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Cloud-based Learning System for improving students' programming skills and self-efficacy (Article)

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Abstract

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Cloud-based Learning Systems (CBLS) refers to the systems that provide electronic or online content to enable the learning process by offering tools and functionalities through platform available in Cloud. This research seeks to examine the effectiveness of CBLS in improving programming skills among undergraduate students by measuring students' performance in solving programming problems. This is because there is no empirical evidence on the effectiveness of CBLS when compared with the traditional method of learning programming among student beginners. Traditionally, teaching programming courses has been performed in a classroom setting and it can be very challenging for an instructor to go beyond covering the language's syntax such as program design skills and problem-solving skills due to the wide variety of students' background in such bounded class duration. In this study, three single-subject experiments were conducted using 40 undergraduate students enrolled in Web Programming course. The experiments compared the time students spent to solve programming tasks by using traditional learning method and CBLS. A survey to measure students' selfefficacy was administered before and after the experiments. The findings of this study showed that there is a statistically significant difference in learning programming using CBLS when compared with traditional method. Our results showed that students solve programming problems in less time when using CBLS. The study also found out that CBLS is effective for improving students' self-efficacy. © 2010, Universiti Utara Malaysia Press.

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