

Article: Designing Stories from the Grave: Reviving the History of a City through Human Remains and Serious Games

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Date: 20/07/2023

Subject: Answer to the reviewers and the recommender

Dear Sebastian Hageneuer, Tina Rassalle and Sophie C. Schmidt,

On behalf of all the authors of this preprint, I would like to thank all of you for your constructive criticism. With your thoughts and recommendations, we believe that we can indeed make this paper a valuable contribution to the CAA proceedings. We highly appreciate all your comments, as well as your valuable time and effort to review our article.

For this next step, we will take your comments one by one and explain how we resolve the vast majority of them:

Review by Sophie C. Schmidt

I would encourage the authors to give this more precise information in the beginning instead of “a work in progress” – We have added “In the ECHOES project, which is in its second of three years of development” in lines 39-40.

Therefore a definition of the term “immersion” is needed here – We have added the definition of immersion by Murray in the Introduction section in lines 52-55.

The chapter 2 “Related work” starts with a strong statement about the intersection between CH and creative industries, which sadly lacks examples or citations – We have added several citations for this paragraph in lines 64 and 66.

Chapter 2.1 on the archaeology of Thessaloniki is very short and its broad statement about using GIS and databases does not add to the article – This is the main subject of other articles, and this paper does not focus on the archaeological excavations.

There is no introduction to who “the learners” might be. The definition of the target audience is very important for the development of outreach projects and should be done here as well – We have defined the target audience in lines 94-96.

Also, I would like to see a more clear take on “emotions and morals, which are the main motivations of people”. For me it is at the moment unclear, whether this refers to the modern users or the ancient people - It refers to people in general, from the ancient to modern people. We can't state this in the article, but we also included a reference for that statement in line 107 (hope that clears things up).

I am not sure, whether the authors differentiate between “narration” and “narrative” in this paragraph and would like to put forward that there is a difference, that is important for the understanding of the topic. Maybe some re-phrasing might clear this up – We have rephrased this in the whole article, focusing only on narration and not on narrative.

The phrase “thematic axes” hasn’t been discussed and it is at this point not clear what is meant. The description of the first results of the questionnaire regarding AR and VR is a bit stilted, some re-wording might make it easier to read – You are completely right, we have deleted this term, as it didn’t add to the article. We also rephrased the whole paragraph.

The introduction to the chapter “3.2 Game Scenarios and Reward System” reads a bit like an advertisement (“captivating”, “rich tapestry”) – Again, completely right, rephrased and deleted such phrases from the whole article.

It might tie in better with the article as a whole, if the topic of a reward system – linked to the gamification aspect – would be explained beforehand – We kindly disagree, and think that the concept of the reward system should be analyzed in this section.

HOW the tours will be informative? Will you provide walls of text, a narration of facts, is the information contained within a pop-up, does it appear automatically or on demand – We have rewritten this section, but due to the fact that the project is a WIP, we can’t elaborate much on that at this stage.

I have just a quibble with the phrase of an “accurate depiction of the past”. There is a bit of a debate about accuracy and authenticity in historic game development – Completely right, we have removed such allegations from everywhere.

In chapter “4 Design and Development” again the wording is not always as analytical as could be for an academic paper (“bring to life”, “takes us back”) – We have removed these phrases from the whole article.

Especially the chapter “4.2 Technologies” uses words that are a bit too evocative and too vague for an academic paper (“unparalleled level of engagement”, “visually stunning”) – We have rephrased that to “By leveraging these technologies, the focal point was to engage the users and enhance the sense of presence through the different environments”, in lines 254-256.

As above I would also like to see the topic of the reconstruction involved in “accurately depict decayed artifacts” to be addressed – We have rephrased that to “This allows us to depict decayed artifacts with a high resemblance to the originals”, line 276.

As stated before the part “4.3 Gamification” is an important chapter, which is closely related to the serious games aspect. In my opinion it would make sense to move it up to the introduction to better explain the general approach taken - We kindly disagree with that, and we think that gamification is a clear part of the methodology and should stay as it is.

The discussion on the Metaverse is lacking in critical evaluation of the possibilities and the limitations at the moment (hardware, software, usability, prices in development?) – We have added an entire subsection namely 4.4.2 *Software and hardware limitations* to address these limitations we have faced.

After reading the conclusions I was reminded again of the ethical considerations around human remains, that are the topic framing the paper – We have added an entire subsection namely 4.4.1 *Ethical issues regarding the use of human remains* to address the ethical considerations.

Thanks once again for your thoughts and recommendations!

Review by Tine Rassalle

How, when, and why did this project come to be? Background of this project – We have added the rationale for this project in lines 37-39.

What are Serious Games? Can you provide well-known examples? – We have added the definition and concrete examples in lines 28-29.

Consequently, it remains unclear whether the AR/VR experience showcases human remains and, if so, whether this is considered a preferable alternative to viewing actual deceased bodies - We have added an entire subsection namely 4.4.1 *Ethical issues regarding the use of human remains* to address the ethical considerations.

However, the varying verb tenses obscure the current status of the project for the reader - The use of verb tenses is accurate. The project is a WIP, thus some parts are completed (past tense) while others are still in development (future tense).

Regarding the AR/VR experience described in the article, there is a need for clarification regarding the correlation between these two elements – We have addressed that in lines 197-199.

In addition, it is also not clear exactly how many VR experiences there will be - It was stated “four remaining environments” because the wagon and the tomb chamber were already analyzed. We have deleted that and added all the environments in lines 186-191.

Another point of confusion arises from the mention of the "five levels of information method" (lines 170-171). The article lacks clarity regarding the specific objective of this method and the rationale behind the selection of five steps – We have deleted the five steps-level of information sentence, and rephrased the paragraph.

Lastly, it is recommended to consider relocating Chapter 5, titled "Discussion," to the Introduction section of the article – We have revised the whole concept of Discussion, and deleted the term Metaverse.

For instance, the term "moreover" is frequently employed to introduce a new topic, whereas its conventional usage implies a continuation of the same topic – We have rephrased those sentences in the whole article.

It would be worthwhile to elucidate the reasoning behind these discrepancies and ensure consistent capitalization conventions throughout the article – We have uncapitalized the words that do not serve as an acronym.

Refrain from using "him/her": instead, use the gender-neutral "they" – We have changed this in the whole article.

However, it is understandable that readers then might expect citations for more significant statements as well, such as the history of Serious Games or the term Metaverse, which are of greater relevance to the article's subject matter – The concept of Metaverse is revisited and rephrased, and we have added the terminology and examples for serious games in lines 28-29.

For example, lines 301-308 talk about the importance of gamification to enhance user engagement, but here no studies or citations are provided – We have added a citation for that.

Regrettably, the article lacks a URL or hyperlink directing readers to the project's website – We addressed that by adding the URL in the Acknowledgments section.

Moreover, the absence of the questionnaires used and the specific questions posed to users prevents readers from accessing detailed insights into the methodology and data collection process. – We can't provide the questionnaires at this stage, because this will be the theme of another article, and this paper doesn't focus on the answers to those questionnaires.

Thanks once again for your thoughts and recommendations!

To conclude, the main changes in the paper were the addition of section *4.4 Limitations*, with *4.4.1 Ethical issues regarding the use of human remains* and *4.4.2 Software and hardware limitations*, to address the main comments of the reviewers and the recommender. Additional changes have been made to reach the desired outcome of the paper and enhance its academic level. We believe that these revisions have significantly improved the paper, making it more suitable for publication.

Once again, we sincerely thank you Sebastian, Tina and Sophie for your time and effort in reviewing our paper. Your feedback has been invaluable to us, and we are grateful for the opportunity to improve our work with your guidance. We hope that we have reached your expectations through these changes. Please let us know if you have any further questions or require any additional information.

We look forward to hearing from you.

On behalf of the authors, Tsaknaki Electra