INTRODUCTION

This paper begins by noting the wide acknowledgement of the importance of Information Technology education in schools. It outlines some of the issues in the development of computer studies and Information Technology curricula, focusing particularly on those relevant at senior secondary levels. The debate about school Information Technology support is noted, and the paper concludes by looking at some ways in which the Australian Computer Society can assist and support senior secondary Information Technology teachers and students.

INFORMATION TECHNOLOGY EDUCATION IN AUSTRALIAN SCHOOLS

There is now no question about the importance of Information Technology education, to individuals living in the so-called knowledge society, and to the economic future of Australia. The pre-election statements from both the major political parties early this year make it clear that Information Technology education, research and development are currently areas of high priority for this country.

CURRICULUM ISSUES

School curriculum development is a state responsibility, and senior secondary Information Technology curriculum documents show variations and differences in emphases among the states. In part this is a reflection of slightly different structures in the final years of schooling in the states, but as well it reflects the fact that curriculum developers in Information Technology and Computer Studies face a number of tensions and choices; some of these are quite specific to this relatively new and fast-changing subject area.

A major issue to be addressed is the extent to which a senior secondary Information Technology course should be vocationally oriented, and the associated matter of appropriate course content to prepare for the world of work. Clearly many students undertaking these courses will be doing so because they perceive such study to be directly and immediately relevant to their planned career paths. This might suggest a need for school courses to include familiarity with, perhaps high levels of mastery of, applications packages that are currently used in business and industrial settings. While it would be foolish to argue against provision to students of industry standard word processors, spreadsheets, multimedia environments and so on, teaching that emphasises specific skills in the operation of such applications over understanding of the more general principles underlying use of these computing environments is unlikely to be the best preparation for computer use in the workplace. Given the continuing fast rate of development of information technology, specific which-keys-to-press information for a particular application learnt at school is likely to be out of date or otherwise not appropriate by the time the student enters her first employment situation.

To illustrate the point, perhaps somewhat simplistically, it is important to teach the general capabilities of word processing packages - altering and moving sections of text, formatting documents, presenting tabular information, incorporating graphics from elsewhere, and so on - so that a student will know what to look for when, in the years after she leaves

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school, she meets many word processing environments, none of which exactly matches the one whose keystroke combinations she learnt at school. In a similar vein, confidence and good strategies for exploring and experimenting to find out how a new computing environment "works" (attributes already possessed by many students nowadays, whether or not they have studied Information Technology) may well be more valuable than a thousand memorised specific key sequences and click-tricks.

Should senior secondary courses be seen at all as preparing information technology workplace specialists? After all the aspiring information technology professional is likely to progress to an Information Technology, Computer Science, Engineering or related course at a tertiary institution, for many of which a solid grounding in school Mathematics is seen as more important than school-level Information Technology subjects. So perhaps school Information Technology subjects should be designed to develop understanding of information technology issues and concepts for students who do not anticipate working directly in the information technology industry. After all, the lives of all of today’s students will be enormously impacted by information technology, and most jobs, even outside the information technology industry, are still significantly influenced by or involved with applications of information technology. It can be argued that a primary aim of school Information Technology courses should be to provide for non-specialist students an awareness of the capabilities, the potential and the limitations of information technology. If we take this view, then there are implications for curriculum content for school Information Technology courses. It would be appropriate to include social contexts and implications of the development of information technologies, to explore ethical and legal issues, and so on. But these issues are important for information technology professionals as well. The implications here for curriculum designers are complex and challenging, but most important nevertheless.

In the "real world" of work, much information technology development and related work is undertaken by groups of practitioners working in teams. Skills of communication, collaboration and team management are highly valued attributes in information technology professionals. A real challenge confronts school curriculum developers here, as senior secondary students are almost always assessed individually and competitively. The dual role of the final year of secondary school - completion of school education and ranking for selection for further study - is the cause of this problem. In an environment where students are being sorted into percentile rankings, setting and managing collaborative projects for students, while potentially very worthwhile, raises almost insuperable assessment problems.

Schools are still reporting significant gender imbalance in Computer Studies classes and courses, and it need hardly be stated that while this continues, the country is missing out on large numbers of potential information technology professionals, and girls are missing out on a wide variety of exciting and worthwhile career opportunities. It is unreasonable to expect this imbalance to be corrected simply by design of more "inclusive" curricula; however this issue does need to be addressed by curriculum developers.

**SUPPORT FOR INFORMATION TECHNOLOGY IN SCHOOLS**

The knowledge and competencies needed for information technology support in school settings must be understood and acknowledged. In a contribution to the Australian Computer Society’s National Computers in Education Committee List (ACSNCEC-L), Ken Price, a teacher and ACS member, raised the issue of information technology support in schools, drawing attention to the importance of the functions of information technology planning and technical support (Price, 2000). He argued that IT planning and support should not be regarded as "just another task which can be placed onto classroom teachers", and advocated a role for the ACSNCEC in encouraging state and federal authorities to recognise this. He suggests that "some mix of IT professionals, education professionals, and 'hybrid' education-computer people is needed in order to support the initiatives being implemented in schools. Maybe even a new branch of the IT profession ... “ Price acknowledges that the debates around this issue are not simple, but argues that the implications for educators (and for the Australian Computer Society in its professional advocacy role) make the debate an important one.

**ROLES FOR THE AUSTRALIAN COMPUTER SOCIETY SUPPORTING INFORMATION TECHNOLOGY IN SCHOOLS**

The Australian Computer Society (ACS) works hard to lobby Federal and State Governments on the subject of increased funding for academic institutions and for basic and applied research, as it believes this will help to prepare Australia for the challenges of the emerging information economy.

John Ridge, President of the ACS, wrote in an article in The Australian late last year:

The time for rhetoric is past. Our education sector is languishing and we must make major structural changes if we want to ensure a long term and on-going supply of IT professionals.

These changes should begin in the curricula and approach of our primary and secondary schools and continue throughout students’ lives.

The ACS has been lobbying both State and Federal Governments for the past 10 years about the fact that a shortage of IT professionals was inevitable.

The focus now is on finding a solution, but that will not be simple. Nor will the solution be some dramatic initiative that captures the imagination of the broader community and guarantees a landslide win at the next election.

(Ridge, 2000)

Ridge goes on to describe the effects, particularly in the information technology area, of Federal Government funding cuts to the tertiary education sector, and to challenge State Governments to lobby the Federal Government for more funding for our tertiary institutions.

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