

Preface

This issue features contributions that span some of the major concerns of research in Artificial Intelligence in Education - how to model the learner's performance more accurately, how to determine whether to intervene in a student's problem solving activities and how to use technology to make the most of the social conditions that promote learning.

The review paper by Amy Soller, Patrick Jermann, Martin Muehlenbrock and Alejandra Martínez examines the question about how to improve the effectiveness of groups/pairs working together. They construct a framework that distinguishes between technological tools by examining systems in terms of mirroring, metacognition and coaching. The authors suggest that these three aspects form part of a cycle of activities that can be used to support collaborative learning. The paper not only gives a view of the state of the technology within the various relevant research communities but also points out the need for further work on evaluation.

The paper by Carolyn Rose and Kurt VanLehn examines when and how to intervene if a student seems to have missed some important point in their answer. Their setting requires students to provide short free text answers to physics problems that can be answered by qualitative reasoning. They point out that it becomes more difficult to intervene when students provide more detailed and complete responses. They provide an approach (CarmelTC) which performs well in relation to an LSA-based approach and a Naive Bayes approach.

The paper by Michel Desmarais and Xiaoming Pu provides a detailed study of whether POKS, a modelling approach based on Bayes can outperform the standard Item Response Theory approach when seeking to assess student's knowledge. POKS is based on the theory of knowledge spaces, and can be used to assess student mastery. The approach can be seen as supplementing the growing work on the use of Bayes inspired approaches to student modelling.

This issue completes volume 14. In the near future, I believe there will be some excellent issues. Of note, is a collection of papers that extend research reported at ITS 2004, a special issue on learner-centred methods for intelligent system design, and a special issue on open learner modelling.

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