Accessing a Moodle based Learning Management System and Exam Performance by Medical Students: A Retrospective Analysis

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Abstract

Considering the high computer literacy of students and the need for being students centred, the MBBS programme of University of Kelaniya introduced a Moodle-based learning management system (LMS) as a supplementary component to its blended delivery approach of the curriculum. Accordingly, LMS is a parallel component to the curriculum delivered face-to-face. Each module of learning in the curriculum is represented in the LMS by giving lecture notes, PowerPoint presentations, web links and assignments. The broad aim of this study is to determine the relationship between the extent of interactively of learners with LMS and their exam performance.

First-year medical students (172 from 2016 intake and 166 from 2017 intake) at University of Kelaniya were considered for the analysis. Student's access to LMS during the first two modules of the MBBS curriculum and the results of the first continuous assessment were compared. Total LMS access for each student during the two modules were calculated by counting the number of views in the course log. The particular course logs of LMS were downloaded and filtered out the details pertaining to students in the above two modules in both batches. Total access during the two modules were calculated for individual student and used for the analysis. Continuous assessment results ranged from grades A to F and we assigned sequential numerical marks in the descending order from 6 to 1 to denote grade A to F. Total LMS access with respect to assessment grades were visualized using boxplots and median with interquartile ranges were calculated. Association between LMS access and assessment grades were investigated. Statistical analysis was done in R.

Median (interquartile range) of LMS access of the students were 43.0 (12.25 – 72.0) times. The number of results grades for the students as follows; A – 3, B – 41, C – 117, D – 122, E – 51 and F – 4 and the respective number of median (interquartile range) access to LMS for the above grades were 110.0 (102.0 – 113.0), 51.0 (21.0 – 76.0), 49.0 (16.0 – 76.0), 39.0 (11.0 – 64.75), 29.0 (6.0 – 59.5) and 6.5 (3.0 – 16.0). There was significant correlation between LMS access and results grades (rho = 0.2, $P < 0.01$). Students with grade A showed significantly higher LMS access compared to the rest of groups. There was no difference in LMS access between students with grades B and C, C and D, D and E, D and F or E and F. However, grade B showed significantly higher LMS access compared to grades D, E and F; and grade C showed significantly higher LMS access compared to grades E and F.

The findings demonstrate that students' interaction with LMS were significantly associated with the performance in the examination. The learning management system has a positive impact on student performance.

Keywords: Medical students, LMS access, Exam performance