

ENHANCED DATA PATHWAYS FOR AI-DRIVEN LEARNING ANALYTICS AND PERSONALISED STUDENT FEEDBACK

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In the drive towards AI-enhanced learning analytics and personalised learning, a significant challenge is the lack of required data for meaningful analysis. Learning Management Systems (LMS) such as Moodle and Canvas generate large data sets; however, it is often fragmented, in multiple formats and locations, lacks meaningfulness and relevance to the curriculum, and is of insufficient granularity for AI-driven insights into student learning. Furthermore, accessing this data is challenging, with limited support for data flow beyond CSV exports, copy-pasting from browsers, or APIs that require technical expertise. We believe the potential of AI in education cannot be fully harnessed without improvements in data quality, relevance, data flow pathways, and connectivity to learning analytics processes.

In response to this need, we have digitised most learning activities in our undergraduate subject, and developed analytics pathways that generate and capture highly granular metrics on students' participation and progress in these activities (~18,000 datapoints). Additionally, we have utilised the Student Relationship Engagement System (SRES) to visualise and deliver analytics to students as engaging personalised feedback (Student Wrap-up, Fig. 1) alongside reflective activities aimed at motivating self-awareness and improving self-regulation.

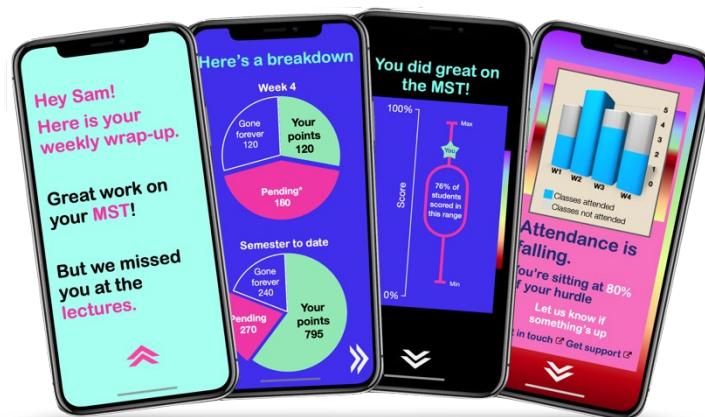


Fig. 1 Mock of Student Wrap-up that delivers visualised and personalised feedback generated from AI-analysis and coding of participation and progress data

Here, we present a proof of principle demonstrating the design of these learning activities, collection of data generated by students completing these activities, basic learning analytics and visualisation coding by SparkAI, and delivery of analytics back to students via SRES as personalised feedback – effectively *closing the loop* between student's learning and personalised feedback. It is from this principle that we are developing robust API connections to streamline data flow, analytics, and visualisations.

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