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Impact of microlearning on academic performance of students in higher education in theoretical examinations - A systematic review and meta-analysis

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Background

Microlearning is an innovative pedagogy which is practiced in current higher education. It is the process of learning through small-sized, well-planned learning units and short-term learning activities.

Objectives

The objective of this study was to conduct a systematic review and meta-analysis to evaluate the impact of microlearning compared to traditional learning on the academic performance of students in higher education in theoretical examinations.

Methods

Ten databases were searched including SCOPUS, EBSCOhost, Emerald, JSTOR, Taylor & Francis, PubMed (MEDLINE), Oxford University Press, ERIC, ACM and IEEE Xplore. Study selection was conducted using the Covidence platform. The search retrieved 602 studies and 12 studies were included in the systematic review. Cochrane's risk of bias tool was used for the risk of bias assessment of the included studies. Five studies were included in the meta-analysis. Meta-analysis was conducted using theRevMan 5.4 software.

Results

Meta-analysis showed a higher academic performance in students learned using microlearning (n=344) compared to the students learned using traditional learning (n=310) ($p = 0.03$). The overall mean difference in academic performance in relation to post-test scores in theoretical examinations between microlearning and traditional learning groups was 12.6 (95% CI: 1.2 - 23.9). Therefore, the students who participated in microlearning performed higher in theory examination than students who were enrolled in a traditional classroom.

Conclusion

Microlearning has contributed to a substantial increase in academic performance among students in higher education compared to traditional learning. Microlearning can increase academic performance of students by reducing cognitive load, providing flexible learning environment, promoting self-directed learning and by providing timely feedback. Designing the microlearning lessons according to the adult learning principles can further enhance the positive impact of microlearning on students' academic performance in higher education.