

## ABSTRACT

Many researches showed that the most of students find the difficulty in measuring area. The formula of area tends to be taught directly without involving the conceptual basis and the area measurement are separated from children's daily experiences. For this reason, the teaching and learning of area measurement was designed and link to a set of experience-based activities. The objectives of this research are to see the students' reasoning and local instruction theory of basic area measurement concept by using the context. The context of this research is Indonesian traditional handicraft namely *anyaman*. The study is situated in the context of implementing an Indonesian version of Realistic Mathematics Education, labeled as PMRI in Indonesia. Design Research methodology comprising preliminary design, teaching experiment, and retrospective analysis is applied. This research describes the investigation of the context as preliminary of teaching and learning about area measurement held in SDN 119 Palembang. The result of the teaching experiment showed that problem embedded in a context could encourage the students to develop the idea of area measurement concept. The strategies through emergent modeling showed how students' contribution could be used to develop gradually their reasoning of area measurement concept. In the experience-based activities for learning area measurement, emergent modeling played an important role in the shift of students' reasoning from informal level towards formal mathematical concepts of area measurement.

*Keywords: Area measurement, Anyaman, design research, PMRI*