

Institution: University of York		
Unit of Assessment: 15 - Archaeology		
Title of case study: Digital heritage for capacity building and transforming audience engagement		
Period when the underpinning research was undertaken: Jan 2012 – Oct 2019		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s):	Role(s) (e.g. job title):	Period(s) employed by submitting HEI:
Dr Sara Perry	Senior Lecturer	1/1/2012 – 31/10/2019
Period when the claimed impact occurred: 1/8/2013 – 31/12/2020		
Is this case study continued from a case study submitted in 2014? N		
1. Summary of the impact (indicative maximum 100 words)		
<p>Perry's research and development of digital resources for heritage sites around the world has had a major impact on the presentation of the past, and on heritage professionals who curate it. At Memphis in Egypt, her research has been applied to train and inspire the next generation of heritage policy leaders, building capacity, generating measurable improvements to wellbeing and providing career advancement opportunities, with a particular focus on opportunities for women. Her approach has been cascaded to around 20 sites, transforming professional practice and fostering cultural democracy, equality, inclusion and diversity in challenging socio-political environments. At Memphis and the World Heritage Site at Çatalhöyük, Turkey, her research has been applied to transform the presentation of the sites. Digital storytelling has been embedded in the presentation and new infrastructure has been built, enriching the visitor experience. In the UK Perry's research has produced digital solutions and best-practices now applied by major heritage organisations.</p>		
2. Underpinning research (indicative maximum 500 words)		
<p>York researchers have critically explored the impact of digital technologies on public engagement with heritage since 1995. However, in the past decade, as the scale of the development and implementation of these technologies has accelerated, the initial enthusiasm about their capacity to animate broad audiences has been replaced with an urgent need to evaluate and address their profound human effects – both positive and negative. From 2012 to 2019 digital heritage research at York was led by Perry, with collaborators across Europe. This research sought to understand how implementing and analysing the impacts of emotive, social, storytelling and dialogue-based public interpretation at cultural heritage sites can foster an 'ethic of care' amongst visitors, promoting heritage sites as discursive spaces, through which archaeology facilitates far greater social impact (3.1, 3.2).</p> <p>In 2014 Perry received funding from the British Institute at Ankara (BIAA) to prototype visitor-centred interpretation at Çatalhöyük, Turkey. This sought to provide visitors with richer, more personalised interpretative experiences, incorporating interactive engagement via a mobile phone app, conventional signage and replica houses, and paving the way for advances in evoking and emoting the past at similar sites globally. Further funding was awarded from the BIAA in 2015 to experiment with digital storytelling, allowing users to add content to the app, enhancing interactions through virtual/augmented reality, and evaluating the impact of these initiatives on visitors (3.3, 3.4).</p> <p>Following on from this second phase of work, Perry continued to research how emotionally engaging experiences are best designed and evaluated and became the York PI for the ground-breaking EC-funded Horizon 2020 EMOTIVE project (2016–19), for which she co-designed and co-authored the conceptual framework. This collaborative research sought to help professionals create engaging, memorable stories, and enable the public to enjoy and share these stories. It aimed to engage audiences in a new way, putting emotional stories at the heart of museums and heritage sites. The research demonstrated that drama-based narratives which reference a site's cultural content have the power to transform visitor experiences, encouraging repeat visits, facilitating direct and ongoing interaction and deepening knowledge transfer (3.1). Moreover, research on simple rule-based chatbots running on mobile phones has extended these findings,</p>		

demonstrating the potential for such minimal applications of technology to prompt responses from users, including recognition of prejudices leading to genuine critical reflection. For example, a visit to the Neolithic site at Çatalhöyük became the trigger for conversations between visitors about difficult topics such as death, wealth distribution, gender equality and privacy which still resonate today (3.5). Further empirically tested research (through the EMOTIVE project) in out-of-school settings with young people aged 8–16 and mixed adult groups demonstrated the capacity of such techniques to foster the three key traits of historical empathy: affective connection, historical contextualisation and perspective-taking.

Perry's research is the first of its kind to establish the significance of digital technologies for shifting traditional approaches to the presentation of cultural sites empirically and cross-culturally – moving away from isolating didactic environments in which visitors are simply 'informed about the past' into places of change made possible via dialogue and socialisation.

3. References to the research (indicative maximum of six references)

3.1. Perry, S. 2019. The Enchantment of the Archaeological Record. *European Journal of Archaeology* 22(3): 354–71. <https://doi.org/10.1017/eea.2019.24>

3.2. Perry, S., Roussou, M., Mirashrafi, S., Katifori, A. & McKinney, S. 2019. Shared Digital Experiences Supporting Collaborative Meaning-Making at Heritage Sites. In Lewi, H., Smith, W., Cooke, S. & vom Lehn, D. (eds) *The Routledge International Handbook of New Digital Practices in Galleries, Libraries, Archives, Museums and Heritage Sites*. Available upon request.

3.3 Perry, S. 2018. Why are Heritage Interpreters Voiceless at the Trowel's Edge? A Plea for Rewriting the Archaeological Workflow. *Advances in Archaeological Practice* 6(3): 212–27. <https://doi.org/10.1017/aap.2018.21>

3.4 Roussou, M., Pujol, L., Katifori, A., Chrysanthi, A., **Perry, S.** & Vayanou, M. 2015. The Museum as Digital Storyteller: Collaborative Participatory Creation of Interactive Digital Experiences. MW2015: Museums and the Web. <https://tinyurl.com/y3gpwny4>

3.5. Roussou, M., **Perry, S.**, Katifori, A., Vassos, S., Tzouganatou, A. & McKinney, S. 2019. Transformation through Provocation? Designing a “Bot of Conviction” to Challenge Conceptions and Evoke Critical Reflection. *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*, ACM Digital Library, 627. <https://doi.org/10.1145/3290605.3300857>

Evidence of the quality of the research: outputs (3.1) and (3.4) are published in peer-reviewed journals; output (3.2) is a contribution to an international handbook, peer-reviewed by the editors; outputs (3.3) and (3.5) are published in peer-reviewed conference proceedings. Much of the research described in Section 2 was the outcome of competitive funding, including a major EU grant EMOTIVE (Grant no. 727188) for which **Perry** was the York lead. Work at Memphis was funded by USAID. Competitive awards from the BIAA supported Perry's work at Çatalhöyük.

4. Details of the impact (indicative maximum 750 words)

Perry's research into the deployment of digital heritage approaches can be directly linked to impacts on two levels:

Personal impacts, capacity building, training and individual professional practice, with significant transformation of individual wellbeing, community values and economic livelihood, fostering equality, diversity and inclusion in the profession, and empowering the next generation of heritage managers, traceable for over four years;

New narrative techniques to transform management and presentation, enhancing visitors' sense of connection with the past, and impacting institutional practice, driving radical new strategies in professional museum and heritage management practice with national and international reach.

(1) Personal impacts, capacity building, training and individual professional practice

Perry's applications of digital media to planning, recording, archiving, design, publication, and online dissemination – and her training of others in such applications and wider heritage practice – have led to transformations in the career development of the next generation of heritage managers in Egypt with particular support for the role of women. As a result of her research, in 2015 Perry was invited to join the USAID-funded Memphis Site and Community Development

project (MSCD) and lead an integrated heritage interpretation and outreach training programme. The four 6-week field schools trained 77 Ministry of Antiquities inspectors (out of a target of 80) in site management, heritage, media development, photography and engaging local communities. The independently commissioned USAID evaluation report showed that 92% of graduates felt that the training “increased their motivation”; 90% felt better able to “effectively deal with different job responsibilities”; and 86% noted increased self-confidence (5.1).

Supporting women was a key focus of the training, in a country which traditionally offers them fewer opportunities. Of the field school participants, 62% were female and the USAID evaluation highlighted “an increased motivation among female trainees towards further studies and better career opportunities...the training program was able to support women in pursuing additional training, tasks or studies (94.7%), increase their self-confidence (86.8%), effectively deal with different job responsibilities (84.2%), increase their ability to innovate and create new ideas (76.3%) and gain capabilities to train other colleagues (71.1%)”. As a result of their training 37.5% of female graduates went on to work in other international archaeological missions (5.1).

Evaluation undertaken at the end of the last field school echoed USAID’s findings with 86% of respondents reporting direct impacts on their career progression (5.2a), while others continued to cite specific qualitative outcomes including increased confidence, motivation and accountability, personal awakening, improved life skills and team skills, and heightened perseverance (5.2a). The feedback highlights personal impacts on female trainees, both as human beings and on how they view other people. According to one graduate: “It was a lifetime experience! I guess I should divide my c.v. into ‘before’ and ‘after’ [the] MSCD project!” Employed by the Ministry of Antiquities’ Site Management Committee to “improve the visitor experience of Egyptian archaeological sites and open closed sites for visitors”, she directly attributes her promotion to MSCD: “knowledge I gained from the project, enabled me to apply and [get] accepted in this position” (5.2a, p.3). Another female graduate wrote, “I’m grateful to [the] MSCD field school because now I don’t look at the antiquity only but I look from the other side of the human around the antiquity and their needs, ideas about the monuments” (5.2a, p.14). Follow-up evaluation conducted in 2020 highlighted ongoing impacts of the training up to four years after completion. One female participant noted the MSCD had increased her trust in herself and her skills and helped her deal with difficult personal issues; another was explicit that “the Memphis field school was a key contributor to the success of [her] career in digital heritage.” Five participants reported increased confidence, leading to participation in further international training (including a British Museum International Training Programme, a 6-month programme at the Istituto Superiore per la Conservazione ed il Restauro in Rome, and an international seminar on museum management in China). Graduates wrote about the impact the training had on their careers, encouraging them to gain new heritage management qualifications and to pursue career changes, including one former curator who is now head of the microscopic documentation group of the Tutankhamun collection at the Grand Egyptian Museum (5.2b). A former trainee, and later an instructor on the field school, identified the Memphis field school as “one of the most important steps in the process of developing Egyptian archaeologists and keeping them apace with the discipline of heritage site management” (5.3, p.4).

Finally, the installation of 1413m of walking trails and associated interpretation media designed by Perry and the trainees to connect the Memphis monuments provided personal economic impacts for 133 local workmen and 46 local business people and craftsmen employed to undertake jobs ranging from landscaping and bricklaying to installation of signage and furniture construction (5.3, p.32). The site co-director noted the very personal impacts of Perry’s advocacy for local collaboration: “the café owner’s smile at seeing his café labelled on the new brochure, the bazaar owners’ joy at seeing the new panels” (5.3, p.7).

(2) New narrative techniques to transform heritage management and presentation

In 2013, Perry’s research into the use of digital methods for heritage presentation led to her appointment as Director of Visualisation at Çatalhöyük. With funding from the BIAA, her research has facilitated wholesale change in the interpretation of this UNESCO World Heritage site. Whereas previous presentations focused on the physical remains using traditional display techniques, the new visitor experience takes an audience-led approach, underpinned with

storytelling, and prompting social interaction amongst visitors. The theme of storytelling and promotion of social interaction is carried through in Perry's team's design of interpretative materials at the four new Neolithic replica houses for visitors; in their design of 50 new on-site information panels and 15 new Visitor's Centre panels; in the design of a bilingual (Turkish/English) guidebook, brochure, map, and children's handout; in the www.catalhoyuk.com website; and in the implementation of chatbots on site (5.4). Perry's work accompanied an increase of 30% in visitor numbers, from 14,718 in 2011 to an average of 20,000 per year from 2013 to the end of the BIAA project in 2016 (5.5). The Director of the Çatalhöyük Research Project notes that "Sara's research into the emotive connection between heritage sites and the visitor experience has had a transformative effect on the way in which the site is presented to visitors. She has linked premium presentation skills with a strong ethical commitment to diverse publics and has been able to integrate site interpretation into scholarly debate within the discipline more broadly" (5.6). Numan Arslan came to Çatalhöyük as an excavator in 2008, leaving the site in 2018. Reflecting on his experience over 10 years he noted how "Sara's focus on storytelling had an important influence on the presentation of Çatalhöyük." Discussing visitor responses to the changes he highlighted how the redesign, incorporating a drama-based narrative advocated by Perry's research, improved the visitor experience by encouraging visitors to stay longer, to observe the site more carefully, and to ask more questions (5.7).

Transformations to heritage presentation enabled by Perry's research have also extended across Egypt following the MSCD project. In July 2017, the Egyptian Ministry of Antiquities created a new committee for site management initiated by former field school students (5.8) and staff, and employing five graduates (5.3). Announcing the new initiative in 2016, the Ancient Egypt Research Associates' newsletter explained how the committee aims to "share the lessons learned from the MSCD project with a larger audience. Building on the concepts they were exposed to during the MSCD field schools, this committee will soon begin to assess visitor experience and site presentation at museums and sites throughout Egypt" (5.8). Perry's research is now being cascaded throughout the Egyptian Ministry of Antiquities by the field school graduates, where it is empowering the next generation of Egyptian archaeologists. An evaluation conducted 18 months after the first field school showed that despite the difficulty of contacting graduates after this length of time, 87% of respondents had directly applied their new knowledge to improving heritage management in Egypt. Trainees were inspired to create more inclusive heritage sites, and 49% of respondents reported that they had instigated specific initiatives as a result of MSCD. These include the creation of new guidebooks for all open museums in Egypt; the preparation of site management plans for Saqqara and Abusir, Tell-Basta, Tanis, and the Jedefra pyramid; use of social media for community engagement in the Alexandria area; the development of new information panels for Giza, Dendera, the Governorate of Alexandria, Historic Cairo, the Egyptian Museum of Cairo, and Sohag; and the development or redevelopment of visitor facilities and visitor experiences in multiple locations such as Karnak, Giza, the Dakhliya Governorate, Dendera, Historic Cairo, the Shunetel-Zebibareain Abydos, Sohag, and Beni Suef (5.2a). Two graduates reported working to list new World Heritage Sites in Egypt (5.2a).

The cascading effects of the field schools have contributed not only to enriching Egypt's visitor interpretation infrastructure, but also to professionalising the country's delivery of heritage management. An independent evaluation report commissioned by USAID commended the value of the work at Memphis "for training on visitor management challenges" (5.1, p.32). Perry has used her research into the 'ethic of care' to train professionals and local communities in implementing and analysing emotive public interpretation practices themselves – in both the Global South and developed countries – empowering them to foster wider change.

Perry's research has also provided a direct framework for the research and public engagement programmes of two of the leading heritage organisations in the UK: Museum of London Archaeology (MOLA) and the JORVIK group. Arising from her involvement in EMOTIVE in 2017 Perry gained sponsorship from MUPI (the Museum University Partnership Initiative) to collaborate with JORVIK staff in the 'Viking Hack' project, exploring approaches to 'difficult histories' and using Perry's research into affective interpretation at a range of museums and heritage sites, including the US Holocaust Museum and Colonial Williamsburg, with a view to understanding how similar

techniques might be applied at their attractions. The JORVIK Group is responsible for five major attractions, including the JORVIK Viking Centre (1,000,000 visitors per annum, and extensively redesigned following flood damage in 2015), and the proposed Eboracum development. The Head of Interpretation and Engagement notes how his collaboration with Perry on the 'Viking Hack' led to impacts on "the Group's interpretation and engagement methods, staff training programmes and safeguarding policies" (5.9). These can be seen for example in "a new narrative history of the Vikings of Jorvik...[written] to situate Jorvik within the tradition of museum-based storytelling" and in the inclusion in the staff training programme of "a section on ethics, which incorporates the idea of difficult histories and how to help visitors to address them" (5.9). He concluded that: "Sara's research into the emotive connection between heritage sites and the visitor experience has changed the way the JORVIK Group thinks about presenting heritage to the public, and how it trains its staff" (5.9).

In her new role as Director of Research and Engagement (R&E) for MOLA (November 2019 to present), Perry leads a team of 80 specialists across two main offices and multiple sites. The CEO of MOLA writes: "her research into the development, circulation and evaluation of analogue and digital media for engaging diverse audiences with the past – and her extensive experience in running participatory projects around the world – were crucial to her hiring at MOLA" (5.10). Indeed, prior to her arrival, her 2018 paper (3.4) had been "circulated to staff as a prompt for discussion about how the typical approach to field archaeology might change to generate greater value and impact for the British public and for archaeologists themselves. At her job interview, Sara presented a vision for the future of MOLA's R&E team that was directly linked to her 2019 publication" (3.1), (5.10). The CEO of MOLA continues: "Since joining MOLA, Sara has begun to apply her research-led proposals to the organisation. This necessitated a series of major structural changes in order to facilitate implementation of the larger vision." She notes that Perry's research into user experience design and co-design methodologies developed through the EMOTIVE project's design cards has "been woven directly into everyday practice at MOLA. Her Engagement Project Managers and Engagement Team deploy elements of the cards on the design of new tenders and on the definition of target audiences and outcomes for new projects. Previously no consistent approach to defining audiences or outcomes was used, and hence her team's ability to rigorously track impacts and trends has until now been very challenging. As well, her approach to social media engagement (e.g. Perry 2015 (3.5)) has led to the development of a specific digital engagement work package for our field teams, which will be pilot tested in the spring on a live excavation and, if successful, woven into future offers for clients" (5.10).

5. Sources to corroborate the impact (indicative maximum of 10 references)

- 5.1.** Sustainable investment in tourism in Egypt (SITE). End-of-term performance evaluation, Cultural Heritage Tourism in Egypt and Memphis, Egypt's Ancient Capital: A Plan for Site and Community Development, October 29, 2018. QED Group for USAID.
- 5.2a.** University of York report to Ancient Egypt Research Associates (AERA) on MSCD: an analysis and discussion of the evaluation of trainee experience on the MSCD project, including an appendix of 49 completed questionnaires. **5.2b.** Additional graduate follow-up collected in 2020.
- 5.3.** AERAGram, newsletter of Ancient Egypt Research Associates, vol. 18: 2, 2017.
- 5.4.** Perry, S, *et al.* 2018. Public report from EMOTIVE: D9.2 Formative Evaluation Results. Chatbot of Conviction for Çatalhöyük is reported in Deliverables D3.2, sections 3.22 & 5.2, D3.7.
- 5.5.** Çatalhöyük 2017 Archive Report, 280–81.
- 5.6.** Testimonial from the Director of the Çatalhöyük Research Project.
- 5.7.** Testimonial from Numan Arslan.
- 5.8.** AERAGram, newsletter of Ancient Egypt Research Associates, vol. 17: 1 & 2, 2016.
- 5.9.** Testimonial from The JORVIK Group, Head of Interpretation & Engagement.
- 5.10.** Testimonial from Museum of London Archaeology (MOLA) CEO.