

DEVELOPING STUDENTS' CONCEPTION OF REFRACTION OF LIGHT IN GRADE 11 BY PREDICT-SHARE-OBSERVE-EXPLAIN APPROACH

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THE RESEARCH PROBLEM

Currently, Thai students learn by focusing on memorisation of content and not focusing on understanding knowledge. This problem results in students not constructing the knowledge by themselves. Furthermore, in Physics, students have difficulty understanding physics content because they are only following the lecture or textbook. Therefore, the students can easily have an alternative conception of Physics. The Refraction of Light is a physics concept that usually occurs under many physical situations in our daily life. There are many misconceptions among students about this topic. Therefore, the teacher is the one crucial factor to solve students' misconceptions by providing learning activities in the classroom. The researcher was interested in improving students' concept of the Refraction of Light through the Predict- Share- Observe- Explain (PSOE) approach. With this teaching approach, students enhance their learning through collaboration with friends in the classroom. They make a prediction, observe the phenomena, and explain following the teacher's guidance.

METHODOLOGY

The aim of the research we are presenting, was to develop students' conceptual understanding of the Refraction of Light in grade 11 students by Predict-Share-Observe-Explain approach (PSOE). The Pre-experimental research design, One Group Pretest - Posttest Design, is this study's research method. The target group was 17 students in a local public school in the northeastern region of Thailand. Three lesson plans were constructed and used following the PSOE approach. The data were collected by the conceptual test, before and after the implementation of the lesson plans. The conceptual test consists of ten questions of a Three-Tier Multiple Choice test consisting of the first tier to check students' conception, the second tier to check students' reasoning ability, and the third tier to check students' confidence. The data were divided into six-levels of conceptions consisting of Scientific knowledge, Misconception (false positive), Misconception (false negative), Misconception, Lucky guess, lack of confidence, and Lack of knowledge (Brown et al., 2015). The number of students at each level of conceptions before and after learning will be presented.

RESEARCH FINDING

The research found that in all questions of the Three-Tier Multiple Choice test, the number of students before learning by PSOE approach is lower than the post. In relation to the percentage of students with the correct answer in the scientific knowledge level, there were 17.31 percent before activities and 43.17 percent after the activities. In contrast, considering the percentage of students with Misconceptions and Lack of knowledge levels, in both levels, the percentage of students was reduced after the activities. Therefore, the PSOE approach can be implemented to improve scientific knowledge of the Reflection of light.

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