

Referee report for the manuscript egosphere-2025-577

Finding Gaia: Exploring Climate Change Through Gamification

General comments

The manuscript presents the results of an educational experience focused on climate change, which follows a gamification approach. The paper provides information on the context and the approach used in this study and the main findings and it discusses issues around using this approach to communicate science and raise awareness. It introduces a gamified educational experience and evaluates its impact using statistical methods.

The topic of the manuscript is valuable for scientists seeking ways to communicate complex concepts to non-scientists, particularly young individuals. The adopted approach reflects a growing interest in alternative methods for engagement within an educational setting, and the study's outcomes provide insights into how communication can shape people's understanding and, consequently, influence awareness.

The manuscript is well written and organised, with a logical flow from background to methodology, results, and discussion. The narrative is engaging and suitable for a broad audience.

However, the manuscript should be improved to bring out the valuable points it discusses, increasing the impact of the study and broadening the readership. The proposed enhancements will broaden the reach and relevance of the paper and better support its purpose.

As a recommendation, the paper should benefit from revisions before being accepted for publication.

Specific suggestions on how the manuscript can be improved are included below.

Specific comments

1. The manuscript does not clearly define the research aim and objectives; is it to create the game, to evaluate its impact or to highlight the contribution of gamification in geosciences communication? The authors should clearly point out the aim of the study early in the manuscript, ideally at the end of the introduction, to guide the readers, allowing them to better understand the process and the value of the empirical findings.
2. While the authors provide some information on the features of the activity, they do not include details on the content and learning mechanisms. For example, while they state that the activity focuses on climate change, including mitigation and adaptation strategies, they do not offer examples to allow the readers to understand the type of questions the activity includes. Including examples of puzzles or challenges and how they were used to address specific climate topics (for example, flooding and adaptation strategies) would provide more insight into how these topics were communicated through gamification.

3. Adding to the previous point, the title of the manuscript suggests a focus on exploring climate change through an educational activity that incorporates game-like elements. Although the reader can make a connection when examining the outcomes, the activity's approach to addressing climate change is not clearly presented. Strengthening this connection between the thematic context and the activity design would enhance clarity and value for the reader.
4. The authors describe the experience as not replicable, stating this as a limitation and at the same time as a unique characteristic. I think this point needs further explanation. Why is it not replicable? What specific elements constrain reproducibility? The authors could elaborate on this to help the reader understand its uniqueness. Also, the authors could discuss how the approach can be adapted/amended for implementation in other educational settings, which would increase the study's applicability and impact.
5. Building on the above point, the paper could benefit from a more critical discussion of the limitations, such as generalisability.
6. While the abstract of the manuscript provides valuable details on the context of the study, it only presents limited information on the study itself. I recommend the authors revise this to communicate the study's scope, methods better and highlight the key findings. This will improve the visibility of the work.
7. The manuscript uses different terms (for example, "gamification") that may be unfamiliar to the typical readers. I recommend defining these terms early in the manuscript to eliminate any confusion.
8. In the discussion section, the authors note that when single-session activities are complemented by sustained engagement over a longer period, they can support retention of complex topics. This is a valuable point that deserves further elaboration. Providing more information to support this statement would enable the readers to understand the potential of this study.

This is a promising and well-written manuscript that presents a novel and meaningful contribution. I strongly believe the above points would maximise its impact.