

Adaptive Literacy Instruction in iSTART and W-Pal: Implementing the Inner and Outer Loop

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Abstract

Though the affordances of intelligent tutoring systems (ITSs) are particularly useful for literacy instruction, developing accurate automated feedback in reading and writing present challenges for developers. This chapter outlines some of these challenges in the context of providing both inner-loop and outer-loop feedback (VanLehn, 2006) and describes how we have addressed these challenges in our systems, iSTART and W-Pal. We report on the theoretical and practical development of student and instructional models that are sensitive to students' evolving literacy skills. The chapter offers an explanation of how we posit the implementation of outer-loop adaptivity can enhance learning of literacy skills in ITSs more broadly.

Keywords: inner and outer loop adaptivity, ill-defined domains, natural language processing, literacy instruction, pedagogical design

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