

Interactive comment on “Demonstrating change from a drop-in engagement activity through pre- and post- graffiti walls: Quantitative linguistics and thematic analysis applied to a space soundscape exhibit” by Martin O. Archer et al.

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The authors have written an interesting paper on quantifying visitors' experience of a soundscape exhibit. To evaluate learning outcomes is crucial for designing and developing new and better exhibitions. The authors successfully quantify changes in the visitors' perception before and after the exhibit. I therefore think the purpose of this study is important, and that the study is appropriate for Geoscience Communication. Overall, the writing is short and concise. The structure is logical and flows well. Some sentences are a bit long, and could be shortened for increased readability.

The exhibit is a soundscape and the evaluation is done by using two methods of statistical analyses. Input from the visitors is collected using sticky notes (termed graffiti walls). To me, there are two main points in this study: 1) the use of statistical analyses on engagement reviews and 2) measuring the learning outcomes in a soundscape. I think the statistical analyses have been well-covered by the other reviewers. However, I would have liked to see the authors place their findings more in the context of the exhibit. The intended and the measured learning outcomes seem somewhat detached, while the paper raises several interesting questions regarding the learning outcome. E.g. if the exhibit aimed to teach visitors about plasma waves or space weather, in what way did the authors capture that? Measuring “change” is vague, and I think it should be specified what kind of change they were looking for. This would also be important knowledge for others in the future when deciding on methods to apply. I had some questions whether graffiti walls are accurate enough to adequately capture details in the visitors’ perception. In general, space is empty, slow and silent. Is there a risk here that the visitors mixed near-Earth space weather and conditions in outer space? Or that plasma waves are sound waves? Not all change is positive, so would there be any way the authors could measure this in their method? The bell-jar experiment was mentioned as an example that people falsely think space is silent. However, my understanding of the bell-jar issue is that people think only air propagate sound, and that space is silent because there is no air. That waves propagate in plasma, and that these waves can be sonified to be audible for humans, is very complex information. To make sure that visitors did not confuse any of these concepts seems to require targeted questions from the evaluators? The authors’ reflections and insights on this would be appreciated. I was not familiar with the term graffiti walls for sticky notes, this should be explained. It would also be interesting with a brief explanation of why this method was chosen. The term young families is not defined, but I assume these are young children and that many of those cannot write? If adults write for them, would this bias the responses to e.g. show higher vocabulary complexity? Line 91 states that Zipf’s shows different trends for children and adults. The analysis using Zipf’s is

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presented for the entire dataset. How would the age distribution affect the result, and could shifts in the age distribution before/after affect these? I was wondering whether the increased diversity in words afterwards, but fewer respondents, could be caused by a larger proportion of adults participating (e.g. because the children were too tired?). Some clarifications or reflections on this would be helpful.

Line 50: Museum is misspelt (“Musueum”)

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