



Pine Integrated Network: Education, Mitigation, and Adaptation Project

Cultural Cognition and Educator Engagement in Climate Change

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Executive Summary

The results of an online survey distributed among science educators in five states suggest that worldview values and personal beliefs about climate change have a significant influence on respondents' intentions to support climate change education and preferred curriculum content. Despite their disagreements over the value and relevant content of climate change education, respondents of diverse perspectives agreed that climate change education can provide valuable opportunities to engage students in current issues. However, formal educators perceive limited ability to provide these opportunities given the time and curriculum constraints of the public education system.

Background

Integrating climate change into education programs can be difficult, as the issue remains controversial and highly politicized among the public. A diversity of opinions exists among educators, who vary in their willingness to address climate change and their self-reported knowledge of the topic (Wise 2010). According to a range of theories, people tend to evaluate new information about controversial issues with criteria that match their worldview values (Jenkins-Smith 2001). As such, climate change curriculum materials may need to acknowledge diverse perspectives and informational needs in order to appeal more holistically to diverse perspectives.

Research Questions

This research assesses the extent to which science educators reconcile their personal beliefs about climate change with their professional goals to overcome cultural biases and present unbiased empirical evidence.

1. Evaluate the effect of cultural cognition on science educators' intentions to support climate change education.
2. Assess if and how worldview values influence the content information educators which to emphasize.

Methods

An online survey with quantitative and qualitative items was used to collect opinions from formal and non-formal science educators in Florida, North Carolina, Pennsylvania, Arkansas, and Virginia. The survey included items used extensively in previous research to measure climate change beliefs on the Six Americas scale (Maibach et al. 2009), cultural worldview values (Kahan 2010), and behavioral intentions (Ajzen, 1991). Items used to measure personal beliefs and professional opinions about climate change education were pilot tested three times prior to implementation.

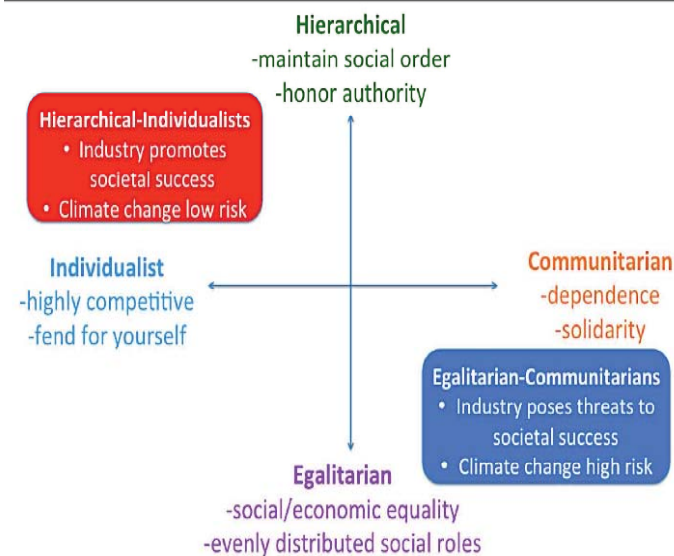


Figure 1. The American public tends to fall into two primary worldviews that exist along cross-cutting spectrums of values and have opposing perceptions of climate change.

Results

The study generated 251 completed responses. The majority of respondents were formal science educators (55%) who teach in public schools (51%). Respondents generally had positive attitudes about climate change education (mean= 20.83/25) and relatively high intentions to support it (mean= 29.37/35). However, these attitudes and intentions were significantly influenced by cultural worldview values ($p < .001$). Hierarchical-individualist (HI) values were associated with more negative attitudes and lower intentions ($\beta = -.746$, $p < .001$), while egalitarian-communitarian (EC) values were associated with more positive attitudes and higher intentions ($\beta = .538$, $p < .001$).

Values and personal beliefs also influenced respondents' perceptions about the perceived value and desired content of climate change education ($p < .01$). Hierarchical-individualist educators demonstrated a greater desire to communicate that evidence of anthropogenic climate change is inconclusive

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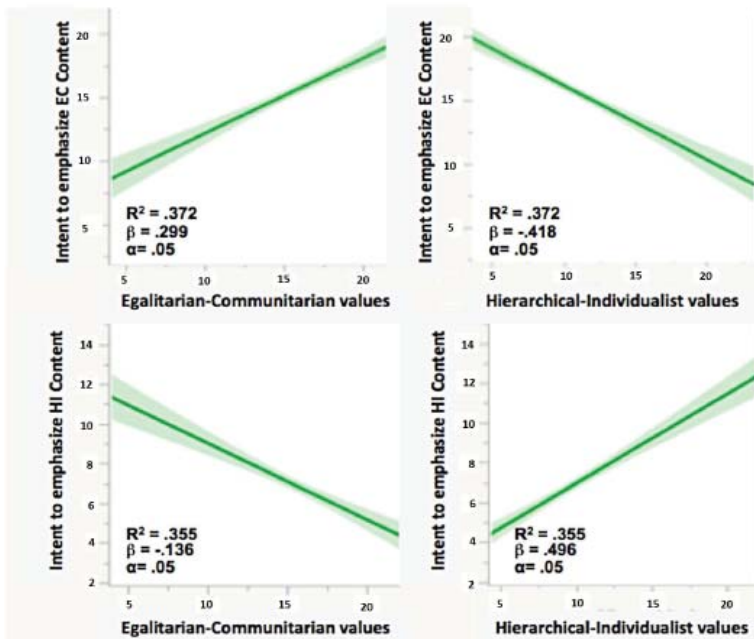


Figure 2. Linear regression models demonstrate the significant influence of worldview values on respondents' desired climate change curriculum content.



Figure 3. Common ground and dividing factors between two subpopulations that differed significantly from Egalitarian-Communitarians and Hierarchical-Individualists

and that observed changes are due to natural processes. Contrarily, those with egalitarian-communitarian values expressed greater intent to emphasize human impacts on the climate system and the influence of consumer behavior on mitigating climate change (Figure 2). Both groups of educators, however, indicated a strong intent to teach only scientific facts free of influence from their personal opinion about the matter (mean= 3.86/5). These results suggest that while educators express a strong desire to teach unbiased science, the same cognitive processes that lead them to selectively credit or dismiss empirical evidence may hinder that effort in practice. Despite disagreement between the two respondent populations, educators of both value sets express the shared belief that climate change education offers valuable opportunities for empowering students to engage in real world issues and problem solving (mean= 12.01/15) (Figure 3).

Implications

Because of the potentially contentious and complex nature of teaching about climate change, building trust among educators, researchers, and curriculum developers may be a necessary first step for creating widely accepted and well= balanced resources. Though climate change researchers and curriculum developers may find the strategies of create resources that appeal to diverse perspectives frustrating, the results of this study suggest the importance of considering the educators' cultural views as much as the curriculum content itself. Reminding educators of commonly-held professional values, such as providing students with opportunities to engage real world problem solving, should help science communicators neutralize dismissive cultural associations and allow them to capitalize on the profound confidence that the public has historically had in scientists.

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