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Changes in Student Models of Electric Current and Electric Potential in Activity-Based Physics[1] C. TRECIA MARKES, University of Nebraska - Kearney — With a three-year FIPSE grant, it has been possible at the University of Nebraska at Kearney (UNK) to develop and implement activity-based introductory physics at the algebra level. It has generally been recognized that students enter physics classes with misconceptions about current and potential difference in simple series and parallel circuits. Many of these misconceptions persist after instruction. Pretest and posttest responses on the "Electric Circuit Concept Test" (ECCT) are analyzed to determine the models that students use. Responses are divided into expert model (correct answer), one or more student models (approximately equally common incorrect answers), and null model (all other answers) categories. Students are categorized as being in an expert state (mostly expert model answers), a mixed state (a combination of expert model answers, student model answers, and null model answers), or a student state (mostly student model answers). The change (if any) of state is identified for each student. The changes are analyzed to determine the effectiveness of activity-based instruction.

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