

AI-POWERED, ACADEMIC-DRIVEN: AN APPROACH FOR PERSONALISED STUDENT FEEDBACK AND LEARNING

Andrew Cutting

Presenting Author: Andrew Cutting (andrew.cutting@unimelb.edu.au)

School of Agriculture, Food, and Ecosystem Sciences, Faculty of Science, The University of Melbourne, Parkville VIC 3010, Australia

KEYWORDS: personalised feedback and learning, learning analytics, artificial intelligence

Personalised feedback and learning provide students with tailored study and guidance based on their individual strengths and weaknesses and is crucial for self-directed learning. AI is seen as the silver bullet for streamlined generation of this feedback, however its implementation faces significant challenges. Many education technology solutions, though well designed, are often costly, cover generalised pre-set topics, and don't completely meet the needs of educators or their students. Additionally, the demands of academic roles leave little time to master AI tools, which is crucial for aligning AI feedback with subject learning outcomes, curriculum, and academics' teaching philosophies. Hasty implementation can result in generic or irrelevant feedback compromised by bias, flawed analytics, and incomplete or noisy data sets.

Here, I present an approach where academics use AI to align subject learning outcomes with learning activities and formative quizzes to create a reusable AI model for generating personalised feedback. Briefly, Spark AI (University of Melbourne) was provided with deconstructed subject learning outcomes for Agricultural Systems Biology ("weekly learning aims") and tasked with aligning them to quiz questions and subject learning activities. Details on the learning and testing aims of these activities and questions was included. Students' individual performance on these quizzes was then mapped against this alignment (Microsoft Excel), effectively profiling their knowledge in relation to the learning outcomes.

In a proof-of-concept pilot, students' knowledge profiles were formatted as "progress maps" and delivered to students via the Student Relationship Engagement System (SRES) as part of regular personalised feedback. Almost 45% (n=74) of students engaged with the feedback, with 71% (n=30) of those surveyed agreeing or strongly agreeing that it helped them review their engagement in the subject, and 62% agreeing or strongly agreeing that the progress map helped them review their strengths and weaknesses.

While currently requiring manual data handling, this method provides a basis for AI-powered personalised feedback driven by academics and tailored to their students and subject. Future work will focus on integrating this approach into new educational technology systems (currently in development) to streamline the process.

ACKNOWLEDGEMENTS

Spark AI was used to assist with language editing and improving readability of this abstract. The author gratefully acknowledges the feedback and opportunity to implement this innovation provided by A/Prof Sarah Frankland.