Chapter 4
AI-Powered Assessment Platforms: Transforming Higher Education Evaluation

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ABSTRACT

AI-powered assessment platforms are revolutionizing the landscape of higher education by transforming how student performance is evaluated. These technologies harness the power of artificial intelligence to enhance both formative and summative assessments, offering new ways to evaluate student competencies with greater efficiency, objectivity, and scalability. Through automated grading systems, predictive analytics, and adaptive learning tools, AI-driven platforms are enabling personalized learning experiences while reducing the burden on educators. The integration of natural language processing (NLP) for automated essay grading, AI-powered chatbots for assessment support, and real-time feedback mechanisms are some of the key advancements that make assessments more responsive and tailored to individual learning needs. However, the implementation of AI in educational assessment comes with a set of challenges, including ethical concerns related to AI bias, data privacy, and the potential over-reliance on automation.

INTRODUCTION

Higher education assessment and evaluation keep getting revolutionized by artificial intelligence, which develops modern solutions for traditional issues. AI-

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powered assessment platforms serve as a transformative force that universities and colleges utilize to improve the quality and efficiency, along with the inclusiveness, of their evaluation systems. Such technologies help educational institutions to deliver better grading support along with customized testing solutions that provide important information to teachers and learners. Academic institutions encounter various challenges when introducing these technologies for integration. The application of AI technology helps improve both the efficiency and objectivity of processes, although issues regarding fairness, together with ethical problems and system readiness, continue to dominate the domain of AI assessment discourse (Giri, 2025). Higher education institutions have adopted digital marking methods as a modern frontier in educational assessment development. Higher education assessments in the past used manual grading together with standardized testing models, yet critics raised concerns about their weaknesses. Manual evaluations based on human grading need replacement because they show a subjective nature, along with potential bias and a time-intensive workload. Online multiple-choice exams, along with automated plagiarism detection software, have already brought substantial changes to testing systems. Through its advanced capabilities, AI enhances assessment strategies by conducting instant data analysis to provide customized evaluations while adjusting the content according to individual learners' needs, which results in an enhanced assessment experience (Vetrivel et al., 2025). AI-powered assessment innovations must be viewed within broader pedagogical frameworks such as constructive alignment, which ensures that learning outcomes, teaching methods, and assessments are coherently aligned. AI assessment technologies adaptive testing, automated grading, and predictive analytics can support both formative and summative assessment functions in line with Bloom's Taxonomy by targeting recall, comprehension, application, and even higher-order thinking through intelligent feedback mechanisms.

AI-powered assessment tools implement specific essential functions that make them different from regular digital assessment solutions. AI uses automated grading to evaluate diverse student responses, which span from basic multiple-choice questions to elaborate written assignments. The NLP and machine learning systems within Turnitin and Gradescope platforms analyze student work through automatic assessment methods to provide instant feedback and maintain grading consistency (Giri, 2025). The system proves its value in extended student cohorts when regular evaluators find it difficult to maintain standardized evaluation approaches. The automation of grading approaches brings more operational efficiency to the process, but some doubt remains regarding human analytical abilities. There are subtle aspects within open-ended and essay assignments that artificial intelligence programs might misunderstand, leading to doubts about this technology's ability to replace human assessment of higher-order thinking abilities. AI-powered assessment technology achieved its next milestone through adaptive testing, which has proven to be another