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SP - (15885) - THE PARALLEL DEVELOPMENT OF UNDERGRADUATE STUDENTS' ARGUMENTATION SKILLS AND CONCEPTUAL UNDERSTANDING ON NEWTONIAN MECHANICS.

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Short Abstract

This research examines the parallel development of students' argumentation skills and conceptual understanding on Newtonian Mechanics. The sample consisted of seventeen undergraduate students (four groups made up of four to five participants). The research based on students' group discussions on five Newton's Laws problems alternating with the researcher's interventions. Before and after this procedure, pre- and post-tests containing five open-ended questions on Newtonian Mechanics were answered individually. Students should justify their answers through their written arguments. The evaluation model applied was a modified version of McNeill and Krajcik's. The quantitative analysis showed a statistically significant improvement in both students' argumentation skills and their conceptual understanding in three out of five problems.