Preface

The first issue for 2008 contains three papers each of which addresses a significant, and perennial, question for IJAIED readers: how do we manage educational debate, how can we develop self-improving systems, and how can we develop expertise in a specific area of mathematics?

Tangming Yuan, David Moore and Alec Grierson revisit work on dialogue game-based argumentation systems in "A Human-Computer Dialogue System for Educational Debate: A Computational Dialectics Approach". While there have been other argumentation systems with work by Michael Baker, Rachel Pilkington and Dan Suthers, the authors offer a new model – basically an improvement of some deficiencies of a previous model. This is potentially useful work but, perhaps for the readers of IJAIED, the main interest may lie in the viability of the authors' vision for how this work could be utilised to improve learner-computer interaction.

Leen-Kiat Soh and Todd Blank provide a detailed approach to the design and implementation of a self-improving system. Their paper, "Integrating Case-Based Reasoning and Meta-Learning for a Self-Improving Intelligent Tutoring System", is in a long line of attempts to automate the tuning of ITSs which includes the work of Tim O'Shea, Ana Arruarte and her colleagues in 1997 and Jon Elorriaga and Isabel Fernández-Castro in 2000. The evaluation suggests there may be something valuable in their approach which readers might like to consider for themselves.

Françoise Le Calvez, Hélène Giroire and Gérard Tisseau provide the "Design of a Learning Environment in Combinatorics based on Problem Solving: Modeling Activities, Problems and Errors". Their Combien? system is designed to begin in a way that is close to the students' own state of understanding, then use a sequence of methods to provide the student with a rigorous approach to problem solving in the combinatorics domain. While not every reader will be interested in the mathematical domain, the paper is an example of a system that takes the notion of problem representation very seriously, and, importantly, seeks to respect the ways in which students learn to understand a difficult topic.

This set of papers raises a number of core questions which deserve further debate.

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