GAME-BASED APPROACH AND ITS FEASIBILITY TO SUPPORT THE LEARNING OF OBJECT-ORIENTED CONCEPTS AND PROGRAMMING

Aimi Eliyana Rais\textsuperscript{a1}, Shahida Sulaiman\textsuperscript{a,b2}, Sharifah Mashita Syed-Mohamad\textsuperscript{a3}

\textsuperscript{a}School of Computer Sciences  
Universiti Sains Malaysia  
11800 USM, Penang, Malaysia

\textsuperscript{b}Faculty of Computer Science and Information System  
Universiti Teknologi Malaysia  
81310 Skudai, Johor, Malaysia

E-mail:  \textsuperscript{1}aer10\_sk063@student.usm.my, \textsuperscript{2}shahidasulaiman@utm.my, \textsuperscript{3}mashita@cs.usm.my

Abstract

Object-oriented has been widely used in software development. Hence, learning object-oriented concepts is crucial in undergraduate Computer Science or Information Technology programs. Learning object-oriented programming requires high concentration to understand the whole concepts before embarking on the practical aspect. It could be difficult for some students especially novices. In addition, lecturers might not be able to explain the subject effectively due to many factors. This research aims to justify and investigate more aspects to support the understanding of object-oriented concepts through games. Game is one of the approaches that could attract students' attention and increases their focus in learning object-oriented theory and practice. This paper reports a feasibility study using a controlled experiment that investigated the effect of using games in learning object-oriented programming among Computer Science students. The findings show that learners prefer using game as compared to traditional approach of teaching. Based on the study, we propose a more effective game-based approach to support the students in learning object-oriented concepts and programming.

Keywords: Object-oriented concepts, Object-oriented programming (OOP), Goal question metric (GQM), Game-based approach