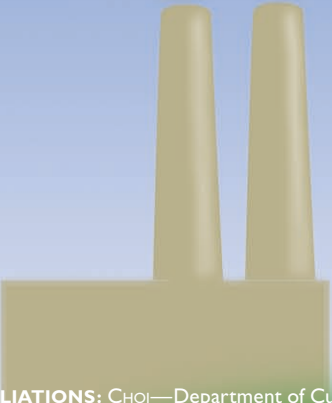


DO EARTH AND ENVIRONMENTAL SCIENCE TEXTBOOKS PROMOTE MIDDLE AND HIGH SCHOOL STUDENTS' CONCEPTUAL DEVELOPMENT ABOUT CLIMATE CHANGE?

Textbooks' consideration of students' misconceptions

BY SOYOUNG CHOI, DEV NIYOGI, DANIEL P. SHEPARDSON, AND UMARPORN CHARUSOMBAT

The reviewed earth and environmental science textbooks did not adequately address students' misconceptions about climate change, suggesting a need for revision.



One of the primary goals of climate change education is to assist students in developing a scientific understanding about the Earth's climate system (NOAA 2009). Despite an increase in supplemental educational materials and hands-on activities in science classrooms, science textbooks are still used as the general source of scientific concepts by teachers and students (Fulp 2002; Weiss et al. 2002). Students develop their understanding of scientific concepts based on their existing ideas, just as scientists rely on their existing knowledge base to acquire a better understanding about natural phenomena (Bell 2005; Duit 1991). Misconceptions, or a lack of relevant prior concepts, can hinder students from developing an understanding of scientific concepts (Duit 1991; Rickinson 2001). It is critical, therefore, that science textbook authors and publishers are aware of students' common misconceptions about climate change when developing textbooks so that their works become effective tools for facilitating students' conceptual development.

Many climate change education researchers have studied students' and teachers' conceptual understanding of climate change and the effectiveness of various teaching strategies for the teaching and learning of climate change concepts. However, few studies have focused on the representations of climate change concepts found in science textbooks. The study reported in this article sought to remedy this gap by ►

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