

BLENDED LEARNING-BASED DIAGNOSTIC ASSESSMENT FOR ELEMENTARY SCHOOL STUDENTS' MATH LEARNING NEEDS

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ABSTRACT

Learning basically must be based on the analysis of learning needs, especially in mathematics learning. The analysis of learning needs can be a reference for conducting learning according to student needs. so that math learning will be more effective. Analysis of student learning needs can be done with diagnostic tests. The results of a diagnostic test can provide information about concepts that have been understood, concepts that have not been understood and misconceptions on a particular concept. However, not every diagnostic test is suitable for the characteristics of elementary school students, because diagnostic tests have various levels that have an impact on the energy used by students and tend to burden students. In connection with this, a diagnostic test instrument that is in accordance with the characteristics of elementary school students is needed which is packaged in the form of technological media/learning applications. The goal is to summarize and make it easier for students/teachers/parents to view and interpret diagnostic test results as a basis for determining student learning needs more effectively. Thus, this study aims, (1) to develop a diagnostic test pattern that is in accordance with the development of elementary students based on blended learning; (2) to develop and test the quality of diagnostic assessment instruments; (3) to develop a blended learning-based diagnostic assessment platform; and (4) to test the quality and effectiveness of using a blended learning-based assessment platform. The development of the assessment platform is basically developed through three stages.

The first stage of development uses an assessment model with the ADDIE model, this development analyzes the diagnostic assessment pattern according to the characteristics of elementary school students. Then the second stage develops instruments using the Oriondo-Antonio test development model, this stage develops diagnostic test instruments and looks at the quality of the instrument (validity, reliability, difficulty level, and information function). The third development stage is developing an assessment platform using the Borg & Gall development model. This stage packages the diagnostic instrument in the application and creates an algorithm in the application from the diagnostic test results to be able to produce a recommendation for student learning needs based on the diagnostic assessment results. Data collection uses tests, questionnaires, observation and FGD (forum group discussion) techniques. Data analysis used descriptive statistics and IRT (item response theory).

The features that will be presented on the platform are (1) identification of student abilities before conducting tests and adjusted to the characteristics of the test; (2) generating reports containing student abilities, concepts understood, concepts that have not been understood, misconceptions of a concept, and learning recommendations; (3) sharing report results via email or instant messages, and (4) learning progress history. The output of this research is oriented to produce (1) a book containing IPR-certified diagnostic test instruments in the first year; (2) publication of articles on the development of diagnostic test instruments in accredited national journals or international standard conference publications in the first year; (3) guidebooks, IPR-certified platforms in the second year. and (4) publication of platform application development articles in accredited national journals or international standard conference publications in the second year. The Technology Readiness Level (TKT) of the research in year 1 is TKT level 2, and in year 2 is TKT level 3.

Kata Kunci: *DIAGNOSTIC ASSESSMENT, BLENDED LEARNING, MATH LEARNING, ELEMENTARY SCHOOL*