**The unwritten presence of emotions in archaeological research and their future in archaeo-gaming.**

**Introduction**

Emotion is an integral part of the human experience and is therefore present in archaeology and history, as these disciplines study humans as well as things. It is surprising, therefore, that there is little work on emotion within archaeological scholarship. Its limited treatment within digital archaeology is particularly striking because much digital work in archaeology involves images and interactions, and these creative and artistic media are often designed to provoke emotions, or their reception is emotional.

Research by Katifori *et al.* 2019 (EMOTIVE Project) identifies the importance of emotion in archaeological storytelling. There is a wider range of research (e.g., work by Tringham, Morgan, and Watterson) that addresses the role of emotion in storytelling indirectly, but where it is not a central or explicit focus of the research. However, none of this research investigates in detail how the design of visual storytelling provokes emotions in the people who engage with it. Nevertheless, there was a visible possibility that the emotive research mentioned above had come across a deeper engagement but did not record it due to the different focus of each project and by further investigating this through interviews it would have been possible to extract what was laying in the background.

This paper presents an investigation of the implicit role of emotion in the work of different practitioners related to archaeological research as they designed their storytelling media. The research demonstrates that emotion is a key element in the work of both researchers and practitioners, even when they do not intentionally and directly discuss it. And further interviews discover several potential emotive tools and triggers present in archaeology that have a good potential to be integrated into a practical experiment involving the creation of an archaeo-game in future research.

**Methods and materials**

To discover how practitioners implicitly design with emotion in mind, this research began by critically reviewing several pieces of research done on emotive contexts, identifying the important outcomes described by the papers and the areas that needed to be explained further or may have been present in the study but did not take center stage in the analysis. The authors listed areas that needed clarification or were important for emotive understanding but were not further investigated. Several semi-structured interviews with a selection of these authors were consequently conducted.

These interviews involved eight researchers, all being interviewed for approximately one hour each, and the nature of the subject matter connected to the rare work conducted by the researchers themselves made it possible to obtain a large pool of data despite the small available number of interviewees. Several analytical techniques were considered and narrative analysis was chosen to focus on the most salient parts of the interview and to restructure the content in the context of emotion (Downe‐Wamboldt 1992, 313-321, Smith 2000, 313-335, Jørgensen *et al.* 2002, 1-96, Furber 2010, 97-100, Walker *et al.* 2006, 547-559).

Furthermore, framework analysis was also included (familiarization; identifying a thematic framework; indexing; charting; and mapping and interpretation) to further structure and organise the interview data. This allowed us to identify key issues and areas of interest within the narrative and make a well-defined interpretation. This interview-based method enables researchers to better understand the importance of emotive presence “behind the curtains” in all research done concerning digital depictions in archaeology.

**A critical review of the literature**

To understand the origin and development of this project-based work, one needs to understand the wider context of the area of research, this is what this initial part of the paper will aim at achieving.

The literature on archaeological reconstruction is wide, if one was to look at the literature produced just a decade ago, this would be very different, especially in terms of digital reconstruction, but nowadays such a level has been reached that it is almost impossible to cover all areas dealing with archaeological reconstruction, even if limiting it to the digital area.

Therefore, this initial investigation focussed only on what was directly connected to the intended result of the project, focusing on showing examples of other scholars and individuals who attempted in a limited manner, sometimes unintentionally, to address the emotive factor in archaeological reconstruction (Morgan 2019, Katifori *et al.* 2019, Perry 2019, Vrettakis *et al.* 2019, McKinney *et al.* 2019, Schuemie *et al.* 2001, Tost *et al.* 2009, Dennis 2019, Watterson *et al.* 2013, Biocca *et al.* 1995, Biocca 1997, Biocca *et al.* 2001, Coleridge 1817, Bystrom *et al.* 1999).

The analysis of the literature was followed by a deeper understanding of the topic obtained through interviews. This was because as mentioned above many of the example projects and studies did indeed touch upon the emotive presence and feelings in archaeological reconstruction but did not implicitly acknowledge it or make it part of the end analysis and conclusion of the work.

**Interviews**

The interviews explored several prominent topics amongst the research available and produced some extensive results which add to the overall literature, focussing more on the topics of interest of this research, mainly nostalgia, negative emotions, and how these should or shouldn’t be integrated into the research, to what extent and how they may add to the creation of an emotive centred archeo-game as the final aim of this project.

Following the analytical pattern mentioned before the subchapter about the questions, the following text will be structured in a way that will combine the answers which added to the narrative of the project aim and they will be listed in a systematic structure that aims at both following the emotive development of the research and the inclusion of such developments within the archaeo-game as the final result.

**The importance of emotions and nostalgia within cultural and heritage projects**

Throughout the interviews, there was a sense of surprise and inner thinking which took many of the researchers and professionals by surprise. The first factor that was explored was the importance or lack of the specific feeling of nostalgia within the subjects explored in archaeology.

The overall reaction could have not been summed up since there was no consensus on the emotion itself, for example, Dr. Economou found it very difficult to give a direct description of what nostalgia was in her work, she preferred to focus on specific narrative events which may have resulted into feelings near to family, work and friendship which when shown to the user would have targeted the idea that one has of identity in the past and identity today, which in some sense could have caused nostalgic feelings, but related towards possible principles which may have not changed at all with time, therefore people could associate with events in the storytelling of the past with their own, creating a nostalgic connection to an associative past.

Another reaction to the feeling of nostalgia or its presence in projects, was a surprising one, as Dr. Tringham stated that she did not feel any nostalgia, having moved from a society that culturally controls emotions as a way of life, considering them a show of weakness at times, to what she described a free and emotional society as the moving to America where she stated people tended to be more emotionally open and proud of it.

But when pressing a bit further with the question, she did herself find that in some of her projects, in particular, Eastern Europe, she did indeed experience a feeling of nostalgia, but this was not associated with her childhood or her origin, but with specific experiences as she worked and shared cultural experiences with the locals.

The conversation about the presence of nostalgia in archaeological projects took a distinctive turn when interviewing people who worked in the game industry such as Dr. Dennis as it seemed like there was a connection between art style and expected results due to nostalgic feelings on what the users expected things to look in the art form in games and displays. To be more concise, people tended to accept wrong concepts as long as they were in line with what they would have expected from a game, even though these concepts were true or not. This could be an adventure game where traps work despite thousands of years passing and particular behaviors that would not be acceptable in society nowadays, but which were prominent in the games for example in the 80s and 90s.

On the other hand, Dr. Schofield expressed a feeling that he had not concentrated on nostalgia before in artwork, but it was a feeling which was present and quite strong in some of his projects, for example, one which took place in Newcastle, where he noticed that the elder people came in with a sense of longing and excitement to relive the past when recreating their heritage, and this was amplified by the fact that some of the material produced had additional information which some of them were unaware of and amplified in some sense this feeling of nostalgia.

Following the nostalgia felt when re-experiencing the past through art and discovering new facts which were not well known at the time, there was another more classically psychological nostalgic attachment to stories which was pointed out by Dr. Watterson, which was the fond memories of a child going through a colouring storybook and discovering little stores hidden within the book, which was what motivated her into working within the game industry and digital design, as there is a similar process and potential in gaming and due to storytelling association, very much into archeo-gaming.

Overall, the presence of nostalgia is confirmed by all the interviewed researchers, and it seems to be mostly an emotive factor that affects people in very different ways, but in all experiences, it seems to be associated strongly with cultural attachment and remembering experiences of the past which the users are fond of; most of the time enhancing the experience and giving a stronger effect when rediscovering heritage. Such an emotive factor will be structured accordingly in this project within the archaeo-game to target all the above concepts and guide the user towards an emotive reaction similar to or equal to the one experienced by the researchers.

**Emotive Reactions by the Public to sample projects**

The comment that had a decisive turn in the way in which the question of people's unexpected or uncontrolled reactions and possibilities of controlling or guiding them in a particular direction was by Dr. Tringham. More than a comment, it was a question by her, asking about where I was from and then going on to explain that the cultural origin changes drastically the relation between the individual and emotive responses, making a comparison between Italians, Americans, and British. According to Dr. Tringham, there is a strong emphasis on expressing and praising emotion in the Italian and American cultures and a closer, more reserved approach by the British culture, which results as a consequence in very different reactions to projects depending on the country and culture of origin.

This particular factor above may have a significant impact on one of the areas of interest of this project, as one of the aims is to control and guide emotive reactions towards pinpointing a specific emotion and reaction triggered by planned events in the archaeo-game. This may mean that different sets of emotive responses might need to be predicted according to the culture of origin of the testers.

The number of factors influencing the emotive response by users continued to increase and get more complicated as more authors were interviewed, but the constant factor which remained was the cultural connection aspect. For example, Dr. Watterson explained that in her reconstructions, there was a large time gap between the user and the area or people they were interacting with, which created a need for the user to find something familiar and in some sense connected to a nostalgic feeling from their youth, but always within their cultural proximity.

The particular example was recreating a family picture in the Neolithic, the user nowadays would expect the traditional family nucleus, son, mum, dad, grandma, so those were placed in the reconstruction, but at the same time they were doing things which in modern times it would not make sense or be expected, like grandma taking hallucinogens as she sits in the corner; and this creates a possible shock reaction or even a refusal by the modern audience, recorded by Dr. Watterson in her project, which in turn gives a level of unpredictability towards what the user will react within emotive terms if shown such a scene.

The possible solution would be this familiar but not scene creation with predicted reactions depending on the culture of origin, this may not be as precise as one may wish to be but will keep the emotive reactions within an approximate area of predictability.

Another important reaction factor by the audience, which was recorded in several interviews, in particular with Dr. Watterson and confirmed by Dr. Schofiled is the audience's confusion and displeased reaction to constructs that are intended to show uncertainty in interpretation in archaeological reconstructions. The most prominent approach in digital reconstructions when dealing with uncertainty is transparent walls, something which Dr. Watterson was quite vocal against and which according to both her and Dr. Schofield distracts the audience and creates also a danger of misinformed or wrong interpretation of the area. But the most pressing issue which has to do with the scope of this project is the fact that transparent walls create a disillusion of the storytelling environment, pulling the user back to their reality knowing that what they are experiencing is a simulation and breaking altogether with the emotive encasement which the project intends to create.

Once again, a possible solution around the issue is as Dr. Schofield suggested, a foggy cover around uncertain areas, removing the need to interpret as it is technically not in the scene if one cannot see it or there may be a possibility of wider flexibility without erroneously convincing the audience the area is a perfect reconstruction by changing the style of graphical reconstruction, for example using a cartoon-like level of graphics design.

There is a risk of polluting the emotive reactions expected by the audience if there is any factor that breaks the illusion and all of a sudden takes them back to their reality and this should be a priority if this project is to have reliable results in terms of control over the direction the audience will go in terms of emotions.

There was also a danger of people taking the reconstruction emotionally as reality depending on their level of maturity, an example was given about walking with dinosaurs by Dr. Schofiled, who highlighted that several kids would argue with teachers about the fact that dinosaurs coexisted with humans and that what they were taught in school was not real.

This in itself is an unexpected d emotive reaction to a historical reconstruction which is not immediate but manifests as a result later on in the learning process of children and cannot be ignored but is dependent on the level of education and maturity of the subject, which again, according to Dr. Schofield in this sense should not be underestimated as people beyond the child stage do know and understand more than is thought.

Surprisingly, this age gap difference in reactions and this expertise and knowledge issue was turned on its back by Dr. Bozdog, in her experience of interacting and interconnecting people with a large generation gap in working on a system based on computer game technology created a kind of symbiotic approach to her project.

The users were young and old, dealing with computers and explaining the development of computer graphics and computer games and how this worked unexpectedly was that they ended up using their passion for what was happening during their time in terms of computer development to bring up to speed or to better inform each other on how computer games developed.

The elder people would explain the excitement of the first computers, the discoveries, how the systems were at the beginning and how they developed to recent systems, and in return, the younger generation would explain to the older how those tools they created resulted in the development of the graphic advancements we now have in the videogame technology.

This shows that there is a risk of misinterpretation as Dr. Schofield pointed out, but there is also a clear opportunity to turn this lack of knowledge into a back-and-forward exchange of knowledge and a powerful emotive trigger to involve generations in the use of the archaeo-game technology in terms of association to their own experiences in technology and in what can be now called the archaeology of graphics design, which may be a possible emotive trigger to test especially in terms of nostalgia, without running the risk of repeating the dinosaur issue.

Following unexpected reactions by the audience themselves, Dr. Anderson pointed out an interesting and potentially problematic aspect in terms of controlling in which direction the emotive journey goes for the user, and that is unexpected grieving, triggered by an unexpected turn of events as they explore the past, this is particularly true if the user has some connection to the story or the environment and discovers disturbing facts about it.

The specific example given by Dr. Anderson is the exploration of genealogy, people may be interested and quite eager to find out about their family's past but may not be ready to see what they find and many times this can be both distressing or emotionally challenging for them, quickly turning genuine interest into grief, sadness, and distress.

This is probably the most difficult aspect to deal with in terms of an experiment that aims at provoking specific emotions, some of those emotions may be quite negative, such as grief, loss, and other distressing types and the audience may be warned about it, but they may not be ready regardless, but it is part of the needed negative emotive reactions needed to have the complete data from this experiment and the users will have the choice of continuing or interrupting if something gets too personally emotive. This is probably the most unpredictable factor which depends on the person’s background, history and culture, and needs to be monitored closely as the topic is explored.

Moving back to the area of choices given to the audience and their reaction as explained in the paged above, several important factors were being pointed out by Dr. Economou when thinking about the reactions of people interacting with a choice system and how they did the connection to their own lives or this century.

The interactions she had were very direct, some individuals comparing the situation of a woman losing her child through abduction to modern instances of something very similar happening, in the process creating a distinctive palpable connection with a past that would otherwise feel alien to the user. In other cases, connecting the events happening in the virtual experience she designed with their own lives, therefore there was a tendency towards trying to make something alien familiar through the process of association and emotional association to events and conversations happening in the project.

The familiarisation of the environment in the virtual world can be quite different depending on the cultural proximity as Dr. Dennis suggested during her interview. This was an unexpected reaction by the audience, in a reconstruction she worked on involving the site of Çatalhöyük, she noticed that the users reacted in very different ways depending on their proximity to the site, for example, tourists would be very interested in the objects and ask questions about use, look, etc… while Turkish audience would completely ignore the object and make a much more emotive connection with the area itself.

Dr. Dennis was surprised by the level of lack of interest the Turkish audience had for the objects which may have been the normal expectation by an archaeologist of being asked for more details about the precision, the accuracy of the reconstructed place, but the culturally near people were expressing their emotive interest by explaining how they remembered the area, how they had stories about before it was excavated, what other information they had about the background history of the place and were visibly emotionally attached to it in a sense of nostalgia which permeated the conversation as opposed to how the objects were made.

It is evident that cultural proximity and cultural differences as Dr. Tringham suggested earlier are decisive factors to consider when working on emotions such as nostalgia and negative emotion and it may result in even more emotive data involving people who are more attached to the environment and the history in evaluating the game as opposed to classifying them as the general public for this project.

As seen above, there is a multitude of unexpected emotive reactions by the public which may change how archaeologists understand public engagement, but one set of emotions that are not normally aimed in terms of provoking them is negative emotions and in the next few pages there will be an attempt at questioning their presence, need to be researched and how all the authors interviewed see negative emotions as part of their work and how they either provoke or avoid them and why.

**The presence and role of negative emotions according to the authors**

Negative emotions are difficult to deal with according to most of the people interviewed, but at the same time as the initial statement of this project stated, it is necessary to deal with them realistically, without covering them to the point that they lose their original emotive aspects. Dr. Watterson was quite specific about the role of negative emotions in the major issue in archaeology about the uncertainty of fact, she suggested that hiding or embellishing factors that may cause distress, sadness, anger, and rejection at times, is just as bad as creating a purely fictional research result.

The main argument for her was that there is a push in archaeology towards accuracy and showing that archaeologists know everything, that it obscures the reality of history at times, a clear example she gave was when working on a project where Dr. Watterson and Dr. Poller recorded a conversation between the site director and the artist and it exposed the fact that archaeologists do not know everything and make deductions or assumptions which can be proven wrong and overturned with newer excavations, and surprisingly after showing the work to other archaeologists, there was a vocal negative reaction arguing that this would show that they are not always right and the public would lose confidence in them.

There is a similar trend in reconstructions when it comes to negative emotions, may it be for ethical pressure or unwillingness to engage with the issue, negative aspects of history such as destruction of heritage, massacres, and murders, all things which if reconstructed in a digital environment may address users with cultural or even family proximity to the events which will inevitably feel distressed, anger, sadness but this is still a historical memory which should be preserved if archaeologists are to do the job they are supposed to do. Hiding behind the ethical matter of not putting users in a position that they may not like or suffer out of is the same as censuring the archaeological process to avoid showing that we are not always right.

The negative emotion aspect went surprisingly in an interconnected symbiotic relation with uncertainty, seeing transparent walls or empty areas or changes in texture and shape instantly provoked negative reactions by the audience due to the rejection of the breaking of the fourth wall which removes many emotional developments made through the storytelling.

Dr. Schofield made a further observation on the issues with techniques such as transparent walls, he said that the reaction that users might have due to several factors including, emotive reaction to the breaking of the illusion, confusion, and trying to solve the mystery as Dr. Trigham put it, they might start making the wrong assumptions without even realising it, essentially doing what the transparent wall was trying to avoid.

Following from the general negative emotion’s discussion, with Dr. Anderson, there was a turn towards the toppling of statues and negative association to historical events and objects which may create anger and disdain as a reaction, and the discussion moved from digital to real-life situations, which may still be represented in digital terms. The solution or suggestion Dr. Anderson had for a situation when a controversial object is shown or a particularly hard and negative part of history is exposed to the public, such as slavery, for example, there needs to be a balance between intentions.

Dr. Anderson stated that one needs to see the level of harm caused in balance with the long term benefit of showing and preserving something, may it be digital or not, he used the example of a slavery museum, in the short term, this may cause distress, sadness, many emotions which may potentially harm the visitors if they were directly connected with the process, had relatives who were affected by it or any combination of cultural and historical proximity to it, but if this s to reconcile the past, decrease tensions and create a way to communicate those emotions and deal with the issue instead of burying it in censorship, the long term benefit outweighs the negative effect. But under no circumstances should intentional emotional damage be done just for the sake of it. This is a very good observation that will be at the core of the archaeo-game developed in this project, as there is a risk of going in this direction, the presence of triggers for such heavy emotions will be fully aimed at the purpose of advancing and developing this conversation point for a long-term positive effect.

The negative emotions aspect was understandably approached cautiously by all the researchers interviewed, but there was a clear feeling that this was something that was not approached much, especially in terms of provoking them and it was worked around, but there was also a feeling that there was a need to fix this elusiveness, and in some conversations, they did talk about their attempts at tackling using emotions to shock users to make them realise that reality in different time-periods was different and that doesn’t mean it should be forgotten and in the case of Dr. Dennis, she briefly spoke about the fact that in some cases in the past people could do some things which would categorically not happen today and the reaction was shock and denial.

This can be connected to the archaeologists not wanting to show the analytical process not to lose the trust of the public, research is neutral, it needs to be approached from all angles and despite some events being shocking, traumatising, or upsetting, hiding them creates a hole in the research area which needs to be filled and may, in the long run, decrease the level of shock and upsetting by the users as they see the reasons and make connections with the past and the difference in culture and reality.

Dr. Tringham explored the area of negative emotion in a different direction, for her negative emotion was provoked by changing the familiarity of the environment, the user interface, and the cultural proximity. If the user is placed in a situation where all of a sudden everything changes and they have to readapt to the situation, there is according to Dr. Tringham an instant negative reaction, of discomfort and many times anger. Her idea was that change is a trigger of negative emotions and this brings the discussion back to the interdependency with nostalgia, which for some is the escape route out of change, remembering how things were or were perceived as in the past, to ignore the present. It is not clear if this would be everyone’s reaction to a sudden change, this will need to be ascertained by the following chapters and the creation of the archeo-game itself, but it is an interesting connection and a clear trigger for some types of negative emotions or at least complex emotional reactions as Dr. Bozdog seemed to be leaning towards.

The approach towards the creation and investigation of negative emotions by Dr. Bozdog was quite insightful, as she suggested that there should be no association such as ‘negative’ emotion, but to consider them as complex emotions, because they are the creation of a wide range of emotive factors which are provoked by the creator but have a different effect on each person depending on a wide variety of factors.

Many emotions might be negative for some and positive for others, they might be mild or extreme, it all depends on the cultural background, personal history, age, the environment, and countless other factors, for example, an archaeologist might cringe at the sight of the destruction of cultural heritage in a game or collecting for personal use ancient objects and a teenager used to adventure games might just ignore the significance of it and enjoy the process.

The particular example of how initial negative emotion might resolve into something different even after just a few minutes was given by Dr. Bozdog in the example previously mentioned about older generation computer users with the newer generation, the initial effect is distrust, rejection of change, and awkwardness, but after a few interactions, there was a change towards a symbiotic learning relationship. All of this could have not happened without the initial negative interaction.

Factors like this do show that research towards negative emotion even if ethically difficult to tackle is needed and as Dr. Bozdog stated, it is not negative but a complex type of emotive range.

**Summary**

There was a wide acceptance that there are technical issues in reconstruction that are at the moment being tackled from a possibly misguided angle of technical precision as opposed to emotive precision under the fear of subjectivity which is as shown above an inevitable companion to interpretation, especially in emotive contexts. There are also several aspects of negative emotions as being more than just a negative reaction such as fear, hate, or anger, but as being a transitional and more complex concept, which needs more experimenting, and interpretation as opposed to ignoring and fearing it due to the risk of ethical judgment.

Lastly, the artistic techniques and suggestions by all the authors might have given much more input than the literature present in research right now, as many of them tackle the less technical aspects and issues that archaeology still needs to work on for the reasons listed above.

As a result, there is a need to interconnect several areas of research to obtain more solid results and for this purpose, the following delved into literature, film, book, and videogame techniques that may be of use in the digital design of an archeo-game and enable the storytelling to be more effective into provoking and controlling emotive responses given out by the audience and users.

This was closely followed by a focus on nostalgia which seemed to be another important emotive area that was intertwined with the issues expressed by all authors interviewed.

Research following this paper will focus on the creation of a digital archaeo-game containing emotive triggers and theoretical concepts developed from the interviews, to test and prove or disprove each of the above-discussed topics and issues.

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