

ABSTRACT

ASRI DAMAYANTI. Design Research: Building Students' Matemactical Conceptual Understandings about Geometry Transformation Through Indonesian Realistic Mathematics Education (PMRI) Learning in Grade VII of Darussa'adah Junior High School Jakarta. Skripsi. Jakarta: Mathematics Education Program, Faculty of Mathematics and Natural Sciences, Jakarta State University, 2017.

This study aims to develop local theories of mathematics learning by using activities related to the application of PMRI approach to develop students' mathematical concepts of translation and rotation on the subject of geometry transformation in the second semester class of Darussa'adah Junior High School Jakarta. Conceptual understandings to be achieved has several indicators that are, re-states a concept, classifies objects according to certain traits (in accordance with the concept), gives examples and non-examples from concepts, presents concepts in various forms of mathematical representation, develops necessary or Sufficient terms of the concept, using certain procedures or operations, and applying the concept or problem-solving algorithm.

This research uses design research method which is designed through three stages, namely design early design stage, design testing through initial learning and experimental learning, and retrospective analysis stage. In this study, Hypothesis Trajectory Learning (HLT) plays an important role as a learning design as well as research instruments. HLT is tested against 30 students of class VII. Data were collected using interview, observation, and field notes. Through the context of "Rio's Trip" that exist in the students daily life is a trip to school and home school that students can imagine so that students can easily understand the given context. Students can develop models from the given context according to PMRI characteristics. The student's understanding reaches the invention of the translation and rotation formulas. The results showed that the design of applied learning is able to stimulate students to build conceptual understanding on geometry transformation especially translation and rotation.

KEYWORDS: design research, conceptual understanding, PMRI, geometry transformation, translation, rotation.