

Dear Editor,

Thank you very much for your detailed and thoughtful feedback on our revised manuscript, and for the time invested by you and the reviewers in assessing our work. We also appreciate your explanation regarding the delay in the handling process and fully understand the circumstances.

We have carefully addressed all the substantive issues raised and substantially revised the manuscript accordingly. Below, we provide a point-by-point response to the Essential Required Actions outlined in your letter.

1. References

We acknowledge the seriousness of the issue raised regarding the legitimacy and accuracy of references in the background literature paragraph. Following your comments, we conducted a full audit of all references in the manuscript, with particular attention to the paragraph highlighted in your review.

As a result:

- All references in the manuscript have now been verified individually against authoritative academic sources (publisher websites, DOI registries, and Google Scholar)
- Any references that were ambiguous, incomplete, or potentially misleading have been removed or replaced with verifiable and widely cited academic sources.
- The reference list has been fully reformatted to conform to the journal's style guidelines, and minor formatting inconsistencies noted elsewhere have been corrected.

We recognise that inaccuracies in references undermine the perceived rigour of a paper, and we regret the earlier oversight. We believe this issue has now been comprehensively resolved.

2. Critical review of the academic literature on gamification in climate change education

In response to your comment, and those of both reviewers, we have added two new paragraphs that provide a legitimate, critical, and comprehensive review of the academic literature on gamification in the context of climate change education.

This new section:

- Draws explicitly on the shared established and peer-reviewed literature in gamification, environmental education, and climate communication.
- Critically examines both the potential and the limitations of gamification, including issues of context-dependence, motivation, ethical considerations, and the risk of oversimplification.
- Positions gamification as a complementary, theory-informed pedagogical strategy, rather than a standalone or universally effective solution.

While this expanded review directly addresses the concern that the earlier version lacked sufficient depth and critical engagement with the literature, and although this topic is not a core focus of our paper, we believe that its inclusion now provides a more structured and solid scholarly foundation for the study.

3. Illustrating how the game activity addresses key climate change themes

We have also substantially revised Section 2.1 to respond to the request for a clearer and more concrete account of the Finding Gaia experience.

Specifically:

- We have added two new descriptive paragraphs that detail the specific climate change themes addressed within the game, including weather versus climate, prediction and uncertainty, human influence on the climate system, climate scenarios, and impacts.
- The revised text explains how these themes are navigated through the sequence of puzzles, explanatory slides, and facilitator-led discussion, clarifying the learning mechanisms at work.
- The role of the facilitator is now explicitly articulated as a core component of the pedagogical design, mediating between gameplay, scientific content, and learner understanding.

In line with your recommendation, we have also prepared supporting diagrams/screenshots from the game graphics to visually illustrate the structure of the activity and its learning logic, enabling readers to more fully appreciate the indicative content and educational mechanisms employed.

We are confident that these revisions directly and fully address the two substantive concerns raised by you and the reviewers. We believe the manuscript now demonstrates a significantly strengthened level of scholarly rigour, conceptual clarity, and transparency in the description of the intervention.

We would like to thank you again for your careful editorial guidance and for the constructive input provided by the reviewers. We appreciate that, given the considerable time elapsed since the previous round of correspondence, it can be challenging for all parties to reconnect with the details of the earlier exchanges. We hope that the revised manuscript is now suitable for progression in the review process, and we remain, of course, happy to make any further adjustments if required.

With kind regards,