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Trenholm, Sven; Alcock, Lara; Robinson, Carol

An investigation of assessment and feedback practices in fully asynchronous online undergraduate mathematics courses.

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Summary: Research suggests it is difficult to learn mathematics in the fully asynchronous online (FAO) instructional modality, yet little is known about associated teaching and assessment practices. In this study, we investigate FAO mathematics assessment and feedback practices in particular consideration of both claims and findings that these practices have a powerful influence on learning. A survey questionnaire was constructed and completed by 70 FAO undergraduate mathematics instructors, mostly from the USA, who were each asked to detail their assessment and feedback practices in a single FAO mathematics course. Alongside these questions, participants also answered the 16-item version of the Approaches to Teaching Inventory. In addition, a novel feedback framework was also created and used to examine how feedback practices may be related to participants' approaches to teaching. Results show that assessment and feedback practices are varied and complex: in particular, we found there was not a simple emphasis on summative assessment instruments, nor a concomitant expectation these would always be invigilated. Though richer assessment feedback appears to be emphasized, evidence suggests this feedback may not be primarily directed at advancing student learning. Moreover, we found evidence of a reliance on computer-human interactions (e.g. via computer-assisted assessment systems) and further evidence of a decline in human interactions, suggesting a dynamic that is both consistent with current online learning theory and claims FAO mathematics courses are becoming commodified. Several avenues for further research are suggested.

Classification: D65 U55

Keywords: online learning; tertiary mathematics; feedback; assessment; approaches to teaching

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