MEASUREMENT OF MULTIPLE REPRESENTATION ABILITY OF PHYSICS SENIOR HIGH SCHOOL STUDENTS BASED ON MODERN TEST THEORY

by Edi Istiyono, Harun, Widihastuti, Niken Oktaviani, Muh. Asriadi

ABSTRACT

This study aims to measure the ability of multiple representation of physics, describe the advantages and disadvantages of the components of the ability of multiple representation of physics, and describe the differences in the ability of multiple representation of physics based on male and female learners at the high school level.

Data collection techniques are carried out by valid and reliabel test assembly, determination of respondents measurement activities, implementation of measurements, analysis of measurement results, and interpretation of measurement results. The analysis of the test was carried out with two events namely classically and item response theory (IRT with 1 PL).

Based on the measurement results showed that the ability of physical multiple representation of high school students is in a low category. However, based on the four components that exist, mathematical components become the highest components and verbal components become the lowest components. Differences in the ability of multiple representation of learners are not particularly influenced by gender differences. There is only one component that shows the difference in results based on gender, namely the image component. The image component ability of male learners is classified as very low ability (41.00%), while female learners are classified as very high (43.79%). Mathematical components and graphic components that show components are relatively low, and vice versa in verbal components show very high abilities.

Kata Kunci: *multiple representation ability, physics of SHS, modern test theory*