Abstract

This study proposed a theoretical model explaining causal relationships between student participation and academic achievement through their learning analytics in a web–based distance education course, testing it using structural equation modeling (SEM) with an empirical dataset. The sample was composed of 167 university students enrolled in the Department of Computer Programming in the Distance Education Vocational School at a major state university in Turkey. Student participation was operationalized through learning analytics of the number of submissions to discussion forums and attendance to online lectures whereas academic achievement was represented by students' performance on their project assignments and final exam. The results of the SEM analysis indicated that the modified version of the model had a good fit with the data ($\chi^2 = 2.52, df = 1, p > .05, \chi^2 / df = 2.52$, $GFI = .99$, $CFI = .99$, $RMSEA = .09$, $SRMR = .03$). Discussion forum submission and online lecture attendance were found to be positively associated with each other. They had a positive direct effect on students' project scores and a positive indirect effect on students' final exam scores via their project scores. Moreover, discussion forum submission was found to have a direct positive effect on students' final exam scores. Practical implications and suggestions for further research are discussed within the context of online learning.

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