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BOOK REVIEW

Artificial Intelligence and Education Volume 2: Principles and Case Studies: Edited by MASOUD YAZDANI and ROBERT W. LAWLER. Ablex, N.J. 1991. 335 pp. ISBN 0-89391-630-7.

The book is a collection of 12 chapters relevant to those interested in the area of Artificial Intelligence (AI) and Education. Though it is in competition with several recent books appealing to the same basic audience, it has a distinctive character.

The first chapter is entertaining. Lawler argues that there is a need to develop simple 'shared models' of thinking that can be used in different cultures. A large gap exists, however, between the description of his research and his long-term goals.

The second chapter continues the basic argument of those that support the use of learning environments: namely, that computer environments can be used to catalyse change in students. Valente presents a case history of a student with special needs who develops skills of several different kinds while performing a number of LOGO projects.

Albers and his colleagues then provide a more theoretical argument for the benefits of students building their own microworlds. This would have benefited from more details about what they actually did with students.

Next, there is a worthwhile chapter by Harvey who argues for the benefits of a computer science syllabus using LOGO, and how this could have an impact on the secondary school curriculum. In particular, he compares his approach with that of Abelson and Sussman.

Papert's chapter is, as usual, fascinating. Exactly why it is in this particular collection is obscure. He spends most of the paper discussing whether or not connectionism really is the challenge to AI that it has sometimes been taken to be. He is broadly pessimistic about the progress made.

Nichol describes the use of several knowledge based tools within a normal school environment. He strongly emphasizes that a tool called LINX provides a simple way of constructing games and simulations. A case study provides us with some idea of the nature of this tool and the effectiveness of using such tools in the classroom with young children (around 12 years old). The work of Nichol and his colleagues is always interesting.

Tompsett then provides an outline of the Knowledge Based Engineering Training Alvey project. It would have benefited from less background discussion and more careful analysis.

Wood and Pateman describe the introduction of an expert system into teacher training. This system provided advice on handling situations that the student teacher had found difficult to manage. As there is relatively little work in this area, the contribution made by this chapter is a valuable one.

Boder and Cavallo describe an epistemological approach to the development of intelligent tutoring systems. Their system, broadly speaking, is a learning environment with tutoring component that sits 'on top' of the basic environment.

Russell and his colleagues outline use of the Instructional Design Environment (IDE) developed at Xerox Parc. This system is effectively a toolkit to allow experts to develop instructional materials. A great deal of ground is covered but it might have been better if there were less coverage and a little more depth.

Brown, Collins and Duguid then present the most topical and important chapter in which they partly develop what they mean by 'situated cognition'. This term still has a worrying effect on the community of AI and Education researchers. For technical people, the big question seems to be 'so how does this affect our practice when developing computer systems?' For educationalists, there are other worries—and one of the really good features of this chapter is that there are some further contributions presented. First, Palincsar accepts that situated cognition is an important idea but takes the authors to task in several ways. Then Wineburg offers some further criticisms in a short paper. The two commentaries are followed by a reply from Brown and his colleagues. In all, an excellent chapter.

The collection finishes with a discussion between Lawler and Selfridge. This dialogue is certainly fascinating in the scope of the book but, for a final chapter, meanders somewhat.

The main problems of this collection are the sense that there is far too great a variability in quality, and a slightly dated feel to many of the contributions. Perhaps tighter editorial control should have been exercised. On the other hand, all the authors are knowledgeable about, and deeply interested in, the processes of learning and education.

The common strand throughout is an interest in learning environments, which is currently fashionable. Despite my criticisms, this book has enough of value to make it a good, but not essential, choice for anyone more interested in the 'Education' than the 'AI' in 'AI and Education'.

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