

Abstract

The transition of education from face-to-face to electronic learning (e-learning) has been accompanied by the application of artificial intelligence and machine learning techniques to improve teaching, learning and assessment processes. Learning Management Systems (LMS) are used to conduct electronic learning (e-learning), and to facilitate student assessment through automatic generation of examinations from a question bank. However, the perceived low quality of these examinations has led them to be used for formative assessments and not for summative assessments. One way to ensure that high quality exams are generated by LMS systems would be to ensure that the questions cover different levels of difficulty as specified by an educational taxonomy. One commonly used taxonomy is Bloom's Taxonomy, later updated to the Revised Bloom's Taxonomy (RBT). In this research, we review studies on automatic generation of examinations from question banks. From this review, we define the parameters necessary for a quality exam based on RBT. Finally, we propose a conceptual framework that applies machine learning algorithms to automatically generate a quality exam from an LMS question bank. We intend to do further research by developing a prototype based on the conceptual framework.