Review Essay: Teachers Use Computers in the 21st Century by Paul Newhouse, 6(19)

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Teachers Use Computers in the 21st Century is an introductory text about technology integration and distribution in schools. The role of the teacher in a classroom is one of the foci of a discussion that explores the decisions educators make with regard to their changing role in schooling and the type of educators they seem to be. Along with a focus on the educator, the goal of presenting the curriculum in an effective manner to students, rather than concentrating on computer hardware, is a main thread running throughout the book. In addition to questioning an entrenched, "this is how we have always done it" mentality, the author proposes new directions for schools, articulates major trends in education and describes how technology is leading the way. For example, Newhouse explains how the initial emphasis on preparing computer literate students has given way now that computers are both a subject of study and a teaching and learning tool.

This introductory book provides a practical blend of learning theory and examples of good teaching practice in educational settings. The author is an experienced educator and researcher who has been at the forefront of integrating technology into classrooms in Western Australia for many years. This book, Teachers Use Computers in the 21st Century, is an updated and revised version of an earlier book, Teachers Use Computers, jointly written with Ron Oliver.

This book is useful for its target audience of educators and undergraduate students in pre-service teacher education courses who plan to use computers in their teaching and learning programmes. This book introduces the reader to background material pertaining to computers in schools, including the relationship between technology, the curriculum and the history of computers in classrooms, before it gets into the practicalities of how to actually use computers in an educational setting. Included in this introduction is a rationale for why computers should be used in education and where they should be used.

There are many groups that might find this book useful, including educators and student teachers who want to learn about background information and theories associated with using computers in an educational setting. The book would have a special appeal to educators who have experience in the classroom and enough confidence in their teaching ability that they can keep an open mind and bring what they learn about technology into the classroom. It would also appeal to any educator who must start integrating more technology into their teaching e.g., educators who suddenly find themselves the technology teacher in a school or educators who are implementing a curriculum that has recently changed to include mandatory Information and Communication Technology (ICT) skills for students. This book might also be of particular interest to administrators and educators who are on technology committees in their schools and have to evaluate a computer supported learning environment as well as decide on the purchasing and distribution of hardware and software in their schools.

The author's writing style is easy to follow. The book is well laid out to ensure readers can understand the reasons behind the integration and distribution of computers in an educational setting. The examples and terminology used throughout the book are grounded in the Australian classroom, which is different, but not radically so, from Canadian classrooms. The down-to-earth nature of the presentation and the practical advice for educators make it an easy to read book for educators. The author avoids the latest buzzwords or other exclusionary language. Newhouse grounds his discussion in a belief that integrating ICT into the classroom is not an extra or option but is a current reality in classrooms. There is reference to educational theories including Gagne's nine events of instruction and Papert's and Piaget's ideas on formal and concrete thinking. The author bases his arguments on a belief that educators have the best educational interests of students in mind when they make decisions about technology in the classroom. While this view of teachers may seem obvious to some, the author acknowledges the many decision-making opportunities in schools that still focus on the hardware rather than the educational contexts in which the technology will be used.

The way in which the author discusses the concept of education, as opposed to schooling, highlights some interesting points. Computers and technology affect society as a whole; there are times when education outside of the school context may be most appropriate. Newhouse's focus on education, rather than schooling, is emphasized because of the need to discuss fundamental issues of teaching and learning rather than holding onto ways that have always served us in the past. Newhouse calls for a better rationale for doing things rather than focusing simply on tradition. School reform is seen from a constructivist perspective that focuses on student-centred learning with new technologies. The author describes changes in education that are reflected in international academic literature, including problems and possible solutions to copyright issues, site content validity, and the protection of children from unsavoury aspects of the Internet-like predators, propaganda and targeted marketing.

This book provides guidance on the practical aspects of integrating computers into educational situations. There is a section on the Real Classroom, which does indeed sound like an authentic classroom, as opposed to the ideal classrooms that are often described in textbooks. The list of Real Classroom factors includes classroom control (survival), keeping outsiders happy, and reducing the work of the educator.

The author has organized the book into logical sections that are helpful for educators and students learning about ICT for the first time. There is a brief chapter introduction that provides an overview of the material to be presented. The overview includes an index of the major sections as well as a theoretical background for the chapter. There is a concise note as to how each chapter relates to the rest of the book. Section summaries aid reader review of the main content presented in each section. Discussion questions at the end of each chapter offer a good jumping-off point for seminar discussions about the presented concepts.

The author uses tables, figures and graphics to reinforce key issues such as the learning benefits involved with increased technology integration and the positive educator attitudes that are vital to the success of changes in the classroom. The author also provides examples of materials that teachers can use to make decisions regarding technology in their schools. For example, a Software Review Instrument is provided. Tips are provided throughout the book that may seem like common sense but help the reader to evaluate preconceived notions regarding computers, such as "Most of the range of the computer comes with students actually using computers, not just watching demonstrations."

The portions of the book involved with Integrating with the Curriculum and Implementation are the keys to the success of this book. These are the sections that deal with the computer as simply another pedagogical tool to be used by educators. The section on implementation was particularly useful as it covered a range of potential changes in a classroom that the educator may not expect. This section went into detail with various models of how to implement computers into classrooms, including a whole class model, a one-to-one model and a group work model. Each model contained an overview of the situation, a planning component and a management component. The section on implementation also presented various classification systems for computer-supported learning, including aspects of hardware and software, teaching/learning and educator/student roles.

There is an interactive on-line tutorial package, which complements the book, and it is downloadable as long as one has Quicktime 4 and Macromedia Shockwave installed on the computer. If Quicktime 4 and Macromedia Shockwave are missing, one will need to download and install them to get the tutorial to work. The URL address for the tutorial package is: http://edresearch.ed.ac.cowan.edu.au/paul/downloads/

There are several aspects of the book that need to be mentioned in this review. There are sections of the book that might be too basic for many experienced educators who do not want to, or do not have the time to, wade through a detailed explanation of something they already partially understand, and the section summary might be too brief for them. This might lead to educators skimming through sections of the book and missing a valuable piece of information that is not mentioned in the summary. The section on educators creating their own software sounds a little farfetched given the current restraints on educators' time in Australia and Canada. Using existing web pages is gaining popularity in schools, but writing educational software for classroom use is definitely not the norm for teachers.

Several technical references are quite dated for a book published in 1999. Some pieces of hardware used to be very costly, and they are inexpensive now. Four pages are devoted to programming LOGO and turtle graphics. In the last decade of observations in various educational settings, the reviewer rarely saw educators using turtle graphics in Australia, Asia or North America. Turtle graphics was an important stepping-stone in its time but is now only an interesting footnote.

The author appears to make assumptions with regard to the international transferability of experiences from the Australian Education system and technology use that is prevalent in Australia. For the most part, this assumption

works very well as most of the examples presented have very similar parallels in other Western countries. However, there are a few cases where the assumption does not work because the cases used are particular to Australia. For example, there are references to BBC computers that were very limited in their distribution in North America, but they were quite popular in Western Australia for a number of years and were imported from the United Kingdom.

As this is a book published in Australia, it is interesting to note how the author does present most information in a rather geographically decontextualized manner and then presents examples of how computer usage in classrooms has occurred. Newhouse often presents the Australian situation and then examines how other countries' experiences have affected Australia and its education system.

Overall, this is a relevant book for educators now, as computers come increasingly to the fore and new curricular mandates force educators to use the computers in their schools. In conclusion, this book is useful for the target audience of educators and student teachers because it deals with the implementation and integration of computers in classrooms in an effective way. The practical examples given in the book, along with the author's common sense approach that is grounded in the real Australian classrooms and learning theory, succeeds in merging with the overall context of teaching and learning with computers in 21st century Australia.

Author Note

Doug Reid is a doctoral student in the Faculty of Community Studies, Education and Social Sciences at EdithCowan University in Western Australia. His research interests include the roles of on-line tutors, computer-based education and the integration on technology into tertiary and distance education. Doug was a primary school teacher for eight years before returning to university to complete an MA in Educational Technology. He can be contacted through e-mail at d.reid@ecu.edu.au.