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ABSTRACT

This research is a qualitative multicultural classroom study in its natural setting aimed to describe the students' conceptual ecology, explore the action of this ecology in the process of conceptual change, examine the influence of indigenous knowledge and identify what conceptual change model can best describe the students' conceptual restructuring related to the topic on Human Reproduction.

It involved three high school biology classes who worked in 25 small collaborative groups which are formed based on ethnolinguistic affiliation – the Chavacano, Bisaya, Tausug and Yakan, in Zamboanga City. Two students (dyad) from each of the selected fifteen groups were used as targets or cases. Students' knowledge was assessed before and after instruction through the use of student-generated concept maps, written or oral interview transcripts, observation notes and classroom artifacts.

A students' conceptual ecology was found to include student-generated metaphors, epistemological beliefs, science knowledge, worldview as expressed through student's religious orientation, prior knowledge and indigenous knowledge consisting of traditional beliefs and cultural practices. Three map patterns were identified – spoke (observed) only during map training), chain (2 groups each of Chavacano, Bisya and Yakan and all four Tausug groups) and the net patterns (2 Chavacano, 2 Bisaya and 1 Yakan). There are four patterns of conceptual change demonstrated by the dyad: 1) retention of naïve or incorrect knowledge, 2) framework reorganization/adjustment, 3) contextual switching and 4) radical restructuring.

The study reveals that student's conceptual ecology is complex, diverse, in interaction with each other and is an important prerequisite for understanding new concepts and for meaningful learning. Students' conceptual ecology influences conceptual change in three ways 1) on the persistence of prior knowledge, 2) in rendering new conception intelligible and 3) in making new conception plausible. Two patterns of students' conceptual restructuring: a) *retention of naïve or prior knowledge* and b) *radical restructuring* conform with the conceptual change model of Posner's *et al.* (1982, 1992), while the patterns of a) *framework reorganization* and b) *contextual switching* do not. The last two conform with the "accretion and tuning" of Pearsall, *et al.* (1997) or "framework adjustment" of Luffiego, *et al.* (1995) and the "contextual switching" model of Kinchin (2000), respectively.