

- 22-23: “and show it as a possible career path” would be better as “and to showcase associated career paths”
- 23: “playful” does not feel like the correct word here. I recommend either “interactive” or “hands-on”
- 30: “ages(9-18” should be “ages 9-18”
- 49: “(Fig 1); number” should say “(Fig 1); a number”
- 49-50: “prolonged listening to the Earth’s pulsation” is unconventional phrasing, perhaps better said as “prolonged monitoring of Earth’s crustal movements” or “prolonged monitoring of Earth’s seismic activity”
- 50: “when and where the next” should be “when and where will the next”
- 87: “qualitatitevly” should be “qualitatively”
- 83 and 86-87: there should be consistency in how in-text citations are listed, either chronologically or alphabetical order
- 89-90: “Few, events are concived to” There should be no comma after “Few” and “concived” is not a word. To rewrite with the fewest changes should say “Few events are conceived” but I recommend “Rarely are outreach events designed to include quantitative evaluation”
- 91: “guideline” should be “guidelines”
- 92: “quizes” should be “quizzes”
- 90-95: This sentence is so long that some meaning gets lost. I recommend “One of the most complete, if not widely known, guidelines for evaluating outreach activities is offered by IMPACTLAB (Land-Zastra, et al., 2023), which outlines ten different approaches. Here, we adopt entry/exit quizzes, a subgroup of the ‘Surveys Method. According to the guide, this strategy is recommended for assessing ‘detailed quantitative measure of acquired knowledge and understanding’ acquired by the audience.”
- 101: “controlled source” should be “controlled-source” (for consistency with other mentions)
- 102: “In academia, we” would be better as “Researchers typically”
- 104: “uses >3” should be “uses a >3”
- 122: “it’s” should be “its”
- 125: “4 months” should be “four months”
- 142: “used in WAR seismic in academia are” no need to say in academia, better to just say “used in WAR seismic are”
- 143: “as well as its volume” should be “as well as its volume,” (add a comma)
- 155: remove the comma
- 212: “research activity” should be “research activities”
- 214: “efficient” should be “effective”
- 217: remove “which is” OR say “which poses”
- 219: This is the first mention of a young audience. It might be helpful to mention a goal of sharing research and making science accessible to younger audiences in the first paragraph of this section.
- 219: remove “However,”
- 221: “efficiency” should be “efficacy”
- 224: “this activity is” should be “these activities are”
- 242: remove comma
- 243: not clear what is meant by “marine” as that word is an adjective
- 368: “master” remove apostrophe, could avoid confusion by just saying “graduate students”
- 376: “kids” is an informal term which contrasts with the overall tone of the paper. I would recommend saying “children” or “students” or “participants”

It was a joy to read about your creative method for making “obscure” research methods visible, and for engaging young learners in authentic science, which, as you convey, is sometimes challenging in academia. The description of your experiment is very clear, which makes it easy for readers to understand your design, and also makes it possible for other researchers to repeat the experiment. Below are my suggestions for each section, followed by some general comments. The attached document contains line-by-line suggestions for technical corrections. Feel free to contact me if you have any questions or would like any elaboration.

Introduction: While the first paragraph creates a compelling narrative about the history of seismic measurements, I think it could be strengthened by references to literature describing those early discoveries. The same thing goes for the early methods described in the second paragraph. I also wonder if there is any research to support your claim that offshore seismic surveys are “obscure and unknown.”

Figure 2: I love the ocean-centered projection, as it reinforces your point that oceans hide so much of Earth’s crust. However, I think the focus on plate boundaries, and especially mid-ocean ridge spreading rates, distracts from the point you are making about earthquake frequency. I recommend that you either switch this figure or also include Figure 2a from the Chen et al. (2023) paper, which shows earthquakes on the same map projection.

Approaches and methods: In the first paragraph, I think the examples of outreach should be described in more detail so that an unfamiliar reader would understand the comparison to your experiment (i.e. what is a “gumby” suit?). (Note: I was not able to open the links provided. If they illustrate what I am saying here, feel free to disregard this comment). I love the inclusion of the LEGO whale to make this even more realistic, and would love to see an expanded description of all the career paths highlighted in your experiment. This makes me wonder: What are you doing to *directly* teach students about these career possibilities?

Results and discussion: I appreciate that this section both reports the data and attempts to interpret it. However, I was very, very confused by Figure 7, even after reading the figure caption and description in the results section. I realized that my confusion came from the fact that the figure appears to compare the results from each administration of the quiz, making it seem like the results of FDS1, for example, are significantly lower than the results of High School. I eventually figured out that Figure 7a was showing the total number of questions answered by the total number of participants (and is therefore skewed based on how many individuals participated in each event), but this part of the figure did not help me understand how well participants did overall. I was also confused by the bold numbers at the top of the bars in Figure 7a, because the caption does not explain what the percentage represents. In the discussion, I wish there was more in-depth and detailed analysis of why some questions scored so low, both before and after the experiment (ex: FDS1, Question 2).

A general comment: The placement of figures does not match well with the text. For example, I was confused by Figure 2 (page 3) until I got to the description on page 4.