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RAISING PUBLIC AWARENESS OF AT-RISK CULTURAL HERITAGE THROUGH NEW METHODS OF DIGITAL ARCHAEOLOGY: THE CASE OF THE "FACES OF JULIOPOLIS" EXHIBITION

Evren Sertalp[1,2*], Yaren Emmez[2,4], Erge Bütün[2,4], Elifgül Doğan[2,3], Ali Metin Büyükkarakaya[2,4]

[1]Hacettepe University, Faculty of Communication, Ankara, Turkey
[2]Hacettepe University, Human Behavioral Ecology and Archaeometry Laboratory (IDEA Lab), Ankara, Turkey
[3]University of Cambridge, Department of Archaeology, Cambridge, UK
[4]Hacettepe University, Faculty of Letters, Department of Anthropology, Ankara, Turkey

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**Corresponding author: Evren Sertalp (evrensertalp@gmail.com)*

ABSTRACT

With the advent of new technologies, public archaeology events are undergoing rapid changes and diversification. Archaeologists are recognising that this technological utilisation, especially in collaboration with local communities for museum exhibitions, excavations, and research projects, unlocks unprecedented benefits in archaeological processes. These technologies not only increase the general public's appreciation for cultural heritage but also galvanise support for its protection, resulting in a win-win for all involved. The study detailed here, focusing on the Faces of Juliopolis Exhibition in two cities in Türkiye, collected original data from 45 visitors. It found that displaying archaeological human remains alongside digitally supported educational methods elicits positive responses, altering public views of Juliopolis and its ancient inhabitants. Although Juliopolis has grappled with considerable threats over the years, the study demonstrates that employing digital strategies in promotion and public engagement shows promise in overcoming Juliopolis' challenges and rallying support for its conservation. The study confirms the potential of Juliopolis to evolve from merely a location for scientific exploration into a living heritage site, embraced by a wide range of stakeholders. More broadly, this study adds to the existing body of literature, suggesting that as more researchers concentrate on incorporating digital technologies in archaeology and developing equitable public engagement practices, global awareness of archaeological heritage can expand. This approach holds particular appeal for younger generations, who can be drawn to archaeological sites and educated in heritage preservation by learning about, and empathising with the ancient inhabitants of these sites.

KEYWORDS: Cultural heritage; digital archaeology; facial reconstruction; public archaeology

1. INTRODUCTION

The practices of archaeology and public archaeology are increasingly permeated by the new technological opportunities afforded by a vastly expanding digitalised world today (Bruno et al., 2010; Morse et al., 2002; Pedersen et al., 2017; Wilczek et al., 2018). Interdisciplinary and cross-disciplinary research as well as the theoretical and practical knowledge it generates, is expanding at an equally rapid pace. In tandem with these developments, archaeological information is disseminated in a variety of inventive ways primarily through the use of information and communication technologies (ICTs). These technologies contribute to increased public and institutional awareness of cultural heritage, as well as an increased interest in the archaeological world (Smith and Hirst, 2019; Kamariotou et al., 2021; Ionesov, 2022), thereby ensuring that valuable knowledge of our shared past is communicated to local populations (Moser et al., 2002; Atalay, 2012) and that remains are passed down to future generations (McManamon, 2000).

Archaeology can no longer function in its previous form, being in the exclusive domain of specialists and solely devoted to the production of new knowledge. Instead, creating a cultural heritage awareness, communicating the scientific knowledge to the public, and engaging with the stakeholders about how they understand their heritage are practices that make archaeology equitable. Furthermore, these practices ensure a sustainable preservation of heritage in the long run. Public archaeology events provide numerous opportunities for those involved in the field and committed to engaging in equitable archaeology practices. At the centre of these events is communication with the visitors (Moser et al., 2002; Atalay, 2012) which assists practitioners in establishing rapport with their audiences and ensuring the success and sustainability of desired outcomes from any archaeological project whether it is in the field or in museums. In museum context, for instance, exhibitions serve as an intermediary ("translator") between the curator or the archaeologist of the exhibitions and the visitors in terms of what is to be displayed and explained to the public (Moyer, 2007). Through such events, as Ionesov (2022) argues, visitors become participants of an interactive and communicative process in the museum. However, practitioners must be aware that achieving the desired communication effect and transmitting messages to the intended audience is increasingly dependent on the selection of appropriate media that are in sync with contemporary techniques.

Various concerns have been raised about the extent to which the information produced by archaeologists is communicated to the public (McManamon, 2000; Atalay, 2007; 2012; Stottman, 2016) as well as on how the use of specific presentation techniques in museums has impacted the effective communication of this information to various stakeholders (Moyer, 2007; Atalay, 2007; 2012). There is a significant increase in the number and variety of digitally-enabled communication technologies available today, and their use can alleviate a number of barriers archaeologists and heritage practitioners face when it comes to improving access to cultural heritage items and knowledge created around them (Pedersen et al., 2017; Psomadaki et al., 2019; Smith and Hirst, 2019; Kamariotou et al., 2021; Morse et al., 2022). There is no doubt that numerous modern and alternative exhibition spaces are employing a wide range of technologies to enhance the impact of their exhibitions (Styliani et al., 2009; Bruno et al., 2010; Machidon et al., 2018; Tarkan and Çetin, 2022). Nevertheless, regardless of clarity of an exhibition's objectives or sophistication of its methods, research on the intended audiences remains the most important factor in ensuring their success. However, research in this field is still not yet extensive. The interactions between various actors of an exhibition (visitors, exhibits, planners as archaeologists, anthropologists and museum professionals) and whether the use of new digitally-enabled technologies truly accomplishes the objectives of exhibitions require further investigation (for some case studies, see Pujol-Tost, 2011; Atalay, 2012; Pedersen et al., 2017; Endere et al., 2018; Cisternino et al., 2021; Morse et al., 2022; Tarkan and Çetin, 2022). In this regard, the necropolis of the ancient city of Juliopolis and its communication with the public represent a tremendous opportunity and model for the discipline.

Juliopolis was discovered in 1991. It is one of the biggest necropolises in Turkey, bearing hundreds of graves from the Hellenistic period until the Byzantine Empire, currently being excavated. Sadly, Juliopolis is now threatened by illegal excavations and the smuggling of archaeological artefacts. In light of these threats to the preservation of the site in the future, the team of Juliopolis has recently initiated a digital archaeology project. The Faces of Juliopolis Exhibition, which debuted in 2021, was one of the project's pillars. After its launch in Ankara, the capital of Türkiye, in 2022, the exhibition moved to İzmir, the third biggest metropolitan city in Türkiye and brought together a variety of relevant public and private institutions, as well as local communities. The exhibition had two primary objectives: (1) to increase public and official awareness to mobilise various institutions to help protect the archaeological site, and (2) to educate the public about the site and facilitate their connection with the ancient Juliopolis inhabitants. The exhibition employed a number of innovative methods and technologies to promote cultural heritage awareness and to convey the knowledge produced by archaeological

and anthropological research to the public. Based on the findings of anthropological survey conducted after the exhibition, this study investigates how the incorporation of public archaeology practices at the Juliopolis Exhibition through the use of digital technologies has impacted the public's understanding of the site and contributed to its preservation as a unique cultural heritage site. We hope that our research will provide a case study to the field that will inspire similar events and catalyse the development of public archaeology perspectives in the future.

2. JULIOPOLIS

The ancient city of Juliopolis (Iuliopolis, Ἰουλιούπολις) is located in the Çayırhan district of Nallıhan, approximately 122 km northwest of Ankara (40°4′24.7″N, 31°40′14.8″E) (Büyükkarakaya et al., 2021; Lorentz et al., 2022). In 1956, the Sarıyar Dam Lake submerged a substantial portion of the ancient city and a portion of the necropolis areas (Arslan et al., 2011). The necropolises, once connected by a bridge and divided by the Skopas River (Aladağ stream) into eastern and western sections, have been among the archaeological features of the site under examination as part of the Museum of Anatolian Civilizations' ongoing salvage excavations since 2009. (Fig. 1). Moreover, on the western side of the eastern necropolis, are the remains of an Early Byzantine church and a defensive wall (Sağır et al., 2015) built in opus mixtum technique similar to those in Nicaea and Nicomedia (Fig. 2). The geographical descriptions in the ancient texts, the Juliopolis-minted coins dated Roman Period discovered in the graves at the necropolis area, and David H. French's identification of the city's location based on the three milestones he identified, all indicated that the archaeological site in question was the ancient city of Juliopolis (Arslan et al., 2011; French, 2012; 2016; Onur, 2014).

Figure 1. Map of the Juliopolis' necropolis

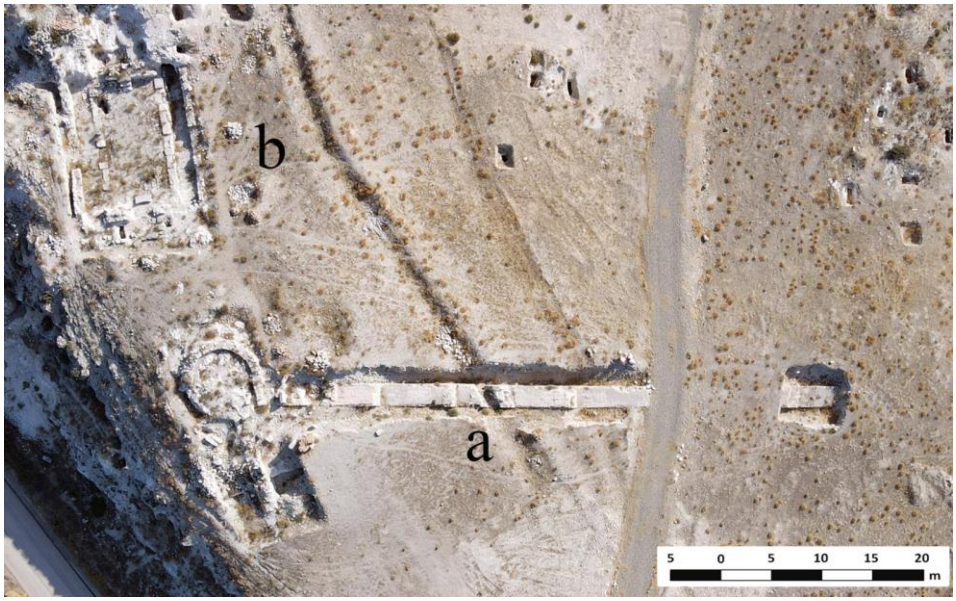

Figure 2. Remains of the defensive wall (a) and the early Byzantine church (b)

Juliopolis is referred to by various names in written sources. One of them, Gordioukome, suggests that the settlement predates the Roman Empire (Belke, 1984), and was one of the five Bithynian cities. Then, probably after the 3rd century, it likely became the city of Galatia (Onur, 2014). The location of Juliopolis was one of the most critical factors contributing to the city's development. The city, recorded in several ancient itineraries, was located on the Skopas River (Aladağ stream) along the route known as the Pilgrim's Road, which was used by pilgrimages and military expeditions from Constantinople to Ancyra and even to the Levant (Fig. 3) (Syme, 1988; Onur, 2014). The proximity of Juliopolis to Ancyra, the capital of Galatia, was a major factor in its development (Foss, 1977; Faroqhi, 1987; Arslan et al., 2011). In addition, in Byzantine ecclesiastical records, Juliopolis is mentioned as one of the episcopal residences in the region from the 4th century AD (Onur, 2014). However, later in the end of Late Antiquity, the city was renamed Basilaion in the name of Emperor Basileios I (867-886 AD) (Onur, 2014).

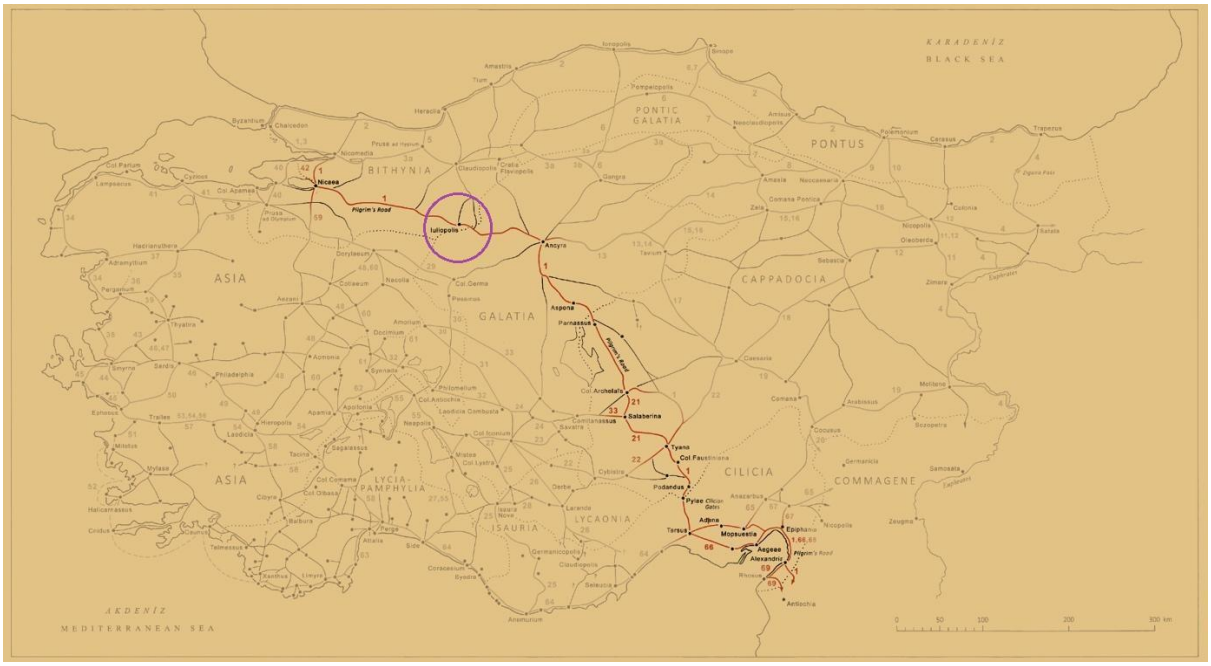

Figure 3. Map of the Pilgrims' Road (French, 2012)

The first salvage excavation at the site was conducted by the Museum of Anatolian Civilizations in 1991, followed by new excavations since 2009 (Günel et al., 1992; Büyükkarakaya et al., 2018). Some of the

numerous inventoried artefacts unearthed during the excavations are exhibited in the Juliopolis showcases of the Museum of Anatolian Civilizations. More than 750 graves have been excavated so far at the site, and the most common type of grave is the cist grave, with different types of covering systems carved into the bedrock. This type of grave is followed by burials made directly in the soil using stone lids (Fig. 4) and chamber tombs carved into the bedrock (Fig. 5) (Cinemre, 2014; Büyükkarakaya et al., 2018; Vorobyeva et al., 2023 (in press)). This diversity is well-suited to the geology and topography of the site. The graves contain a variety of grave goods, including precious and semi-precious jewellery, coins, metal, glass, bone, and ceramic objects (Fig. 6), and a sizeable iconographic repertoire believed to be associated with cult practices by the inhabitants of the city (Arslan et al., 2011, 2012; Cinemre, 2013; Sağır et al., 2015, 2016).

Figure 4. Cist grave from Juliopolis

Figure 5. Chamber tomb from Juliopolis

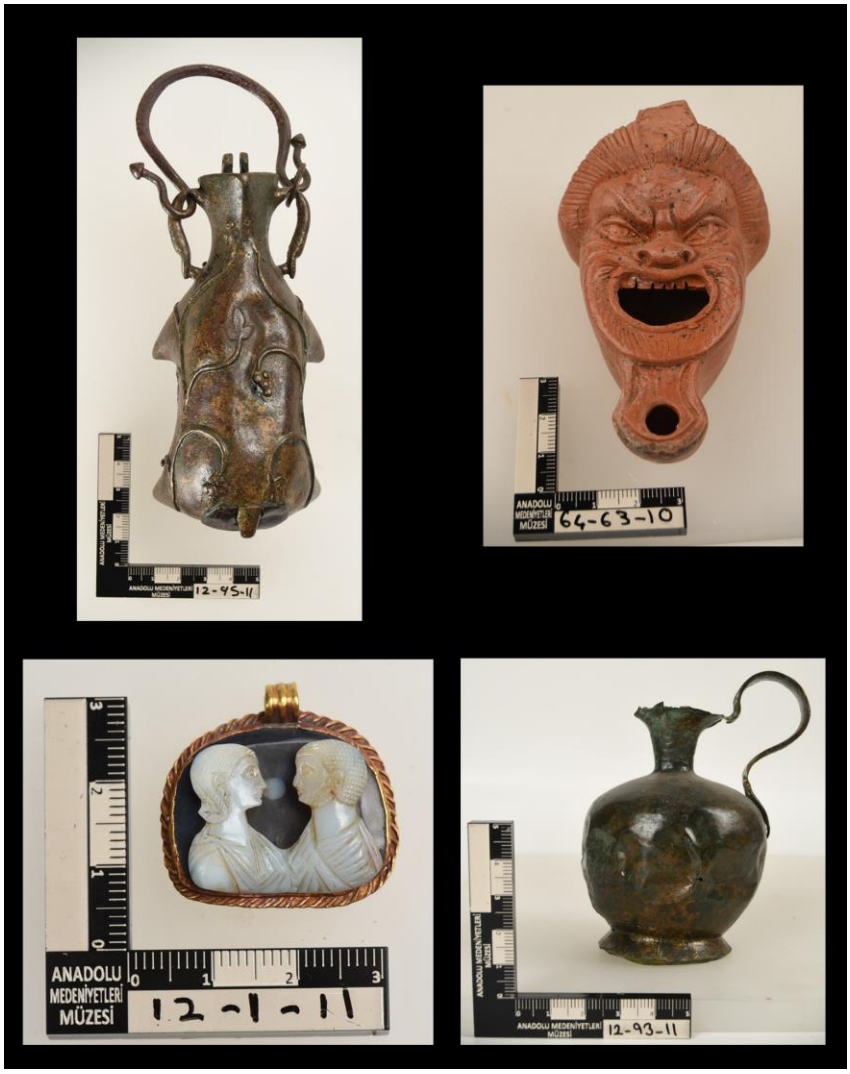

Figure 6. Grave goods unearthed in Juliopolis

3. THE FACES OF JULIOPOLIS EXHIBITION: THE CONCEPTUALISATION AND RECEPTION OF THE EXHIBITON

The "Faces of Juliopolis" exhibition was organised by the Juliopolis Project and held at the Museum of Anatolian Civilizations (the MAC) from December 7 to 25; at Hacettepe University Beytepe Art Gallery from January 3 to 7, 2022; at Nallıhan Ayhan Sümer Cultural Centre from February 8 to 9, 2022; at Çayırhan 23 Nisan Cultural Centre from February 10 to 11, 2022; and finally, at Ege University Faculty of Humanities and Letters Nuri Bilgin Conference Hall & Foyer Area from October 31 to November 4, 2022. The exhibition was conceptualised as a public archaeology event, supported by digital infrastructure, showcased the ancient city of Juliopolis, one of the largest necropolises excavated in Anatolia to increase cultural heritage awareness of the site. For the promotion of the exhibition, a promotional video about the ancient city of Juliopolis and a web page was created (https://juliopolis.com/en/). In addition, various social media accounts were maintained during the duration of the exhibitions (https://juliopolis.com/en/iletisim/).

The exhibition utilised numerous methods and techniques, including information boards, a fan hologram, a projector and a hologram display. Seventeen information boards were designed to include details on the individual and institutional contributors, key information about the ancient city of Juliopolis, the history of excavations and research at the site and the burial practices used in the necropolis. Furthermore, communication of the display techniques and applications of various digital methods in the exhibition such as the facial reconstruction, three-dimensional tomb models and related methods are explained in detail to ensure the visitors can have a glimpse of how the exhibition came to life. Moreover, the promotional video was shown to the visitors via projection, a sound system, and anaglyph images viewed through colour-coded anaglyph glasses (Fig. 7). The final works resulting from the facial reconstruction project

were displayed using a fan hologram (Hypervsn Solo) (Fig. 8), a projector (Fig. 9) and a hologram display.

The facial reconstruction was one of the digital methods used in the exhibition. For the process, the skull of each individual was scanned via MDCT (Multidetector Computerized Technology) with a resolution of 0.5 mm to obtain a 3D model. The facial reconstruction process was conducted in accordance with the Manchester Method (Wilkinson, 2004; Gupta et al., 2015). After the individuals' physical characteristics, such as the biological sex, age-at-death, and ethnical group, were assessed, the most appropriate tissue thickness for each individual was determined. Then, the cylinder markers indicating the tissue thickness were added on the 3D skull models. 3D raw face images were created based on the markers. Further adjustments were made on the 3D facial reconstruction models to achieve good cranial-facial overlapping, appropriate skin texture, and hair colour. The white masks from the facial reconstructions were 3D printed and used in the exhibition (see Figs 8 and 9).

The facial reconstructions of three Juliopolis individuals were displayed in different display devices. The first one was a fan hologram (Hypervsn Solo M). The fan hologram used in the exhibition was a portable device consisting of a 4-ray rotator. In each 56 cm ray, it had 168 LED lights to create the image and the rotor turned 670 times per minute. This device created 3D visuals floating in the air by rotating so fast that the eye cannot see the rotors. The 3D facial reconstruction visuals were transferred to the fan hologram using a USB drive. Another device used to display the facial reconstruction was a holographic box. This device was designed and manufactured by the project team. It was basically a rectangle box having a 45-degree angled silver-coated glass panel inside. The silver coat on the glass served the purpose of holding the light reflected by the screen to capture the images. On the inside top of the box, there was a screen showing the 3D facial reconstruction models. The visuals were reflected on the glass panel to create the illusion of the images floating on the air inside the box.

Another digital method used in the exhibition was a 3D reconstruction of a tomb. The 3D tomb model belonged to the chamber tomb number 483. For the creation process, first, more than 450 photographs were taken from different angles inside the tomb as 360-degree photogrammetric shots. The photographs were cleared of shadows by balancing colour and light on a photograph editing software. Then, a point cloud consisting of 300 million points was created, and the coating image was produced on the 3D mesh model. Finally, some corrections were made on the model to clear up and the destruction caused by preservation conditions to reveal the original appearance of the tomb in the Roman period. This 3D tomb model was displayed on a computer with a touch screen during the exhibition. It allowed visitors to wander inside the tomb and see the buried individuals and artefacts in-situ places. In addition, information concerning the artefacts were made visible by clicking on them.

The final digital device used in the exhibition was a levitation module (Crealev Void 71) (Fig. 10). To display in this device, a 3D print of the deformed skull was obtained by using a 3D printer. Then, the 3D model was painted to create a realistic effect as it was the original archaeological material obtained during the excavations. The levitation module consisted of 2 parts, a plate on the bottom and another one above the bottom part floating in the air due to magnetic forces. The upper plate was covered with a rustic cloth to achieve an easy on the eye effect. Then, the 3D print of the skull was placed on the plate and slowly rotated in the air.

Exhibition pamphlets were distributed to the visitors ahead of their visit to provide further information about how they could navigate the exhibition. Numerous artefacts which were unearthed after 2013 during salvage excavations, were presented to the public for the first time in 4 different showcases.

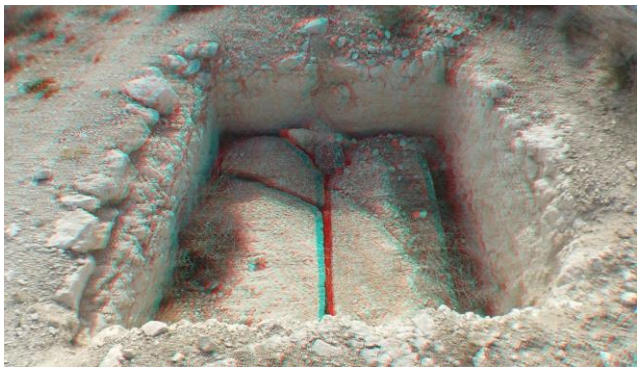

Figure 7. Anaglyph photograph of a grave

Figure 8. Facial reconstruction displayed on the fan hologram

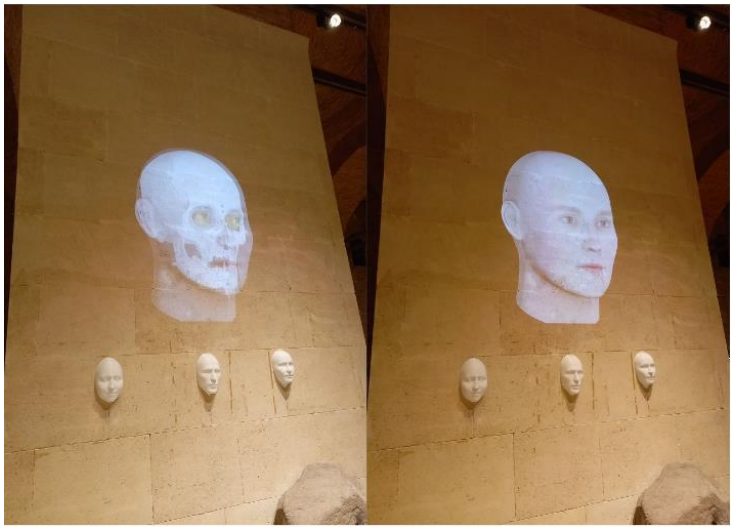

Figure 9. Stages of facial reconstruction displayed on the projection

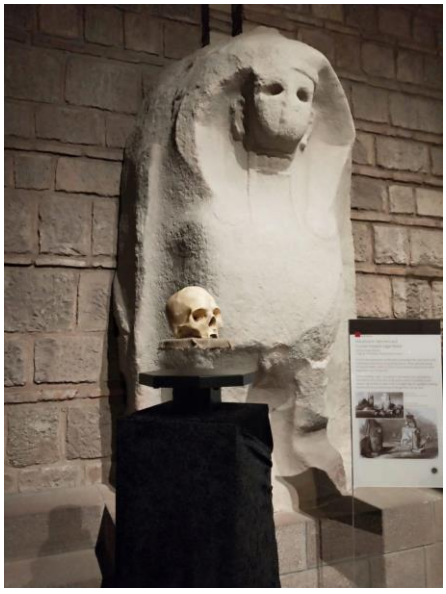

Figure 10. 3d print of the deformed skull displayed on levitation module

4. ASSESSING THE VISITOR PERCEPTION OF THE EXHIBITION: MATERIALS AND METHODOLOGIES

The Faces of Juliopolis exhibition, which was conducted as a public archaeology event within the scope of the Juliopolis Project, is an exhibition that differs significantly from the commonplace conception of exhibitions in Turkey. The purpose of this study is to assess the degree to which outcomes of the exhibition align with the project's objective of enhancing cultural heritage awareness. Moreover, it investigates the opinions of various stakeholders (including visitors, heritage professionals and official authorities) not only on the exhibition, but also on the use of technological display methods in museums and perception of cultural heritage. One component of this study involves visitor interviews conducted with 30 visitors immediately following their visit to the exhibition, allowing us to evaluate their immediate reactions and

thoughts. A second part of the study includes online surveys which were administered one and a half months after the exhibition. Thirdly, a series of interviews were conducted with museum professionals to evaluate how they received the exhibition, particularly the incorporation of technology. The interviewees were asked to evaluate this exhibition in comparison to other exhibitions employing conventional display methods in terms of its impact on knowledge dissemination and visitor engagement concerning the site. Finally, a set of interviews were conducted with local people and municipal officials, and employees from Nallıhan and Çayırhan which are adjacent towns to the site. These interviews yielded data that shed light on the changes in the local public's perception of Juliopolis as a cultural heritage site, the threats it faces (such as smuggling), and the opportunities that await the site (e.g. tourism, regional economic development etc.).

For interviewing visitors, semi-structured interviews were used. 30 students from Hacettepe University between the ages of 18-48, were interviewed immediately following their visit to the Faces of Juliopolis Exhibition at the Museum of Anatolian Civilizations between December 7 and December 25, 2021. To understand the visitors' emotional state about the exhibition, the Turkish Standardised form of the Positive-Negative Emotional Scale (PANAS), which was developed by Watson et al. (1988) and adapted to Turkish by Gençöz (2000), was used in this study. The Turkish version of the PANAS includes a 20-emotion scale measuring ten positive and ten negative emotions by using a 5-point Likert scale in which the responses range from 1 (strongly disagree) to 5 (strongly agree). The interview is a semi-structured interview and consisted of questions regarding the exhibition, cultural heritage, and the museum. The form used for the interview can be seen in Appendix 1. In addition, fifteen visitors who visited the exhibition at Ege University were interviewed using the same semi-structured interview questions as in previous interviews. The PANAS and the semi-structured interview are found suitable for this group of visitors because of the condition of the exhibition venue and because the visitors were not willing to spend much time for the interview. The interviews with the 30 visitors from Hacettepe University were held in the cafeteria of the Museum of Anatolian Civilizations by the project assistants. The 15 visitors from Ege University were sent the semi-structured interview questions in Google Forms format via e-mail.

As for the interviews with professionals, we used in-depth interview method to determine the visitors' opinions and perspectives on the exhibition. The in-depth interviewing is a qualitative research method that can be conducted with intensive individual interviews with a small number of people. This method is regarded as the most suitable one for this study to assess and report a group of professionals' and locals' experience about a particular event or phenomenon, the exhibition in this case (Darlington and Scott, 2002; Boyce and Neale, 2006). With the method, we conducted in-depth interviews with nine museum professionals from the Museum of Anatolian Civilizations, and four professionals from KU VEKAM (Koç University Vehbi Koç Ankara Studies Research Center), which are both shareholders of the Juliopolis Project, between March and October 2022. Our aim was to understand the professionals' experience, evaluations about the exhibition and facial reconstruction, and their thoughts on comparisons between previous public archaeology events and, also, between usual display methods and digital display methods. Moreover, we used the same method to interview four officials and employees from Nallıhan Municipality, and local residents of Nallıhan to gather data about the local opinions surrounding the site, exhibition and site preservation. We used audio recording during these interviews and transcripted them before the analysis. All the participants' verbal consent was taken for the audio recording, and they were informed that their data would be evaluated and used solely for academic purposes anonymously.

During the planning of the exhibition, one of the original plans was to bring local elementary and middle school students from Nallıhan to the Museum of Anatolian Civilizations and to conduct the planned interviews immediately after their visit. However, the COVID-19 measures prevented the implementation of this plan. Therefore, the visitor opinions remained limited to the interviews conducted with the students from Hacettepe University and survey results driven from the visitors to Ege University visitors. However, we were able to bring the exhibition to Nallıhan at a later stage for the viewing of local students. Even though we were not able to conduct any systematic interviews with these students due to ethical and bureaucratic reasons, we were still able to make visitor observations and collect anecdotes from the local officials and people about the impressions of the students. These data, along with the results of the interviews and survey will be presented in greater detail in the following section.

5. RESULTS

5.1. Semi-structured interviews and online surveys with the visitors

Through semi-structured interviews (n=30) and online surveys (n=15), we gathered the general opinions of 45 visitors (13 males, 31 females, and one (1)

other with a mean age of 27.15) regarding the exhibition. The majority of visitors were students from Hacettepe and Ege universities enrolled in eleven distinct departments. 30 and 15 visitors were present, respectively (Table 1).

Table 1. Number of students from universities and departments

Departments	Number of Students from Hacettepe University	Number of Students from Ege University
Archaeology	2	12
Anthropology	7	-
Communication Sciences	7	-
History	1	-
Art History	-	1
English Language and Literature	3	1
English Translation and Interpreting	6	-
French Language and Literature	1	-
French Translation and Interpreting	1	-
American Culture and Literature	1	-
Conservatoire	1	-
Not a student	-	1
Total	30	15

5.1.1. Semi-structured interviews and emotional measurements

Before conducting the interviews, visitors were informed that their data would be evaluated and used solely for academic purposes, and their verbal consent was obtained. These interviews were conducted immediately after the visitors completed viewing the exhibition. Therefore, we also had the opportunity to collect data on the immediate emotional responses of the visitors in the first part of the exhibition which took place in the Museum of Anatolian Civilizations. The first portion of the interview consisted of questions designed to gauge visitors' emotional state following their visit to the exhibition. When the visitors' responses were evaluated, the mean and standard deviation for the positive emotion dimension were 39,03 and 4,39, respectively, while the mean and standard deviation for the negative emotion dimension were 13,87 and 2,11. Due to the limited number of visitors, additional statistical analyses were not possible. Comparing the two averages, one can infer that positive emotions were felt more frequently than negative emotions. While this measurement does not give statistically significant outcomes, they will be evaluated with the semi-structured interviews' results.

5.1.2. Semi-structured interviews and online survey: the exhibition experience

In the second portion of the interviews and the online surveys, we asked respondents four questions regarding their impressions of the exhibition and their visit to the Museum of Anatolian Civilizations. The questions asked were focused on different concepts that we wanted to understand through this exhibition, and more generally, through the Juliopolis project.

Questions asked to the exhibition visitors:

1. What do you think about the exhibition? Can you use three words to describe it?

Through this question, we aimed to learn what they think about the new digital display methods and facial reconstruction in the exhibition, and how they were affected by them.

2. After your visit, what did you learn about the cultural elements of Ankara?

By this question, we wanted to see how the exhibition and the project contributed to the locals' and non-locals' knowledge of cultural elements in Ankara, and whether one of the aims of the project was achieved or not: the cultural heritage awareness. We had an additional question for the visitors from Izmir to support this question as follows: "What do you think about introducing Ankara and cultural elements of Ankara outside of Ankara?"

3. What do you think about facial reconstruction in the exhibition?

Although the facial reconstruction is a well-known method used in the forensic areas, using this method in archaeological displays is relatively new. Moreover, it is crucial to evaluate the public's opinion for further application of this method.

4. What was the most interesting part of the exhibition?

For further public archaeological events, we needed to know the general opinions of the visitors about the exhibition. Additionally, we asked them for a conclusion for their answers to previous questions.

For analysing visitor responses, we utilised "Thematic Analyses (TA)", a method of "identifying, analysing, and reporting patterns (themes) within the data" (Braun and Clark, 2006). It is defined as a descriptive method that flexibly reduces the data and combines it with other data analysis techniques. This method is employed frequently since it can be used

for a wide range of research questions and topics. It can explore the context of teaching and learning at a level of depth that quantitative analysis cannot while allowing for flexibility and interpretation when analysing the data (Braun and Clark, 2006; Vaismoradi et al., 2013; Castleberry and Nolan, 2018).

Initial findings from the analysis of the first question indicate that the descriptive words concerning the exhibition, which were chosen by the visitors, can create three groups according to the TA results: interesting with 33.3% (including words such as intriguing, fascinating, persistent, etc.), informative with 28.3% (including words such as effective, awareness raising, etc.), and innovative with 20%(including words such as contemporary, technological, etc.). The visitors' opinions on the exhibition were also parallel with these words. It was mentioned how "inspiring" it was to use digital tools in archaeological context and how the exhibition helped them to awaken their "awareness" about "cultural heritage" in Ankara. Some visitors emphasized how the exhibition fitted in "contemporary museology" approach. The remainder of the guests either had a favourable opinion or did not express one. However, there were two visitors who deemed the exhibition to be "very interesting but not comprehensive enough" suggesting that it "can be improved".

In the answers for the second question concerning what visitors learned from the exhibition, the following concepts were achieved as a result of the TA: cultural diversity in Ankara (n=19), Ankara's other historical periods (n=15), and Juliopolis (n=14). Four visitors did not express an opinion. What is generally mentioned by the visitors was that their knowledge about cultural and historical elements of Ankara was limited to the Independence War era (1919-1923) and from the foundation of the republic to the present. Moreover, they expressed that they were surprised by the Roman and ancient history of Ankara. Due to the location of the first step of the exhibition, the Museum of Anatolian Civilizations, the visitors whom we interviewed there stressed that they had a whole experience of time travelling from the Palaeolithic era to the modern times thanks to the permanent exhibitions of the museum, showcasing not only Ankara but also Central Anatolia. Some visitors in İzmir also mentioned they had never been to Ankara before and found the exhibition to be a great opportunity to learn about Juliopolis and Ankara's Roman history. Moreover, in response to the follow-up question posed to the visitors from İzmir, they stated that these kinds of events are opportunities for Ankara to gain recognition. As the capital city of Türkiye, it is essential to do it in Türkiye or abroad. Finally, they expressed their wish to see similar exhibitions from other cities visiting İzmir.

From visitors' responses to the third question, the results from TA allowed us to conclude that the use of facial reconstruction in the exhibition helped the visitors (44.44%) to reimagine and empathise with these ancient individuals. Furthermore, 33.33% of visitors consider the use of facial reconstruction to be an additional contribution of digital archaeology. The remainder of the group expressed their approval and desire to see these methods utilised more frequently. In addition, three visitors provided future recommendations for how facial reconstruction could be improved. They stated that the application of the method could be more artistic and aesthetic. In addition, the reconstructed faces may incorporate additional cultural and ethnic characteristics. Visitors found the facial reconstruction intriguing in a variety of ways, stating that they felt face-to-face with the earliest inhabitants of Ankara thanks to the technological tools the museum adopted in this exhibition.

We asked about "the most interesting part of the exhibition" as a final question. According to the visitors, the most fascinating aspects of the exhibition were the facial reconstruction and technological display techniques. They found technological display methods to be innovative and contemporary, with the hologram fan proving to be the most favourite one (n=13).

5.2. *In-depth interviews with professionals from the Museum of Anatolian Civilizations and KU VEKAM*

In the second step of our study, we conducted professional in-depth interviews in two stages. The first event took place in March 2022 with the MAC staff. We spoke with nine museum staff members, including archaeologists, anthropologists, and administrative personnel. The latter was held with the personnel of KU VEKAM in October 2022. These four personnel were also part of the Juliopolis Project, and therefore had more information about the site to begin with. The purpose of the interviews with these professionals was to determine the differences between this exhibition and its predecessors, the extent to which the project's objectives were met from a professional standpoint, and to gather feedback that could contribute to future research. In-depth interview method does not include strictly structed questions. The interview addressed the following topics: (1) the new technological methods used in the exhibition, (2) differences between the other public archaeology events, and (3) the feedback received from the visitors, and (4) the recognition of Juliopolis. When we analysed the interviews using the Thematic Analysis method (Braun and Clark, 2006), we identified three main topics and two sub-topics that worth mentioning:

5.2.1. Recognition of Juliopolis

Overall, the accounts of the professionals interviewed indicate that the exhibition increased the popularity of Juliopolis. The general idea of the professionals is that Juliopolis is a good example to raise awareness for cultural heritage and introduce digital archaeology to the public. This plays a huge part to protect the site from illegal activities. Furthermore, museum administrative personnel mentioned that some politicians also visited the opening gala of the exhibition and expressed their hope for Juliopolis to receive attention from the government.

A few museum personnel mentioned that some visitors expected the exhibition to be longer, and that they anticipate more exhibitions like Faces of Juliopolis, which is technology-focused.

5.2.2. Differences between the previous exhibition and the new exhibition

The exhibition was one of the first to use technological display techniques to exhibit a necropolis, which all professionals cited as the primary reason for their interest. The professionals also emphasised two issues:

5.2.2.1. Using technology as a display method

Compared to other exhibitions in the museum, the technological devices utilised in the display were the primary attractions. The professionals observed that the visitors, who were mainly primary and middle school students, were enthusiastic about using technological devices. Some museum personnel also stated that the exhibition evidences that the incorporation of technological strategies into museum exhibitions can attract young people and the subsequent generations to permanent exhibitions.

5.2.2.2. The facial traits reconstruction and empathy

All professionals concurred that facial reconstruction was another interesting part of the exhibition. According to a number of them, it is an excellent method for fostering empathy between the exhibition's visitors and the person whose skull is on display. However, some professionals cited the ethical problems associated with displaying human remains in museums and suggested that displaying a digital reconstruction could be an effective solution to these issues. Furthermore, the professionals shared the interactions and conversations they had with the visitors. Some visitors stated that, when they saw the facial reconstruction of an ancient Juliopolis inhabitant, they were able to empathise with them and embrace them as ancient inhabitants of Ankara and the city's historical heritage (as a whole, ancient city, humans, materials, etc.). Moreover, professionals deem this method as an effective strategy for enhancing cultural heritage awareness among the local people.

5.2.3. Contribution to digital archaeology

In addition to the exhibition's contribution to the community, some professionals cited its scientific contribution to digital archaeology as well as its potential in making this information readily available to people from all levels of education and socio-cultural backgrounds. They all agreed that scientific information should be accessible, and that the Juliopolis Project can serve as a model for other initiatives conducting similar research. In addition, creating a digital exhibition with 3D models of tomb chambers and the church makes the necropolis accessible to people with special needs who are unable to visit in person.

5.3. In-depth interviews with local people from Çayırhan and Nallıhan

The third phase of the investigation centred on conducting interviews with nearby residents. However, our sample size was unfortunately small during this phase because it was difficult to locate residents who had viewed the exhibition and wanted to be interviewed. We conducted interviews with four locals from Çayırhan and Nallıhan who visited the exhibition on 10th and 11th of February in Çayırhan. This group consisted of two officials from the Municipality of Nallıhan, a local business owner, and a teacher working in the local elementary school. During the exhibitions in Nallıhan, the team discovered that the local community had no prior knowledge of Juliopolis and that those who did were only involved in smuggling activities. However, this changed drastically after the exhibition as discussed in detail below. When asked how the exhibition altered the public's perception of the site and whether the intensity of smuggling activities decreased, only municipal officials and employees were able to describe the change they observed as these interviewees are also locals interacting with the local community. The interviewees, including the teacher and local business owner, who helped us promote the exhibition to Nallıhan and Çayırhan people on social media prior to the exhibition, had the knowledge to comment on the exhibition's effects on Juliopolis and its recognition as a touristic heritage site. Due to the nature of the method, we designated three main topics for the in-depth interviews as follows: (1) knowledge about Juliopolis, (2) comparison between before and after the exhibition, and (3) technological methods used in the exhibition. There were two more topics for the municipality officials: (1) the feedbacks received from the locals, and (2) illegal activities concerning Juliopolis.

After analysing the answers with the Thematic Analysis method (Braun and Clark, 2006), three main concepts were identified.

5.3.1. Recognition after the exhibition and by social media

During the interviews, all interviewees expressed the need to increase Juliopolis' visibility. They hypothesised that it was partially accomplished following the exhibition. They reported that, after the exhibition, the number of foreign and domestic tourists, phone calls to the Municipality about the ancient city, and comments and questions on social media accounts as well as on Google Maps have noticeably increased.

5.3.2. Cultural heritage awareness in local children

One of the topics that the interviewees discussed during the interviews was how the exhibition affected children aged 7 to 18 years old. We were informed that the majority of children in Çayırhan and Nallıhan have never heard of Juliopolis prior to the exhibition. According to their teacher, Juliopolis was nothing more than "a brown road sign" for the students. He elaborated and added that this has fortunately changed: "Their interest in Juliopolis increased after the exhibition, and we activated our school's tourism club. The students have begun to produce content about this topic on social media, which has been well-received by other users". According to interviewees, other locals, such as parents, reported that their children began to inquire more about Juliopolis and the ancient city submerged beneath the dam lake. Parents also expressed a desire for more public archaeology initiatives similar to the exhibition so that their children can benefit. As for the future, they demand the establishment of a small museum in Çayırhan, Nallıhan, to make the materials discovered in Juliopolis more accessible to the locals, as well as a tour guide to explain the importance of the ancient city to locals and tourists.

5.3.3. Using technology as displaying method

The technological devices played a significant role in the exhibition's popularity, which was the final and possibly the most crucial point discussed during the interviews. Children seemed particularly interested in these devices, and they occasionally brought them up even after the exhibition had ended. According to our interviewees, local children inquired about visiting the Museum of Anatolian Civilizations to view the Juliopolis artefacts. In addition, they wished their city had a small museum or exhibition space where they could view Juliopolis-related artefacts. Lastly, the interviewees stated that the children desired to visit the site and would benefit greatly from a tourist guide. The teacher we interviewed also shared the museum staff's belief that technological display methods should be used more frequently to attract young people and capture the spirit of the times which changes in favour of a digital world.

6. DISCUSSION

Contemporary archaeology not only uncovers the movable and immovable cultural remains of people who lived in the past, but also employs strategies on how to preserve and transmit the knowledge created about these cultural remains to current and future generations (Moser et al., 2002; Swain, 2002; Özdoğan, 2006; Endere et al., 2018). This challenging mission can be accomplished not only with the efforts of the researchers who uncover these remains, but also with the contribution of the public whose participation in archaeology processes can ensure the preservation of cultural heritage in a sustainable manner. Museums, and consequently exhibitions, are fundamentally important spaces where archaeologists can disseminate the information they have unearthed, interact with various stakeholders, influence and learn from the diverse perceptions of these groups, and construct a new interactive space to communicate with the public (Tully, 2007; Moyer, 2017; Ionesov, 2022).

With its deeply rooted cultural history and the numerous excavations that have been and are being conducted, Türkiye is one of the world's wealthiest countries in archaeological heritage. Although the origins of museums in Türkiye can be traced back to the late 19th century- the Ottoman Period, the current museum system and its practices were not established until the early 20th century (Eldem, 2004; Özdoğan, 2006). Since then, countless immovable and movable archaeological remains have been unearthed through excavations and preserved in museums where modern scientific approach gradually gained especially after the Republic period. Since the mid-1920s, all cultural remains have continued to be safeguarded by laws and regulations enacted by the relevant institutions and international agreements. However, with the exception of few museum exhibitions and academic endeavours, Turkish archaeology and museology still falls short in effectively disseminating produced knowledge to the general public and employing new practical methodologies (Özdoğan, 2006; Atalay, 2007; Farid, 2014; Tarkan and Çetin, 2022). This is a crucial gap in Turkish archaeological practice and literature as numerous studies have demonstrated the importance of public archaeology practices in illuminating the shared history of humanity and raising cultural heritage awareness, especially since the 1970s in many countries (Schadla-Hall, 1999; Tully, 2007;

Matsuda and Okamura, 2011; Atalay, 2012; Colwel, 2016).

Utilising new ICTs to provide visitors with opportunities for unique experiences represents a significant opportunity for museums to improve their audience communication. ICTs can have a measurable impact on increasing public interest in the activities and the likelihood of achieving the exhibition objectives, as opposed to conventional display methods, which are the standard in countless archaeological museums and exhibitions venues around the world. Particularly since the turn of the 21st century, ICTs have become increasingly prevalent in cultural heritage studies (Pujol-Tost, 2011; Psomadaki et al., 2019). Instead of one-way presentations that do not challenge or receive feedback from the visitor's perception, museums have begun to employ a variety of creative storytelling techniques to convey their messages to visitors today (Moyer, 2007; Ionesov, 2022; Tarkan and Çetin, 2022). Furthermore, it is now considered essential that the exhibition design seeks to generate reflexive returns from visitors by providing them with a variety of attention grabbing and creative presentations (e.g., holograms for empathising through interactive methods and facial reconstructions). In this regard, the Faces of Juliopolis exhibition, which employs new digital techniques, storytelling methods and original stories, exemplifies a contemporary exhibition concept (Acar Göktepe, 2022).

Unlike other exhibitions, the Juliopolis exhibition does not solely confront visitors with the remains of the ancient dead. Instead, it introduces the ancient inhabitants of Juliopolis to the public with a facial reconstruction, a three-dimensional print of a skull and masks, as well as images and information on mortuary practises. Although research on the display of ancient human remains in museums indicates that visitors widely support these exhibitions (Biers, 2019), others emphasise a need for a more cautious approach as humans' perception of death is not universal (Becker, 1973), and the display of human remains in museums continue to be a controversial topic (Brooks and Rumsey, 2007; Alberti et al., 2009; Sayer, 2010; Jenkins, 2011; Lohman, 2012; Swain, 2016; Biers, 2019; Doğan et al., 2022). A recent study conducted in Türkiye to measure the public's perception of human remains displays also revealed that a sizable proportion of museum visitors did not view the display of human remains in museums problematic. However, some visitors expressed a variety of religious, ethical, and psychological concerns, indicating that some individuals find these displays offensive (Doğan et al., 2022). Because of the obvious connection between human remains and death, as well as the centrality of one's own conception of death, the experience of encountering death in museum spaces admittedly does not mean the same things or generate the same reactions in every visitor. Sayer (2010) argues that the general public's historical perspective on death is relevant to the discussion at hand. Furthermore, modern attitudes toward death are different from those of the past; the de-stigmatization of dying is one aspect that will help advance our perspectives (Sayer, 2010). Nevertheless, given that public opinion and responses to the dead on display are not universal, museums must act in ways that acknowledge these diverse thoughts and emotions if they wish to create respectful and effective exhibitions that can reach the public psyche (Swain, 2002; Wills, 2022). Research indeed shows that visitors can better comprehend and use the information conveyed when they develop an emotional relationship with what is shown (Moyer, 2007). Thus, it is essential to avoid displaying human remains as meaningless artefacts rather than as the remains of past peoples with whom visitors can identify.

In Türkiye, exhibition designs that incorporate burial contexts and archaeological human remains are quite common. However, exhibitions that address the aforementioned concerns are not (Doğan et al., 2022). In this sense, the Juliopolis Exhibition fills an important gap. The interview and survey results relating to the exhibition demonstrate that even though the exhibition had a context of death and dead people, visitors still appreciated the exhibition for a number of reasons. Initially, the ICTs we employed facilitated a stronger connection between the living and the deceased on display and seeing the reconstructed faces of people aided in the organic development of empathy towards the ancient dead. Considering a three-month-old infant's attention to faces and ability to recognise and distinguish facial features (Kelly et al., 2005, 2007; Cashon, 2010), it is understandable that facial reconstruction would be of natural human interest. Faces are the most informative and functional stimulus we perceive in social contexts; they allow us to discern sex, age, ethnicity, and, more situationally, emotions (Tsao and Livingstone, 2008; Leopold and Rhodes, 2010). Furthermore, research in museums of the perception of human remains demonstrate that observing human-like traits in the displayed human remains induce the feelings of empathy in visitors (Joy, 2014; Zhuravska, 2015; Doğan et al., 2022). With these findings in mind, we incorporated a reconstructed skull in our exhibition to inspire our visitors into re-imagining the ancient people of Juliopolis and generate empathy for the dead, highlighting the fact that once they were living and breathing individuals.

Another important aspect of our project was to measure the emotional reactions of visitors towards these displays. Sayer (2010) asserts that death-related

remains increase visitors' interest in the past and comprehension of death rather than instilling fear. Similarly, our research has shown that our visitors emphasised that facial reconstruction generated a great deal of interest and made positive impressions on them. Even though the limited number of people responded to the PANAS questionnaire, it can be concluded that the visitors reported positive emotions rather than negative ones, supporting our findings. Apart from the PANAS questionnaire, all the visitors that we interviewed in person expressed their positive thoughts and emotions. However, to indicate a further discussion about the visitors' attitudes towards the exhibition and display materials, more structured interviews with more visitors who visited the exhibition are needed. Thus, it would not be an exaggeration to say that the success of the exhibition was somewhat related to the inclusion of the facial reconstruction technique in the exhibition. This result demonstrates that the selection of the exhibition's technology is yet another crucial factor. As Smith and Hirst (2019) indicate, problems arising from the direct display of human remains could be reduced or circumvented by the use of suitable digital methodology. In line with this philosophy, instead of presenting the human remains directly to the public, we displayed 3D prints of human skulls and facial reconstructions presented with photographs and holograms. This allowed our visitors who had never interacted with such human remains to empathise with the individuals they once belonged to, leaving them with fewer reservations or misgivings.

Even though we were unable to conduct systematic interviews with the exhibition's target audience, adolescents and minors, they shared their opinions with their teachers and parents. In particular, they showed great interest in technological display methods, even though some knew about the tools and their working principles. This is comparable to the findings of Twenge's (2018) study with members of the millennial generation. According to the study, this generation is more likely than others to be interested in and adopt new technologies. Moreover, traditional methods in education systems are ineffective for these students, who are more motivated when technology is involved (Twenge, 2018). The same principle can apply to museums that use conventional display methods. In this regard, Ionesov (2022) emphasizes the importance of creating lively dialogues in museum exhibitions through the use of new communicative practices. According to Twenge (2018), virtual reality experiences are more appealing than real ones in a variety of ways. Therefore, we utilised 3D models of archaeological features, such as the chamber tomb we recreated, as an effective strategy through which we managed to attract more visitor attention and generate engagement. Our research indicates that there is a growing demand from both visitors and professionals for the use of digital archaeology techniques to promote cultural heritage awareness and interest through technological methodologies. In particular, the responses of museum professionals and representatives of supporting institutions indicated that incorporation of digital technologies in the exhibition likely was the most important factor in achieving the exhibition's objectives, and attracting the attention of primary and secondary school students and university students, who are the primary target audience of museums in their mission to develop cultural heritage awareness. Furthermore, beside contributing to scientific research and dissemination of scientific information, techniques such as anaglyph techniques and three-dimensional modelling, will allow those who did not or perhaps will not have the opportunity to visit the ancient site and the necropolis (e.g., the site, burial grounds, chamber tombs).

Given that archaeological sites such as Juliopolis are frequently imperilled by natural and anthropogenic factors, the significance of these techniques for preserving archaeological knowledge becomes more apparent. Documentation, conservation, restoration, and preservation are activities conducted by both academic archaeological projects and government institutions. However, in many cases, the lack of proper communication with local communities, particularly those living in and around archaeological sites, and inadequacies and deficiencies related to publicity make it impossible to prevent a variety of forms of destruction. In order to prevent natural and human-caused destruction and secure the future of the remains, it is essential to develop projects that will increase cultural heritage awareness. In fact, the educational component of public archaeology programmes can raise local residents' awareness of the legal regulations and empower them to take an active role in site preservation (McManamon, 2000).

Diverse social anthropological research conducted in previous years as part of the Juliopolis Project revealed that there is an urgent need to improve Juliopolis' recognition among the local populace residing near the archaeological site (Aksoy, 2023 (in press)). In this respect, it was essential to bring the exhibition to the people living near the ancient city (Acar Göktepe, 2022). In interviews with locals, it was reported that the exhibition had improved this situation. The accounts of one of the important interviewees, the teacher who worked in a local school in Çayırhan, reveal that the exhibition considerably increased the interest of primary and secondary school students in the site. They began talking about the site

with their peers and shared posts on social media concerning the site and the exhibition. This change of behaviour was one of the most essential goals of the exhibition. We believe that if the exhibition had reached a larger local audience, this could have prompted a broader shift in the community's awareness of Juliopolis' value as a cultural heritage site, as a place to cherish and protect. Overall, the exhibition's success in eliciting the desired response from its intended audience is closely tied to the positive impact that the introduction of technologies, face-to-face (e.g., local visits) and online engagements (e.g., social media, website) with various stakeholders.

7. CONCLUSION

With the advent of new educational opportunities and technologies, public archaeology events have rapidly diversified. Moreover, archaeologists are becoming increasingly aware that collaborating with local communities in museum exhibitions, excavation and research projects, has numerous benefits for archaeological processes (Atalay, 2010). This study shows that rapidly evolving digital devices and methodologies offer creative opportunities for disseminating archaeological knowledge to the public. These methods, when applied through the appropriate technological medium, can improve the general public's appreciation for cultural heritage and galvanise support for its protection, which makes it a win-win for both parties. There is much room for improvement in how museums use digital technologies, but this is an area where scholars and museum professionals can work together to make strides (Kamariotou et al., 2021). Despite the rapid expansion and diversification of their exhibitions, Turkish museums are still a long way from applying these methods and collaborative strategies in a sufficient and effective manner. The Faces of Juliopolis exhibition, by placing archaeological human remains and digitally supported storytelling methodologies at its heart, has received substantial positive feedback from various visitors; therefore, shows that the change is possible. With the assistance of more researchers engaged in digital technology research and the adoption of equitable strategies, the public's awareness of archaeological heritage can increase. Only with the inclusion of more stakeholders in the decision making mechanisms, archaeological projects can thrive and ensure long-term site preservation. Juliopolis has been endangered by various key threats for decades. Yet, the step the project team took in promoting and raising awareness of Juliopolis demonstrates that the site can endure the challenges it faces. By transcending its status as an archaeological site solely studied for scientific discovery, it can become a living heritage site understood and embraced by its diverse range of stakeholders.

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ONLINE SOURCES

https://www.juliopolis.com/en
https://idealabnet.org/juliopolis-Iuliopolis

APPENDIX 1.

The interview form used for the interview is given below (It is translated from Turkish to English for the publishing purposes).

Sex:	Department:	Age
PANAS (Positive-Negative Emotion Scale)		
1 (Strongly Disagree)	3 (Neutral)	5 (Strongly Agree)

Interested		Irritable	
Distressed		Alert	
Excited		Ashamed	
Upset		Inspired	
Strong		Nervous	
Guilty		Determined	
Scared		Attentive	
Hostile		Jittery	
Enthusiastic		Active	
Proud		Afraid	

Q1. What do you think about the exhibition? Can you use three words to describe it?

Q2. After your visit, what did you learn about the cultural elements of Ankara?

What do you think about introducing Ankara and cultural elements of Ankara outside of Ankara? (The follow-up question asked to the visitors in İzmir)

Q3. What do you think about facial reconstruction displayed in the exhibition?

Q4. What was the most interesting part of the exhibition?