

# **A Study on Constructing Physical Models under the Black-box Experiments Situation**

**Abstract:** Modeling was an important part of scientific inquiry teaching and was an essential ability for students. According to the modeling theory and through a black-box experiment which was called “the ball goes through the tunnel”, the research investigated the characteristics of students’ mental models when they were facing the experiment and the situation of changing these mental models. Therefore, a clear modeling process map was provided for investigating black-box experiment.

**Key words:** Black-Box experiment; Modeling; Mental models; Physical models