## Understanding Ability of Mathematical Concepts and Studentsâ€Â™ Self-reliance towards Learning by Implementing Manipulative Props (APM) on Jigsaw Technique

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Abstract	According to observations and interviews conducted towards fourth grade students of Elementary School 2 Sendangmulyo, the researcher found that students $\hat{A} \notin \hat{A} \in \hat{A}^{TM}$ understanding of concepts and self-reliance were low. Purpose of this study were to identify the effectiveness of manipulative props (APM) on jigsaw technique in learning process; to improve students $\hat{A} \notin \hat{A} \in \hat{A}^{TM}$ understanding of mathematical concepts; and toanalyse students $\hat{A} \notin \hat{A} \in \hat{A}^{TM}$ self-reliance in Mathematics learning by implementing manipulative props on jigsaw technique observed from their ability in understanding the concepts. This study used mixed method by applying concurrent embedded research design. As a result, implementing manipulative props on jigsaw technique in learning process could improve the students $\hat{A} \notin \hat{A} \in \hat{A}^{TM}$ understanding of mathematical concepts. It could be seen from the average number improvement of students $\hat{A} \notin \hat{A} \in \hat{A}^{TM}$ understanding of mathematical concepts of 30.44 so that there were 92% of students improved their understanding of concepts after the technique was implemented. According to the students $\hat{A} \notin \hat{A} \in \hat{A}^{TM}$ self-reliance category, students who have high understanding of concepts was showed to be in high category, students who have moderate understanding of concepts was indicated to be in medium-high category, while students who have low understanding of concepts was proven to be in medium-low category.
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