



Predicting Physiology Student Performance from LMS Data in the Post-COVID Era

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The global COVID-19 pandemic has significantly impacted physiology education. With the continued shift and emphasis toward delivering educational content on-mass, in the online space, and away from traditional, in-person activities, the present study utilised a data mining approach to investigate whether digital data from Learning Management Systems (LMS) could be used to predict academic performance of students. Over the course of a semester, LMS activity data was collected from a cohort of second-year Biomedical Science students (N=534) enrolled in a core physiology subject. Measures of student activity from these digital data were used to predict academic performance (students' final unit results), using linear regression analyses. This student activity included – total number of clicks, discussion forum posts and views, frequency of LMS course page and content page views, frequency of views and downloads of lecture recordings, frequency of quiz attempts and reviews, and, average time spent viewing lecture recordings. Data capturing the frequency of physical, in-person attendance to traditional physiology laboratories and workshops was also collected.

We found that frequency of views and downloads of lecture recordings, average time spent viewing lecture recordings, and, physical attendance to in-person laboratories and workshops, were significant factors in predicting students' academic performance. Our analyses show that student learning behaviours, specifically those around viewing lecture recordings online, can be used to predict the academic performance of students, a finding largely consistent with previous literature.

While further work is ongoing, the current findings provide valuable insights on how our 'digital native' students are increasingly engaging with the LMS for their learning. As we emerge from the COVID-19 pandemic, and as delivery of education towards the online space gains momentum, this evidence-based approach will help inform and enhance teaching practices, and support the development of teaching resources that better compliment student behaviours, identified to predict academic performance.