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Conversational Artificial Intelligence for Feedback in Higher Education: A Systematic Review

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Abstract

Conversational artificial intelligence has emerged as a promising tool for scaling up formative feedback in higher education, in a context where the available evidence remains scattered and addresses the phenomenon from diverse disciplinary, technological, and pedagogical perspectives. The research systematically analyzed scientific evidence on the use of conversational AI for formative feedback in higher education, exploring its pedagogical effectiveness, student perception, disciplinary applications, and main technological characteristics. The PRISMA 2020 methodology was used, identifying 741 initial records in Scopus and Web of Science, of which 49 met the established inclusion criteria. The results showed that conversational AI, particularly ChatGPT and its variants, produces feedback of comparable quality to that of human teachers under certain conditions, although its effectiveness varies according to instructional design, academic discipline, and the characteristics of each student. Student perceptions showed moderate to high acceptance, influenced by the perceived credibility of the source and the specificity of the feedback. Implementation was more widespread in STEM disciplines and academic writing, with relevant evidence also in medicine and education sciences. It was concluded that conversational AI is a viable tool for formative feedback, especially for large groups and limited teaching time, but it requires careful instructional design, precise promises, and clarity about its limitations. It is recommended to develop specific pedagogical frameworks and explore hybrid models that integrate automated feedback with teacher judgment.

Keywords: Artificial Intelligence; Feedback; Higher Education; PRISMA; Systematic Review