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DEVELOPMENT, VALIDITY, AND RELIABILITY OF META- SELLER TUTORING MODULE

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Abstract

This study aims to develop and determine the validity and reliability of the Meta-Seller Tutoring (M-ST) module. This M-ST module is developed through design and development research. ADDIE Model was applied as an instructional design guide. This M-ST module combining peer tutoring and metacognitive learning strategy models as it is content and module activities to enhance students' mastery of mathematics concepts. Experts, a mathematics teacher, and 31 students participated in the study to test and determine the content validity and reliability of the M-ST module. The results of the content validity analysis obtained that it is in an excellent rank with a validity percentage of 85.8%. The value of the reliability coefficient is 0.953 which also indicates that this module is at a very high level of trust. Based on the results, it can be concluded that this module is very useful and can be suggested as an intervention for mathematics learning. Teachers can integrate this module into teaching and learning to produce mathematics learning effectively.

Research Highlights

The design of this study is development research by applying the instructional design model which is the ADDIE Model to develop a module for mathematics learning intervention. The process of development of this module is divided into three phases. The first phase being the phase of the needs analysis in which a survey is conducted to find out the needs and to formulate the module's objectives. The second is the design and development phase. The contents of the module are created and developed based on the ASK Model of Peer Tutoring (Fitch & Semb, 1993) and a metacognitive learning strategy model, Anderson's Model (2002). The final phase is the implementation and evaluation phase of the module. In this phase, a pilot study and expert evaluation are performed to obtain the validity of the module content and the reliability of the activities in the module.

Research Objectives

The present study has two kinds of objectives that are general and specific. The general and main objective of this study is to develop a Meta-Seller Tutoring module focusing on

increasing the metacognitive skills of mathematics students. The specific objectives of this study are to validate the module by mathematics education experts and to perform a reliability test among the students before the real study is conducted. In summary, the study aims to develop a learning intervention by merging of metacognitive strategy and peer tutoring concept to enhance student's mastery in mathematics. The module is named as the Meta-Seller Tutoring (M-ST).

Methodology

The quantitative approach was implemented as a research method with questionnaires that were used as instruments in this research. The questionnaire was administered to determine the validity of the module namely face validity and content validity and for reliability check. The face validity of the module is examined by two experts, a language and a mathematics education expert. Experts have evaluated the draft module as well as the questionnaire to be used. To determine the content validity of the module, ten experts are involved based on their experience and expertise in mathematics, module development, teaching and learning mathematics. Subsequently, a total of 31 students and one mathematics teacher from a secondary school were selected to take the pilot study using the module. The mathematics teacher will conduct a mathematics learning session by following the original class schedule and current topic using the module. Then, the students were given a questionnaire to determine the module's reliability. After they execute each section of module and the experience of performing each activity in the module.

Results

The value of content validity obtained through this test was 85.8%. But for all items, this validity range is 81% to 90%. Based on the item statement, that the contents of the module meet the target group reaches the highest level of expert approval 90%. Besides, each item related to the contents of the module can improve students' metacognitive regulation skills and affect students' mathematics mastery by 88% and 87%, respectively. For items with statements that the module can be implemented successful and compatible with the time allocated, respectively 83% and 81%. According to Tuckman and Waheed (1981) as reported

in Noah & Ahmad (2005), determining the content validity for a module is based on a validity value of up to 70% or higher only when it is sufficient for the module to be accepted. Thus, the reliability values for the overall module activity are 0.953 and its subactivities in the range of 0.625 to 0.859 which indicates that this module has high reliability and accepted.

Findings

The present study shows the content of the M-ST Module is statistically significant. The finding also indicated that the module has a good quality because it is fulfilled the five criteria of content validity highlighted by Russell (1974) as reported by Noah & Ahmad (2005). Othman Mohamed (2000) in Jalil & Mahfar (2016), found that the acceptable reliability index for the construction of new modules ranged from 0.65 to 0.85. In this study, the M-ST Module has a reliability value of 0.953, which is high and accepted for the module to be used in the actual effectiveness study.

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