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Development of a Learning Analytics Platform for Supporting Evidence-Based Teaching(Digest_要約)

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Kuromiya, H., Majumdar, R., & Ogata, H. (2020). Fostering Evidence-Based Education with Learning Analytics: Capturing Teaching-Learning Cases from Log Data. *Journal of Educational Technology & Society*, 23(4), 14–29.

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論文題目	Development of a Learning Analytics Platform for Supporting Evidence-Based Teaching (エビデンスに基づく指導を支援する学習分析基盤の開発)		
(論文内容の要旨)			
<p>In Japan, the emergence of the new coronavirus and the GIGA school project has led to rapid progress in developing and promoting educational ICT environments. At the same time, learning analytics platforms, the technology that supports these efforts, are rapidly spreading to schools nationwide. However, most existing learning analytics research is limited to analyzing and visualizing data from schools and local governments, and the development of a system to verify and accumulate the effects of teaching strategies is still insufficient.</p> <p>This paper proposes a platform for extracting and accumulating evidence on effective learning and teaching methods from educational big data, targeting the learning logs of BookRoll, an eBook reader for educational materials. The platform aims to accumulate teaching-learning cases about effective teaching by monitoring changes in behavior through a learning analytics dashboard from daily teaching and learning environments. This paper consists of three studies. The first study analyzes learning logs obtained in a remote teaching environment due to the school being close to COVID-19. This study showed that analyzing learning logs (real-world data) could lead to discovering problems related to students' learning behavior and suggestions for how to improve it. The second study was on developing a function to automatically analyze the effects of interventions on a learning analytics dashboard. This study added an evidence-generating component to the existing learning analytics dashboard to see if the learning logs of two teachers could be used to identify the effects of the intervention. The third study is a study of the extension and implementation of a system for accumulating and consolidating the evidence generated by the above components. This research clarified a workflow for continuously accumulating evidence in the daily teaching and learning environment and an evidence aggregation method for using this evidence to improve the next class.</p> <p>Through the demonstration of the system using actual learning log data, we could show that a bunch of evidence was extracted from the actual learning log data and aggregated to improve the evidence quality of the cases. It leads to the conceptualization of real-world evidence in education, and this will be the answer to the question of how to extract high-quality evidence from log data collected in everyday teaching and learning environments. Moreover, this system will be extended to the evidence recommendation system for suggesting best available teaching strategies to teachers in the future. This doctoral dissertation will clarify the role of learning logs in terms of evidence-based education and educational big data, which should play an important role in the era of technology-enhanced education.</p>			