

DEVELOPING QUANTITATIVE LITERACY ASSESSMENT TOOLS FOR INDONESIAN SECONDARY SCHOOL STUDENTS

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Abstract

Quantitative literacy ability is an important skill in the digital era 4.0. This research aims to develop a quantitative literacy instrument for class VII students that is valid, reliable, free from Differential Item Functioning (DIF), and capable of measuring abilities accurately. The development method uses a 4D model (Define, Design, Develop, Disseminate), limited to the Develop stage. The instrument consists of 36 questions based on six dimensions of quantitative literacy (interpretation, representation, calculation, assumptions, analysis, communication) which are validated by experts with scores CVI 0.94. Trials were carried out on 220 class VII students, and analysis using the Rasch Model showed high reliability (item reliability 0.99; person reliability 0.85) and good precision (standard error 0.25 logit). The distribution of difficulty levels of questions is in line with average to medium student abilities, although the coverage of extreme abilities needs to be improved. The instrument is considered valid, reliable and precise, but it is recommended to add questions with a higher level of difficulty and review questions that are too easy or difficult to make them more representative.

Keywords: Quantitative Literacy, Secondary School

INTRODUCTION

Quantitative literacy (QL) skills are one of the essential competencies in facing the challenges of the 21st century, especially in supporting data-based decision making in various aspects of life. Quantitative literacy not only includes calculation skills, but also the ability to understand, analyze, and apply mathematical concepts in real situations (Steen, 2001). This competency is very relevant in the context of globalization and digitalization, which requires individuals to be able to manage data-based information well.