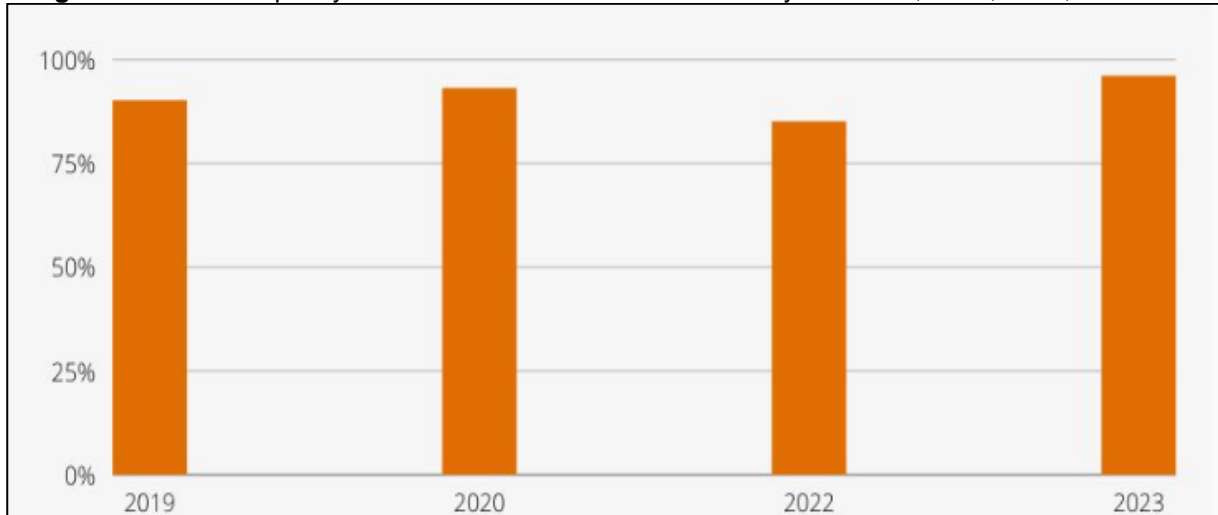
Sources: Unions of Means of Accommodation of Rio de Janeiro (HotéisRio) (2022); Brazilian Association of the Hotel Industry (AHIB – RJ) (2023) and RioTur (2019).

In archaeological tourism, geoparks are gaining prominence. The world geoparks, recognized by UNESCO, are territories of scientific, cultural, geological, archaeological, and historical importance. A notable example is the Seridó Geopark (Figure 3) in the State of Rio Grande do Norte, which was included in the UNESCO list in 2021 as a cultural heritage site. With geological ages of up to 640 million years, the region has 21 geosites[11] and attracts tourists interested in geodiversity and unique landscapes.

Figure 3. Seridó Geopark – Xiquexique Geosite - Coordinates: 6º 33' 04"S, 36º 33' 31"W.

Source: UNESCO (2022).

[11]Geosites are geographically well-defined places that concentrate geological formations with great scientific, aesthetic, ecological, touristic, cultural and educational value. Rocks, fossils, or even soil can be among the characteristics of these places and help tell the story of the Earth. A set of geosites forms the Geological Heritage of a given area.

The growth of tourism in the Seridó Geopark has been remarkable, with emphasis on the Xiquexique and Monte do Galo archaeological sites, whose attractions have increased significantly with the recognition of Unesco. Ruschmann (2002) observes that today, tourism is a collective phenomenon, emerging from an urban and technicist reality. However, the lack of investment in many places prevents them from being recognized, limiting their tourist and economic potential.

Novaes (2016) explains that the identification and delimitation of a geopark must be supported by three main pillars: geoconservation, geoeducation, and geotourism. Silva et al. (2021) and Hose (2012) highlight that geotourism goes beyond the simple appreciation of landscapes, promoting the understanding of geological transformations over time, which is especially valuable for school tourism. UNESCO (2024) emphasizes that the creation of companies focused on geological tourism can generate new sources of income in addition to promoting awareness about the conservation of geosites.

The Seridó Geopark, traditionally focused on activities such as livestock, agriculture, and mining, has seen a diversification in its economic activities, including dairy production, goat and sheep farming, and tourism. In 2020, the six municipalities that make up the Geopark represented 32.37% of the GDP of the Seridó Potiguar Microregion, moving more than 345 billion reais (Idema, 2009).

However, sustainable tourism must be a priority, aligning economic progress with environmental and social awareness. Nascimento (2020) suggests that combining geoconservation with income and employment opportunities can create an effective sustainable development strategy, strengthening the connection between communities and their natural and cultural resources.

Another important example is the Serra da Capivara, in Piauí, which encompasses more than 1,300 archaeological sites. In 2020, the region received investments of 200 million reais in the Investe Turismo program, benefiting 56 municipalities. Tourism in Serra da Capivara not only contributes to the local economy but also to conservation and cultural appreciation. The Serra da Capivara National Park is prepared for public use with more than 400 kilometers of roads and trails, as well as accessible walkways at 16 archaeological sites.

Brasil (2019) and Rodrigues (2021) highlight that the interdisciplinary research carried out in Serra da Capivara boosted the creation of conservation and management strategies that were integrated with the socio-environmental development of the region, aiming to transform it into a tourist hub.

In addition, Rodrigues (2021) mentions the construction of the Museum of the American Man (MHA) and the Museum of Nature, which have become important tourist attractions. The MHA exhibits the Zuzu skull, as well as information panels about the settlement in America and significant archaeological artifacts from the region. The Museum of Nature, with its modern museology, displays the natural evolution of the area, including fossils of the Pleistocene megafauna, in a 1,700-square-meter snail-shaped structure. In its first year, the museum attracted more than 50,000 visitors, strengthening both tourism and the local economy.

As Scherer (2005) observes, the emotions aroused by tourist destinations, when related to the material and symbolic elements, create a bond between the place and the visitor, reinforcing the value of the place for the community.

Archaeological tourism has the power to generate economic benefits, but also to promote cultural transformation in local communities. Tourism practice, by attributing new meanings to historically neglected places, can contribute to cultural and economic appreciation. As stated by Trigo and Neto (2003), tourism is shaped by the collective consciousness, through the senses and memories, being able to redefine identities and generate new sources of income and employment.

In this same line of reflection, measuring the economic value accurately becomes difficult, as it does not involve in isolation the itinerary, the food, the tickets, the people, but encompasses the whole, reaching people directly and indirectly, because according to Molina and Rodríguez (2001), contemporary tourism is essentially a product of culture, in its broadest sense. Therefore, explanations and definitions of an economic nature, although important, are insufficient to fully understand the importance and complexity of tourism, as they do not cover or consider the various dimensions of this phenomenon.

ARCHAEOLOGICAL TOURISM: INCLUSION, CULTURAL, AND HISTORICAL PRESERVATION

Reformulating local development requires a focus on the human aspect, as Martins (2002) points out. This involves not only creating economic opportunities but also actively participating in the local community in the development process. It is not a mere transfer of benefits to the community but a collaborative process that generates a sense of belonging to the territory. Raffestin (1993) argues that this connection with the place, through identity and the sense of belonging, intensifies during the process of occupation and organization of a given place. By attributing cultural, symbolic, and affective values to the region, people resignify the environment where they live as a reflection of their histories and identities.

The continuous and effective involvement of the community in the process of developing tourist spaces is not limited to a formality but is an essential element for the success of tourism. In a postmodern world, tourists seek experiences that reveal what is unique and distinctive. According to Mundet (2016), contemporary tourists value the authenticity and uniqueness of destinations, seeking more than the standardized tourist packages of yesteryear. He is interested in genuine cultural practices, such as local art, musical traditions, or typical cuisine that can only be found in a certain region. The growing demand for unique experiences demonstrates that modern tourism is moving away from the mass model, privileging what is rare and authentic.

According to Laraia (1986), Edward Tylor (1832-1917) was responsible for popularizing the concept of "culture" in the field of ethnography, understanding it as a set of beliefs, values, artistic practices, legal systems, and other forms of behavior and knowledge acquired by individuals within a community. In this context, it is possible to reflect on how tourism can be both a tool for cultural appreciation and an inclusive activity that transcends immediate profit to benefit local communities.

However, Krippendorf (2003) argues that, in the contemporary era, tourism is often associated with entertainment, a form of leisure that serves as a "social anesthesia", relieving social pressures on the working classes, while the elite remains the main consumer of these experiences. The exclusion of local communities from this process is a negative side of tourism. However, data from SEBRAE (2022) demonstrates that archaeological tourism has the potential to boost a production chain, covering travel companies, accommodation, restaurants, and other sectors, resulting in economic growth for neighboring communities. This type of tourism depends on a joint effort between tourists and the local community to preserve archaeological sites and maintain the authenticity and cultural identity of the region.

Woodward (2007) highlights that culture is not only a symbolic construction but is also immersed in objects and material aspects, such as social structures that interact with inequality and diversity. Tourism arises, therefore, from the human need to interact with these cultural assets, whether tangible or intangible, and this process can promote a deeper understanding of social structures, power relations, and the construction of identity.

Tourism was born from the need to interact with these cultural assets, already in the sixteenth century, with the so-called Grand Tours, they were characterized as trips organized as study days, lasting two to three years, undertaken by young English nobles and bourgeois, to get to know the arts, other cultures and other languages. Of an elitist character, it developed on top of a Fordist model of production, characterizing itself in a mass segment. And gradually, the global population was introduced, being consumed by the mass as a merely economic activity. The need to reverse this objective concept was

necessary since it was a practice that did not bring benefits to the local community and harmed the environment. (Almeida; Ferreira, 2017, p. 141).

Exemplifying an inclusive archaeological tourism model, we can observe the TURARQ project (Archaeological Tourism for Low-Density Territories of the Middle Tagus), aligned with the Bridges program of Unesco. This project seeks to integrate various areas of knowledge, including the humanities and social sciences, with local and traditional knowledge. The research and education proposal, together with actions aimed at global sustainability, aims to coordinate resilient strategies that respond to environmental and social changes at the local level, promoting community development and strengthening the identity of territories.

The formation of cultural identity plays a fundamental role in local development, as stated by Kashimoto, Marinho, and Russeff (2002). The authors highlight that it is essential for the community to strengthen its identity so that it can lead its development process and choose solutions that are appropriate to its needs. Amartya Sen, in his book Development as Freedom (1999), argues that development should not only be economic but also a process of expanding people's real freedoms, and it is essential that cultural identity and the active participation of the community are promoted so that they can guide their development.

Moreno Melgarejo and López (2017) emphasize that sustainable archaeological tourism can be a vehicle to promote public interest in archaeology and the conservation of archaeological heritage, especially in regions of low population density, such as the Middle Tagus, where archaeological heritage represents more than 90% of the region's resources. The development of policies aimed at archaeological tourism not only involves the promotion of the practice, but also the conservation of the history and identity of the territories, ensuring that these heritage sites are preserved for future generations.

The active participation of the local community is a crucial factor in the process of developing tourism projects. This not only ensures that the sense of belonging is strengthened but also contributes to authentic and meaningful experiences for tourists. Ferraz, Melo, and Simão (2023) observe that the interpretation of archaeological heritage can be a valuable tool to expand the local tourist appeal, encouraging greater participation by tourists through creative narratives that associate tangible and intangible aspects of heritage.

Another example of inclusive tourism is the Caiçara Network, in Paranaguá, on the coast of Paraná. Colleti et al. (2022) describe the Network as an organization that involves five local communities and that, since 2012, has been structured with the support of universities and municipal departments. In 2014, the region started its first tourist activities, and in 2018, the Hosts of the Coast of Paraná Network consolidated the collaboration between community

tourism groups. The local organization is growing, with inns, snack bars and family accommodation, as well as sustainable financial practices. Local cuisine, such as crab fishing, is central to identity and income generation in communities, showing how tourism can reinforce and integrate local culture into tourism activities.

> Local development can assume different territorial areas and be made feasible in neighborhoods, districts, municipalities, geographic micro-regions, geographic mesoregions, state planning regions, hydrographic basins, states and others. Therefore, the place is not a matter of scale, but of nature, as several authors point out. It is not only the result of a demarcation made on the map, based on pre-established criteria, although government policies may select priority areas for local action (Kronemberger, 2011, p. 32).

Thus, Kronemberger (2011) highlights a series of crucial concepts for local development, including community protagonism, social participation, citizenship and entrepreneurship. In particular, social participation is fundamental, and archaeological tourism should emerge, when integrated with local development and cultural preservation, and can be a powerful tool to promote economic growth, while respecting and valuing the identity of local communities. Preserving heritage and strengthening local participation are essential to ensure that tourism truly benefits communities and contributes to sustainable and inclusive development.

THE DEVELOPMENT OF ARCHAEOLOGICAL TOURISM AND ITS APPLICATION IN EDUCATION, SCIENCE TEACHING, MATHEMATICS AND GEOGRAPHY

The development of archaeological tourism, over the last decades, has shown itself not only as a tool for valuing cultural and historical heritage, but also as a powerful educational tool. The possibility of integrating archaeological tourism with education allows tourists and local communities to be actively involved in the process of preservation, appreciation and dissemination of knowledge involving archaeological, cultural and historical practices. In addition, archaeological tourism offers a practical context for the teaching of subjects such as Science, Mathematics and Geography, providing a rich interaction between theory and practice (Almeida & Ferreira, 2017).

Education, in its broadest sense, involves the process of transmitting and exchanging knowledge. Archaeological tourism, by bringing people closer to historical and cultural remains, promotes meaningful learning, where knowledge is not only received passively, but lived in an interactive way. Direct contact with the archaeological heritage makes the experience more concrete, allowing visitors to understand the historical and cultural realities of the sites visited.

When combined with innovative pedagogical methods, archaeological tourism becomes a powerful tool for the Teaching of Science, Mathematics and Geography, as it is possible to

contextualize content in a practical way. Visits to archaeological sites allow the observation of the environment and the techniques used by ancient peoples, promoting multidisciplinary learning that involves various aspects of knowledge (Campos et al., 2024a, Campos et al. 2024b, Oliveira et al., 2013, Pires & Campos, 2012, Pires et al., 2012).

Science Teaching benefits from archaeological tourism by enabling the integration of scientific concepts with experiential practice. Students have the opportunity to understand how early peoples interacted with the natural environment, how they used natural resources, and how these practices influenced the evolution of human societies. According to Laraia (1986), the subsistence practices and technologies employed by ancient peoples are fundamental to understanding the relationships between human beings and nature. By visiting an archaeological site, students can learn about the use of ancient technologies such as building shelters, farming, water control, and the use of utensils, all of which are based on knowledge of nature.

In addition, archaeological tourism offers a direct experience with local biodiversity, allowing the observation of ecosystems and their interactions, in addition to enabling the teaching of topics related to geology and paleontology. Archaeological discoveries, often associated with the analysis of fossils and natural remains, help illustrate concepts of biological evolution and the history of the Earth, making learning more dynamic and interesting (Rosenberg & Shreeve, 2006).

Mathematics, although often seen as an abstract discipline, finds in archaeological tourism a fertile ground for its practical application. Many of the archaeological structures, such as temples, pyramids, and ancient cities, were built using advanced geometric and mathematical knowledge for the time. The study of proportions, symmetries, scales, and measurements present in ancient buildings can be used to illustrate mathematical concepts in a tangible way (Burns, 2012).

Classic examples of mathematical application can be found in the construction of the pyramids of Egypt, the Nazca lines, or the Mayan cities, all designed with an impressive level of mathematical sophistication. During visits to archaeological sites, students can study how ancient civilizations used geometry to build structures that have stood for millennia, offering a practical understanding of mathematical concepts (Almeida & Ferreira, 2017).

Geography, as a field of knowledge that studies the interactions between humans and the environment, also benefits from archaeological tourism. Visiting archaeological sites allows students to understand the relationships between ancient civilizations and the geographical spaces they occupied. Through the study of ancient human settlements, it is possible to understand how the physical characteristics of the territory influenced the choices of sites for the

construction of cities, dwellings and centers of power (Campos et al., 2024a, Campos et al. 2024b, Oliveira et al., 2013, Pires & Campos, 2012, Pires et al., 2012). According to Imparato and Lara (2007), the study of ancient societies reveals how geographical characteristics influenced their social, economic and political dynamics.

In addition, archaeological tourism offers an opportunity to observe transformations in land use over time, including changes in ecosystems, the impact of human activities on the natural environment, and how ancient societies developed their own solutions to environmental problems, such as water and food scarcity (Santos & Almeida, 2006).

Fieldwork related to archaeological tourism also allows students to apply geographical concepts, such as reading maps, analyzing landscapes, and identifying natural and human elements that characterize an archaeological site. In this way, archaeological tourism can provide an immersion in the study of the relationships between man and the environment throughout history (Campos et al., 2024a, Campos et al. 2024b, Oliveira et al., 2013, Pires & Campos, 2012, Pires et al., 2012).

Several projects have sought to integrate archaeological tourism with the Teaching of Science, Mathematics and Geography. An example is the ARQUEOMAP Project [12] (*Proyecto de Investigación Arqueológica*), which seeks to create an interactive educational resource for schools and tourists, allowing the exploration of archaeological sites and their relationship with the territory. The project combines technology and education, using interactive maps to illustrate the evolution of different regions over time and how ancient civilizations adapted to the environment (Ferraz, Melo, & Simão, 2023).

Another example is the ARCHEOED Project [13], which offers educational workshops at archaeological sites, focusing on the teaching of Geography, Natural Sciences and History, through practical activities, such as simulated excavations and the analysis of artifacts. This type of initiative has been shown to be effective not only for tourists, but also for educators and students, creating a dynamic and immersive learning environment (Woodward, 2007).

While archaeological tourism has great educational potential, it also faces challenges. Heritage preservation is one of the biggest obstacles, since the increase in tourism can put the integrity of archaeological sites at risk. Education about the importance of conservation and respect for sacred and historic spaces is essential to ensure that tourism does not cause irreversible damage (Krippendorf, 2003).

---

[12] Available at: <https://www.arqueomap.com/proyecto-de-investigacion-arqueologica/>
[13] Available at: <https://www.archeoed.it/>

In addition, a joint effort is needed between educators, archaeologists, tourism managers and local communities to create education programs that serve all audiences in an inclusive and accessible way. The training of specialized and qualified tour guides to transmit knowledge in an accurate and engaging way is also crucial for the success of archaeological tourism as an educational tool (Laraia, 1986).

By integrating tourism with education, it is possible to transform learning into an experiential experience, stimulating students' interest and promoting respect for cultural and historical heritage (Campos et al., 2024a, Campos et al. 2024b, Oliveira et al., 2013, Pires & Campos, 2012, Pires et al., 2012). With proper management and a sustainable approach, archaeological tourism has the potential to contribute significantly to the educational and cultural development of communities and future generations.

ARCHAEOLOGICAL TOURISM AND INCLUSIVE TEACHING: APPROACHES FOR STUDENTS WITH NEURODIVERSITY

The promotion of inclusive education in the context of archaeological tourism is essential to ensure that all students, regardless of their particularities, have access to quality learning. Archaeological tourism offers a unique opportunity to work with different learning styles, using diverse approaches that meet the needs of students with neurodiversity.

Neurodiversity is a term that refers to several conditions related to the diverse development of the brain, such as Autism Spectrum Disorder (ASD), Attention Deficit Hyperactivity Disorder (ADHD); High Abilities/Giftedness (AH/SD); dyslexia; dyscalculia; dyspraxia and others. People who have neurodiversity are also called neurodivergent (Abreu, 2022). In this article we will focus specifically on the strategies that can be used to include students with ASD, ADHD and AH/SD in archaeological tourism.

The enrollment of students with ASD, ADHD and HA/DS is increasingly frequent at the university, highlighting the need to promote inclusive strategies for these students to actively participate in the academic universe (Oliveira et al., 2024, Oliveira et al. 2025).

The nerodivergent student has sensory issues that impact their educational activities, because they can be hypo or hypersensitive, which at certain times can generate an overload of stimuli that contributes to the exclusion of this student from the learning process (Diniz, 2024). In this sense, the controlled environment of an archaeological site can be challenging due to excessive sensory stimuli, such as noise, crowds, and changes in the environment. Therefore, it is essential to plan visits and activities with special care to minimize these stimuli. The use of

visual aids, such as detailed maps, videos, and illustrations of artifacts, can help in preparing for the visit, as well as allow the student to engage more smoothly with the content presented.

In addition, interacting with the physical environment in a tactile way can be a valuable form of learning for students with neurodiversity. Exploring replicas of artifacts, for example, can be a sensory activity that allows students to make tangible connections to historical and cultural content.

Students with ADHD often have difficulties staying focused for long periods, which can be a challenge in activities that require continuous attention. Therefore, visits and educational activities should be short, interactive and dynamic, to maintain the interest of these students. Breaking visits into smaller chunks, each with a specific goal, can help keep students with ADHD attention.

Additionally, teaching strategies that involve movement, such as outdoor activities that allow for active exploration of the site, can be effective. The use of educational games, interactive quizzes and challenges that involve critical thinking are also methods that can be applied during visits to encourage the participation of students with ADHD, promoting learning in a fun and engaging way. According to Barkley (2000), active involvement and practical application of concepts help to improve focus and retention of information in students with ADHD.

For students with AH/SD, archaeological tourism offers a wide range of in-depth learning opportunities. These students can benefit from activities that encourage critical thinking, complex problem-solving, and more advanced exploration of topics. During a visit to an archaeological site, activities such as the analysis of artifacts, the reconstruction of ancient maps, or research on archaeological techniques can be particularly stimulating.

Additionally, these students may be encouraged to develop research projects that involve archaeological tourism, such as creating educational materials for other students or benchmarking different cultures and archaeological practices. According to Reis and Renzulli (2004), offering intellectual challenges appropriate to the needs of students with high abilities helps to promote the development of their cognitive and creative capacities.

Souza and Fert (2024) analyzed the accessibility to carry out a tourism activity for a person with ASD, and concluded that "despite currently having some initiatives in the tourist activity, accessibility for the person with ASD is still quite incipient" (Op. cit., p. 1). This difficulty related to accessibility for the practice of tourism extends to other students with neurodiversity. To ensure that archaeological tourism is truly inclusive, it is necessary to consider the needs and potentialities of all students (Oliveira et al., 2024, Oliveira et al. 2025). Some strategies include:

- Prior Planning: Adapt the content of the visits according to the needs of the students, providing support materials in advance, such as videos, simplified texts or adapted versions of maps and graphs.

- Sensory Support: For students with ASD, creating moments of pause or quieter spaces where they can recover from excessive stimuli can be an effective strategy.

- Assistive Technology: Using technologies such as augmented reality apps or interactive videos can help make the experience more accessible, allowing students to engage with the content in a way that fits their learning style.

- Practical and Interactive Activities: Including field activities, such as searching for artifacts or using replicas to reconstruct parts of archaeological sites, can be an excellent way to engage all students, especially those with ADHD and high abilities.

- Support Group: For students with specific learning difficulties, it can be ensured that there is adequate support during the visit, either a companion or an expert guide, to help explain concepts and facilitate interaction.

Archaeological tourism presents itself as a rich example of active learning methodology in which students explore and resignify the contents learned in theory. Active learning methodologies are pointed out by the literature as crucial strategies to promote the inclusion of neurodivergent students (Brito & Paniago, 2024).

By adopting these inclusive approaches, archaeological tourism can become a powerful medium not only for teaching the subjects of Science, Mathematics, and Geography, but also for promoting educational inclusion and ensuring that all students, regardless of their needs, have the opportunity to learn in a meaningful and engaging way.

FINAL CONSIDERATIONS

The development of archaeological tourism, especially when combined with inclusive education and the strengthening of local communities, is a relevant strategy to promote cultural and historical preservation, while contributing to education and economic development. Through the approach adopted in this work, it was possible to understand that archaeological tourism, when understood not only as an economic practice, but also as a means of inclusion and cultural appreciation, has the potential to positively impact the communities involved and the spaces that preserve the historical heritage.

First, the concept of local development was highlighted, which should not be seen as a simple process of economic growth, but as a transformation integrated with the well-being and active participation of community members. Genuine local development involves including locals

in the decision-making process and building the future of their own regions, which strengthens a sense of belonging and cultural identity. Through examples of projects such as TURARQ and Rede Caiçara, it was observed how collaboration between different social actors can result in more sustainable and inclusive tourism practices, which benefit communities by generating employment and promoting cultural and historical knowledge.

In addition, the reflection on archaeological tourism broadens the understanding of the role of tourism not only as a form of leisure, but as an educational activity, capable of sensitizing tourists and local communities about the importance of preserving cultural heritage. In this context, the promotion of inclusive archaeological tourism becomes an effective instrument for raising awareness about the importance of local culture and tangible and intangible heritage, while promoting the development of more ethical and responsible tourism.

From the analysis of archaeological tourism in territories with low population density, such as the Middle Tagus, it was possible to realize that education and the preservation of archaeological heritage are intrinsically linked to local identity and development. Tourism, in this sense, should be a tool for valuing local memory and culture, not only as an economic activity, but also as a way to strengthen the community's sense of belonging. The initiatives described reinforce the importance of collaborative strategies that involve the community at all stages, from the creation to the execution of tourism projects, ensuring sustainability and respect for the cultural identity of the places.

Another central point was the integration of inclusive education in the context of archaeological tourism. Considering the importance of ensuring that all students, regardless of their cognitive or behavioral specificities, have access to knowledge, it was discussed how inclusive practices can be combined with the teaching of Science, Mathematics and Geography. Inclusive education should be at the heart of pedagogical practices, allowing students with Autism Spectrum Disorder (ASD), Attention Deficit Hyperactivity Disorder (ADHD), and high abilities to fully engage with archaeological tourism content. The adaptation of curricula and teaching methodologies to suit the needs of these students makes archaeological tourism an educational and accessible environment, capable of promoting meaningful learning.

In conclusion, the integration of archaeological tourism with inclusive education and cultural and historical preservation proves to be a promising path for building a more just, conscious, and sustainable society. Archaeological tourism, when combined with educational practices that value diversity and inclusion, can serve as a means of social and environmental transformation, benefiting both local communities and tourists, by creating experiences that promote knowledge and respect for history and culture. The role of education, in this context, is

essential, as it allows future generations to understand the importance of preserving heritage and building a more equitable and inclusive future.

REFERENCES

1. Abreu, T. (2022). *What is neurodiversity?* Cannonne Editorial.

2. Almeida, J. C., & Ferreira, L. C. (2017). Archaeological tourism: Identity, preservation and social inclusion. *Journal of Tourism and Cultural Heritage, 15*(3), 139–153.

3. Barkley, R. A. (2000). *Attention deficit/hyperactivity disorder*. Artmed.

4. Barreto, M. C. de C. (2000). *Tourism: An integrated vision*. Papirus.

5. Bauman, Z. (2001). *Liquid modernity*. Jorge Zahar.

6. Beni, M. C. (2019). *Structural analysis of tourism* (14th ed.). Editora Senac São Paulo.

7. Brazil. (2019). *Management plan of the Serra da Capivara National Park*. Chico Mendes Institute for Biodiversity Conservation.

8. Brito, L. H. da S., & Paniago, M. C. L. (2024). Active methodologies for inclusion: Reflections from the literature review. *Contribuciones a las Ciencias Sociales, 17*(3), 1–18. https://doi.org/10.55905/revconv.17n.3-293

9. Burns, S. (2012). Mathematics in ancient architecture: Geometry and constructions in historical buildings. *Journal of Mathematical Culture, 15*(3), 45–63.

10. Campos, R. A., Nishikawa, T. F. da C., Suzuki, J. T. F., Silva, C. H. da, Castro, P. H. M. de, Pires, F. J., & Silva, C. S. da. (2024a). Cataloguing and documentation of the archaeological collection of the Museum of Geosciences of the State University of Northern Paraná. *Contemporânea - Journal of Ethics and Political Philosophy, 4*, 1–20. https://ojs.revistacontemporanea.com/ojs/index.php/home/article/view/5176/3891

11. Campos, R. A., Nishikawa, T. F. da C., Suzuki, J. T. F., Silva, C. H. da, Castro, P. H. M. de, Pires, F. J., & Silva, C. S. da. (2024b). Redemption, cataloging and documentation of the archaeological collection of the Geoscience Museum of the State University of Northern Paraná. In *Research in exact and technological sciences* (Vol. 1, pp. 91–107). Editora Contemporânea. https://revistacontemporanea.com/wp-content/uploads/2024/09/Research-in-exact-and-technological-sciences.pdf

12. CNC. (2021). *Tourism and economy: Annual report 2021*. National Confederation of Trade in Goods, Services and Tourism.

13. Coletti, F., Hatano, C., Garatini, C., Toniolo, R., & Morais, P. (2022). Community-based tourism and the social and solidarity economy: Organization of tourism management in Caiçara communities. *Tourism and Society, 15*(3), 37–59.

14. Dias, R. (2003). *Tourism: Principles, practices and impacts*. Roca.

15. Diniz, L., & Rosa, M. E. (2024). *Audiovisual guide for neurodiversity*. Forma Educacional Publisher.

https://educapes.capes.gov.br/bitstream/capes/747459/2/Guia%20de%20Audiovisual%20para%20Neurodiversidade.pdf

16. Farias, E. (2003). Carnaval carioca: A matriz do negócio do ócio brasileiro. *Cadernos CRH, (38)*, 1–20.

17. Farias, E. (2005). Economy and culture in the circuit of Brazilian popular festivals. *Sociedade e Estado, 20*(3), 647–688.

18. Ferraz, G., Melo, P., & Simão, F. (2023). Archaeological tourism in low-density territories: Potential and challenges. *Brazilian Journal of Tourism and Heritage, 12*(1), 41–61.

19. Guimarães, P., & Brandão, A. (2009). *Tourism: Planning and management*. Roca.

20. Hose, T. A. (2012). 3G's for modern geotourism. *Geoheritage, 4*, 7–24. https://doi.org/10.1007/s12371-011-0052-y

21. IDEMA. (2009). *Economic impact report of the Seridó Geopark*. Institute of Economic Development and Environment of Rio Grande do Norte.

22. Imaparato, P., & Lara, F. (2007). Geography of ancient civilizations: Influences of the environment on human choices. *Geografia e Sociedade, 34*(1), 70–85.

23. Karf, M., Kerkoff, P., & Shreeve, A. (2000). Cultural heritage as an educational tool. *Heritage Studies Journal, 12*(4), 202–215.

24. Kashimoto, M., Marinho, J., & Russeff, A. (2002). *Sustainable development and tourism*. Senac.

25. Krippendorf, J. (2003a). The excluding face of modern tourism. *Journal of Tourism Ethics, 19*(1), 90–103.

26. Krippendorf, J. (2003b). *The holiday makers*. Heinemann.

27. Kronemberger, T. (2011). *Local development and social participation*. Editora UFRGS.

28. Laraia, R. de B. (1986). *Cultura: Um conceito antropológico*. Jorge Zahar.

29. López, R., & Moreno, M. (2018). *Archaeological tourism and heritage preservation*. Fundación Arqueológica.

30. Martins, J. de S. (2002). *Fronteira: A degradação do Outro nos confins do humano*. Hucitec.

31. Menéndez, F., Guerra, M., & Monteiro, C. (2015). *Tourism and cultural identity*. Lidel.

32. Molina, J., & Rodríguez, C. (2001). *Culture and tourism: A necessary dialogue*. Editorial UOC.

33. Moreno Melgarejo, A., & López, I. (2017). Relaciones entre turismo y arqueología: El turismo arqueológico, una tipología turística propia. *PASOS Revista de Turismo y Patrimonio Cultural, 15*(1), 131–145.

34. Mundet, J. L. (2016). Post-modern tourism and the enhancement of the place. *Revista Turismo e Sociedade, 9*(1), 5–18.

35. Nascimento, J. S. (2020). Geoparque Seridó: Economia e desenvolvimento. In *Estudos regionais* (pp. 45–67). Editora UFRN.

36. Novaes, S. O. (2016). Identification and delimitation of geoparks. In *Geoconservation and sustainability* (pp. 78–99). Editora IBAMA.

37. Globo. (2025, March 6). Rio Carnival had tourists from 160 countries; At least 8 million people enjoyed the revelry in the state. https://oglobo.globo.com/rio/noticia/2025/03/06/carnaval-do-rio-teve-turistas-de-160-paises-ao-menos-8-milhoes-vieram-aproveitar-a-folia-no-estado.ghtml

38. Oliveira, A. R. S., Silva, D. H. de M., Souza, P. B. V., & Campos, R. A. (2013). Métodos de documentação e catalogação arqueológica: Registro de artefatos. In *Annals of the I Symposium of Geography "New Directions for Geographical Studies"; IX Geography Week of UENP* (Vol. 1, pp. 1–8). UENP.

39. Oliveira, A. R. de P. e, Silva, T. R., Rossieri, R. A., Garrido, G. O. C., Silva, C. H. da, Januário, M., Vale, R. A. L. do, & Campos, R. A. (2024). Inclusive education in higher education: Formative demands of professors at the State University of Northern Paraná (UENP) Jacarezinho Campus. *Aracê - Human Rights in Review, 6*, 18002–18016. https://doi.org/10.56238/arev6n4-407

40. Oliveira, A. R. de P. e, Silva, T. R., Rossieri, R. A., Garrido, G. O. C., Silva, C. H. da, Januário, M., Vale, R. A. L., & Campos, R. A. (2025). Inclusive education in fruitful higher education: Formative demands of teachers at the State University of Northern Paraná (UENP) – Jacarezinho campus. In *Education and innovation: New perspectives for teaching* (Vol. 1, pp. 1–15). Seven Editora. https://sevenpublicacoes.com.br/editora/article/view/6529

41. World Tourism Organization (UNWTO). (2022). *Annual report 2022*. UNWTO.

42. Palomeque, F. (2001). *Economia do turismo*. Síntesis.

43. Passanoto Netto, A. (2007). *Tourism and economy: Contemporary challenges*. Manole.

44. Pires, F. J., & Campos, R. A. (2012a). Cataloguing and documentation of the archaeological collection of the Museum of Geosciences of the Geography Course of UENP: A brief report of activities. In *Annals of the VIII Geography Week "Geography and the Environmental Question" and V Scientific Journey of the Geography Course* (Vol. 1, pp. 1–11). UENP.

45. Pires, F. J., Picoli, F. F. M., Rodrigues, É. S., & Campos, R. A. (2012b). Cataloguing and documentation of the archaeological collection of the Museum of Geosciences of the Geography Course of UENP. In *Annals of the II Scientific Initiation Journey and I Workshop PIBIC EM and PIBIC Jr of UENP - Ideas and Society* (Vol. 1, pp. 1–7). CIC/UENP.

46. Rabahy, W. (2003). *Tourism and development: Economic studies and statistics in planning*. Manole.

47. Raffestin, C. (1993). *Por uma geografia do poder*. Ática.

48. Ramos, D. M., & Costa, C. M. (2017). Turismo: Tendências de evolução. *PRACS: Electronic Journal of Humanities of the Social Sciences Course at UNIFAP, 10*(1), 21–33. https://doi.org/10.18468/pracs.2017v10n1p.21-33

49. Rebollo, J. (1997). *Turismo: Conceitos e estratégias*. Bookman.

50. Reis, S. M., & Renzulli, J. S. (2004). Current research on the social and emotional development of gifted and talented students: Good news and future possibilities. *Psychology in the Schools, 41*, 119–130.

51. Rodrigues, M. H. da S. G. (2021). Território da Serra da Capivara: An example of sustainability and new challenges until 2030. In *Cultural heritage, law and environment: Archaeology and sustainable tourism*.

52. Rosenberg, D., & Shreeve, P. (2006). Culture and ecosystems: The environmental impact on ancient societies. *Environmental History Journal, 29*(2), 123–137.

53. Ruschmann, D. (2002). *Turismo: Como aprender a fazer*. Contexto.

54. Santos, L., & Almeida, S. (2006). The geography of history: Spatial dynamics of ancient civilizations. *Geografia do Mundo, 47*(5), 56–71.

55. Scherer, R. (2005). *Emotions and tourism*. Aleph.

56. SEBRAE. (2022). *Archaeological tourism has great potential in Brazil*. https://sebrae.com.br/sites/PortalSebrae/artigos/turismo-arqueologico-apresenta-grande-potencial-no-brasil,ca14da71a0122810VgnVCM100000d701210aRCRD

57. Sen, A. (1999). *Development as freedom*. Oxford University Press.

58. Serrão, A. C. (2007). *The museum as a pole of local development: The case of the Bobbin Lace Museum of Vila Nova do Conde* [Master's thesis, Faculty of Psychology and Educational Sciences of the University of Porto].

59. Silva, G., Neiva, M., Fonseca, E., & Nascimento, A. (2021). Potentialities of geotourism for the creation of a new tourist segmentation in Brazil. *Tourism in Analysis, 32*(1), 1–18. https://doi.org/10.11606/issn.1984-4867.v32i1p1-18

60. Souza, I. C., & Ferst, M. da C. (2024). The inclusion of the person with Autism Spectrum Disorder in tourist activity. *Revista Brasileira do Observatório de Turismo, 3*(1), 262–269. https://periodicos.apps.uern.br/index.php/ReBOT/article/view/6395

61. Tresserras, J. (2004). *Archaeological tourism: A global perspective*. Routledge.

62. Trigo, L. G. G., & Neto, M. C. (2003). *Tourism: Practices and challenges*. Aleph.

63. UNESCO. (2006). *Geoparks: A new initiative Unesco*. https://unesdoc.unesco.org/ark:/48223/pf0000148178

64. UNESCO - Seridó World Geopark. (2022). *Seridó Geopark: Itineraries and experiences*. UNESCO.

65. Widmer, P. (2009). *Archaeological tourism*. Woodward, A. (2007). Material culture and its dimensions: Impacts on tourism and education. *Journal of Cultural Heritage, 8*(1), 120–136.

66. Woodward, I. (2007). *Understanding material culture*. Martins Fontes.