



Paper 109 – Education

COLLEGE STUDENTS' INDIVIDUAL AND GROUP MENTAL MODELS OF ELECTROSTATIC FORCE: A CASE STUDY APPROACH

Larry D. Buban

West Visayas State University

larrybuban@wvsu.edu.ph

ABSTRACT

The theory of mental model by Johnson-Laird will be used as a framework for the development of this qualitative study. The main purpose of the study was to examine college students' individual and group mental models of Electrostatic Force and understand how these mental models evolved through instruction and group negotiation. Using a case study approach, this study utilized 6 case participants in a group of students enrolled in algebra based electromagnetism class. The primary data sources were video-taped interviews, focus group discussions, and in-depth analysis of concept maps, drawings, and other student-generated outputs. Major finding of the study showed that majority of the constructed mental models of the students was anchored to the attraction – repulsion concept. Such mental model took center stage in understanding the concept of electrostatic force. The study also revealed that classroom instruction and group negotiation greatly impacted the development of college students' mental models of Electrostatic Force. This study has made contribution to the knowledge of the evolution of mental models in understanding the concept of Electrostatic Force.

