

Institution: Newcastle University		
Unit of Assessment: 29 Classics		
Title of case study: Stories from the Frontier: Changing Heritage Practice and Visitor Experience Through Game-Play		
Period when the underpinning research was undertaken: November 2016 – December 2020		
Details of staff conducting the underpinning research from the submitting unit:		
Name(s): Claire Stocks	Role(s) (e.g. job title): Senior Lecturer (Classics)	Period(s) employed by submitting HEI: October 2016 – present
Period when the claimed impact occurred: June 2019 – December 2020		
Is this case study continued from a case study submitted in 2014? N		
1. Summary of the impact		
<p>This innovative and cross-disciplinary project has had considerable impact on education, the heritage sector, and the outreach work of the videogaming industry. With the Vindolanda Trust, we produced a digital mystery game supporting the Key Stage 2 National Curriculum and addressed key challenges faced by heritage sites by increasing digital tourism. In collaboration with the Trust and our industry partner Creative Assembly, we created digital activity packs based on the game to support online learning during the pandemic. The game and activity packs launched nationwide in October 2020 (Android version and packs) and December 2020 (IOS), and their learning impact has already been significant.</p>		
2. Underpinning research		
<p>Through pioneering collaboration with colleagues in Archaeology (Rob Collins) and Computer Sciences (Graham Morgan and Richard Davison), as well as the main stakeholder, the Vindolanda Trust (Barbara Birley), and industry partner Creative Assembly, Stocks has developed cross-disciplinary research that integrates her work on Roman literary culture and memory [PUB1, PUB2, PUB3] with Roman archaeological studies (Collins), material culture (Birley), and game-theory and programming (Morgan and Davison). This collaboration has to date resulted in two publications on how classical reception through digital games can improve the public's engagement with antiquity through active participation [PUB4, PUB5]. The project has received significant external funding [G6].</p> <p>Stocks' research focuses on memory studies and how audiences conceptualise the past, with a special focus on the Roman world. Her work combines the study of material culture and literary texts to explore how Romans remembered and responded to their recent [PUB1] and more distant [PUB2] past. Moreover, it focuses on how ancient authors create narratives about Rome's history that reflect wider literary trends in terms of poetic composition and storytelling [PUB3]. This research has been developed further in PUB4 and PUB5, which explore how texts and objects can themselves become sites of memory and a means through which modern audiences can engage with their cultural heritage and develop their own stories about that heritage. This work, together with that of Birley, Collins, Morgan, and Davison, underpins the design of the game and the accompanying activity packs, combining research on the ancient world with gamification and the theory of storytelling, enabling users to become co-curators in the game's narrative [PUB4]. Increasing public engagement with heritage sites and museums remains a challenge: visitors can feel disconnected from sites and their objects when viewing them out of context or in display cabinets. Stocks' research underpins the design of the game, creating a new experience for visitors to Vindolanda [PUB3, PUB4 and PUB5]. Combining</p>		

research on material cultural with literary texts offers a tangible connection to the past for visitors as well as allowing them to draw connections between how that past would have been represented in visual as well as written terms, and to consider its impact on a wide demographic with varied levels of literacy [PUB1 and PUB5].

The research of Birley and Collins on the literary and material evidence derived from the site (and Hadrian's Wall) feeds into the unique visual design of the game, which offers a level of detail in its reconstruction not offered by more generic game environments based on the ancient world. The research of Davison and Morgan on game mechanics and their application in different learning environments influenced the design and programming of the game so that it can be played in outdoor environments with varied weather conditions.

In response to COVID-19, the research of Stocks and Birley fed into the development of activity packs and teachers' notes supplementing the game and its content, produced in collaboration with Creative Assembly (the multi-award-winning BAFTA UK games studio behind *Total War*). Creative Assembly supplied content on their latest approaches to motion capture and games design in the videogaming industry. Like the game, these resources employed the work of Stocks and Birley to encourage students to become active learners [PUB4 and PUB5] as they are required to complete a creative task based on the packs' content (write a story, create a stop motion video, design a computer game, and produce an archaeological drawing).

3. References to the research

All publications have been peer reviewed. They have been externally and internally reviewed post publication which clearly ranks them as above 2*. Copies available upon request.

- PUB1: C. Stocks (2019) 'Broken Bonds: Perfidy and the Discourse of Civil War', in C. Stocks, A. Augoustakis, and E. Buckley (eds) (2019) *Fides in Flavian Literature*. Phoenix Supplementary volume: Toronto. Pp.21-44.
- PUB2: C. Stocks (2018) 'Band of Brothers: Fraternal Instability and Civil Strife in Silius Italicus' *Punica*', in L. Ginsberg and D. Krasne (eds) *After 69 CE – Writing Civil War in Flavian Literature*. Trends in Classics Supplementary Volumes 65. Pp.253-70.
- PUB3: C. Stocks (2018) 'In a Land of Gods and Monsters: Silius Italicus' Capua', in A. Augoustakis and J. Littlewood (eds) *Flavian Literature and Campania*. Oxford: Oxford University Press. Pp. 233-47.
- PUB4: C. Stocks, B. Birley, and R. Collins (2018) 'Stories from the Frontier: recreating the past through digital gameplay', in *Thersites* 8: 97-109.
- PUB5: C. Stocks (2019) 'Stories from the Frontier: Bridging Past and Present at Hadrian's Wall', in M. Dinter and B. Reitz (eds) *Intermediality and Roman Literature*. *Trends in Classics, Journal of Classical Studies* 11: 139-60.
- G6: C. Stocks (PI), R. Collins, B. Birley, and G. Morgan (2019) grants of GBP36,987.00 from Arts Council England (ACE) and GBP2,165.65 from the Roman Research Trust for the project 'Stories from the Frontier'.

4. Details of the impact

Summary of Impact:

- Improved online learning experience for local schools studying Key Stage 2 History
- Impacted local schools' approach to teaching the Romans at Key Stage 2
- Impact on the Heritage sector's approach to funding and its educational offering in the UK and the Netherlands
- Improved digital tourism at Vindolanda and prompted repeat visits to the site
- Impact on industry approaches to outreach in schools

The game 'the Missing Dead' offers users innovative opportunities to engage with the past. Together with online activity packs, it complements the National Curriculum at Key Stage 2 in history, literacy, numeracy, and computer sciences resulting in an improved learning experience for students and teachers, both online and in person. The game was originally designed to be played at the Roman site of Vindolanda, improving visitor engagement with the physical environment of an archaeological site and museum. The global pandemic delayed the game's release from April 2020 to October 2020 (Android) and December 2020 (IOS) and has had a huge impact on the number of downloads (189 and 14 respectively) due to the delayed release and the fact that the site of Vindolanda was closed to visitors for much of this time. Despite this, interest in the game online has been huge for an educational app of this type: since its release on 10 December 2020 through to 31 December 2020, the IOS version of the game alone has attracted 761 expressions of interest ('impressions') in the UK and abroad. From those users of the IOS version who agreed to share data, we know that the game has been played 22 times, demonstrating the desire by users for repeat play. A further unexpected impact of releasing the game during the pandemic is that users are downloading the game to play at home, and this has encouraged them to (re)visit the site: 'This is a great educational app. Can't wait to return to Vindolanda and use the app to actually trace the steps' (IMP8). These responses demonstrate the game's impact beyond the experience of the visitor on site and prove its worth as a digital resource that promotes sustainability for heritage sites by prompting return visits and at-home engagement. In response to the global pandemic, we also adapted the project from April 2020-October 2020 by producing online activity packs for schools that accompany the game. The packs were downloaded from Vindolanda's educational site 36 times between October and December 2020, indicating a significant impact on regional schools (who then disseminated packs to pupils). This project has been 'hugely influential' for Vindolanda's educational strategy, which now places emphasis on digital resources (IMP1).

(1) Impact on Schools, Community Groups, and the General Public

The response of students, teachers, and the general public shows that the game and activity packs have already had an impact on their engagement with the archaeological site (e.g. '[the game] actually makes this place interesting', 8-year-old child, IMP8) and have prompted students to further their education by looking beyond the core material covered by the National Curriculum: e.g. "These packs bring to life what it was like to live on the fort at Vindolanda 2000 years ago. The graphics are fantastic and have enough detail to satisfy the curiosity of the most observant pupil, while being archaeologically accurate. The idea of following the trail of a mystery gives many opportunities for further research and the packs point students to a range of places to find out more." (Teacher, Northumberland, IMP8). The Game has received 5* reviews on Google Play and in the Apple Store (IMP8) since its release in October 2020 and has received coverage in the local press (IMP9). It has impacted the way local schools teach the Romans at Key Stage 2 (IMP4) and prompted children to create their own stories (IMP3, IMP10): the player of the game becomes a real, as well as a fictional, participant in exploring the past – demonstrating the value that such games can have in developing the role of 'Citizen Science' and prompting new generations to become co-curators in their cultural heritage.

Schools have stated that the game/packs have consolidated learning in the classroom by promoting active learning: e.g. 32 children in one school alone produced their own stories inspired by the game and packs (IMP10). The game and packs supplement key areas of the Key Stage 2 National Curriculum and teach children about the careers open to them through studying, history, numeracy, and computer science (IMP2). The project is inspiring a new generation of future archaeologists and historians by teaching them critical thinking skills and deductive reasoning (IMP7). Community groups (IMP6) and school children find the game stimulating and it prompts them to further their education through gameplay: i.e. on finding the archaeological objects: "I like the whole aspect of it, like the mystery, going through and finding things"; "It has plenty of suspense in it and it's catchy" (IMP7). It has resulted in new paths to learning – e.g. the presence of the eagle as a 'guide' in the game prompted children to ask questions about Roman army standards and their production: "How would [the eagle] be made?" (IMP7). The active participation of users through the game and through the creative challenges

offered by the activity packs (write your own story; create your own animation) has increased learning and understanding about the ancient world and its relevance in contemporary society: 'The children really loved the project, which we ran up until the last few days of school! The resources gave children the creative impetus to write and they enjoyed the incentive of their local area. This, and the developed characters Vindolanda had created, made this Roman history relevant and engaging. Without the opportunity to visit Vindolanda, it brought the experience to them and was a useful resource for teachers planning remote learning at home. It has the potential to inspire a whole unit of work, especially given the cross curricular approach to some themes. In our efforts to ensure that History is accessible to children with abilities across a range of subjects, this was particularly useful' (IMP3). The game reinforces the importance of the tangible past – children love the fact that they can play the game outdoors on site because it is more “authentic” – and through its narrative/choice-based approach it reinforces the learning experience through repeat play. Finally, the project has shown the impact that such resources can have on supporting educational provision in schools and beyond the classroom: 'The project had a beneficial impact on the children's learning process – our pupils have always been enthusiastic about studying the Romans, but the game prompted them to want to learn more about topics that went beyond what we covered in the classroom as part of Key Stage 2. We hope to include a visit to Vindolanda to play the game in the future when we are teaching the Romans in school' (IMP4).

(2) Heritage Sector and Industry

The positive response of participants has impacted how the heritage sector (IMP1, IMP5) and industry (IMP2) are using digital games and activities to engage and educate students and the general public. The game and activity packs, and the research that underpins them are now part of Vindolanda's educational strategy and has impacted their approach to funding in this area, including plans to develop – in collaboration with Newcastle – a virtual reality game at the Roman Army museum that focuses on diversity (e.g. the global communities at the wall) and that forms part of its decolonising strategy for the Museum's collection: 'The research of Stocks and Collins on the ancient worlds, and that of Morgan and Davison on gamification, has been integral to this project... Their research will continue to underpin our future activities and it demonstrates how we can use this research and its outputs – especially in an age where using digital media offers an alternative to physical visits to a site – as a means of increasing the profile of and engagement with heritage sites' (IMP1). Stocks' research in Flavian Literature, Memory Studies, and the use of digital games in the heritage sector (PUB1-5) and partnership with the Vindolanda Trust have led to collaboration with the Dutch National Museum of Antiquities (The Rijksmuseum van Oudheden) and impacted their approach to using digital games as part of their educational offering. A memorandum of understanding was established between the museum and Newcastle University to build a digital game for Dutch school children that will accompany an international exhibition on the Emperor Domitian (Leiden 2021-2022, Rome 2022): 'Stocks' research in this field and successful collaboration with the Vindolanda Trust have inspired us to produce a similar game app for students visiting our exhibition (expected number of visitors will be 120,000 based on past exhibitions)' (IMP5).

Collaboration with Creative Assembly on the Activity Packs has impacted the strategy of their Legacy Department in their work with schools. In November 2020 the decision was made to develop more materials targeted at a younger age range (with the intention of incorporating more of Birley and Stocks' research) (IMP2).

5. Sources to corroborate the impact

IMP1: Testimonial – Curator, Vindolanda Trust

IMP2: Testimonial – CSR Coordinator, Legacy Department, Creative Assembly

IMP3: Testimonial – History Lead, Selef^{irst} School

IMP4: Testimonial – Head Teacher, Newbrough Church of England Primary School, Hexham

Impact case study (REF3)

IMP5: Testimonial – Senior Project leader at the Dutch National Museum for Antiquities (Rijksmuseum van Oudheden)

IMP6: Feedback/evaluations from workshops with local community groups (Scouts) and general public

IMP7: Feedback/evaluations from workshops with schools

IMP8: Reviews and Comments of the game and activity packs

IMP9: Press Releases, Download figures for the game and activity packs

IMP10: Stories by children inspired by the game and activity packs