Preface

This issue of the International Journal of Artificial Intelligence in Education is special: it features a departure from recent practice in that it contains two sets of papers addressing (different) significant issues. Both these sets of papers should be seen as providing a "mini debate" which might be followed up elsewhere.

There is a contribution from Kurt VanLehn that distills his many years of experience into a view on the structure of Intelligent Tutoring Systems. He casts a wide range of ITSs as featuring an outer and inner loop, and he provides an account of the different forms of feedback that are provided to students. This contribution essentially offers a summary of the current state of progress in the field of ITS. I asked two well known and highly knowledgeable members of the AI-ED community to comment publically on Kurt VanLehn's view of ITS. You will find that Benedict du Boulay and James Lester provide additional insights into the current state of play, giving some useful ideas about potential future developments.

The second main contribution is rooted in a discussion of the nature of Constraint Based Modelling. In the International Journal of Artificial Intelligence in Education, Vol 15, Number 2, a paper by Viswanathan Kodaganallur, Rob Weitz and David Rosenthal appeared entitled "A Comparison of Model-Tracing and Constraint-Based Intelligent Tutoring Paradigms". This paper was based on the experience of the authors gained by implementing a constraint-based tutor and a model-based tutor, and was accepted for publication based on the reviews of three very well established members of the AI-ED community.

Antonija Mitrovic and Stellan Ohlsson wanted an opportunity to challenge the processes described in the paper and the conclusions drawn, and their contribution is a critique of that paper. This critique raises some issues including ones close to the core notions of constraint-based modelling, how well these are understood, and how different approaches can be compared.

Viswanathan Kodaganallur, Rob Weitz and David Rosenthal have been given the opportunity to respond to the critique presented by Antonija Mitrovic and Stellan Ohlsson. Their response seeks both to establish their work as well-founded, and to push the debate on the nature of constraint-based modelling further.

Both sets of authors have much to discuss together, and I have asked them to seek opportunities to pursue face-to-face discussion in public. Both parties have agreed to this in principle - so I hope that their articles in this issue eventually lead to constructive conclusions.

Both sets of contributions raise issues worthy of further consideration - and that provides an opportunity to take a serious view as to what has been achieved, within the field, and to look for fruitful ways to advance the field. Is the "two loop" ITS going to be the standard for future ITS implementations? Are constraint-based tutoring systems the way forward? The community needs debate on issues of substance that lead to new ideas worth researching further. Some of this naturally takes place during the AI-ED conferences and related ones such as the ITS conferences. The hope I have is that this particular issue of the journal also makes a contribution, and stimulates a very positive approach to the future. Of course, you, the readers will form your own opinions and, hopefully, contribute your own wisdom and understanding to further research into AI in Education.

Paul Brna