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The Development of Scientific Conceptual Understanding through Dual Situated Learning Model (DSLM) in Physics on Momentum and Collisions for Grade 10 Students

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Abstract

This research was a classroom action research aimed at developing the scientific conceptual understanding of Grade 10 students using the Dual Situated Learning Model (DSLM) on the topic of Momentum and Collision. The target group consisted of 31 students. The research was conducted through three action research cycles. The research instruments comprised: 1) six lesson plans, 2) a scientific conceptual understanding test, 3) a behavioral observation form, and 4) a student interview form. The data were analyzed using frequency and percentage. The research results revealed that the students' development in scientific conceptual understanding at the passing criteria which included Complete Understanding (CU) and Partial Understanding (PU) - increased continuously across the action cycles. In the first action cycle, 6 students passed the criteria, accounting for 19.35%. In the second action cycle, 14 students passed the criteria, accounting for 45.16%. In the third action cycle, 25 students passed the criteria, accounting for 80.65%.

In conclusion, learning management using the Dual Situated Learning Model (DSLM) effectively developed students' scientific conceptual understanding of Momentum and Collision. Furthermore, it sequentially promoted the conceptual change from misconceptions to scientifically correct concepts through the classroom action research process.

Keywords: Classroom Action Research; Dual Situated Learning Model; Momentum and Collision; Scientific Conceptual Understanding