

Cultural Cognition and Climate Change Education:

Why Consensus is Not Enough

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Background

Environmental education encompasses a plethora of complex issues – many of which have become increasingly **political** and **value-laden** in the minds of the American public. Technical competence and an adequate and available supply of educational resources are essential for integrating climate change into science curriculum, but acceptance and support from teachers, districts, and administrations are acknowledged as key factors in implementing climate change education in science classrooms.¹

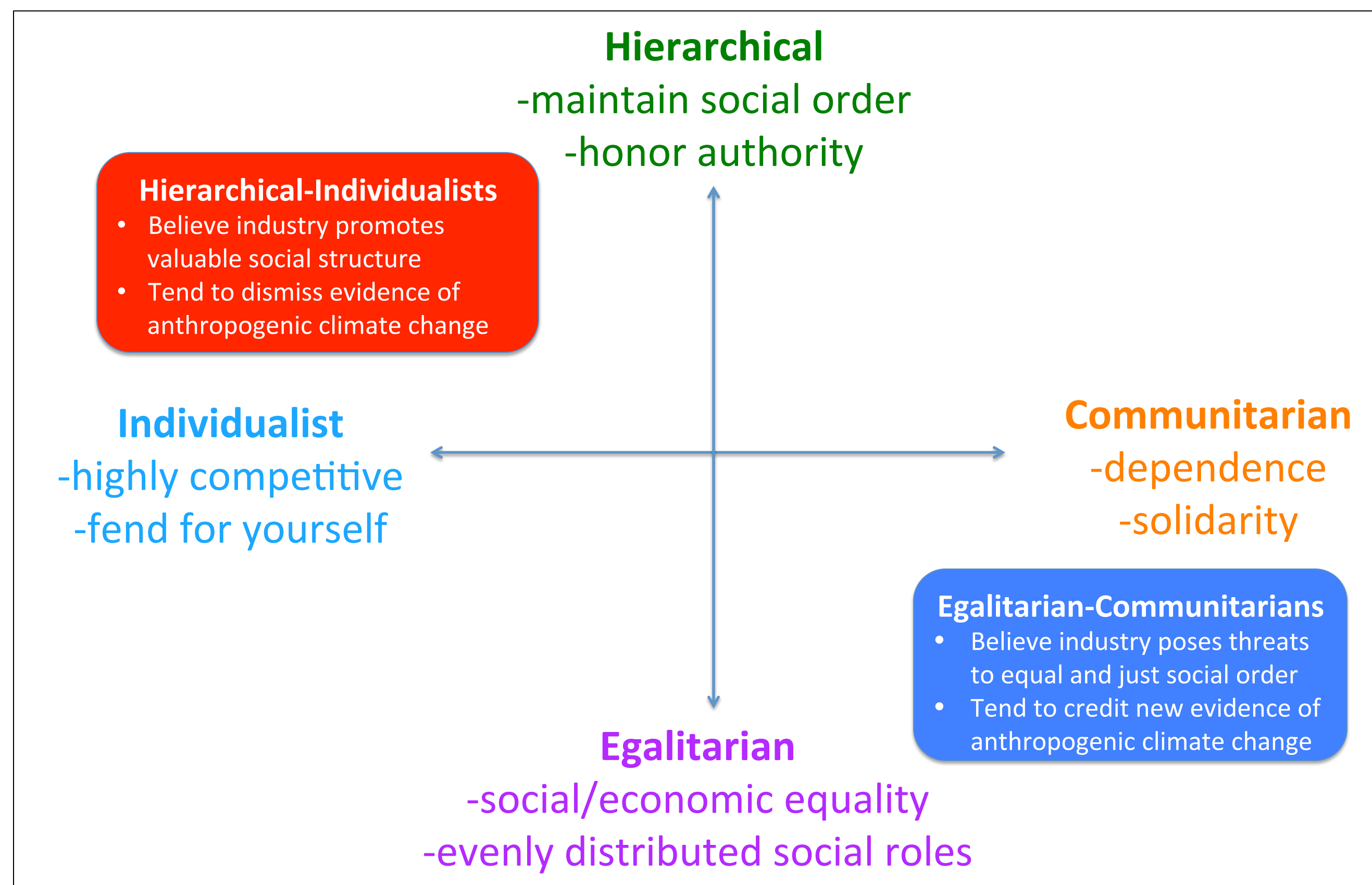


Figure 1. Cultural cognition recognizes two primary worldview groups among the American public (hierarchical-individualists and egalitarian-communitarians) that exist along two cross-cutting spectrums of values.

Cultural Cognition

The theory of **cultural cognition** suggests that climate change is one of several science-based but socially controversial issues that divide the public because each side of the debate is associated with a different set of worldview values.² In effect, individuals will subconsciously credit or dismiss evidence of climate change in ways that reflect their attachment to these values, and repeated studies suggest that focusing on disseminating new data or increasing “climate change literacy” may do little to budge established opinions because of this confirmation bias effect.³ These studies recognize two primary sets of worldview values that exist along two cross-cutting spectrums (Figure 1). Differences in worldview values predict disagreements about climate change more absolutely than any other defining characteristic (political ideology, gender, income, etc.)² However, in a very general sense, political parties in the U.S. have coalesced around shared worldview values.

Objectives

The research presented in this poster applies the theory of cultural cognition to education by exploring the perspectives of science educators and the extent to which worldview values play a role in educators’ decision to support climate change education and desired curriculum content emphasis.

1. Evaluate the effect of cultural cognition on science educator’s **intentions to support climate change education**;
2. Assess if and how worldview values influence the **conceptual ideas or content information** educators are willing to emphasize;
3. Evaluate the extent to which educators **reconcile personal beliefs about climate change with professional duties** to present unbiased science.

Methods

Data were collected using a web-based survey distributed among list-serv managers that reach formal and non-formal secondary educators of various scientific subjects. The survey was pilot tested 3 times.

Quantitative Items

- **Personal beliefs about climate change education**
 - Six Americas⁴
 - Worldview content information desired in materials
- **Professional opinions about climate change education**
 - Opportunities to understand the nature of science
 - Empowering students to engage in real world problem solving
- **Intentions to support climate change education**
 - Attitudes, subjective norms, perceived control to do so⁵

Qualitative Items

- Barriers, challenges, factors that influence engagement in climate change

Analysis and Results

Data were cleaned and analyzed using SPSS and JMP statistical software. Respondents (n= 391) were mostly formal science educators (55%). The results of multiple linear regression, ANOVA, and non-parametric group comparisons suggest that worldview values exhibit a significant influence on educators’:

- intentions to support climate change education
- professional opinions about climate change education
- desired curriculum content information (Figure 2)

In addition to the two primary worldview groups, the analyses revealed two additional subpopulations that significantly differed in their personal beliefs and professional opinions about climate change education (Figure 3).

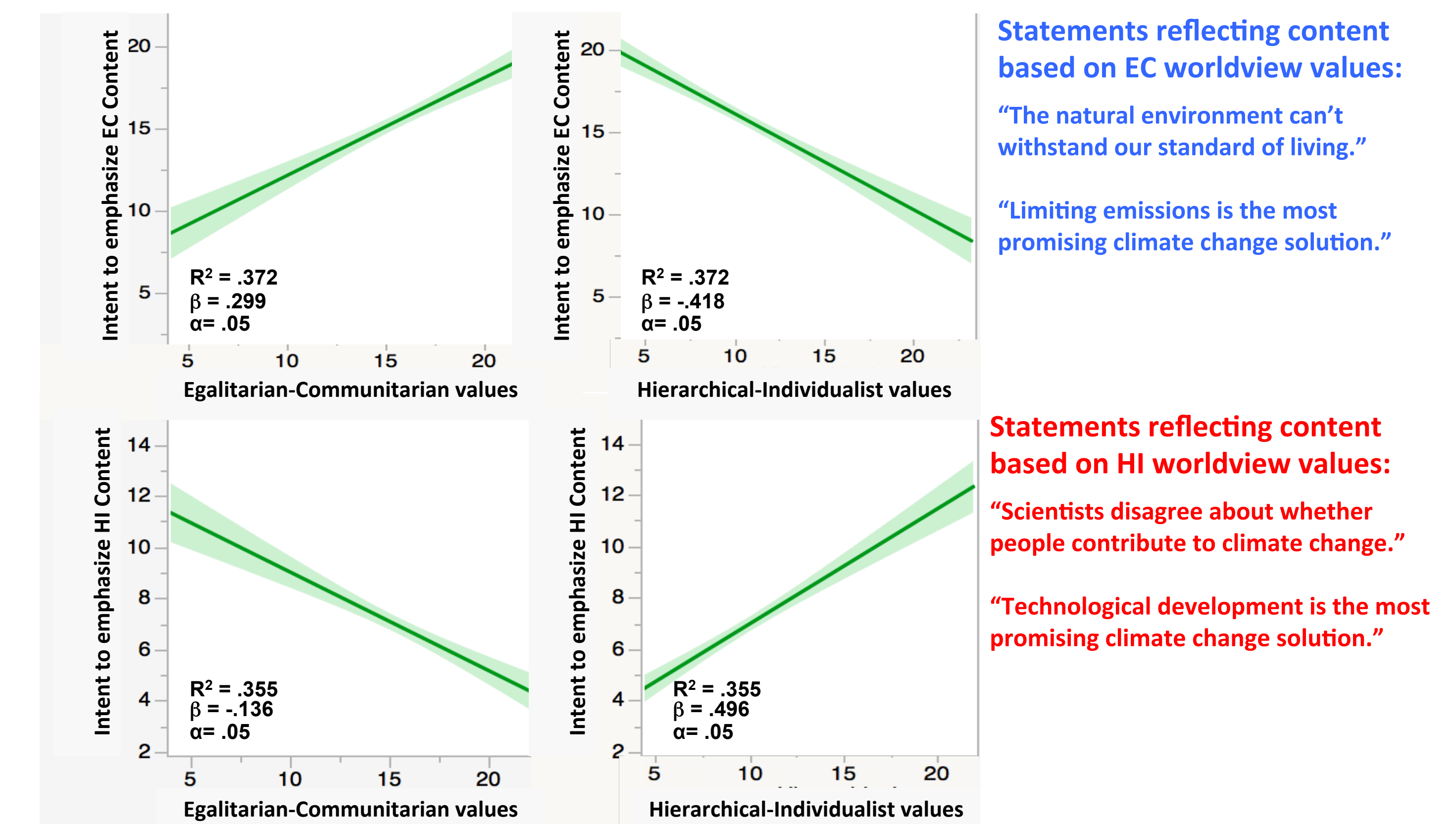


Figure 2. Linear regression models demonstrate the significant influence of worldview values on respondents’ desired curriculum content information.

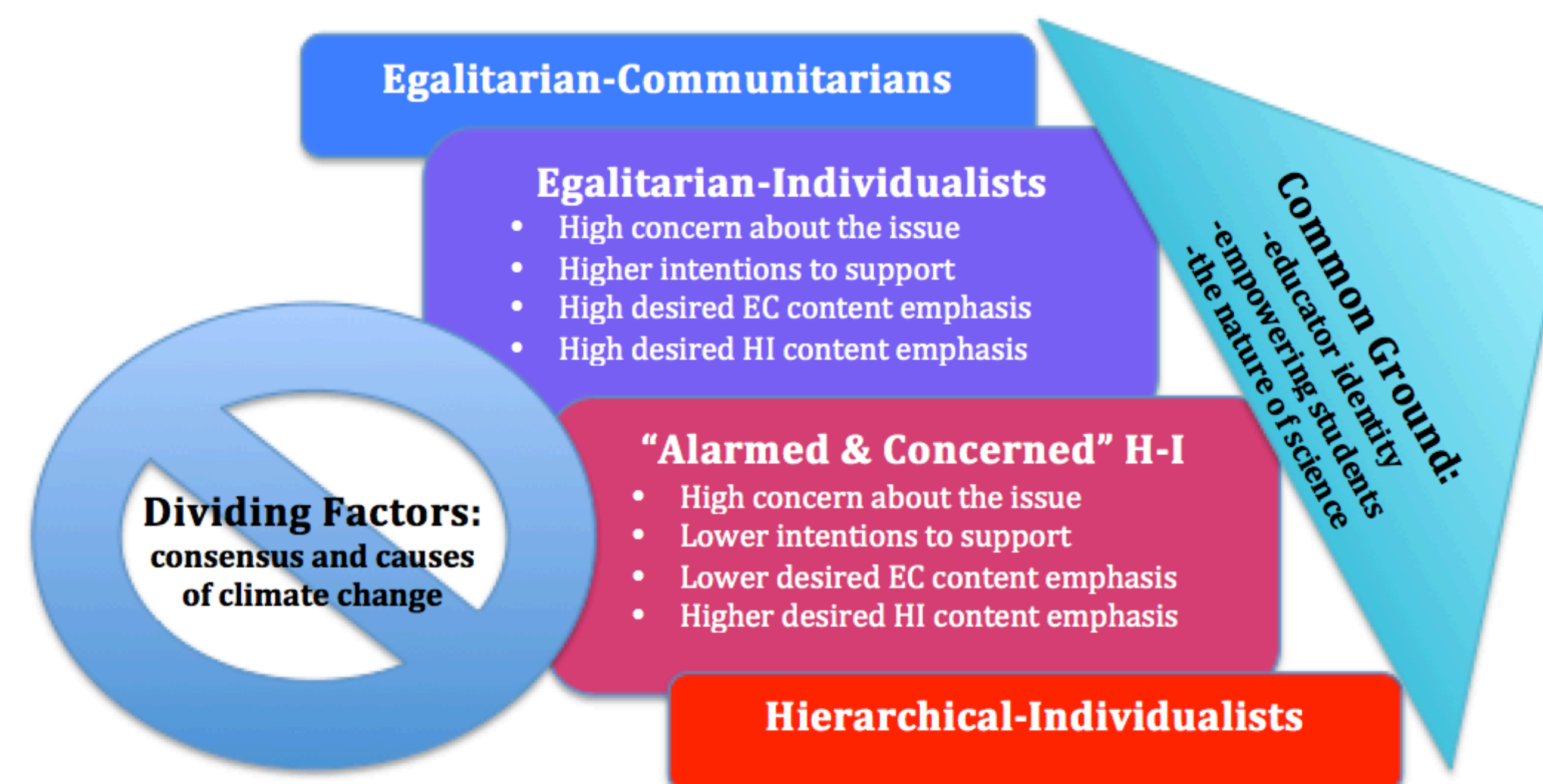


Figure 3. Common ground and dividing factors between two subpopulations that differ significantly from Egalitarian-Communitarians and Hierarchical-Individualists

Conclusions and Recommendations

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**. The results of this study suggest the importance of considering educators’ cultural worldviews as much as the curriculum content itself. To overcome the cultural cognition effect, educators must find ways to present climate change **without entangling facts with issues of cultural identity**. Reminding educators of **commonly-held professional values**, such as providing students with opportunities to engage in real world problem solving, should help curriculum developers neutralize dismissive cultural associations and allow them to capitalize on the profound confidence that the public has historically had in scientists.

References
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