Review of: "Visual Science Communication: The next generation scientific poster"

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Timely and interesting article, addressing an important issue around framing science stories in a way that is attractive and emotional at the same time as accurate and objective. The wording of the article is quite repetitive and lengthy, so could be more concise and contain more specific detail – showing clearly how and why certain approaches work/don't. Overall, it's not clear exactly what audience this is intended at, and in places seems to be for a general public (but how/why would they access this), and in other places seems to be for school students as a learning tool, or perhaps even for scientists in different fields to engage with a new discipline. I think some clarity on this would be important, to focus the article. A major limitation of the article is that it is based on literature and author expectations as to what is effective visual science communication, rather than testing the examples such as the "Explore the Ocean" on the public and presenting data on user experience/enjoyment/motivation to learn more. The interactive poster itself is beautiful! The video demonstrates this well, and it certainly looks highly engaging. More detailed comments below:

Abstract:

Do you mean all kinds of scientific findings in the line '*which types of visualizations are best suited to represent scientific findings…*'? I would question how effective any one approach to visual science communication could be for all science. Could you be more specific here, e.g. the paper is framed around ocean literacy, so it may be worth focusing on that (or discussing how relevant this may be for wider science contexts).

Also, in what platform/forum do you imagine this interactive poster to be available to the public? Would this be online (if so, how would you direct widespread society to explore this?), or in museum/gallery/community settings, or something else? Interested to know how it would be delivered, as well as the product itself, and who the intended audience might be.

Not clear from the abstract how the interactive poster was tested (*we describe the advantages of interactive media in the visual communication of marine sciences*')– some more detail on this and the results would be good to see.

In the final line, why is it important that science is transformed '..*into a consistent language…*'? What do you mean by consistent? If it was all the same, it might become boring. Different approaches reach different audiences better. Equally this comment applies to Figure 1 – what is the benefit of a consistent language, and is that the correct terminology here?

1. Introduction:

Science communication is used here in the context of communicating *'to'* the public, which suggests a continued deficit approach, assuming that one-way flow of information from experts to the public is effective, despite a large body of research demonstrating that it is not. I'd recommend expanding this a little to address how public audiences can be involved in a more dynamic communication approach, rather than as passive receivers. This seems important in building the context for your interactive poster.

Paragraph 5 – need more explanation here of the purposes of communicating in this way with the public. Doesn't necessarily need to be 'simplified' but rather 'distilled' and 'with wider relevance' – language here seems a bit derogatory about the general public. Why would they want to explore in-depth links and texts? I question the strategy of '*reduced cognitive load*' and instead think bringing meaning to the science is important.

In the line, '*It combines the traditional science poster with new technical possibilities by using a large interactive multi-touch display as hardware and interactive media programming as software*', this suggests significant hardware is needed – where will this be displayed and who will have access? Seems to limit the distribution if restricted by hardware.

2. Implementation

Again, not clear what you mean by '*consistent visual language*' as you give a wide range of media/visual forms in this section. The bullet points don't seem like a logical list - perhaps would be better if these were all key principles/fundamentals of visual language, rather than a list of important but perhaps slightly disjointed points. Strongly suggest re-structuring this section.

'*Two of them were evaluated regarding user experience and presentation Frahm 2019; Hauser et al. 2017)* – can you briefly summarise what was found in these studies? What worked well and why, and what didn't? How have you built on this with latest iterations?

Section 2 in general lacks any data about user experience, it is all based on what the authors expect to be effective, rather than any rigorous testing – have you been able to track how long users interact with the poster, or how deeply they explore the various areas, or anything like that? This seems to be critically lacking.

Concept and structure of "Explore the Ocean"

'*The main communication goal of the interactive scientific poster is to increase the ocean literacy of the target group*' – why is this important? What purpose is this intended to serve?

What dates was/is this interactive poster displayed on the cruise ship, and is it only on one ship, and what kind of ship/demographic? A few more details would help add depth/rigour to this as a case study. Displayed at GEOMAR, Kiel suggests a scientific audience rather than general public.

A large amount of information and data is accessible via this platform, which is great. How will this engage an audience though – is there a story/narrative tools/game element to draw various things together and connect the science? How will the user be motivated to continue exploring?

Narration in "Explore the Ocean"

How are emotional components of storytelling brought into the narration? At the moment the text here seems to suggest more logical narrative, rather than finding human connections/meaning for an audience/emotive tools. The final paragraph addresses this a little, but too simplistically – e.g. *iconic pictures of plastic* – does that really enable a *'pleasurable reception'*?

3. Discussion, perspective and conclusion

'*Reaching the public with scientific findings has become an important field for scientists and communicators in the last years'* – this lacks discussion/emphasis of why this is so important.

Collaboration between scientists and designers fosters new insights

This final paragraph doesn't add anything new – suggest removing.

Narration in "Explore the Ocean"