

## **Students' Hybrid Models of Newton's Second Law on Momentum and Kinetic Energy Concepts of Collisions**

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### *Abstract*

This study investigated students' conceptual understanding and reasoning models by interviewing high school students and first year science students. The different situations of collisions in the same concept were used after one week of the current teaching on these topics. In interviews, students were asked to explain the reasoning for each the situation. The results show that many students are able to give correct answers however, their reasoning based on Newton's second law: Newtonian, a constant non-zero net force on an object causes it to increase speed and /or change its direction of motion called "hybrid model".

**Keyword** : Collision, Student model, hybrid model, Mental model

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