

Kuntida Suwatcharakunton 2013: The Development of Conception and Conceptual Transferability of Grade 11 Students in the Topic of Light Using 7Es Learning Cycle. Master of Education (Science Education), Major Field: Science Education, Department of Education. Thesis Advisor: Mr. Ekgapoom Jantarakantee, Ph.D. 266 pages.

The purposes of this classroom action research were to study the development of grade 11 students' conception and students' conceptual transferability in the topic of light using 7Es learning cycle and the guideline of 7Es learning cycle about light to develop grade 11 students' conception and conceptual transferability in the topic of light. The research participants included 50 students of grade 11 who studied the light learning unit in the 2012 academic year in a large secondary school in Rayong province. The research instruments were 1) the light concept test 2) the light conceptual transferability test 3) students' journals 4) students' artifacts 5) teacher field notes and 6) video recording of teaching. The light concept test was analyzed by categorizing students' response into five groups, calculating frequency and percentage of students' conceptions, and then comparing students' conceptions between pretest and posttest. The light conceptual transferability test was analyzed by categorizing students' response into five groups, matching each question in the same concept from the light concept test and the light conceptual transferability test, calculating transfer scores and categorizing transfer scores into three groups. Other research instruments: students' journals, students' artifacts, teacher field notes and video recording of teaching were analyzed by content analysis.

The research results indicated that the students' concepts of light were improved in all topics. Most of the students could transfer the concepts with partial understanding. The students could do the near transfer better than the far transfer. The guideline of 7Es learning cycle about light to developed grade 11 students' conception and conceptual transferability in the topic of light should include the following processes;

- 1) Elicitation phase, teachers should use elicitation methods and investigate students' basic knowledge that related to the topics which they will learn
- 2) Engagement phase, teachers should use real materials, video, and series of questions to promote students' inquisitiveness,
- 3) Exploration phase, teachers should use hands-on activities
- 4) Explanation phase, teachers should ask students to create concept maps, then present and share their findings together
- 5) Elaboration phase, teachers should encourage students to apply their understanding into new situations
- 6) Evaluation phase, teachers should use various types of assessment technique and
- 7) Extension phase, teachers should provide opportunities for students to apply their understanding into daily life situations.

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Thesis Advisor's signature