
A Review of Gamification for Learning Programming Language

Ts. Nurul Zakiah binti Kasnun¹, Ts. Khalid bin Deris², Wan Nur Hidayah binti Ibrahim³

¹ Department of Information and Communication Technology, Politeknik Sultan Idris Shah, Selangor, Malaysia
E-mail: nurulzakiah@psis.edu.my

² Department of Information and Communication Technology, Politeknik Sultan Idris Shah, Selangor, Malaysia
E-mail: khalid_deris@psis.edu.my

³ Department of Information and Communication Technology, Politeknik Sultan Idris Shah, Selangor, Malaysia
E-mail: wannurhidayah@psis.edu.my

Abstract

Introduction: Gamification has been utilised in programming education to enhance student learning outcomes, such as raised motivation, engagement, and retention. This literature study intends to investigate the existing state of knowledge on the application of gamification in programming language learning. This literature review was carried out using online sources like Google Scholar, the ACM Digital Library, and IEEE Xplore. The search terms used were "Gamification," "programming education," and "programming languages." The study is focusing on the use of gamification in the study of programming languages. This review consists of extraction information from 21 chosen article. The results of the study show that gamification can significantly improve the learning experience for students studying programming languages by boosting motivation and engagement, enhancing conceptual understanding, and improving learning outcomes and programming skills. Finally, we can conclude from this study that gamification helps programming learning by generating an exciting and stimulating environment that boosts retention and enjoyment, but it should be utilised in conjunction with traditional ways. Where the gamification content and technique should be linked with the Learning Objectives. Furthermore, we believe that a continuous comparative study of student performance from traditional methods and new approaches such as gamification, along with continuous improvement, is necessary to ensure that the new approach always provides positive changes and not the other way around.

Keywords: *Gamification; Programming Language; Education*
