ABSTRACT

INGGARLITA FAJRIN, Design Research: Developing Student's Ability of Understanding of Mathematical Concept on the Subject of Relationship Between Angles with Approach of Realistic Mathematics Education Indonesia in VII Grade MTs Negeri 18 Jakarta. **Essay**. Jakarta: Mathematics Education Study Program, Faculty of Mathematics and Natural Sciences, Jakarta State University, 2017.

The ability of conceptual mathematics understanding on the material line and angle is the ability required by students which one of them is the understanding of the relationship between angles. The ability to understand the mathematical concepts includes student's ability to reexamine the knowledge they have learned in their own language, connect the learned knowledge with the knowledge being learned, and solve mathematical problems in different contexts. The result of the students 'early ability test showed that the students' understanding of mathematical concept on the subject of relationship between angles is still low. This supports the implementation of this study which aims to develop local learning theory on the development of student's ability of conceptual mathematics understanding in VII grade MTs Negeri 18 Jakarta on the subject of the relationship between angles with PMRI approach. This study was conducted in January-May 2017.

This research uses a research design methodology consisting of three phases that form a cyclical process. The first phase is the preparation and design phase, which is the preparation of the Hypothesis of Cross-Learning (HLB) which consists of a series of learning activities in the form of activities to observe images of circular objects that are divided into several sections and railroad crossing. The second phase is the teaching experiment phase, the phase of the implementation of mathematics learning in the classroom using HLB which has been prepared as a guide. The third phase is the retrospective analysis phase, which is the writing phase of analysis of the learning activities compared to the HLB that has been compiled with various data of student learning process in the form of student work.

The results obtained from this study indicate that PMRI approach can develop the students' understanding of mathematical concepts on the subject of angle relationships. The activity of observing circular shapes that divide into sections helps students to understand the complementary angles, the supplementary angles, and the opposite angles. The activity of observing the railway crossing images can assist the student in understanding the angle relationship caused by two parallel lines that are cut off the transverse lines.

Keywords: Design Research, Angles Relationship, PMRI, Understanding of Mathematical Concepts.