

Development of Online Diagnostic Assessment Instruments in Detecting Data Literacy Skills and Graph Representations for High School Students with Thermodynamics

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ABSTRACT

Diagnostic test is a test model that is used to overcome weaknesses in a certain subject, so the appropriate steps can be determined to take action to overcome these weaknesses. The offline diagnostic test model has been developed by many researchers, while the diagnostic test model has not been developed much. Therefore, this study aims to (1) determine the feasibility of an online diagnostic instrument (DOA) in monitoring data literacy skills and representation of thermodynamics for high school students, (2) describing the effectiveness of online measurement instruments (DOA) in data literacy skills and graphical representation of thermodynamics material for high school students, and (3) describe the profile of data literacy skills and graphical representations of high school thermodynamics material students.

The research used the Research and Development (R&D) method, while the development model used was the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) model developed by Dick and Carry (2001) and linked the development stages of learning outcomes tests to development stage.

The results of the study were (1) diagnostic assessment instruments and DOW Physics in terms of media, material, and practicality aspects through V Aiken, declared valid in the very good category because they obtained a value of more than 0.8, (2) the effectiveness of the online diagnostic assessment instrument in the literacy data and graphic representations of high school students based on Partial Eta Square of 87.4% and 85.5%, (3) based on the data literacy ability profile and graphic representation of high school students, thermodynamic material on each sub-subject, it is known that students have different error rates in every aspect that displays diagnostic recommendations, so that each student gets a different diagnosis and advice from one another.

Kata Kunci: *Keywords: Diagnostic assessment, data literacy, graphic representation, thermodynamics.*