

## 2012 BECC Conference: Poster Presenter Abstracts

Presenter: Michael A. Ranney, University of California, Berkeley

Other Contributors: Dav Clark, Daniel Reinholz - University of California, Berkeley

### ***Enhancing Global Warming Understanding and Acceptance with Veridical Statistics and Mechanistic Information***

Americans differ from peer nations' residents in numerous domains, notably in their reluctance to accept evolution and (especially anthropogenic) climate change (CC). Reinforced Theistic Manifest Destiny theory (RTMD; e.g., Ranney, in press) explains such exceptionalism with geopolitical history and six constructs: afterlife, deity, nationalism, creation, evolution, and CC. RTMD subsumes observations that the acceptance of evidence-based reasoning is often empirically anti-correlated with the acceptance of faith-based reasoning. We assessed RTMD-inspired predictions that CC acceptance increases upon explaining CC's physical/chemical mechanism after a 270-participant survey established widespread ignorance of CC's mechanism. An experiment then showed that exposing 150 Californians and Texans to a 400-word CC-mechanism description, including two poignant greenhouse gas (GHG) statistics, dramatically reduced ignorance and increased CC acceptance. Target concepts include that (a) Earth's surface absorbs (mostly visible) sunlight, (b) Earth subsequently emits infrared light, which (c) GHGs (gases that can exhibit molecular asymmetry) absorb; thus, (d) GHG emissions retard Earth's energy dissipation. Between- and within-group contrasts showed desirable, critical conceptual changes, science-coherent attitude changes, and increases in participants' confidence in their knowledge. (RTMD-predicted between-construct correlations were again replicated.) On the other hand, we recently demonstrated that factual, albeit misleading, information can also erode science-coherent attitudes: Building on past NDI (Numerically Driven Inferencing paradigm) research, a new experiment demonstrates that even a few isolated statistics can change participants' policies, attitudes, and self-perceived knowledge about CC—although in this singular experiment, these measures were intentionally transiently decreased via cherry-picked factoids. Implications regarding misinformation and propaganda will be discussed.