

Development of Socioscientific Issues-based Physics Assessment Instruments to Measure Scientific Literacy Ability

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ABSTRACT

This study focuses on developing a physics assessment instrument based on Socio Scientific Issues to measure the scientific literacy ability of high school students. The objectives of this study include: (1) knowing the form/construction of the physics assessment instrument developed to measure the scientific literacy ability of high school students, (2) knowing the feasibility of the physics assessment instrument developed to measure the scientific literacy ability of high school students, (3) knowing the characteristics of scientific literacy ability possessed by respondents using the developed physics assessment instrument, and (4) knowing the effectiveness of the developed physics assessment instrument.

The research on the development of this assessment instrument uses a modified Oriondo, Wilson, and Antonio development model, consisting of designing a test instrument, testing a test, and assembling a test. The trial subjects were selected based on the stratified random sampling, so five public schools in Kebumen Regency were the research sites with 507 students. The item analysis uses the Partial Credit Model 1 PL model with the help of the Quest program.

The results of this study resulted in a physics assessment instrument based on Socio Scientific Issues which consisted of 20 reasonable multiple choices (two-tier multiple choice). They fulfilled the indicators for the assessment instrument requirements, including item validity, instrument reliability, the goodness of fit, difficulty level, and the level of effectiveness in the medium category. Based on the analysis results, the average value of scientific literacy abilities of high school students in Kebumen Regency is 0.49, or in the medium category.

Kata Kunci: socio-scientific issues, scientific literacy ability, scientific literacy assessment, two tiers multiple choice instrument