

Interactive comment on “Earth Girl Volcano: Characterizing and Conveying Volcanic Hazard Complexity in an Interactive Casual Game of Disaster Preparedness and Response” by Isaac Kerlow et al.

Anonymous Referee #2

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This manuscript focuses on educating and engaging the general public of volcanic hazards in relevant communities, and thus falls squarely within the scope of this journal, which includes "geoscience engagement".

The game environment has for some time already been a very successful means employed by non-government entities and government agencies alike, to educate and engage the public. This particular game aims to communicate and personalize, even empathize the experience of volcanic hazards and behavioral responses in a culturally sensitive context. As such, the impact and demonstrated response of the public trials

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of this game are a significant and substantial contribution to the field of communication of, and public engagement in science.

The technical quality of the work described is of a high standard, and the authors convincingly and quantitatively demonstrate their diligence in providing a culturally, scientifically, and artistically well-balanced product. Furthermore, their detailed narrative of methods and lessons-learned are very valuable for any other disaster-related public engagement and communication game-environment endeavor.

To the best of our knowledge, it is the first of its kind (among natural hazards game engagement tools of communication) to undergo such careful, diligent, and methodical rigorous vetting and designing to provide a high quality product.

The technical approach and applied methods are excellent. However, the discussion and written presentation/delivery of the results lack balance and structure.

The presentation quality is not sufficient for publication just yet. I suggest revisions below, which while changing the structure and flow of the manuscript, will hopefully improve its delivery significantly. With improvements (revision), it would make a possibly quite impactful and valuable article in Geoscience Communication.

Detailed comments and suggestions:

The authors should take care to adjust any possibly marketing-like language, which is inappropriate, and replace it with factual language. A publication in this journal should not so much evoke emotions, which is the domain of marketing, but convincingly document the scope, methods, results, and lessons learned.

Otherwise, the language used makes the paper read fluently. It appears to be very long, though I didn't check the word count vs. the journal's recommendations.

The abstract may benefit from framing it more in a communication theory context, which could be easily solved with careful wording choices and better structuring.

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The manuscript structure could be significantly improved by better header hierarchy to provide a more structured and easier to follow logic, and by providing brief introductions. For instance, It is unclear where the context introduction ends and the methods section begin.

I suggest to add a table of user testing statistics, if available, since this is an important foundation to the resilience and impact of the final product. It could also be a pie chart, bar chart, or similar, and should be referred to in the text at the appropriate sections.

Section 2 will need a paragraph or so of introduction of the following sections. I suggest to number start with a preamble providing a brief description of the sections that follow (no more than one sentence or bullet per section) and call it #2. Call "Act one" #2.1 (levels of difficult, #2.1.1); call "Act 2" 2.2, and so forth. Of course, if my earlier comment on methods is taken into account, these all change to 3, 3.1, 3.2, etc.

Section 5 is focused on behavioral and psychological methods to communicate functional relationships and provide a learning experience feedback component. I suggest to expand on the preamble of this section in a communication theory introduction of game engagement and education state-of-the-art knowledge from the relevant literature. The following subsections 5.1 through 5.3 could be listed as bullets in this preamble and given appropriate context.

Section 5.1 "Rules of Thumb" as a title phrase is based on a European/American language-centric idiom, and I suggest to use different language (or define "rules of thumb" in the beginning). There is more technical language that could be used to describe these relationships described in Sect. 5.1, like process feedbacks, functional relationship, etc., per their technical definitions. The author should recall that the audience here is not the game audience.

Section 5.4 - it is not obvious to me why this shouldn't be part of the methods section in the beginning.

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The Conclusions appear to lack context from the game engagement/education communication literature, which I am not familiar with. It also lacks a communication-focused impacts summary (how does this science engagement/education game impact society and behavior, or how is it projected to do so?).

I suggest the author look at a few examples of successful publications from this journal, too, to possibly improve the delivery in terms of length, level of detail, structure, and framing.

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