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Instant Formative Feedback for Lecturers Using AI

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Abstract

Lecturers in higher education often receive limited feedback, typically through student surveys or supervisory visits that are inconsistent, judgmental, and resource intensive. Consequently, they are left without genuine opportunities for ongoing, formative reflection on their teaching. Recent studies highlight the potential of artificial intelligence (AI) for analyzing and evaluating teaching. For instance, ChatGPT has been shown to analyze open-ended student feedback with high agreement compared to human coders (Fuller et al., 2024), and the M-Powering Teachers project demonstrated that automated feedback can improve instructors' uptake of student ideas (Demszky et al., 2023). Other work shows that large language models can approximate expert observation scores from classroom transcripts (Whitehill et al., 2024). Yet most approaches still rely on student comments or external observation. Amid rapid technological advances and the essential role of teaching feedback, this study proposes a new approach that uses AI to provide instant, interactive, personalized and formative feedback for lecturers. The feedback is generated from automatic transcriptions of recorded lectures, considers both pedagogical aspects and subject matter, spans across disciplines and languages, and reduces institutional costs. A pilot conducted with three mathematics lecturers demonstrates that transcript-based analysis by an LLM, combined with a continuous lecturer-AI dialogue, can provide accessible and authentic feedback, promoting self-reflection and professional development. At the conference, we will present applications and examples illustrating the potential of this approach, along with key insights and implications for the future.

Keywords: higher education; LLM; professional development; self-reflection; teaching analysis.