Exploring Persistent Climate Change Misconceptions of Environmental Science Majors after Completing a Global Climate Change Course

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Learning the basic concepts in all STEM disciplines, like those taught in Broward College's new Global Climate Change course, can be difficult due to the conceptual and factual misconceptions a student brings to the learning experience or may even create during the learning experience. This is especially true for Meteorology and Climate Sciences courses, where what is learned in the classroom collides with years of the student's personal experience with weather and climate. Unlike the other sciences, everyone on the planet experiences and observes weather and climate from very young, pre-school age and up. "Everyone talks about the weather".

In this study, a cohort of 31 students pursuing their B.S. degree in Environmental Science at BC was given a *modified* version of the survey "*American's Knowledge of Climate Change*" (Leiserowitz et al., 2010) initially conducted by the Yale Project on Climate Change Communication and funded by NSF. This survey was given on the first day their Global Climate Change (GLY4746) class. There are 98 survey questions, although only 86 are scored. The questions are multiple choice style with a few T/F questions. This same assessment was given to the same students on the last day of the semester long Global Climate Change class. The results of the "before and after" semester *survey/assessment* taken by BC Environmental Science students enrolled in GLY4746 are evaluated to identify the occurrence of common weather, climate, and climate change misconceptions that persist even after taking the Global Climate Change course. This was done by correlating the pattern of the "wrong answers" on both surveys in order to make a determination on whether the pattern suggested persistent misconceptions. Pre- and post- survey scoring results were also subject to a T-Test for dependent samples and Effective Size, which that the average pre- and post- test scores reflected an overall significant gain in climate change knowledge exhibited by each student at the end of the semester.

Nine common misconceptions about climate and climate change are recognized in the results of the survey. Graphs of the student responses for each of the nine questions are presented and several hypotheses are discussed regarding the identified persistent misconceptions. The complete poster is available on the AMS website.

This is a pilot study. Many more iterations (classes) of this study are planned to arrive at a comprehensive inventory of persistent climate, climate change, and meteorological misconceptions.

Leiserowitz, A., Smith, N. & Marlon, J.R. (2010) Americans 'Knowledge of Climate Change. Yale University, New Haven, CT: Yale Project on Climate Change Communication. http://environment.yale.edu/climate/files/ClimateChangeKnowledge2010.pdf