

Making Sense of E-Learning Platform Data to Inform Teaching and Learning Practice

By Dr Hanneltjie Meintjes, Dr Aleksandar Zivaljevic and Radhika Kumar

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Abstract

Masses of data are gathered by learning platforms while students are interacting with them. The learning analytics and knowledge (LAK) and educational data mining (EDM) research communities analyse these data to extract useful information. This study aims to give an overview and possible explanations for the findings of these research communities regarding the relationships between student online interactions and success or failure in a course. The available EDM and LAK literature from 2010 onwards was reviewed. Significant direct and indirect relationships between success and a range of variables were reported. The characteristics of good teaching and learning, as identified by Cognitive Load Theory (CLT), Chickering and Gamson's Seven Principles for Good Practice in Undergraduate Education, and Anderson's Equivalence Theorem were then used as a framework to reflect on and attempt to explain the findings. For example, various studies found the number of logins to be negatively correlated with success. This may be an indication of poor study methods or a warning sign of a poorly designed site. Spending unexpectedly long periods on a task may indicate a poor match between the task's cognitive load and the student's level of readiness. Passively listening to recorded lectures as a study method is also linked to lower levels of success. These findings may inform the guidance given to students regarding studying successfully online and have some lessons for the design of online environments to promote successful learning. With the complementary use of EDM, LAK and pedagogical theory, the data generated by e-learning platforms provide useful pointers to improve online teaching and learning.

Keywords: Learning analytics, learning analytics and knowledge, educational data mining, interactions, forecasting, e-learning, online behaviour, navigational pattern, risk prediction, good teaching practice, quality instruction, e-platforms

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Unitec, Te Pūkenga, Private Bag 92025
Victoria Street West, Auckland 1010
Aotearoa New Zealand



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