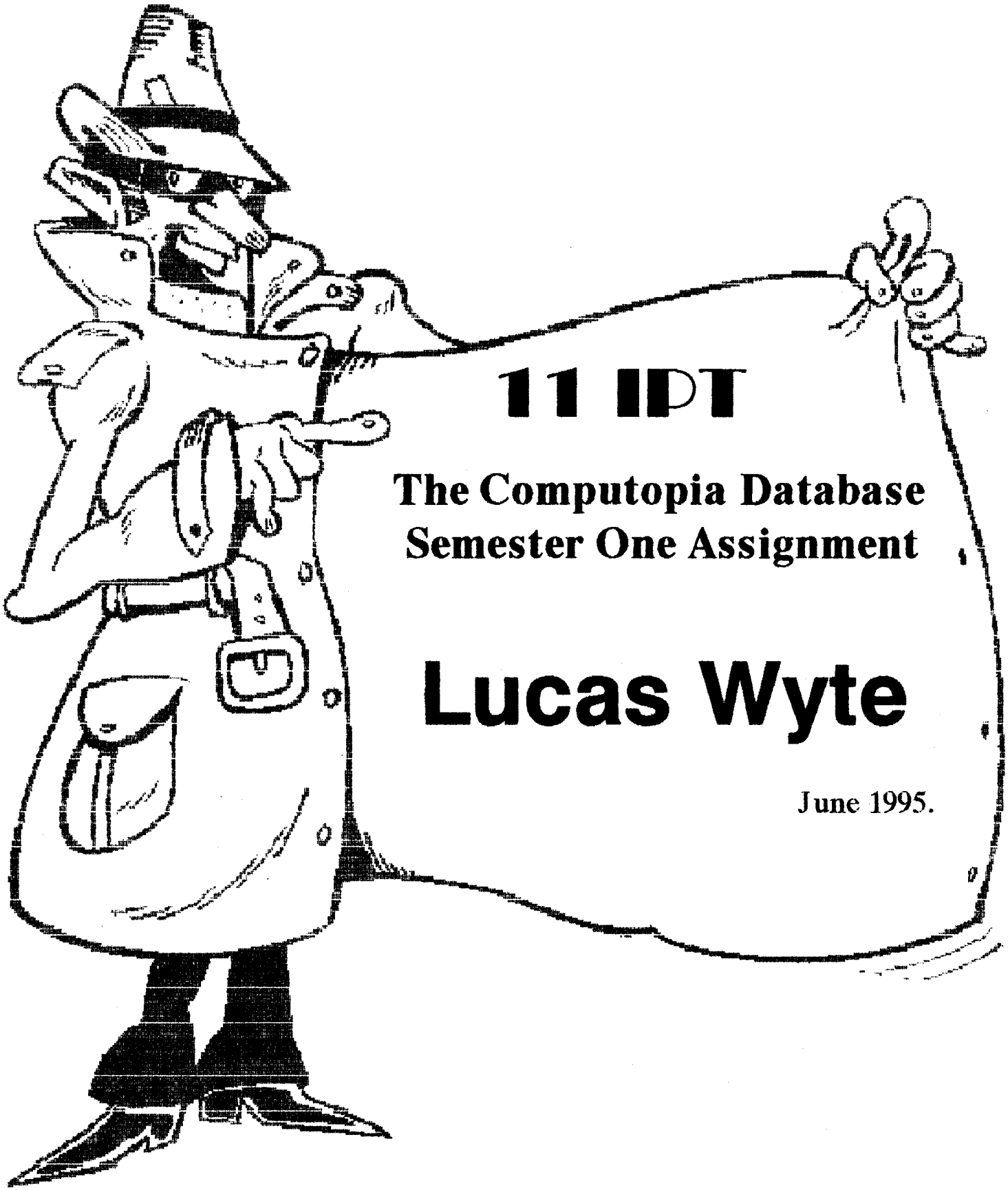
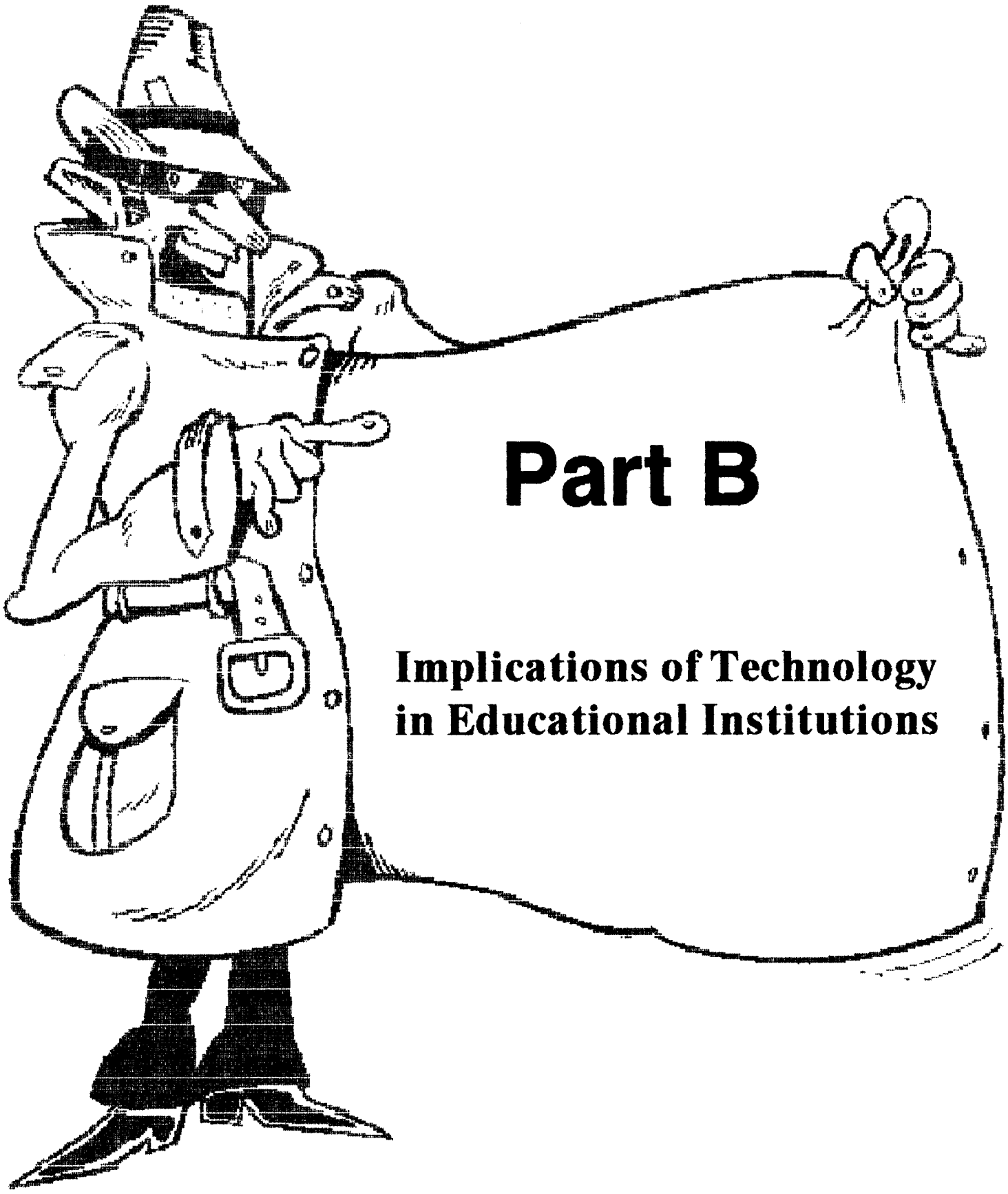


11 IPT

The Computopia Database
Semester One Assignment

Lucas Wyte

June 1995.



Part B

Implications of Technology in Educational Institutions

(i) Describe with reference to examples or case studies some of the good and bad points associated with the introduction of computer technology in educational institutions.

Perelman contends (1992, p. 22) that "learning has become too essential to the modern economy to be left to the schools". With the prediction that by the year 2000, 3% of the population will suport the other 97%, and Perelman's statement, the introduction of computer technology into schools may be a necessity. However, with the introduction of anything new comes both the good and the bad.

Becoming familiar with computers and technology is education in itself. In addition, the introduction of computer technology has allowed for a range of educational programs to be created to aid in learning. Drill and practice programs test a student's knowledge in many areas including mathematics tables, spelling, foreign language vocabulary and recognition of musical notes. If you know how to program, you can even write these programs yourself. Such programs are available in many primary schools and have become an intergral part of learning and teaching.

At St Brendan's College, the introduction of computer technology is preparing students for the growing information age. From grade 8 to 10, Computer Studies is a compulsory subject aimed at increasing student's knowledge in the use of computers and their applications to society and the workforce. In grades 11 and 12, two optional courses are offered, Computer Studies and Information Processing and Technology, which allow students to carry on their computing studies, and offers them better chances at gaining employment in a workforce which is increasingly relying on the use of computer technology. The teller at the local bank, the supermarket checkout operator, the service station attendant, the shire library staff and the medical centre staff will all make use of computers in their daily work.

It is a common belief (Simicevic, 1995, p. 9) that "computers could transform common learning experiences into exciting and unique projects that freed teachers and students from the traditional space and time constraints of the school day".

One example of the transformation of the learning experience is the use of VIDSAT in Sydney's inner-west,

where video conderencing is linking resources and schools together. As Sydney's inner-west faces a shrinking school age population, and smaller schools face closure as numbers dwindle, VIDSAT allows smaller, disadvantaged schools in the area to share resources and the schools can use the skills of a specialist teacher at a number of locations. The project's emphasis is very much on broadening the curriculum, and it is yielding results for staff and students "by breaking down barriers between schools (and by) spreading resources and expertise" (Healey (ed.), 1995, p. 15).

In a recent article, Pluss questions these benefits of the introduction of computer technology in educational institutions. For example, "As an educator, who tries to facilitate critical independent learning, I witness and increasingly hear about students who scan documents and cut and paste large sections from CD-Roms" (Pluss, 1995, p. 14). Most people believe that at least when students copy from books they may learn something through the physical process of writing and reading; computers, however, don't permit this.

Many universities especially, are somewhat fearing the introduction of computers into the classroom. They are scared that computers may dominate campuses, losing face to face contact between students and their teachers. Pluss questions (1995, p. 14) how healthy it is to "have a community of people with no fixed geographical location sharing 'bits' of knowledge about trains and environmentalism making important decisons without personal contact?".

Despite a few fears in the community about where computer technology will take us, the general belief is that computers can help to "develop the students' capacity to access and process vast amounts of information at speed and to use the appropriate technology to convert that information into strategic advantage" (Lee, 1995, p. 13).

It is not hard to establish computer technology in educational institutions, the true hard part is educating the staff, students and probably parents on how to best make use of the oppurtunity. "It simply remains for educators with vision to show what can be done" (Lee, 1995, p. 12).

(ii) What benefits could the Internet - The Information Superhighway - bring to education? What problems are associated with it?

It is believed that 70 per cent of students who leave school at the end of this decade will go to jobs that do not exist now, using technology that has yet to be invented. Australian schools are slowly realising that they are in an information age, and that they need to prepare their students for a rapidly changing world; the information highway, the Internet, used wisely, may prove to be an invaluable resource.

How? What benefits could the Internet bring to education? What problems are associated with it?

The oppurtunities for students and teachers using the Internet are only "limited by one's imagination and expertise in navigating the Internet" (Lee, 1995, p. 12).

For example, students studying science will, in the near future, be able to reach out for assistance in assignments and essays from those in the field. Both the students and teachers will, using the Internet, have the access to connect to the CSIRO's educational resources department and "its scientists will be 'on-line guests', answering questions from students and teachers around the country" (Farmer, 1995, p.32). This could prove to be an invaluable resource to both students and teachers, as they will have the power to get up-to-date information from those professionals who's careers deal with the scientific topic involved. Information previously unavailable in text books will now be available direct from the source on the Internet.

In the United States, President Clinton has declared that all schools will be linked to the information highway by the year 2000. This may soon become the case in Australian schools as well, as, "Access to the information highway will enable schools not only to enrich their present offerings, but perhaps more importantly, will assist them to adjust, in time, their total teaching and learning operations to a model that is more in keeping with the needs and oppurtunities of the information age" (Lee, 1995, p. 12).

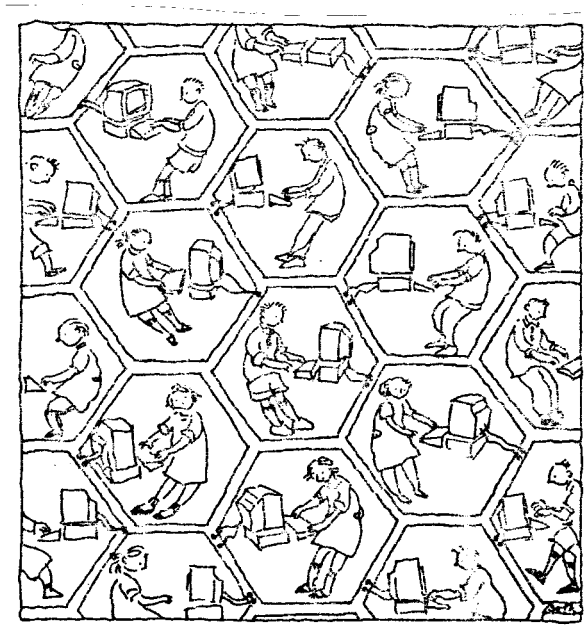
However, the major limitation at the moment is the mindset of teachers and administrators. Lee believes (1995, p.13) that, "Staff will need to be convinced of the value of

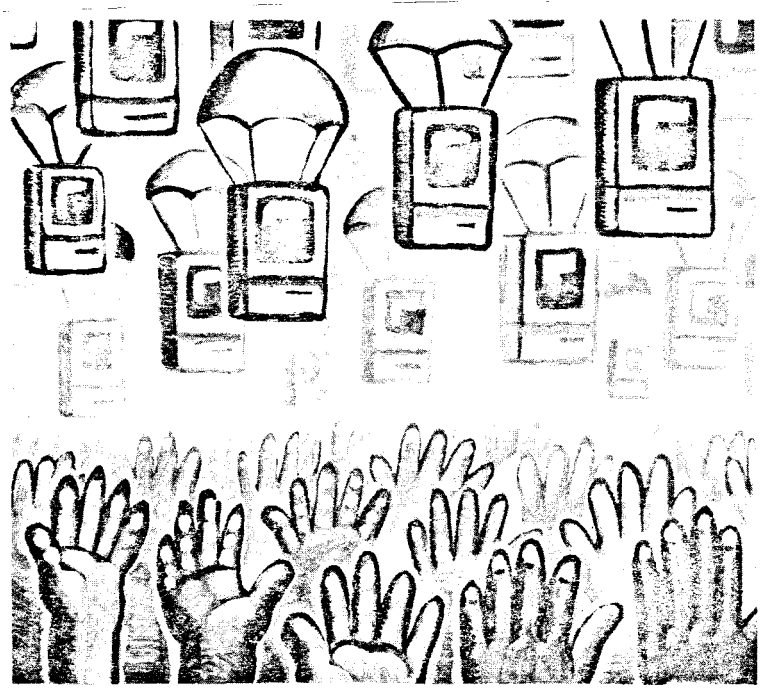
using the new oppurtunity", as no-one is able to foretell the power or nature of this resource.

In addition, it has been demonstrated (Simicevic, 1995) that computer-literacy among teachers is only 20 to 30 per cent. Teachers may have to be re-educated and re-trained to learn the way of the new information age and the information superhighway, the Internet. At the moment, it is believed (Simicevic, 1995, p. 10) that only "individual, highly motivated, imaginative teachers are taking on the challenge" of introducing the Internet resource to schools and education facilities.

A problem associated with the Internet originally, but seems to be dissolving at present, was the high cost of getting access to the Net up and running. EdNet, which was released last year, prevents time-consuming - and therefore expensive - explorations of the Internet. For a starter kit, which includes software, manuals and five hours access costs $95, with access costing only $5 an hour thereafter. In addition, universities and schools are lately uniting together to access the information superhighway at lower costs, usually allowing access to the Net for around $6 an hour. Either way, the costs of access is getting cheaper and cheaper, especially for schools and their students.

The Internet, ultimately, "can provide access to the world's learning and provide students and teachers a level and richness of knowledge unimagined" (Farmer, 1995, p.13). It is therefore vital, despite the initial problems that the introduction of the information superhighway will bring, as those who cannot gain access, especially schools and their students, will be strongly disadvantaged in this, the information age.





(iii) Identify a good ergonomic environment for your computer at home or at school.

Ergonomics is "the study of the engineering aspects of the relationship between workers and their working environment" (Bernard (ed.) 1989).

The environment we work in is very important in determining the quality of the work we produce. Therefore, it is essential to fit the equipment to the operator, with emphasis on safety, comfort and efficiency.

In any working environment, including computer workstations, we would require that noise level be minimised (carpets are useful as 'mufflers'), air temperature and freshness be adequately controlled (air conditioning helpful - temp. 20 to 25C), lighting be uniform (curtains help filter natural light) and equipment be suited to the task.

In a computing environment, at either school or at home, several additional ergonomic factors should also be considered. "The most important aspect of worker (user) comfort is the provision of suitable furniture" (Day, 1990, p. 240). Yet, before examining what is suitable furniture, we must examine what posture is required to avoid injury and strain.

"The most important requirement in a computer workstation is that the lower back must be supported by the back rest of the chair. In addition, the front edge of the seat should be clear of the back of the legs when sitting up straight with the back supported. Feet should be flat on the floor with the lower half of each leg very close to vertical. The neck should be kept straight with the head generally in the same position as when walking and not bent forward."

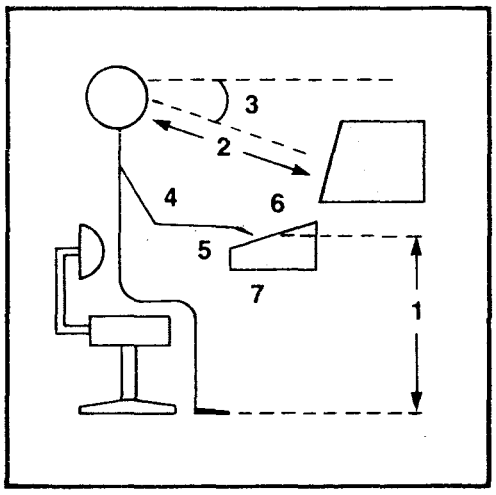
(Day, 1990, p. 240)

The European recommendation for the height of the home row keys (1) is 71 to 75 cms. The viewing distance (2) should be between 44 and 50 cms, with a maximum of 70 cms. Generally, the centre of the screen should be at a position between 10 and 20 degrees below the horizontal plane at the operator's eye height (3).

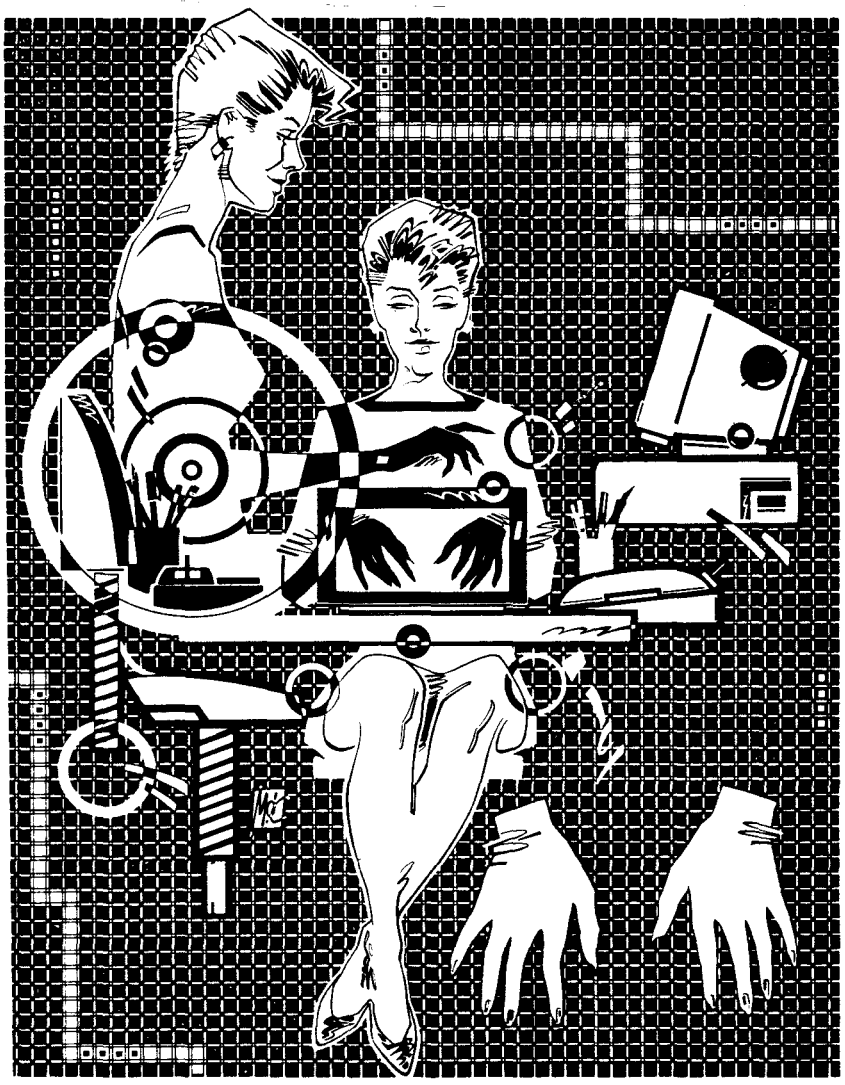
To achieve correct posture, an adjustable chair which users can change to their own requirements is a definite must-have. As computer users read from a screen that is

vertical, when copying from documents, the document needs to be at a similar angle to reduce holding the neck akwardly. A document or copy holder is useful placed in front of the user, with the computer screen alongside. For safe operation, it is important to choose a computer screen which will give the sharpest possible immage. Fuzzy characters and glare from incorrect screen adjustment, including reflections on the screen from bright lights or windows, will quickly cause eye strain. The desk should be of neutral colour (to avoid eye strain from looking at a bright screen to a dark desk) and at a suitable height so that the legs fit under it comfortably and the forearms are horizontal when using the keyboard. It is important not to bend the hands at the wrist, not to overstretch the fingers and to keep a soft touch on the keyboard.

The arrival of computers has meant a new range of health problems in the workplace, at home and at school, such as Repetitive Strain Injury, and since computers have not been in general use for very long, the incidence or frequency and long-term effects are virtually unknown. It is wise to be cautious and to take preventative measures when possible, such as working in an ergonomic environment as described above.



Bad posture.



(iv) Briefly evaluate a recent newspaper article (1995) which makes a provocative statement or prediction about the use of computers in education.

"Exercising multimedia muscles" by Dr F.N. "Chips" Karmatz (The Australian, 30 May, 1995, p. 26), discusses the beenfits the Yellow Brick Way, Australia's first bulletin board for youngsters, could bring to the children of the information age.

The Yellow Brick Way is an initiative of Computer Gym, a mobile travelling computer classroom. Along the way on its travels, Computer Gym has developed a broad range of computer based courses aimed at supplementing the curriculum.

I believe in the statements and predictions raised in the article, and consider the Computer Gym's new service a benefit to Australian youngsters and society.

The Yellow Brick Way allows children to access the Internet at any time, and there are no service charges. I believe this is a good move as children need to become aware and equipped to use the information superhighway, at a reasonable price.

Computer Gym is also aiding in the popularity of child-care centres, as computer courses in child-care curriculums have helped centres remain competitive. Another great benefit of the service, I feel this is, as child-care centres unable to afford expensive computing equipment now have the access to computer technology through the Computer Gym.

In addition, Computer Gym and the Yellow Brick Way have an enormous range of up-to-date modern educational CD-Roms for students and teachers alike to use. Through the use of a modem, any school can access the Yellow Brick Way and copy some of the latest educational programs suitable to the Australian school curriculum. This is a definite plus for schools and centres, as CD-Roms and multimedia packages are expensive, scools now have the oppurtunity to literally 'try-before-they-buy', saving precious school funds.

The most important benefit of the Yellow Brick Way is that children are re-energising their interest in computer technology. After an experience at school, it is likely that a student may go home and use the computer a little more, gaining an education by what they would call 'playing'. This is so important, I believe, like those at

the Computer Gym, as children need to be ready for the changing world - the era of information.

The Computer Gym's Yellow Brick Way, I believe, is a fine new concept of computer technology reaching our schools. This is an organisation tyring to remove the 'scariness' that some people associate with computers. In addition, they are allowing children from a young age to interact with computers, and become proficcient in their use of information and speed. This can only be to their advantage, in a rapidly growing information age.

Exercising multin

Brent and Anne Bennett with Ben Seamons, 4, and Caitlin Bowye, 4 — Picture: DAVID SPROULE

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