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DESIRABLE CHARACTERISTICS OF COMPUTER COURSEWARE IN TRIBAL ABORIGINAL SCHOOLS

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INTRODUCTION

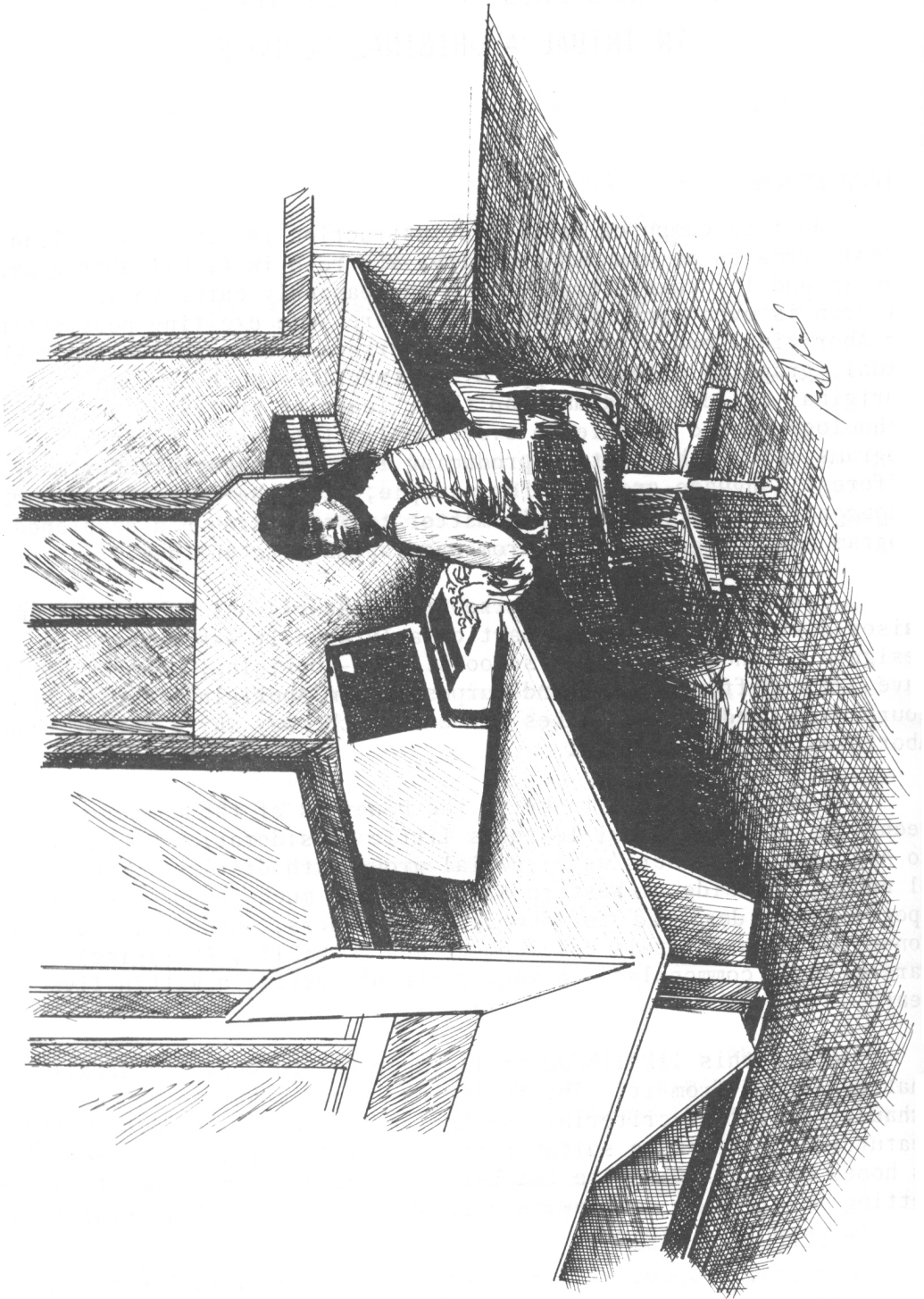
Just as computer delivered instruction in urban Australian schools remains an unknown quantity, its role in tribal Aboriginal schools and in urban schools which increasingly cater to tribal children is even more unclear. There are some exciting possibilities for Aboriginal education. Computer courseware can provide the highly visual, graphics oriented type of instruction which appeals to Aboriginal children and may tap their learning style. Also, the new technology should be able to overcome limitations of bilingual programs set by the cost of producing language materials for many different language groups. For example, with the *Prologic Authoring Language (PAL)*, it is a simple matter to work through a developed program and change the text from one language to another.

However, the use of courseware in Aboriginal schools often raises disturbing problems, particularly when it was originally designed for non-Aboriginal schools. Non-Aboriginal schools often have very different aims and purposes from Aboriginal ones. Also, courseware used in them takes account of the way white rather than Aboriginal students learn.

Despite the rush to bring the benefits of the computing technology to Aboriginal learners little consideration is being given to Aboriginal learners as a special group with distinctive educational needs. Outside of Western Australia not much courseware has been specifically designed for Aboriginal learners. However, there is a concerted push for this development and hopefully, Aboriginal courseware will be commonplace in many parts of Australia within five years.

Given this likelihood it is important to begin to detail what we expect from it. The following is not meant to be an exhaustive list of criteria. Rather it focuses on the distinctive features of courseware suitable for tribal Aboriginal children. It is hoped this will inspire teachers of Aboriginal children to start getting involved in courseware evaluation, instead of leaving this task to computing experts.

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CULTURAL FACTORS

It is essential to clarify the aims and purpose of tribal schools, what is the educational framework that courseware will fit into? Not all communities want the same thing from school. Some want schools to be involved with traditional culture, others want them to leave Aboriginal culture and language alone and teach only Western skills, namely, literacy and numeracy. The implication here is that content which specifically deals with aspects of traditional culture needs to be in line with what the community wants.

However, all Aboriginal courseware must reflect and support the fundamental values of the people it serves rather than those of white Australia. What are these values and how can courseware do this?

Aboriginal communities are highly collective in terms of culture and social organisation. For example, no one owns the land in a proprietary sense and any property does not really belong to individuals. Whatever an individual acquires by his labour does not belong only to him; others will have a claim to it according to rights based on kinship. There are checks and balances, universally recognised ways in which resources and the efforts of individuals are shared and which in turn reinforce collectivity. The group is powerful at every level of Aboriginal society and is also the basic unit of learning and should be encouraged in the classroom. Individualistic approaches to learning are a divisive influence in tradition oriented Aboriginal communities and fuel the generation gap between young and old in Aboriginal society (Brandle 1983).

Using the group as the basic unit of learning is a task the computer can lend itself to. For example, wordprocessing seems to accomplish this. The main drawback of group approaches to learning in Aboriginal classrooms is that activities have to be carefully designed to ensure that all or most of the group members are achieving, rather than just one or two. From the Aboriginal viewpoint it matters little if most individuals fail as long as the group as a whole is seen to succeed.

Aboriginal courseware needs to engage the whole group and encourage active participation between members. Courseware needs to allow sufficient time for this collaboration which probably rules out a lot of the drill and practice programs designed for individual use.

The use of one to one approaches with the computer has been justified on the grounds that Aboriginal learners need to practice alone in order to avoid feeling any shame of failure in front of

their peers. The result is that the drill and practice type of courseware suited to this form of learning has found new favour in Aboriginal ones (Lovegrove, 1985:19). However, if courseware is sufficiently interactive to respond with help rather than error messages to a great many incorrect responses with allowances for mis-spellings and incorrect use of spaces, then embarrassment will not be an issue. Most importantly, this will be overcome without sacrificing other social and learning objectives in the process.

There is much potential for embarrassment in situations where Aboriginal children stand out from others in a group and consequently, courseware must not over-evaluate the user. I would go so far as to say that Aboriginal courseware should not overtly score each performance although, of course, it must pick up incorrect responses. It is also important that Aboriginal courseware should not generate competition between users. Programs like *Word Roulette* or *Word Race* where users challenge each other by guessing words in an analogy, are not appropriate in tribal schools. There should be no winners and losers. Indeed, if courseware is pitched at the right level, students should be succeeding for much of the time anyway.

LEARNING STYLES: GRAPHICS VERSUS WORDS

Courseware developed for non-Aboriginal students but used in Aboriginal classrooms is likely to have a number of flaws. In particular, such courseware will have been developed for children who learn in different ways from Aboriginal ones.

The nature of Aboriginal learning styles has been the subject of some research and much discussion (Kearins 1980, Harris 1980, 1984). Most educators agree that Aboriginal children perform better when exposed to visual forms of learning rather than abstract verbal ones. Even during traditional story telling the teller will often scratch a picture of the action on the ground. Not surprisingly, picture-story approaches such as used in the *All's Well* program have proven valuable.

The use of graphics in Aboriginal courseware is essential but it should be remembered that pictures as a way of conveying meaning are often an alternative to words; if the children can follow a story through pictures the words tend to become irrelevant. To give a classroom example, most teachers find during group reading that tribal children watch the pictures while they are trying to emphasise the words.

The upshot of this is that graphics are a distinguishing feature of desirable Aboriginal courseware but, in general, graphics need to be carefully used, perhaps to support text rather than the other way around. Ideally graphics should serve as a context setter or work to reinforce correct responses with children mostly working at the level of words rather than pictures. For example, in a recent program written by the author, students direct an adventure game by filling in missing spaces in a story-line. Within limitations, their choice is depicted through animated graphics. Thus, children work primarily at the level of words and pictures are provided as reinforcers when one of a large number of correct responses has been keyed in. Without sacrificing the learning objectives of the courseware, the story-picture is a great motivator and helps the children to remember (visually) what has happened.

LEARNING STYLES AND COURSEWARE COMPLEXITY

A huge danger is that computer programs will become a kind of busywork activity. Good visual memory allows Aboriginal children to remember all possible outcomes in a computer simulation and then play it with very little understanding. Thus, an essential characteristic of Aboriginal courseware is that it should randomise responses to the learner in complex ways or very soon children will have memorised all possible outcomes and the learning objectives will be subverted. Another alternative is courseware which can be authored by the teacher.

MEANINGFUL LEARNING

As teachers in tribal schools are well aware a major obstacle to teaching literacy and numeracy is simply that they are largely irrelevant in Aboriginal communities. There is none of the reinforcement such as newspapers, books, even street signs -- all these are absent, and parents are often non-literate.

Teachers have long recognised that the experiences of the child in the community are the most meaningful starting point for language work. But in some courseware used in Aboriginal schools language is removed from any meaningful context. Children are often taught through programs like *Grammar Mastery-Series*, *Spelling Demons*, *Computer Spell Down* and *Word Blaster*. These sorts of programs focus on vocabulary, grammar, or the user selects a word to fit into a sentence. The communicative aspect of language as derived from the situational variables is largely ignored.

Meaningful teaching also involves taking into account culturally derived meanings of words. For example, the concept of 'shame' has a particular applicability in Aboriginal society. But in much courseware used in Aboriginal schools language concepts rarely accommodate Aboriginal ones.

The point here is that Aboriginal courseware must be consistent with proven teaching methodologies. The danger is that the courseware can be so inherently attractive that the approach to teaching it employs is not weighed up. Unfortunately computers can easily lend themselves to producing the sort of language teaching which is least effective and indeed largely considered redundant in conventional teaching. Grammar-up approaches constitute the most extreme example of those that are of very questionable value. The danger in Aboriginal classrooms is inappropriate teaching methodologies will gain favour simply because they suit computer programmers, or rather, the state of contemporary authoring systems rather than the objectives of Aboriginal education.

To sum up the above points, Aboriginal courseware should:

- *be in line with expressed community views when dealing with traditional culture;
- *support collective approaches to learning rather than individual competition;
- *be highly interactive in order to overcome fear of failure;
- *exploit Aboriginal learning styles in ways which enhance learning objectives;
- *randomise program responses or allow teacher input to maintain the learning objectives and prevent the courseware becoming merely a game;
- *be consistent with proven teaching methodologies in Aboriginal education;
- *take account of Aboriginal concepts.

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