Embedding Effective Teaching Strategies in Intelligent Tutoring Systems

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Abstract

Technological advancements have facilitated the implementation of the core components of intelligent tutoring systems (ITS) that adapt to individual students. Some of these ITSs attempt to simulate the discourse and pedagogical strategies of human tutors. Natural language processing tools and agent-based software are increasingly working alongside hardware platforms that range from smartphones to desktops. To create an effective ITS, pedagogical considerations are needed from both a system-design perspective and a content-authoring perspective. ITS developers should also understand the most effective ways to provide pedagogically sound feedback and guidance to the learner. Feedback and guidance should take into account both the learner and domain models. For example, students with high domain knowledge interact differently with ITSs compared to those with low domain knowledge, and different domains afford distinct pedagogical techniques. Examples will be drawn from recent and ongoing efficacy studies using AutoTutor, a conversation-based ITSs with one or more animated pedagogical agents.

Keywords: AutoTutor, conversational agents, domain modeling, intelligent tutoring systems

References


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