

Developing a Constructively Aligned Teaching Sequence (CATS) on Organ Systems for Senior High School

Joyce B. Molino-Magtolis

Leyte Normal University, Tacloban City, Leyte, Philippines

Email: jbm.magtolis@gmail.com

ABSTRACT

Purpose - This study presents the development and evaluation of a Constructively Aligned Teaching Sequence (CATS) for teaching the organismal biology of Senior High School. It tried to explore teaching-learning activities and assessment tasks that may be designed to address students' conceptions and teachers' difficulties in teaching organ systems.

Method—Anchored on the theoretical and methodological assumptions of educational design studies, this study based the development of CATS on four design principles: a survey on the teachers' perspective in addition to Duit et al. (2005) three design principles which are undergoing clarification and analysis of science content, investigation into students' perspectives, and designing of learning environments. Research instruments included the students' drawing, researcher-made pre-test/post-test, questionnaires, video-recorded lessons, and recorded informal interviews. Respondents were 47 university freshmen, who were currently equivalent to the Senior High School of the new K to 12 program and ten science instructors of Leyte Normal University.

Findings – Results of the students' initial conceptions revealed little understanding of the organ systems. In the case of the teachers, results indicated that teacher-respondents predominantly implored Information Transfer/Teacher-Focused (ITTF) strategies and showed more difficulty in teaching the organ systems' processes than its structures. In the light of the findings, the study recommends that CATS may be redesigned to strengthen correct conceptions further, enhance limited conceptions and remediate students' conceptions in conflict with the accepted biological concepts.

Significance - CATS offers not only as an innovative teaching material but also an avenue for further research on its improvements such as construction, usage, handling, and storage of the student outputs.

Keywords: Biology education, design studies, teaching sequence, constructive alignment, K to 12 Curriculum, organ systems.