

Investigating the Climate Perception Gap Through Interactive Design

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Background

One main challenge for experiential designers in the public education space, i.e. museums, is expanding visitors' awareness of their social context. This is especially important for issues where the general population's engagement in small actions may accumulate over time into significant social change.

Climate change is among these issues. However, action to mitigate the effects of climate change is limited by the general tendency to underestimate society-wide concern about the problem, a phenomenon known as [pluralistic ignorance](#). Despite the [greater than 99% consensus](#) among climate scientists worldwide regarding anthropogenic climate change and [57% of the American population registering as either alarmed or concerned](#) about climate change as of Fall 2023, Americans *believe* that [only 37–43% of their peers](#) support climate mitigation policies.

This perception gap contributes to a societal inertia that limits the effectiveness of communication and education regarding planetary health. People have access to information about climate change, but they may be less motivated to act toward solving it, because they feel that they're in a minority.

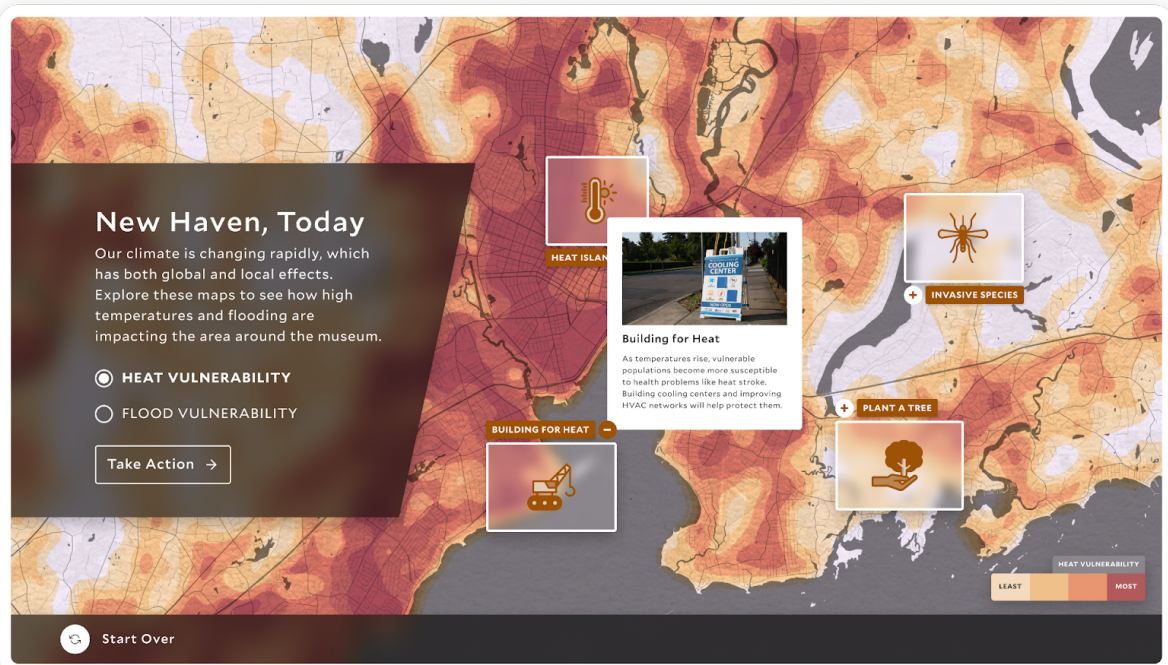
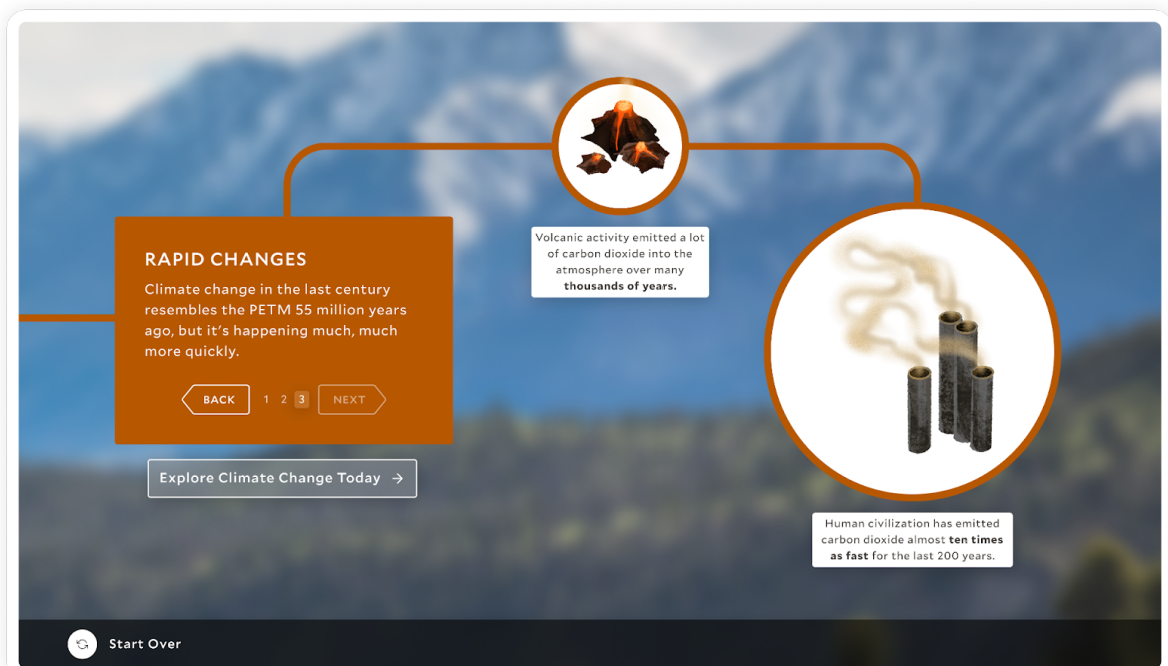
If we close the perception gap, will people be more likely to act?

In this series of studies, we investigate the scale of the climate perception gap and, as experiential designers, our ability to close it, via incorporating a real-time survey of audience perspectives into an informational interactive exhibit discussing climate change in paleohistory and the modern day. The exhibit is located at the Yale Peabody Museum in New Haven, CT. The survey, based on the [Six Americas Super Short Survey \(SASSY\)](#) as developed by the Yale Program on Climate Change Communication (YPCCC), includes two new questions pertaining to the perception gap and individual action. After completing the survey, the visitor can view their own results and those of the population of New Haven County. Our implementation lets

us analyze how the presence and presentation of the survey data affects visitors' self-assessed likelihood of engaging in climate mitigation efforts.

Methodology

The climate change interactive begins with a high-level view of paleoclimate trends (icehouse–greenhouse cycles) followed by a discussion of the paleohistorical warming event (the Paleocene–Eocene Thermal Maximum) that climate scientists view as the closest analog to the anthropogenic warming that has occurred since the beginning of the industrial era.



With this context, the visitor is led to explore modern-day New Haven, with highlights showing pressure points in both natural and built environments that will experience heightened stress under extreme temperatures and extreme storms. In this phase, the visitor also sees the measures undertaken to accommodate these stresses.

Following this, the visitor is presented with the survey. The first portion of the survey replicates the SASSY for audience segmentation, as follows:

- 1) How important is the issue of global warming¹ to you personally?
- 2) How worried are you about global warming?
- 3) How much do you think global warming will harm you personally?
- 4) How much do you think global warming will harm future generations of people?

After the four-question SASSY, we add a modular sequence. In this sequence, one question **assesses the perception gap** by asking visitors to report how much of the population they believe is concerned about climate change.

What percentage of people in our local community do you think are worried about global warming?

Another **assesses willingness to engage** by asking visitors to report how likely they are to engage in climate change activism.

How willing or unwilling would you be to join a campaign to convince elected officials to take action to reduce global warming?

Visitors may be informed of the perception gap by **revealing audience segmentation results** for New Haven County.

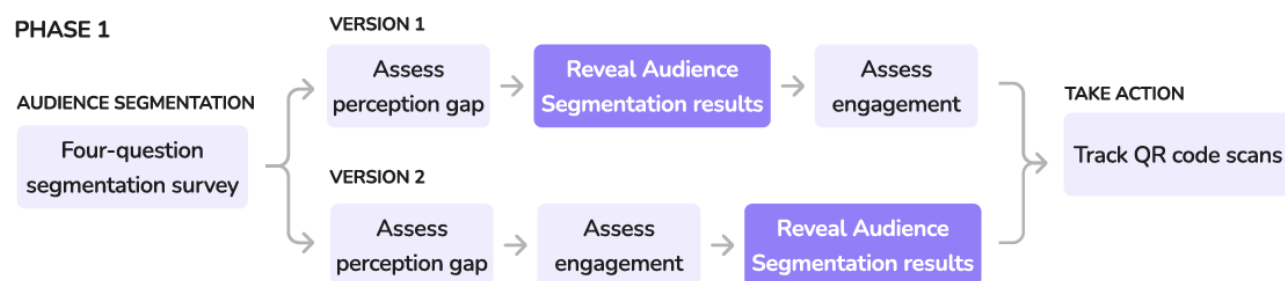
The **user flow**, i.e. the arrangement of components within this sequence, differs for even- and odd-numbered days.

Following the survey, the experience concludes with a **call to action**, in which visitors are provided with QR codes that link to the websites of local climate activist groups. Our API allows us to correlate QR code scans with different survey versions, letting us see which user flow a visitor experienced before choosing to take action.

¹ YPCCC uses the vernacular “global warming” (as opposed to the scientific consensus term “climate change”); we retained this language to maintain continuity with the existing data collection.

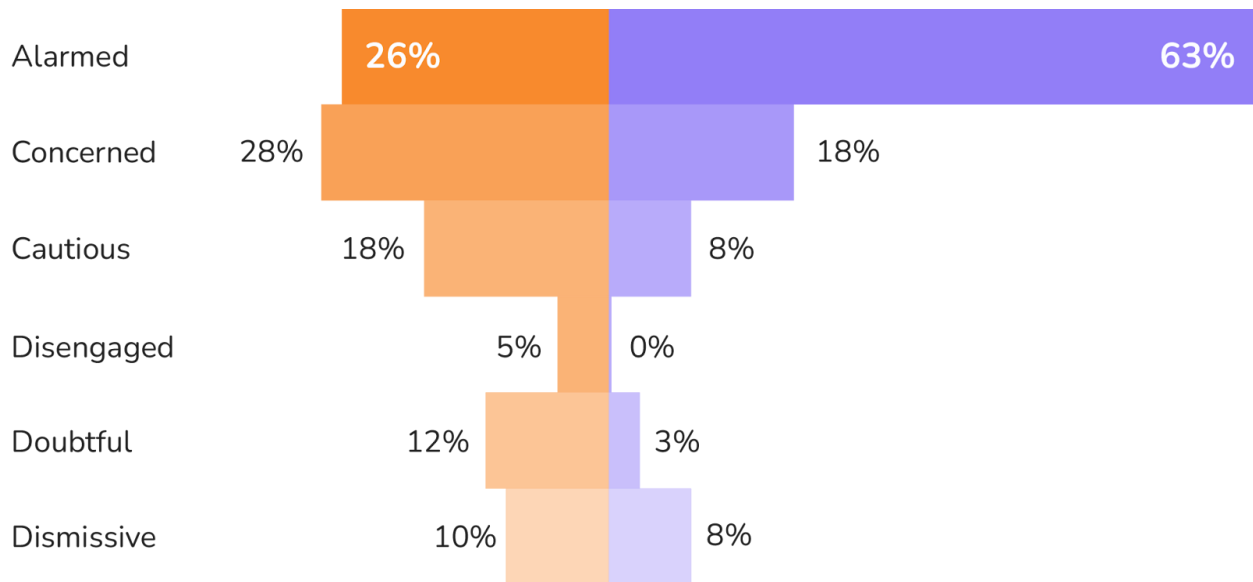
Phase 1 User Flows

The two user flows implemented in Phase 1, from January 1 to August 10 2025, differed in when the visitor was **informed of the perception gap**. In Version 1 (even-numbered days), visitors were informed earlier in the experience, before they reported their willingness to engage. In Version 2 (odd-numbered days), visitors reported their willingness to engage before the audience segmentation results were revealed.



Phase 1 Results

Our first round of audience segmentation data demonstrated some major differences from YPCCC's national data. Mainly, a much greater percentage of YPM visitors register as Alarmed or Concerned about climate change compared to the general population—81% for YPM versus 54% nationally (60% for New Haven County specifically). Zero visitors of the 962 who completed the survey registered as disengaged (0% versus 5% nationally and 5% for New Haven County).



SASSY Segmentation Results

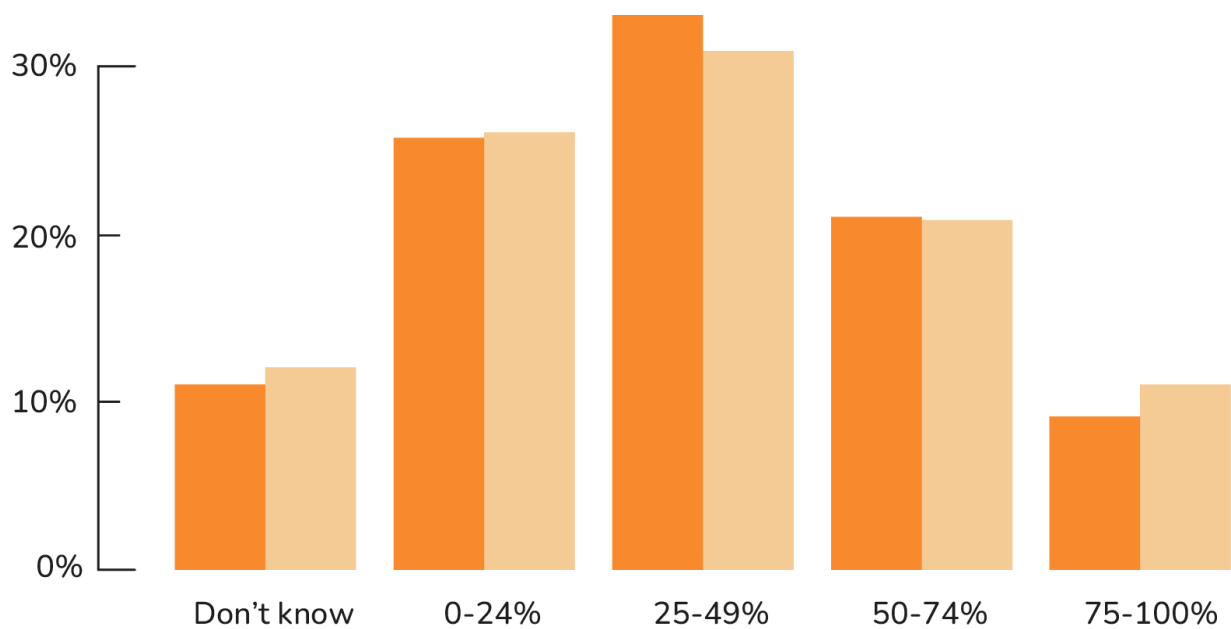
■ National survey
 ■ Yale Peabody Museum visitors

National data:
 Global Warming's Six Americas, December 11-22, 2024, n = 1,013 U.S. adults
 Source: Yale Program on Climate Change Communication; George Mason University Center for Climate Change Communication

This indicates that the average YPM visitor is more engaged with and more educated about climate change than the general population, both nationally and within New Haven. Despite this, visitors still significantly underestimated popular concern about climate change—the majority of visitors (58%) believed that less than 50% of the population was worried about the issue. 21% of visitors accurately estimated popular concern.

What percentage of people in our local community do you think are worried about global warming?

Responses:	Version 1	Version 2
75% to 100%	46	49
50% to 74%	110	92
25% to 49%	171	138
Less than 25%	136	113
Don't know	56	51



What percentage of people in our local community do you think are worried about global warming?

Version 1 Version 2

Visitors experiencing both user flows reported statistically similar willingness to engage in climate change advocacy, regardless of whether they had been informed of the perception gap yet. Across both groups, 9% of visitors were already participating in a campaign to convince elected officials to take action to reduce global warming, and approximately 57% of visitors said that they either definitely or probably would participate in such a campaign.

How willing or unwilling would you be to join a campaign to convince elected officials to take action to reduce global warming?

Responses:	Version 1	Version 2
I am already participating in a campaign	42	46
I definitely would do it	147	109
I probably would do it	152	136

I probably would not do it

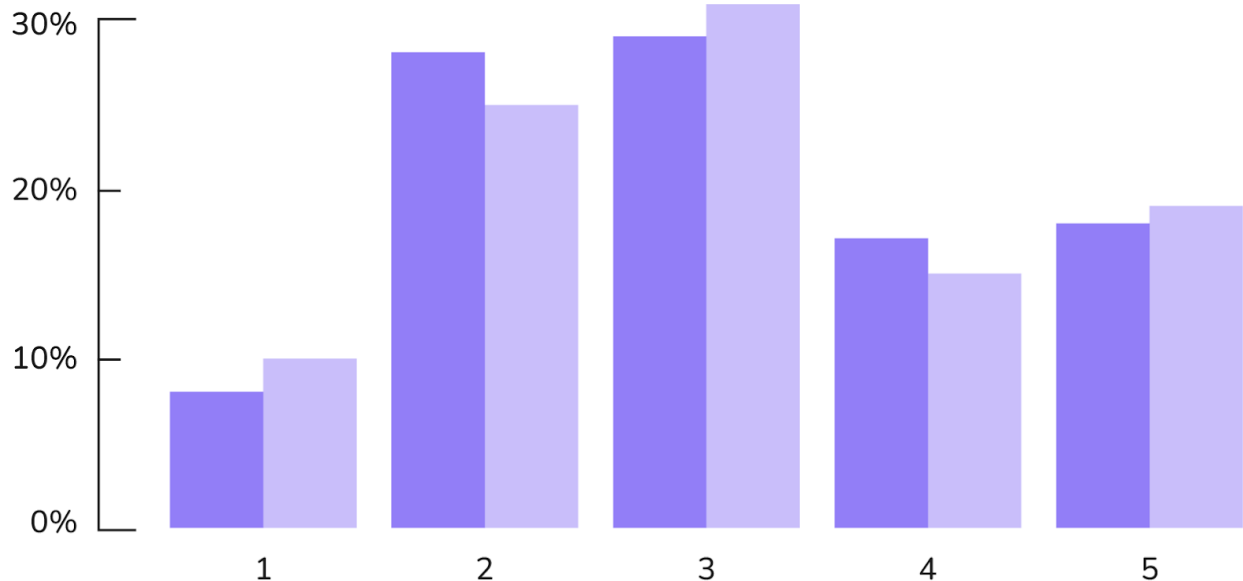
86

66

I definitely would not do it

92

86



How willing or unwilling would you be to join a campaign to convince elected officials to take action to reduce global warming?

Version 1 Version 2

1 I am already participating

4 I probably would not do it

2 I definitely would do it

5 I definitely would not do it

3 I probably would do it

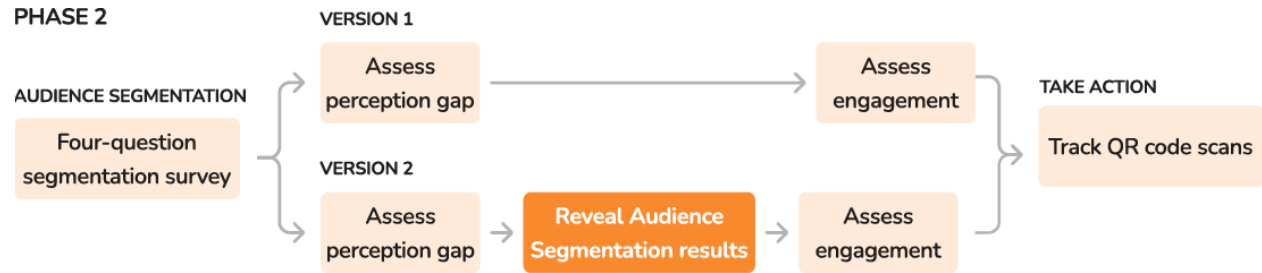
Despite the statistically similar self-reported willingness to engage, we found a significant difference in actual QR code scans between the two versions. Users experiencing Version 1, who were informed of the perception gap earlier in the survey, were more than 2.5 times more likely to scan the provided QR codes than users experiencing Version 2.



Next steps

It isn't clear to us whether our data provides a conclusive answer to our question of whether closing the perception gap influences willingness to act, since both Phase 1 user flows involved a reveal of the perception gap. We're interested in determining what caused the change in behavior, especially since both groups assessed their willingness to engage at similar levels.

Beginning August 12 2025, we started a new round of data collection, where the Version 2 flow from Phase 1 is retained and the new Version 1 lacks a reveal of the SASSY results for New Haven County. This is intended to provide us with a control group of respondents who are **not** informed of the perception gap at any point in the experience.



Contribution and implications

Our study is intended to evaluate the efficacy of addressing the perception gap in exhibits intended to address complex social issues. We hope to contribute to the field of experiential design by developing guidelines for interactive survey design to maximize the effect of the experience on visitors' mindsets. Our findings about closing the perception gap could be used to guide the design of experiences intended to spark action, not just in planetary health, but in any field where inspiring individual action may lead to broad social change.