

Finding Arcadia: humanized interactive data-story for action-focused climate change engagement

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ABSTRACT

To address the gaps found in previous research and the challenges posed by engaging audiences with climate change data, we are testing Data Humanism as an approach to create data interactions that connect users with complex information through data-stories that are contextualised, personalized and solution-focused, shifting the dialogue from crisis-focused to action-focused. This approach is being tested in an interactive public display that connects audiences outside academia with climate data related to the oceans, in particular whales. So far, the prototype has been tested in a place of informal science learning (science museum) and a local food market, two very different contexts and audiences. Preliminary results suggest that this approach is effective in engaging diverse users with the data. In this article, we focus on how we are addressing the gaps found and the development of the data visualizations.

Keywords: Data visualization, Climate change, HCI

Index Terms: Human-centered computing – Visualization – Empirical studies in visualization

1 WHY – GAPS FOUND IN CLIMATE DATA INTERACTIONS

To understand *how* climate change topics were being communicated to users outside academia in the research fields of HCI and Design, we conducted a survey of 74 interaction projects that focused on this topic (*in press*). We found that: a) topics follow trends over time; b) most projects have a neutral messaging (neutral framing, based on examples and data visualisations, with no suggestion of actionable steps). This analysis informed the proposal of five implications for design: a) Choose topics based on impact and audience; b) Explore interactive engagement in daily routine places; c) Help the users take action by proposing actionable steps; d) Positively frame the message with a narrative adapted to your audience; e) Explore alternative and more inclusive perspectives. Considering these gaps, we decided to test a less explored, more inclusive topic (multispecies cohabitation) [1, 3, 4] – the importance of whales for global climate –, with a positive framing based on suggestions for action, in public spaces.

2 HOW – DATA HUMANISM

The Data Humanism approach, proposed by Giorgia Lupi [2], suggests a more human and more personalized experience with data visualizations. By using additional, more qualitative, layers of information, the communication can become more personal and contextualized, and therefore potentially more engaging. The purpose is to design visual narratives that link the numbers to what they stand for: stories, knowledge, people and behaviours.

2.1 Visualization story: *Finding Arcadia*

To test this approach and address the gaps found, we developed *Finding Arcadia* – an interactive data-story that uses data

humanism through: a) anchoring the data about oceans and whales in the story of Baltazar, the blue whale; b) contextualizing the data with comparisons and other layers of information; c) showcasing suggestions for action throughout the story.

The touchscreen display was first deployed in a pilot test during the UN Ocean Conference in the main Portuguese science museum (Fig.1a). All adult respondents had higher education, considered that the experience transmits the information in a clear way, and had mixed feelings about how the story made them feel – negative because of the scale of the problem (climate change in general), but positive and optimistic to see that whale numbers are rising, for example, appreciating the suggestions for action. For the second test, an improved version, we decided to choose a venue where this type of topic and interactions don't occur, where people go in their daily routines (take the topic to possibly less engaged users), and with a more diverse audience: a local food market marked (Fig.1b). At the time of submission, this test has just been concluded and 64 users were surveyed. Users were highly engaged with the topic and preliminary results suggest that the data visualizations are easy to understand, people think the data relates to their own lives, and appreciate the suggestions for action. Further analysis will inform future iterations of the study and guide the proposal of guidelines for positive and action-focused climate change interactions.



Figure 1: Deployment in the science museum (a) and market (b).

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