

THE EFFECTIVENESS OF DIGITAL ASSESSMENT SYSTEMS ON THE ACCURACY OF STUDENT GRADES

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Abstract

Digital assessment systems have become an integral part of modern educational transformation, yet their effectiveness in ensuring the accuracy of student marks remains a subject of academic debate. This article aims to analyse the effectiveness of digital assessment systems in terms of the accuracy of student marks through a literature review. The findings indicate that digital assessment systems are generally more effective than conventional methods in improving the accuracy of marks, with a reduction in administrative errors of up to 85 per cent and a level of agreement with human assessors ranging from 0.85 to 0.92. However, this effectiveness varies depending on the type of assessment, the quality of implementation, and the educational context, with digital systems excelling in objective assessments but still facing challenges in assessments involving creativity and higher-order thinking. Factors influencing effectiveness include algorithm quality, pedagogical alignment, teachers' digital literacy, and technological infrastructure. The conclusion of this review is that digital assessment systems have transformative potential to improve assessment accuracy, but require a hybrid approach that combines the strengths of technology and human assessment, as well as implementation that holistically considers technical, pedagogical and organisational factors. Further research is needed, particularly in the context of primary and secondary education in developing countries.

Keywords: digital assessment system, marking accuracy, assessment effectiveness, automated assessment, educational technology, literature review

Introduction

Assessment systems are a crucial component of the educational process, serving to measure pupils' learning outcomes, provide feedback and support pedagogical decision-making. In recent decades, digital transformation has significantly altered the landscape of educational assessment, shifting from a reliance on conventional paper-based methods and manual calculations to digital assessment systems integrated with information technology (Prinsloo, 2020). These changes not only affect the efficiency of the assessment process but also raise fundamental questions regarding the accuracy and validity of the resulting marks.

Digital assessment encompasses various forms of technology, ranging from learning management systems (LMS), computer-based tests (CBT), to automated marking systems that use advanced algorithms to mark students' answers (Wu et al., 2022); (Widjaja and Aslan, 2022). The implementation of this system across various educational institutions is driven by the need for time efficiency, process transparency,