Author	Cabading, Evelyn T.
Title	Constructivist Approach: Its Impact on Prospective Maguidanaoan Teachers' Conceptions of Selected Topics in Environmental Chemistry
Year	2004
Program	Doctor of Philosophy in Education (Chemistry)

ABSTRACT

This study attempted to develop and evaluate the effectiveness of constructivist teaching guides in teaching the concepts of soil and water chemistry in the environment and investigate the change in the conception of prospective Maguindanaon teachers. It also looked into the influence of traditional practices and beliefs of the students on the change of their conceptions from everyday views to scientific views.

The study made use of quasi-experimental research design and involved the third year Bachelor of Science in Islamic Studies students at the University of Southern Mindano, Kabacan, Cotabato enrolled in Environmental Issues were used and randomly assigned as the control and experimental groups. The control group underwent traditional lecture method (TLM) while the developed teaching guides based on constructivist teaching approaches (CTA) were used in the experimental group.

Seven teaching guides base on constructivist teaching approaches (CTA) developed in soil and water, namely: (1) Use of Water; (2) The Water Cycle; (3) Water, A Unique Substance; (4) Water Pollution; (5) Water Treatment; (6) Soils; and (7) Issues and Concerns About Soil. Each lesson consisted of the following: (a) background information, which provides the teacher on overview of the lesson and the traditional practices and beliefs of the students that may influence their understanding of the lesson; (b) objectives, which include the process skills and values to be developed; and (c) teaching sequence, which was patterned after Trowbirdge and Bybee (1996) and consisted of five phases, namely: engagement, exploration, explanation, elaboration and evaluation. The traditional practices and beliefs of the students related to the lesson were brought up in the engagement phase in the elaboration phase of the teaching guide.

To determine their predominant everyday concepts and change of their everyday concepts to scientific concepts, students gave explanations for their answers in the multiple-choice questions. Their answers on the soil and water practices and beliefs scale were correlated with their gain scores to determine the influence of their traditional practices and beliefs in their conceptual change.

The findings show that majority of the students in the experimental and control groups exhibited everyday concepts before intervention. These include their traditional beliefs and practices, their previous experiences and what they observe happening around them.

The developed teaching guides bases on constructivist teaching approaches are effective in facilitating conceptual change of the students from everyday views to scientific views

as shows by significantly higher posttest mean scores of the students in the experimental group. Further analysis revealed that the teaching guides are effective only concepts related to uses/importance of water, water cycle, unique properties of water, water treatment and issues and concerns about soil.

There are traditional beliefs found to hinder or facilitate the conceptual change of the students. These beliefs relate to concepts about uses of water, water cycle, water pollution, water treatment, importance and composition of soil. Traditional beliefs which are negatively correlated with the gain scores of the students hinder their conceptual change when used as distractors in the question while those that are positively correlated to the scientific answer facilitate their conceptual change.