

Security Vulnerabilities of E-learning Platforms: A Review

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Abstract. E-learning has now come to stay with renewed interest and popularity among the student population worldwide. The sudden outbreak of Covid-19 compelled the traditional education system shifted to online education mode. Online education is provided via e-learning platforms. These platforms provide easy access to students around the globe to learn, communicate and interact with each other. However, the concerns at hand are how secure these e-learning platforms are for the users. If the use of e-learning systems causes security and privacy issues then there is a high possibility of information being leaked out to external parties, with vested interests. Then the learners will be reluctant to be exposed to the platform. Therefore, it has become a major challenge to ensure that only the authorized parties have gained access to the system. The purpose of this study is to investigate all possible security vulnerabilities in the current e-learning platforms and provides appropriate solutions to overcome the security threats. This study has undertaken a comprehensive review to filter the literature with respect to the security elements, threats, and vulnerabilities in e-learning platforms. When analysing the existing research, it could be identified that Moodle, Blackboard and Sakai are the most used platforms. Therefore, this study is based on security threats and vulnerabilities of the aforementioned platforms. It is revealed that security vulnerabilities of the platforms, Blackboard and Sakai have not addressed as much as Moodle. Furthermore, this study reveals that confidentiality and integrity are the most important security elements that need to be considered and prioritized within the e-learning environment.

Keywords: *E-learning Platforms, Security Vulnerabilities, Security Elements, Privacy*