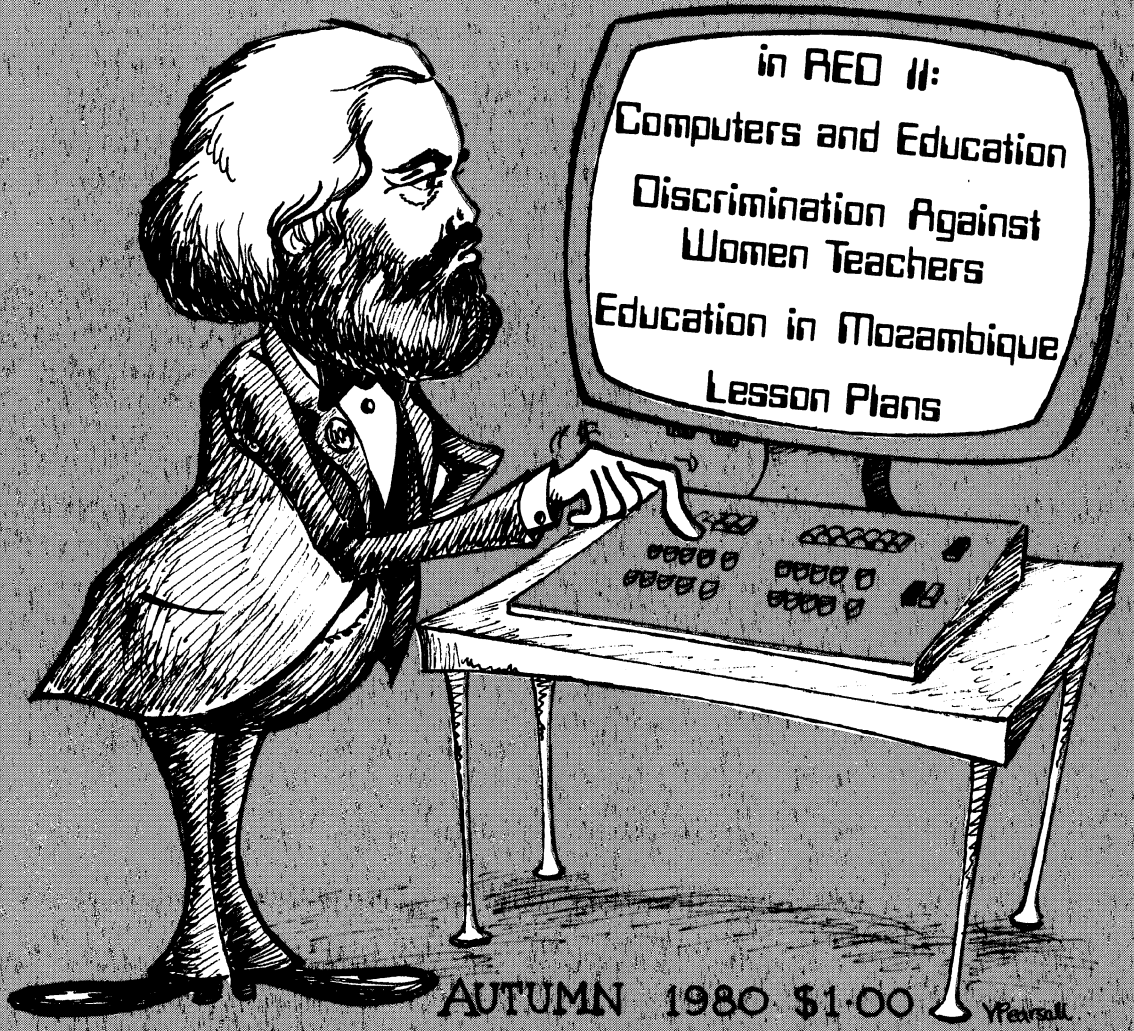
Radical Education Dossier 11



AUTUMN 1980 $1·00

RADICAL EDUCATION DOSSIER

11

Contents

March, 1980

RED 11 has been compiled and produced by Randall Albury, Clift Barnard, John Freeland, Alan Johnson, Ken Johnston, Jenny Kerr, Janet Kossy, Carol O'Donnell, Jacquie Widin and Peter Wilson.

Radical Education Dossier is produced by a group of teachers, students and university staff working to bring about democratic and socially progressive change in Australian schooling, as part of a broad political movement toward a socialist revolution in Australia. The magazine aims to present a socialist analysis of a wide range of theoretical and practical issues in education and is not affiliated with any political party.

Typesetting: Propaganda, 660 0037
Cover art by Yvonne Pearsall for Matilda Graphics, 212 2558
Printing: Chris Shortus
*Recommended and maximum retail price only.
ISSN 0314-6251

Computers Through RED Glasses

Technology, particularly computer technology, has become one of the decisive political and social hotspots of our time. This issue of *RED* looks at what it means for education as part of the wider struggle for a socialist society.

Capitalists argue that they need to introduce new equipment in order to cut costs and increase productivity. The logic of the economic system dictates that those companies which fail to innovate will go under. Meanwhile, workers and their unions fight against the resulting unemployment and the deskilling of those jobs which remain.

In education, computers could offer a vast new range of information resources, and could free teachers from humdrum instructional tasks to concentrate on the higher order needs of their students. Another possibility, however, is that computers will be used to shed labour, centralise control over curriculum content and standardise children's school experiences as never before. Which of these opposing trends is to predominate will be settled by an essentially political struggle in which teachers, parents and students will have to collaborate to get the kind of schooling which meets their needs. Electronics manufacturers can see a lot of money to be made in automating educational institutions: we should not expect them to care about the human consequences of innovations which will guarantee them high profits.

In 'Computerisation: a Terminal Disease for Teachers?' Ken Johnston and Carol O'Donnell explain some of the current applications of computers in educational institutions and point to the possibilities and dangers inherent in those applications. This article is followed by a survey of existing computer based systems which could be employed for educational purposes, and by three examples of computer use in other areas showing how the social context in which technology is applied determines its political effects.

The first of a series of articles by Mike Gallagher looks at pressures to increase 'efficiency' in education, and relates them to old-style management techniques for stepping up the rate of exploitation of workers. Later articles will explore in more detail the use of technology to increase teacher productivity.

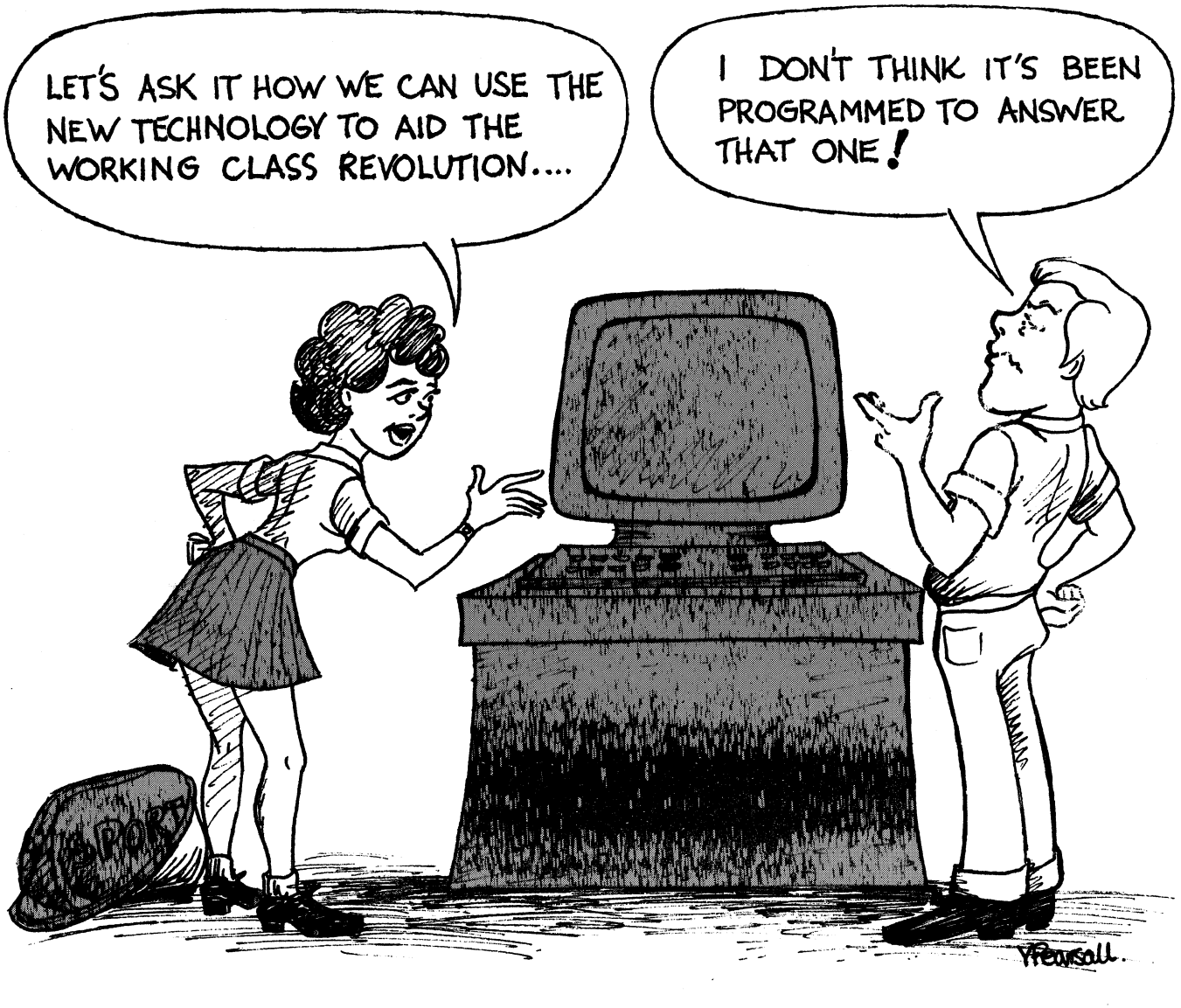
In other articles in *RED 11*, Jan Craney looks at the promotion problems faced by women teachers as highlighted in a recent report from the NSW Anti-Discrimintion Board, and further afield, Helen Hill reports from Mozambique on one of the world's most exciting attempts to build a socialist form of education.

As part of a new teaching resources project, *RED 11* includes extracts from a kit developed by Bronwen Dyson for non-sexist multicultural education. Also in this issue is a poem contributed by a country teacher, Michael Fensom, on the insidious ways of capitalism. We hope readers will enjoy his Pounding of this theme.

COMPUTERISATION ~

A Terminal Disease for Teachers ?

Ken Johnston & Carol O'Donnell



Many teachers have a starry-eyed view of the consequences of introducing computers into the schools. Johnston and O'Donnell point to some problems for teachers and students which computers might bring.

If you think computers in schools merely help pupils with simple drills and practice in arithmetic and spelling you are wrong. Consider the following.

Computer Produced Poetry

```
GRIMY                                DIRTY BRICK
SLAG HEAPS                           TENEMENTS
SPRAWLING          DEPRESSING        OOZING
ACROSS             NARROW STREETS    OVER
PASTURES           STRAGGLING        GREEN FIELDS
CHILDREN           ACROSS            CHILDREN
WANDERING          HILLS             PLODDING
HOMEWARD           PEOPLE            HOME
                   SCURRYING
                   HOME

DIRTY BRICK                          GREY
FACTORIES                            TENEMENTS
STRAGGLING         SMOKY             CREEPING
ALONG              OFFICE BLOCKS     ACROSS
HILLS              SPRAWLING         GREEN HILLSIDES
PENSIONERS         TOWARDS           PENSIONERS
WALKING            PASTURES          PLODDING
HOME               WORKERS           HOME
                   SCURRYING
                   HOME
```

The pupils listed nouns, adjective and verbs on the subject 'The Industrial Landscape' and the computer produced six versions of a Japanese haiku.

Student-Computer Interaction

```
WHICH STAGE (1 OR 2)  ? 2

THE PROGRAM WILL CALCULATE 11 VALUES FOR ONE
  1  TEMPERATURE (0-50 C)
  2  RELATIVE HUMIDITY (0-100 %)
  3  AIR SPEED (0-20 M/S)
  4  PORE AREA (1-200 SQ. MICROMETRES)
  5  STOMATAL FREQUENCY (1-200 PER SQ. MM)
WHICH PARAMETER IS TO VARY  ? 3
  MINIMUM AIR SPEED  ? 0
  MAXIMUM AIR SPEED  ? 20

WHAT ARE THE VALUES FOR:
  1  TEMPERATURE  ? 8
  2  HUMIDITY  ? 8
  4  PORE AREA  ? 36
  5  STOM. FREQ.  ? 50

AIR SPEEDTRANSPIRATION    RESISTANCES /(MS/CM^3)
 /(M/S) RATE /(MICROG/H)AIR SPACE STOMATAL BOUNDARY
   0          49          11        161       364
   2          127         11        161       36
   4          135         11        161       24
   6          138         11        161       19
   8          140         11        161       16
  10          142         11        161       14
  12          143         11        161       13
  14          143         11        161       12
  16          144         11        161       11
  18          145         11        161       10
  20          145         11        161       10

CONTINUE VARYING AIR SPEED  ? NO
DIFFERENT VARYING PARAMETER  ? NO
```

The pupil can control five factors that influence the rate of loss of water from a leaf. Questions are generated by the computer program and the learner responds (the student's response is underlined in the example given above). This form of 'interactive computing' has wide application.

Computer Managed Learning

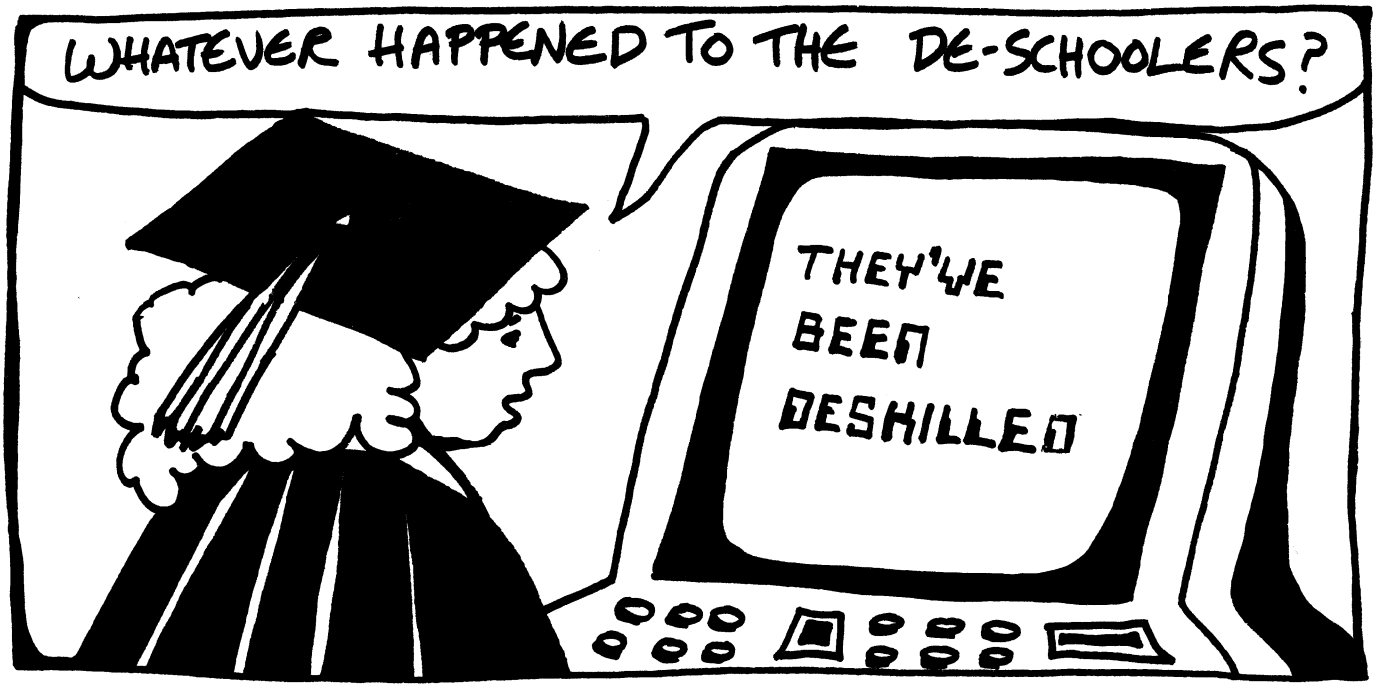
Each year in the London Borough of Havering, several hundred pupils in third form biology classes take an individualised course in photosynthesis as part of their science curriculum. The course is a modular one, the study modules being presented in the form of worksheets which, almost without exception, involve some type of laboratory activity. On entering the laboratory, each pupil finds a computer-generated report giving the teacher's analysis of the results of his latest work in the laboratory. His scores on the worksheet questions are listed and, where he has had difficulty in responding satisfactorily to either the computer-marked or teacher-marked questions, he finds recommendations for personal revision or instructions to speak to the teacher. With this report are the three or four modules that have been selected on the basis of his progress to date in meeting the objectives of the course, his normal rate of purposeful working and the level of inherent complexity of the new modules. At the end of the laboratory period, his answers to his worksheet questions are collected with those of other pupils. The teacher then adds, where appropriate, his own reports or marks and these, together with similar results from other schools, are sent by van courier to the LEA computer for analysis. Next morning, the van returns with reports for each pupil, a summary report on the progress of each pupil for the teacher of each class, and, vitally important, a full list of the apparatus and worksheet requirements for the next laboratory session.[1]

These examples of the application of computer technology in schools only hint at the wide ranging influence of the new technology on the work of teachers and pupils. Micro-electronics has developed with such rapidity in the last few years that we can expect a growth in the number and sophistication of applications in education.

How will these changes affect the work of teachers and pupils? If examples of other industries are anything to go by, the effects will be dramatic. Last year, Mr Peter Nolan, secretary of the ACTU, described in the press the startling impact of technology on clerical and secretarial work. Employers, he stated, were now seeking workers who can operate an electronic typewriter, a word processor, a visual display unit and other types of electrical keyboards.

Since 1962 the cost of running a typical computer has fallen from $11 000 to $800 whereas a typist's wage has increased from $30 to $145[2]. The effect of these changes, according to a report by the NSW Department of Industrial Relations and Technology, is that word processors alone will eliminate an estimated 50 000 typing positions – that is 25% of all typists – in New South Wales in three years from November 1978[3].

There is no reason to think that the professions will be immune from similar changes stemming from computerised electronic technology. Medicine, for example, is already using the computer for both routine and complex diagnosis and computerised data banks are changing the nature of work in the legal profession. It would be naive to think that education, which is centrally involved with the transmission and evaluation of information, is somehow protected from computer technology which is specifically designed to store, preserve and retrieve information. We believe that the work of teachers and pupils will be deeply affected and that as teachers we need to understand and control the use and impact of the new technology.



The danger is that teacher response to the new technology will be outpaced by the rapidity of change. The trend towards miniaturisation, improved computer power, and the remarkable reductions in unit cost due to 'chip' and laser technology have ensured that computers will be readily available in schools in the next few years. These small, micro-computers can be linked to larger, more expensive computers through networks to provide services which the smaller ones cannot handle, and to allow communication among users.

Communications satellites, such as the one to be financed in Australia by federal and commercial interests, will eliminate distance as a physical and economic barrier to the access and use of learning programs. Clearly, the hardware already exists, and we need to think very carefully about the control over the content that will be fed into these information systems.

Computers are already making an impact on the teaching-learning process, especially in the UK and the USA. These are the major types of application:

1 **Computer Science and Computer Appreciation**
The computer is used to teach children computing and to teach about the uses of computers in society.

2 **Computer Assisted Instruction (CAI)**
The computer is used as an actual teaching machine with minimum involvement of the pupil in determining and patterning the sequence of instruction. Interaction with the computer may involve simple drill and practice, usually in mathematical and language skills, or more complex tutorials where the learner is led through material that increases in difficulty and complexity.

3 **Computer Managed Instruction (CMI)**
In this application the computer is used to record and process data about pupil performance. Typically, the computer scores diagnostic tests, compiles reports for the teacher on the pupil's performance, diagnoses learning difficulties and prescribes new learning tasks.

4 **Computer Supported Instruction (CSI)**
This term is usually reserved for applications that are relatively complex, involving simulation. A typical case of CSI is the simulation of scientific experiments that are too costly, time consuming or dangerous to perform in the laboratory.

In Australia in 1976 a report on computers in education commissioned by the Australian Advisory Committee on Research and Development in Education was published[4]. It noted a general development of computer applications in administration in those organisations containing more than a few thousand members. In regard to computer studies it was reported that such courses were spreading rapidly through the tertiary system and expanding in the secondary system. On computer assisted instruction, the committee learned of approximately 50 projects in the Australian education system, ranging from the large (teaching MINITRAN to thousands of students) to the small (renting a terminal for a school).

The report notes that the development of computer-based education has largely been a grass roots phenomenon, developing in an ad-hoc way where individuals or pressure groups have an inclination to use computer-based instruction and have access to the funding to make it possible. In New South Wales this has been the case up until the present, but as the Commission notes: 'for less than 2% of its annual recurrent budget, the NSW Department of Education could put a computer into every high school within its jurisdiction'. And year by year the cost of computer hardware falls as developments in computer technology become more sophisticated. Tasmania and South Australia are far ahead of New South Wales already in their use of computer assisted instruction, the former making the most comprehensive use of computers in primary schools of any state.

With the exception of the dissenting committee member J Burke, the writers of the report have an extremely rosy view of the benefits of computer use in education. Burke withdrew from the committee because of its refusal to discuss broader value and morality issues about computer use. Neither does the report discuss the possibility of computers replacing teachers or deskilling their work so that they become purely agents of classroom control. (Ominously, the computer sales pitch of the late sixties talked of the benefits of computer instruction in terms of coping with teacher shortage.) The writers also give little

more than a passing mention to questions of the centralisation of control over information dissemination which the widespread use of computers might bring about.

At present in New South Wales there is a strong teacher lobby in favour of the introduction of computers into schools and for an HSC course in computing. A significant number of teachers, particularly mathematics teachers, are arguing strongly that Departments of Education should be educating students for one of the few areas where jobs are opening up – in the computer industry, and with computer technology. The Education Department is moving, but not fast enough for many teachers who are computer enthusiasts.

Most high schools in the state have had sophisticated Conolla calculators since 1971 – machines on which students may be taught the principles of computing. The Department has installed Wang computers in five country centres in New South Wales and many more schools have purchased microcomputers. Education Department spokesperson, Mr Bill Marwood, commented recently at a seminar on computers in education organised by a pro-computer education lobby group that there should be microcomputers in 100 state schools before the end of 1979. The *Australian Financial Review* has since reported that a major supplier, Computerland, has won the keenly contested contract to supply New South Wales high schools with the Apple computer system[5].

Up to now, the call from teachers has largely been to teach young people how to use and understand computers. It is likely however, that these computer literacy courses will be the beginning of a massive drive to teach students the conventional subjects such as English, Social Science, History and the Sciences through computerised instruction. The computer companies, naturally enough, are right behind the call for teaching kids about computers. Once the computers are in the schools, what could be more reasonable than using them for a vast range of teaching tasks?

Next year Control Data is beginning an all-out campaign in Australia to sell PLATO, one of the most sophisticated and flexible computer-based education systems yet seen. PLATO works by having touch-sensitive computer terminals linked into a huge central computer (although, from the user's point of view, each terminal is a separate computer). Because of the size and complexity of PLATO hardware, and the design of the software (computer programs) much more interaction than ever before is possible between the student user and the computer. PLATO is designed to be able to deal with concepts rather than simple set texts or lists of questions and answers. One terminal to PLATO costs about the same as, or slightly less than a mini computer and computer costs fall dramatically each year. Computer science courses and computer assisted instruction are obviously attractive developments for computer companies keen to sell their hardware and software packages. Will it also be attractive to governments?

The present economic situation is one where the government is increasing economic pay-offs to industry and decreasing spending on welfare and social wage areas like education. The Williams Report pegs education spending to broader economic trends. Only the TAFE area is to be expanded but it is to become more than ever education on the cheap and a receiving store for the unemployed. Employers will save money at the public expense through the recommendation that TAFE should move even more strongly into job training, eg pre-apprenticeship training. TAFE alone is encouraged to take up the task of retraining workers displaced by technology.

The Williams Report looks at education from an administrative view with a constant stress on questions of control and accountability. The Report shows no concern about democratisation in teaching institutions. The current situation is deemed adequate and it is argued that a university or college is not a 'democratic state' but rather epitomises the relationship between the 'master and scholar' (p 174). The report denies public involvement a role because the public is 'too large' to participate in decisions on education and training (p 810). There is, however, a place for 'sections of the community' – this, of course, largely means business and government institutions – in determining such things as 'the objectives of the schools'. The Williams Report recommends staffing redundancy options for tertiary institutions, advocates contracting staff rather than employing them on tenure, and in the TAFE sector recommends the use of part-time staff because it makes for greater flexibility and cheapness.

In an economic climate where education and teachers are under attack it is perhaps wise to look out for the possible introduction of cost-cutting computer technology. The recommendations of the Williams Report concerning 'instructional design' of TAFE courses are ominous in this regard. The Committee recommends a National Centre for Research and Development in TAFE to be engaged on projects such as the planning and production of teaching materials to be available to all states; the analysis of skills required for various occupations and the related educational courses needed to train for them, taking into account the time needed to reach appropriate skill levels; the use of technological aids in teaching; and the development of self-paced learning programs.

WHAT IS A COMPUTER ?

A computer is a machine which can store and retrieve information and can perform simple operations on it in passing. Modern computers have four basic parts: a central processing unit (CPU) which controls the others and performs the simple operations; random access storage, in which it stores the information on which it can operate at any one time; mass storage, in which it can store information for quick retrieval into the random access store; and input/output equipment with which it communicates with its operator.

CPU power is measured in instructions per second and usually ranges at present from 100 000 to 10 000 000. Random access storage and mass storage are measured in bytes or characters. Random access storage ranges from 8 000 to 8 000 000 characters, while mass storage ranges from 250 000 characters to one hundred billion characters. Input/output equipment includes visual display unit (VDU) screens, typewriters, printers, plotters, voice recognition and producing systems, and a large variety of sensors and activators.

Computers are classed as micro computers, mini computers or mainframe computers depending on where they fall in the range of computing power. A typical micro costs $1 000-$5 000, and minis range in price from $15 000 to $2 000 000, while mainframes range from $150 000 to $5 000 000.

A mini system useful to some businesses might have a CPU with 250 000 instructions per second, 64 000 characters of random access store and 10 million characters of mass store. In 1975 such a system cost $50 000. Today it can be purchased for $25 000 and in less than two years the price will be near $10 000. (These prices do not take inflation into account.)

Although the Williams Report concentrates primarily on TAFE as the area for the development of computer education there are good reasons to expect its development in the primary and secondary education areas as well. Since the programs that make up the software component of computer education remain expensive in time and money to produce, the more pupils who are taught by a particular program, the cheaper education will be. There is a danger that any move towards computer assisted instruction on a wide scale would centralise the control of knowledge through education departments, a move breaking down the tendency to democratise and decentralise control of education at the school level. In a situation where education departments are attempting to cheapen education and to control the diversity of schooling, there would be an inevitable tendency to resort to the centralised dissemination of knowledge packages rather than assist teachers to program other kinds of knowledge. Satellite technology would further increase the likelihood of such a development.

In a more subtle way, computerised learning raises the issue of control over meaning. Computer technology lends an aura of objectivity and science to questions that are matters of value and dispute. Take for example the following question which figures in an American program for children learning history. When did Lincoln free the slaves?

1861
1862
1863
1864

Answer . . . . . .

Some people believe that the slaves are still not free. What do we mean by 'free'? How can an individual express this viewpoint, much less be exposed to this interpretation, whilst being instructed by a computer? Political bias and matters of opinion can easily don a mask of scientific objectivity via computerised instruction.

We do not wish to take up an extreme anti-technology, 'Luddite' position in relation to computers. If computers are more profitable than labour, then they will be used. If the mixed curses and blessings of computer technology are with us, whether we like it or not, it could reasonably be argued that school children should become computer literate, and should be taught the uses and problems inherent in a technology that has such massive power to control their lives.

We do argue, however, that much of the enthusiastic championing of computer education by some teachers has been short-sighted and naive. Who benefits from technology depends on who owns and controls it and its use doesn't necessarily mean prosperity for everyone in the long term. In many under-developed countries, for example, whilst multinationals invest billions in industry which uses very advanced technology and reap fantastic profits, the majority of the population live in misery worse than they have ever experienced before.

We would certainly want to argue that students should be taught to understand and operate computers since computer technology plays such an important role in modern society. But equal time should be spent on coming to grips with the social implications of various kinds of computer use, and questions of who owns, controls and benefits from certain types of computer technology. Probably teachers will also have to be prepared to protect the quality of their work against the onslaught of computer assisted instruction and to fight against the increasingly centralised control of the teaching process. Employers already have quite a lot of power to affect the schooling process, simply by being the ones who hire former pupils and by direct pressure on governmental processes. It is probable that one of the beneficial effects of the introduction of computer technology into education will be to draw teachers and other trade unionists closer together to try to protect the interests not only of teachers but of the pupils who will become the workers or the unemployed of the future.

References

1 These three examples of computer application are taken from the following: 'Computers in Education: A Symposium', *Trends in Education*, 2, Summer 1978: 3-30.
2 'The Office Junior on Way Out says Union', *Sydney Morning Herald*, 16/10/79:3.
3 Central Planning & Research Unit (1978), *Technology Case Studies – Employment Effects of Technological Change*, NSW Department of Industrial Relations & Technology.
4 Weaving A, Carss B, Fitzgerald D (1976), *Computers & Teaching in Australia; with a critique by J Burke*, Canberra: AGPS, (Australian Advisory Committee on Research & Development in Education Report No 6).
5 'Suppliers Find Bonanza in Education Market', *Australian Financial Review*, 14/1/80:14.

GET READY FOR...

There are a variety of new computer based public information systems that could be used in an educational context. Most of them are not specifically designed for the education market but could be adapted to it. The impetus for the design of many of them arises from the exhaustion of the development of many domestic electronic consumer goods. TV sets, for example, now that colour TV has been developed, can only be sold by providing further gimmicks and additions – video-cassette recorders, video games and information systems that compete with printed information sources like newspapers. All of these systems can be used in a number of ways. Many of them, especially those with 'interactive' capability can be used in a decentralised or centralised form. For example, they could be used by a local school and community who wished to develop a design for a community centre with the aid of a computer, or they could be used for the beaming of computer assisted instruction programs designed in America via satellite to Australian school children.

The technologies being developed can be used either separately or together, in such a multiplicity of ways that their impact on the education system will be dependent on how they are used and who controls them, rather than on any particular characteristic of the technologies.

DIALS:

This is a calculation service started in Japan in 1970. A push button telephone is used to transmit the numbers and symbols in a mathematical expression. The computer responds with a voice signal that gives the result of the computation. Both simple and complex arithmetical and algebraic expressions can be handled by the system. In the classroom for example, students could find the results of complex calculations by 'typing' the information through the telephone keyboard to a central computer owned by Telecom or a private computer company.

TELESOFTWARE:

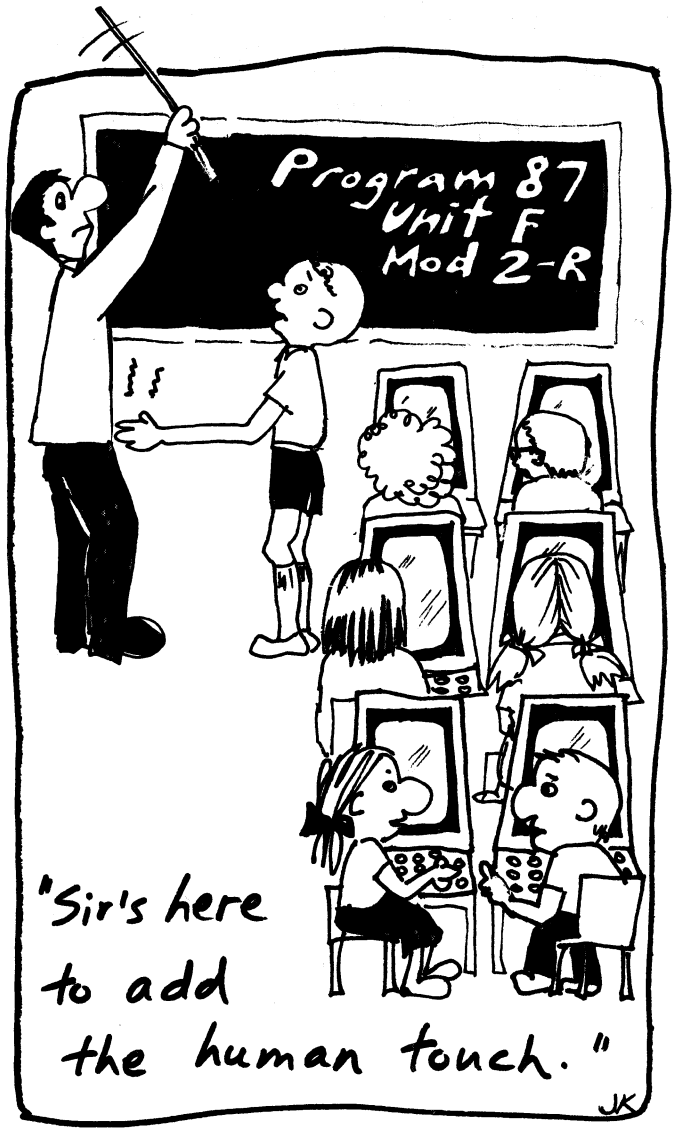
This is an extension of the teletext concept. In this proposed system microcomputers would be built into TV sets and computer programs (software) would be broadcast via signals from a TV station as in Teletext. In this way the microcomputer would not need the large amount of memory storage required to store computer programs. The programs would be broadcast continuously over the airwaves; when a program was needed the operator would ask the microcomputer to select and store and display it temporarily and then ask the microcomputer to perform an operation. This sytem could be used for computer assisted instruction in some situations.

PLATO:

Probably the world's most advanced computer education system is PLATO, which in concept is similar to what VIEWDATA could be in many years time. Control Data, the US multinational, markets PLATO. Terminals are hired out which are linked by telephone lines to central computers either in North America or Brussels. Almost all the 40 000 PLATO terminals are in the US but Control Data did not begin marketing operations in Britain until 1978 and is beginning them in Australia in 1980. PLATO customers can communicate with several thousands of pages of software on many different subjects already stored in the computer banks; or they can write their own to suit their needs. The expense involved in having teachers write their own programs means that a push towards centralised control and dissemination of information would be likely.

FACSIMILE TRANSMISSION/ELECTRONIC MAIL

This system scans each page of a document, transmits the information through the telephone system and produces a copy of the document at the other end. The US post office is experimenting with one machine that can transmit up to 600 pages a minute, and another machine that can receive up to 300 words a minute. School students could use the system for requesting information for school projects – for example a book only available from a particular library, or recent government reports.



TELETEXT:

A system used in Britain where spare parts of the TV broadcasting spectrum are used to broadcast information in a textual form. News and similar information can be displayed using this, but the system is limited by the amount of memory it has, and is not able to transmit large amounts of data. The information is processed by a special decoder put into an ordinary TV receiver and is displayed on the TV screen. Experiments have been made with the system in Australia. A modified TV receiver could be used in the school context.

The receiver could pick up, for example, subtitling for educational TV programs, or questions could be inserted into an already existing TV program. Teletext is limited in the amount of information it can deliver and has mainly been developed as a new selling point for TVs. Its real market advantage is in its competition with newspapers in being able to provide up to date and immediate printed information on the TV screen, such as news, weather, sport or stock market reports, whenever the TV set owner desires it. The owner of the set merely presses a button to change from the normal TV program to the Teletext information, and back again at will.

VIEWDATA (the trade name in Britain is PRESTEL):

This system is designed by the British post office. It is a computer based information system that uses telephone lines to transmit and receive information and modified TV sets to display the information in a textual form. This differs from teletext in that it can handle a large volume of information and it is 'interactive', ie the user can ask and answer questions rather than just receive information. It can be used as a general information service, eg current news, reference information, professional information, classified advertisements, shopping information, etc. People can also use it to send messages to each other. It can also provide a calculations service. In the educational context it can be used in a great variety of ways because it is interactive. For example, schools could use VIEWDATA for computer assisted instruction to students. In regard to educational administration, tertiary institutions could advertise courses to private citizens through their home TV sets. Exam reports and information to parents could be provided via the same system. Since the system is interactive the Education Department could do such things as collecting statistics from parents via the technology.

The Community Memory Project

History

In 1973, the USA's first computerised community information exchange system appeared in the San Francisco Bay area. Small computer terminals were used directly by the public in places such as a music store, a back-to-the-land resource store, and a public library. Six months later, a similar system appeared in Vancouver, BC. Both experiments ended in 1975, and the system is currently undergoing comprehensive redesign and revision.

The name of this remarkable system is 'Community Memory'. As the name suggests, the Community Memory computer system can remember any message and keep it around for community use. People type in a message and then label it with descriptive words or phrases called keywords. The message is then stored and can be retrieved by any of its keywords.

The system proved to be easy to use even by people who had never seen a computer terminal before. In fact, the system was essentially 'self-teaching'. People learned how to use the system by looking over other people's shoulders, or by following a set of simple instructions.

Much of the time, the terminals were completely unsupervised. This was partly a result of limited staff time, but the 'hands off' approach was also deliberate so that people could use the system freely and independently. With the exception of the terminal in the public library, the terminals were used more than 70% of the time they were available. People not only entered the expected classified ads and meeting notices but also poetry, drawings, personal messages and bits of nonsense, apocalyptic visions and utopian dreams, love letters, and reading lists.

The final evaluation of these experiments was that the public at large, without prior training, can use an electronic information exchange system to define and meet their own information needs. The expected fear of computers was not much present. In fact, most people said, 'It's about time'.

Community Memory Today

A new version of Community Memory is now being designed. The basic philosophy of use of the system will remain unchanged. However, the new version will be a much larger network of terminals and clusters of terminals. In the new system, each set of about 12 terminals will form a node connected to a central processing unit. Each of these nodes will represent a pool of information accessible from any of its terminals. The first such node should appear in the Bay Area in about a year.

Each node will be governed by an association of people and organisations from the community where the node is located. These people will agree to be responsible for the well-being of the terminals and to ensure that access to the system is not being restricted in any way. The association will primarily involve people who live or work where terminals are located, as well as some computer hobbyists and community organisers. The terminals will be located in a variety of public places, in order to reach a cross-section of people in a community. For example, terminals might be placed in laundromats, grocery stores, or bus stations as well as in coffee houses and community centres.

Eventually, individual nodes can be linked together to form a regional network. Each node's pool of information will remain at its home base rather than being gathered into a central data bank. In this way, the data in the system will remain distributed. Of course, information may be searched for or entered into non-local nodes as well. Non-local requests would cost more, but in a regional network communications would be cheap enough to allow routine non-local searches. The regional linkages of nodes will in turn be linked into a national network, again maintaining the decentralised nature of the system and preserving local autonomy.

Community Memory Structure

The system was designed for short messages which lead to face-to-face or telephone contact. Only the person who enters an item can edit or change that item. However, any item can be given a comment, so that some messages will gradually collect feedback and other notes from users.

In this way, Community Memory could be described as a People's Yellow Pages, giving listings of community resources and comments on these resources. (Since storage of items does cost money, the data base will be periodically purged of outdated items in the same way that a community bulletin board is periodically cleared off.)

In the pilot project, the terminals were made available free of charge. In the new version of Community Memory, the association governing a node will decide on what basis user fees (if any) will be charged. It is likely that terminals will have coin boxes attached to them, and that each screenfull of information will cost about 5 cents. Since the system is being mounted on fairly inexpensive hardware, it should be possible for a coalition of community groups and/or individuals to eventually purchase the system outright, and it is intended that the routine maintenance and communications charges be paid for by use fees or other income. In other words, this self-determining information exchange should also be self-supporting, so that community control will also mean community ownership of the system.

Memory Into Dream

As a system designed for use by the untrained public and structured so as to remain a grass-roots information network, it is hoped that Community Memory will encourage the development of cooperative economic and governing forms. Utopian uses of the system might include the development of worker-owned community businesses and the facilitation of non-money exchanges.

In the Community Memory system, the technology is not the important thing. We are not peddling a system. Rather, we believe that people have the right to decide for themselves what information is useful, and the ability to make the necessary connections in order to get what they need. The Community Memory system is therefore one possible means of giving people more control over their own lives by reducing their exposure to commercially generated and corporately controlled information.

As the system gets closer to becoming a reality, it will be very important to continue thoughtful discussion of its possibilities and problems. We particularly welcome discussion on how the system might empower individuals in the community, and on what form of administration can maintain a set of terminals without stifling their open and creative use.

Your comments are invited.

The Community Memory Project
1814 Ward Street
Berkeley, CA 94703 USA

The Progressive Use of Computers

'I really am talking about social upheaval. When we think of young people as being in some kind of revolt, our image is often of drop-outs, hippies, cannabis-smoking and possibly murderous tribes. But what would happen if the nice young computer programmers in dark suits and white shirts were the yeast of revolutionary ferment right inside the most established of our formal institutions? It could mean a new kind of revolution.'[1]

In 1971, Simon Beer was invited to Chile by President Allende. His task was to lead a team of engineers, psychologists, bureaucrats and marxists to design a way to use cybernetics and computer technology in the interests of the national government. Beer, a former president of the Operational Research Society of Great Britain, and of the Society for General Systems Research in the USA is by no means a marxist, although his study of cybernetics and organisations has convinced him that social and economic problems require radical structural change. In Chile, where marxist analysis was the dominant influence, Beer was faced with the task of devising a system of cybernetic and computer control that encompassed Chilean ideas for worker participation in the management process.

The team developed a system called CYBERSYN (a contraction of the words 'cybernetic' and 'synergy') which had three aims: to rapidly increase the efficiency of the nationalised sector of the economy; to strengthen this economy against the onslaught of the CIA-financed rightwing of Chilean society; and to assist greatly-expanded popular participation in the economic management of Chilean society. The motivating conception was that modern computer technology could support large and complex societies with an interactive, non-hierarchical network of communication links. The challenge was to provide systems and technology that allowed overall coordination and planning without centralised control or a separate managerial class. CYBERSYN was a primitive first version of such an information system.

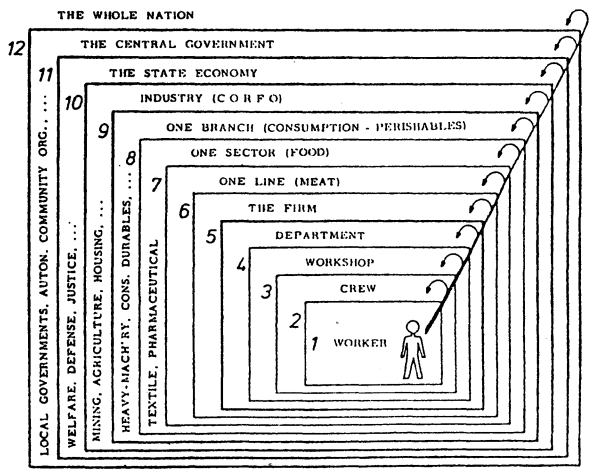
Workers' participation and control were essential features of the Chilean revolution. The CYBERSYN project aimed to make such participation and control more effective by constructing a technological framework for the self-management of society. In practice, the problem was to develop methods of organising production that would allow decisions to be made at the most appropriate social level, whether it be the workshop, the firm, the industry sector, the state economy or the central government. The crucial idea was to preserve the autonomy of the individual levels and yet link the whole society together when this was appropriate.

Computer technology provided the means to achieve this goal. According to one reporter,

'Computers were . . . felt to be essential to the successful implementation of the CYBERSYN system because they allowed the vast amounts of information which characterise complex modern societies to be filtered and processed in such a way as to make them comprehensible to mere humans.'[2]

The idea was to use computers as quasi-intelligent machines rather than giant data-banks of dead information.

The computer system was in no way geared to the tight, centralised control of the national economy. Instead, it provided the means to monitor and analyse economic activities at the individual workplace as well as at more global levels. Each sector of the economy was linked to the levels immediately above and below it without being so strongly tied as to block out any real degree of local autonomy. An idea of the multi-level nature of the design is presented in the following diagram:



The Chilean experiment to use computer technology to enhance worker self-management of the economy was, of course, never fully realised. The US economic blockade prevented the importation of necessary hardware to build up the system and the final coup put an abrupt end to the project. Nevertheless, the case is important for hinting at the potential of the new information technology to support new and liberatory social forms. Our optimism, though, should be guarded and realistic.

'Computers are currently enmeshed within, and support oppressive and exploitative social institutions, and are increasingly identified with those institutions. In Chile, after the coup, the same kind of computer technology that the designers of CYBERSYN had hoped to integrate into the process of social reconstruction was taken over by DINA – the Chilean secret police.'[3]

References

1 Beer S (1975), *Platform for Change*, London: John Wiley, 285.

2 Athanasiou T (1979), Stafford Beer: The Untechnocrat and His Liberty Machine – A review of the CYBERSYN Project, *The Journal of Community Communications*, 3(2):10.

3 Ibid: 6.

Note:

This description of the Chilean experiment is largely a summary from the excellent article by Tom Athanasiou published in the fairly inaccessible Californian journal cited in the references. Readers are directed to the article itself for more details about the CYBERSYN project.

The 'Sanitary Function' of Computers

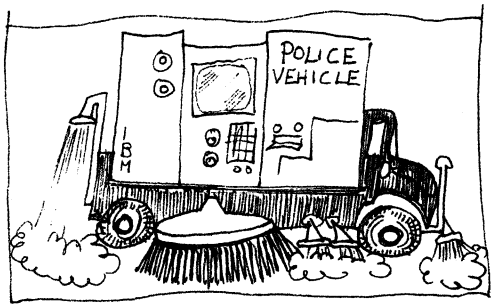
'. . . the police possess the privilege of having access to knowledge superior to all other organs of the state, making it possible to gain insight into abnormal forms of behaviour and detect structures in society. Their ability to diagnose important parts of the social process frees them from the executor role which they were forced to carry out until now. Society's increasing knowledge is also put to use by the police – to the advantage of all: the police force of the future will be a different one, one of a higher level, one with a sanitary function for society.'[1]

The 'sanitary function' of the police and security agencies in West Germany, mentioned above by the President of the Federal Criminal Investigation Department, has been aided by recent developments in electronic computers. The new technology has provided the state with the means to collect and store information about every individual in the country and to use the knowledge to secure greater political control. It has been estimated that already the 'secret data banks of West Germany have registered personal data from about 8-9 million people, about every fifth adult'[2].

Sporadic terrorist activity by extreme Left groups has been used by the state to justify the greatly increased use of electronic surveillance and data processing. Since 1952, the Department for the Protection of the Constitution has sought to identify 'security risks' in the population. In practice, this means a detailed observation of atomic energy opponents, individuals with contacts in East Europe and workers who organise strikes. The agency also investigates people applying for jobs in the public service, and between 1973 and 1978, 1 080 000 people were checked to verify their loyalty to the state. It is a sophisticated, technological form of pre-emptive security, where the aim is to identify the 'criminal' before he/she commits the crime; to identify protest, isolate it and crush it before it becomes visible.

Obviously, such a preventive strategy requires an immense amount of information, and this is where computers come in. The following example strikingly illustrates how computerisation has increased the efficiency of police control. In 1972 it took 10-25 days for notification, advising that a particular person was wanted, to go from the local police station to the state criminal investigation department. Another 15-30 days went by before the wanted person was registered in the 80 West German wanted persons catalogues. Finally, it took another 4-6 weeks before the wanted person appeared in the wanted person registers issued to border authorities and police departments throughout the country. **The use of computers has reduced this time lapse to a matter of 4-6 seconds.**

At present the information is stored in large universal computers operated by a variety of security agencies: the local city and district political police, the state and federal criminal investigation departments, the state and federal Departments for the Protection of the Constitution, the Federal Secret Security Agency and the Military



Intelligence Service. Efforts are under way to further rationalise the system so as to allow information exchange between agencies. One suggested 'reform' is that the computer technology be more compatible, so that 'every terminal be of the same type with the same operating procedure, producing the same results in the same form'[3]. Giving everyone an identification number at birth would make possible a unified programming system for all the computers. These steps would provide the technical basis for a direct exchange of information among all computer systems, thereby centralising all information for use in decentralised police and security activities.

NADIS is the computer used by the Department for the Protection of the Constitution. The authorities refuse to say how many people are registered in NADIS, although one report in 1975 indicated that the central NADIS computer had registered 2 million persons[4]. Who are these people? Security risks include individuals who support the aims of organisations classified as oppositional to the constitution, individuals who have relatives living in communist countries, individuals who stay for a limited period in a communist country and individuals whose families or housemates fall into any of the above categories. So-called character traits can also indicate a security risk:

'. . . serious mental and emotional disturbances, criminal acts, a weakness for taking bribes; drinking and drug addiction; gambling; violating a security oath; irresponsibly incurring debts; a tendency towards prattling, denunciation, untruthfulness, abnormal sexual behaviour.'[5]

Before anyone is employed as a public servant, a teacher, a secretary in any government office, or a postal worker; before a lawyer can begin practical training; before a doctor can begin internship; before a foreigner receives a permit of residence; before anyone is employed by Lufthansa; the NADIS computer is consulted. Even private firms have access to the NADIS data bank. 'With NADIS' states the magazine, *Der Spiegel*, 'the framework is perfect for the machinery which is technically suitable for the total political control of a population: names of all those who deviate could be stored, on the one hand; on the other, every person's record could be examined any number of times to see if he/she deviates from the currently desired political norm'[6].

References

1 Herold H, 'Kunftige Einsatzformen der DV in Bereich der Polizei' from June 1974 in *Kriminalistic* 28 (9) 392.
2 *Der Spiegel*, May 20, 1979, p 44.
3 Werner Maihofer, 'Von INPOL zu DISPOL' in *Innere Sicherheit*, 4:31.
4 *Der Spiegel, op cit.*
5 *Ibid.*
6 *Ibid.*

Note:
This description of the West German situation is a summary of a well documented, detailed analysis produced by the Campaign Against the Model West Germany. It is called *Under Observation: the Computer and Political Control.* The publication, and others dealing with the repressive situation in West Germany can be obtained from: Campaign Against the Model West Germany, c/o Evangelische Studentengemeinde (ESG), Querenburger Hohe 287, 4630 Bochum 1, West Germany.

The Economy Compared to the Air We Breathe

I

Eternal, inscrutable, eternal
are the laws of capitalists!
Without warning the volcano erupts
and lays the country waste!

Nothing can be done about crises!
Above our heads, unshakeable,
stands Economic Law, the Unknowable!
Islands of profit rise from barren seas.

Thus 1930 wrote Brecht, in Die
Heilige Johanna der Sclachthöfe;
Blab to our rulers, whom God grant me
yet to see dead, says Aeschylus' Oresteia.

In gloomy times of bloody confusions,
disorder by order, planned caprice,
underground were the Stock-Exchanges
to avoid the bomb explosions.

II

Capital buys up the stars
and sells them for a price,
plants flags on the moon
and patents on the sunrise.

Southern cross lost
amidst the stars and
stripes; red of our sunburnt
country lost in the union jack.

Unilever Etc, economy-
size brainwasher,
its fleets of mercedes slam their doors
like volleys of machine-gun fire.

Population divided into newspaper percentages;
in unpublic rooms in skyscraper tombs,
boards of Directors forge
our invisible cages.

After watching a few minutes
of free-enterprise t.v.,
I press the button and it
flushes down the bowl.

King-size filters stand
in their silos; and
the ash at the end of my cigarette
is bright with world's future fire.

We live, work, and sleep
in web and dreams of spider Capital;
but as Noam Chomsky observed,
The cages of Capital are subtle.

III

Capital is the air we breathe.
It is wife, our life, our children,
Santa Claus and Uncle Scrooge.
Capital lyeth between the young
bride and her bridegroom.
Capital turneth on the television;
blunteth the needle in the maid's hand.
Capital is our daily bread;
Capital is our bones.

Capital is a nice day
and how are you.
Capital is all hours on the clock,
off the clock, and clockwork.
Capital is taxes, breathing, writing,
landing on the moon.
The framing of the five senses is
a production of Capital;
Capital is the window you look through,
the door you open, and the house you live in.
Capital sleeps in missile silos.

Capital leaves no stone unturned.
Capital is a stitch in time.
Capital has a silver lining.
Capital says all's not gold that glitters.
Capital says three's a crowd.
Capital makes strange bedfellows.
Capital proposes, Capital disposes.

Not a hair falls from your head
without Capital knows of it.
The bird flies by Capital's wisdom.
Capital was there in the beginning,
when the morning stars sang together:
the Big Bang theory owes much of its appeal
to Hollywood.

IV

The electron circles the atom
because of the profit motive.

V

Capital is lies in public places.
Capital fills the mind with money
and the pockets with ideologies.
Capital controls the public mind.
Capital can see both sides
of its own arguments.
Capital is heavier than truth or falsehood:
the issue is not truth or falsehood.
Capital is our first problem:
it has a solution. Solve it.
There are no solutions to our ultimate problems:
Leave them.

Capital is every step we take.
Capital. Three syllables:
A pit right in its dead centre.
This pit is in the Third World's belly;
in the slumps of econometric graphs;
and in the pit of Dante's inferno, or any other
hell your freedom of choice
might freely choose, eye-deep
to freely walk in.

VI

Blab to our rulers, whom God grant me
yet to see dead and their flesh vanish
in spitting pitch and flame! Thus,
B.C. 458, in the Oresteia of Aeschylus.

Michael Fensom
Forster High School

The Efficiency Movement in Education - New Jargon for Old

Mike Gallagher

The drive to increase the 'efficiency' of education is represented by its advocates as a major innovation. Gallagher demonstrates that such fashionable shibboleths are actually refurbished leftovers from previous economic crises.

John Maynard Keynes once said,

> "Practical men who believe themselves to be exempt from any intellectual influences are usually the slaves of some defunct economist. Madmen in authority who hear voices in the air are distilling their frenzy from some academic scribbler of a few years back."
>
> (*The General Theory of Employment, Interest and Money*, Macmillan, London, 1936, p 383.)

This article discusses some of the major ideas behind the new efficiency movement. It attempts merely to describe the motivations of the movement and its more ridiculous assumptions. Later articles will try to relate developments in the fields of research on teaching, instructional design and the organisation of schools to the nature of the educational technology so far developed.

The Williams Committee may be seen as attempting to raise and answer a question like the following – 'given that we need to sort people into the different available jobs and only tell them what we want them to know at the minimum cost, how do we adjust the entry of people into the education system and what kinds of treatments will be most effective in changing their behaviours to the ones we want?'

A very different set of assumptions for the reconstruction of the education system would follow if we asked a question like the following – 'given that there are a large number of people who have a right to develop the capacities to collectively exercise more influence over the decisions that affect their lives, how do we arrange the provision of educational opportunities to cater for their needs with maximum equity?'

So far, developments in the application of computer technology in the schools, for administration and instruction, have been more closely related to the first of the above questions than to the second. We can distinguish a particular push towards "efficiency" behind much of the current development of the technology itself and ideas for its application in school systems. Many of these "efficiency" ideas are discussed in the Williams Report.

There are three key sets of assumptions within this new efficiency movement underlying the development of educational technology. The first set involves assumptions about teaching and learning that are built into the designs of computer-related educational technology. The second set includes assumptions about the organisation of school systems in which the technology is designed to be used. The third set has assumptions about the relative costs and benefits of computer-related applications in the schools.

While these assumptions overlap in terms of their foundation in efficiency concepts, they can be seen to contradict one another because of the various traditions from which they are drawn. The assumptions, as with the technologies themselves, can also be seen to conflict with broader assumptions about the purposes of schools and their traditions of organisation, to the

extent that attempts to diffuse technological innovations are likely to be resisted. The advocates of the new efficiency movement will not necessarily achieve their intended results. In fact, it is possible that their campaigns can be turned around to provide a basis for a more progressive change in the operations of schools.

That is, we are not caught in an all-or-nothing position – either having to accept the technology that is developed and all that goes with it, or having to reject it, power points and all. The real challenges that face us are to do with intervening in the debate about the purposes of education, the broadening of curricula, the democratisation of school systems; that is, the **setting** for the application of technology as well as the design of the technology itself.

Many of the ideas relating to the application of computer-related technology in schools represent a resurgence of what Seguel[1] has called "the efficiency movement in education". That movement was initially active in the US in the early years of the twentieth century, at the time when E L Thorndike[2] developed the psychological theories that underpinned "the measurement movement", when F W Taylor[3] wrote *The Principles of Scientific Management* and when Marshall and others developed the conceptual tools of neoclassical economics.

There are several parallels between that period and the present. The early efficiency movement grew out of a reaction to the early writings about progressive education of John Dewey, whose ideas were also influential in educational thought during the open education period of the 1960s and early 70s. The efficiency movement first emerged after the severe recession of the 1890s. Its ideas were developed during the subsequent phase of rapid industrial and technological development. Similar ideas have emerged in education literature following the onset of the recession of the mid 1970s and the development of a new wave of technological applications.

A major difference between the early and the new efficiency movements is that where the early movement was based on a coalition of ideas between industrialists and educational administrators, the new movement is based on a coalition of industrialists and accountants. The old movement was concerned to minimise "irrelevant" curricula, particularly cultural studies. The new movement is concerned to minimise costs, which also implies restricted curricula and extended social control.

The rise of efficiency movement ideas in Australia can be seen in the recommendations of the Williams Committee for the specification of "minimum acceptable performance levels in basic skills for particular groups", in terms of schools, and "the analysis of skills required for various occupations . . . and the related educational courses needed to train for them, taking into account the time needed to reach appropriate skill levels", in the case of technical education. These proposals almost echo the old approaches developed by Bobbitt[5] in the case of schools and Charters[6] in the case of technical colleges. Implicitly, they restrict the answer to the question raised before the initial efficiency movement began – what knowledge is of most worth?

The ideas advanced by Bobbitt and Charters have remained central to the development of "rational" or "systematic" curricula planning. A central assumption of the approach is the definition of education advanced by Tyler[7] as "a process of changing behaviour patterns". That definition can be contrasted with the view expressed by Dewey[8] that education is "that reconstruction or reorganisation of experience which adds to the meaning of experience, and which increases ability to direct the course of subsequent experience". The definitions distinguish degrees of passivity and activity, autonomy and control in the process of learning.

Bobbitt brought together the ideas of Taylor and Thorndike. Taylor had set about describing the activities of different workers in terms of the time taken to achieve set tasks. Thorndike had set about devising ways of measuring the responses of organisms (whether rats or people) to arranged conditions or stimuli. He focussed attention on measurable outcomes, which he took to be evidence that learning had occurred.

Bobbitt took Taylor's idea of the "finished product" of a production process and applied it to education:

> "If the school were a factory, the child the raw material, the ideal adult the finished product, the teacher an operative, the supervisor a foreman, then the curriculum could be thought of as whatever processing the raw material (the student) needed to change him into the finished product (the ideal adult)."

The tasks of curriculum building were seen by Bobbitt to have four major parts:

1 a detailed list of "all the abilities and aspects of personality for the training of which the school is responsible . . . for each social or vocational class of students";
2 the scales of measurement for each of these different aspects of personality;
3 the amount of training that is socially desirable for each of these different abilities . . . in terms of the scales of measurement;
4 progressive standards of attainment for each stage of advance in the student's development.

Bobbitt set about a lengthy task analysis of the "civic activities" of the "ideal adult" and "the abilities, habits, appreciations and forms of knowledge" needed to carry them out. These he attempted to make "numerous, definite and particularised" as objectives of the curriculum.

Charters undertook job analysis of adult occupations as a basis for the construction of curricula and teaching methods. Charters contended that "in order to be a satisfactory plumber or carpenter, one does not need to have a great mass of so-called 'fundamental' information on which to base his practice".

The development of behaviourist psychology gave rise to various "learning theories" (see Skinner) the sequencing of subject matter according to its "intrinsic complexity" (see Gagne[10]), its chaining and combination for use in programmed learning machines.

These foundation ideas have been extended through the contributions of systems theory, research on teaching, organisational psychology, educational measurement and other fields. They can be seen to reflect a utilitarian view of education and to be insufficient as a basis for developing a curriculum. Nevertheless, dressed up with the cost effectiveness analysis of economists and the rhetoric of accountability and rationalisation the same ideas are being advocated today as innovations. They are integrated into an attempt to reduce the costs of "inputs" into the education system (teachers' salaries, student allowances, plant and equipment) and to make the "outputs" (student cognitive achievement) more "efficiency produced".

These old ideas in new clothes are being advanced at a time of government spending restraint, structural economic change and obvious stress in many of our social institutions. They appear in the writings of economists concerned with obtaining the maximum contribution to economic growth and labour productivity from "human capital investment" in education.

Hence, the Williams Report advocated maintaining a hier-

archical structure of education to parallel the structure of the labour market. The higher one progresses in the educational pyramid the more expensive the "resource input costs per student" become. The Williams Committee was concerned, therefore, to have some manpower forecasting done in relation to the expensive courses, to introduce bridging courses and portability of awards in order to overcome rigidities, and to improve systems of screening and counselling in order to reduce "wasteful" expenditure on "sub marginal" students. They were concerned that poor standards of literacy and numeracy in the schools would lead to wasteful expenditure in the more expensive levels of higher education.

The Committee suggested that the costs of other courses could be cheapened by an expansion of part-time staff, the more efficient organisation of content and the use of computer technology. They suggested that the costs of training and retraining could be redistributed away from the employers through the expansion of institutional pre-employment and recurrent courses and towards the "users" through the charging of fees.

Blandy[11] has argued that a "user pay" approach will assist the schools to operate more like "competitive firms" as the "market" principles of each consumer attempting to get maximum personal benefit from their investment in their own education would create "incentives" for the schools to operate more efficiently. It is a kind of "payment by results" approach, where the "purchasing preferences of individuals" (through fees or vouchers) can be exercised to buy a place in a school that has demonstrated its capacity to produce measurable results.

The Williams Committee proposed that trade courses be organised into "modular curricula – distinct units of instruction and experience . . . derived for a job while detailing the skills and knowledge required for effective tradesman activity". They foresaw a system where a person completes a "module", gets a "certificate of competence", works for a while (?), gets retrenched and goes back for another module and certificate. Learning for the Williams Committee is seen as little more than acquiring a certificate. In this sense though, the Committee argues that education contributes to economic growth – the education system produces certificated individuals, which legitimates the specialisation and division of labour, which Adam Smith argued[12] was the underlying cause of the wealth of nations.

The efficiency approach is also advocated in the context of competing demands on government expenditures, with conservative governments choosing to reduce expenditure on social services in order to allow for increased assistance to private industry. The cost-effectiveness drive also relates to a felt need to recover the lost credibility of the schooling system, to adjust the expectations of people about the kinds of jobs they might get, and to absorb the considered excess supply of labour created by the reduced supply of jobs.

The efficiency movement is unlikely to get very far since the base of its ideas is too narrow and its assumptions too conflicting with the traditions by which schools in Australia are organised. It is just silly to think that the people in the education 'industry' would accept that they have only one 'product' to make – measurable cognitive achievement of students. Those outputs may well be the most trivial and least important. Schools, as Levin suggests[13], are 'multi-product firms', and they do not meet *any* of the necessary conditions for the valid application of 'market-theory':

a managerial knowledge of the technical production process;
b substantial managerial discretion over input mix;
c a basic competitive environment with all of its attendant assumptions (freedom of entry, many firms, perfect information);
d managerial knowledge of prices for both inputs and outputs;
e an objective function that is consistent with maximising output, such as profit maximisation;
f clear signals of success or failure (profit, losses, sales, costs, rate of return, share of the market).

Attempts to peddle the new efficiency ideas are likely to fail, not only because of resistance but also because the proposals are inconsistent with the assumptions of the theory from which they are derived.

As Blaug[14] decided a few years back,

'In the final analysis, we can still say that the choice among competing means has been made under criteria of efficiency in the use of resources, but 'efficiency' now refers not just to the choice between means to achieve a single end but to the choice between ends themselves.'

References

1 Seguel M L, *The Curriculum Field – Its Formative Years*, Teachers College Press, Columbia University, New York 1966.
2 Thorndike E L, *An Introduction to the Theory of Mental and Social Measurements*, Teachers College Press, New York 1904.
3 Taylor F W, *The Principles of Scientific Management*, Harper & Bros, New York 1911.
4 Marshall A, *Principles of Economics* (1st edition 1890), 8th edition, Macmillan, London 1920.
5 Bobbitt F, *The Curriculum*, Houghton Mifflin, Boston,1918.
6 Charters W W, *Curriculum Construction*, Macmillan, New York 1923.
7 Tyler R, *Basic Principles of Curriculum and Instruction*, University of Chicago Press, Chicago 1949.
8 Dewey J, *Democracy and Education*, Macmillan, New York 1916.
9 Skinner B F, *The Behaviour of Organisms*, Appleton Century Crofts, New York 1938.
10 Gagne R, *The Conditions of Learning*, Holt Rinehart & Winston, New York, 2nd edition 1970.
11 Blandy R, 'A Liberal Strategy for Reform of the Education and Training System in Australia', in *Report of the Committee of Inquiry Into Education, Training and Employment*, AGPS, Canberra, February 1979, vol 2.
12 Smith A, *The Wealth of Nations*, Methuen, London, 1st edition 1776. 6th edition, Methuen, London 1950.
13 Levin H, 'Concepts of Economic Efficiency and Educational Production', in Froomkin J, Jameson D, Radner R (eds), *Education as an Industry*, National Bureau of Economic Research Inc, Mass 1976.
14 Blaug M, *Introduction to the Economics of Education*, Harmondsworth, Penguin 1970.

Heads Men Win -

A recent report on promotions procedures in New South Wales schools highlights the problems faced by women teachers in gaining status equal to men's. The report examined the NSW Department of Education's practice of 'preferring, from time to time, female applicants for the position of principal at girls' high schools, and male applicants for the position of principal at boys' high schools'.

In September 1978 the Director-General of Education in New South Wales announced to principals, without explanation, that the above practice of preferment would from that time cease. This announcement followed a complaint to the Counsellor for Equal Opportunity by a male teacher that the preferment of a woman was in breach of the Anti-Discrimination Act. The appointments of three women as principals to girls' schools in 1979 were subsequently cancelled and three male teachers senior to them were appointed in their places.

Litigation followed, with the appointments of both the women and the men upheld by the Supreme Court. The cases were judged on an interpretation of the Teaching Services Act. The policy of preferment was not built into the Act, but merely a Departmental statement. The Anti-Discrimination Act was not brought into the cases.

The overall situation was evidently sufficiently significant to warrant a reference from Neville Wran, Premier of NSW, to the Anti-Discrimination Board. The Board conducted an inquiry into the practice and, after calling for public submissions, released its report[1] in October 1979.

The report was acclaimed by the press as a document exposing decades of injustice and discrimination against women (one would almost have thought that their own house was in order in this respect). The NSW Minister for Education, Eric Bedford, attempted to suppress the public release of its findings, but on being overruled by Wran was reduced to silence. Immediate feminist public response to the report was positive, but time and reflection have shown that overall the response is mixed. Watch for future instalments.

The report is a well-researched, well-argued comprehensive and complex document, which should be read fully by every teacher. It is also essential reading for anyone interested in equality of opportunity within any segment of the workforce, particularly in government departments and government instrumentalities. As a study of women in the one real profession that women enter in large numbers and on seemingly equal terms with men, it is an important contribution to Australian labour history.

In its examination of the practice of preferment the report outlines past Departmental promotions policies, and the implications for women. It may come as a surprise to us in the eighties to learn that before equal pay and the subsequent amalgamation of male and female promotions lists in 1961, eighty per cent of promotions positions (including all those in boys' and co-ed high schools) were open only to men, leaving only 20 per cent of promotions positions (including those in girls' high schools and infants' schools) open to women. These practices were in keeping with patterns established in the 1880s. In the 1970s the pattern had not been replaced by a comfortably equal representation of men and women throughout the whole range of promotions positions, but by the *increasing* tendency for men to fill *all* promotions positions. The cessation of the practice of preferment of women for some promotions positions will result, in the words of the report, in 'the virtual disappearance of women in influential positions'.

> **'This will almost inevitably result in some men being appointed in girls' schools . . . but it is unlikely that many women will be appointed in boys' schools. The reason for this is the much larger group of men with appropriate service qualifications, particularly in Sydney and Newcastle where the schools for one sex are concentrated. This will mean, however, that in the future a number of women, particularly married women, by foregoing promotion and remaining in the one school, will achieve seniority and be promoted, though more slowly in that school. In general married women will be most likely to wait for promotion and avoid moving round the country.'**
>
> **From Public Service Board *Statement of Principles*, p 76, 1961 & 1965**

In setting the background that led to this situation the report discusses Departmental policies on equality of opportunity for teachers, as elaborated in Public Service Board documents of 1961 and 1965. These documents present a 'complementary spheres' perspective in which men and women are seen as possessing essentially different aptitudes and interests. Because of this 'fact', infant teaching was to remain an exclusively female domain, and preferment of different kinds was to be practised in order to ensure that such time-honoured customs could be pursued wherever possible. Thus, married men were to be preferred where residences were provided, women for girls' high schools, and men for boys' high schools. The Public Service Board documents quoted in the report spell out in no uncertain terms the likely consequences of list amalgamation and prefer-

1 *Examination of a Practice in the New South Wales Teaching Service* by the Anti-Discrimination Board of NSW under Section 120 of the Anti-Discrimination Act, Sydney, September 1979.

Tails Women Lose

Jan Craney

'A male and a female graduate assistant resign at the same time. Both are accredited as GA6. She bears and raises two children while he drives a taxi and both re-enter the teaching service after 6 years of absence. She will re-commence with a loss of 2 years of status (GA4) while he will re-commence at the GA6 level due to the fact that he had been in paid employment. The salary difference between GA4 and GA6 is at present $1407 per annum but his extra accreditation means that he can qualify for Promotion List 2. She will have to complete a further two years of teaching before reaching this level. If he applies for promotion in an unpopular area he may be promoted within the 2 years it takes her to regain GA6. The salary difference is now $2964 per annum. (If she works in the same school, he could then be her supervisor.) He is then a potential candidate for the List 3 level. She will never 'catch up'.

From the Department's *Teacher Education Handbook*, **p 92, 1973-4**

ment for women: that fewer women than men would receive promotions positions in schools of the opposite sex, and that married women would wait longest for promotion. These consequences did follow. The percentage of women in principal's positions in high schools dwindled from 20.9 in 1949 to 9.6 in 1979. Women occupied 25.4% of the deputy's positions in 1949, but only 7.1% in 1979.

Why then, in an era characterised by the resurgence of feminism and the re-entry of women to the workforce, have women in teaching been unable to retain even the small proportion of promotions positions they held in a less liberal era? Why, when the full range of promotions positions has been open to women since 1961, have men been able to sweep in and take up most of the honours? The answer, according to the report, lies in the nature of the promotions system, 'a stepladder in which no step may be omitted', and in which the earlier you succeed, the faster you succeed. Essential features of the system are: permanency, in order to be eligible for promotion in the first place; seniority, in order to get to the stage to apply for assessment; and the ability to take up a distant vacancy whenever it occurs. This ability brings with it the immediate opportunity to apply for listing on the next promotions level, and after three years the right of lateral transfer, ie priority for vacancies on the same level over those not yet promoted.

In this complex set of military manoeuvres women emerge as second runners. (Incidentally, it could be claimed that the system gives the most rewards to the most ruthless of the men, continually geared toward their own individual advancement, and who, without a second thought, are able to uproot themselves and their families for a position anywhere in the State that contributes to this end.)

How do women fare? The report's examination of the general situation of women in the teaching service in 1978 confirms the trend of cumulative female disadvantage at every rung of the ladder. Women crowd on the ground, forever ineligible to begin climbing the ladder. Eleven per cent of the women, as against 58 per cent of the men, are ineligible to apply for assessment for the first level of promotion, either through temporary status or 'insufficient accreditation'. Ninety-three per cent of the women, as against 77 per cent of the men, were teaching assistants, ie unpromoted.

Married women, and the bulk of women attempting to pursue a career in teaching do marry, find themselves faced with policies and practices that thrust upon them a series of inescapable handicaps. First they will be faced with the blight of broken service. This blight operates so that women are not only not accredited for nonpaid parenting and community activities, no matter how competently those activities are performed, but also lose credit for their actual service if they are away from teaching too long. Most of the forms of paid work more typically pursued by men during breaks in service are accredited to a lesser or greater extent. The temporary status blight is then inescapable, as a woman with children who has recently been supported by a husband is unable to sign that she can serve anywhere in the State. Even if this obstacle can be overcome, a woman is more likely than a man to be refused permanency on medical grounds – and for 'female' disorders that seem to bear little relevance to the performance of her teaching duties. And with this hurdle over, the woman is then faced with compulsory superannuation payments, which at this age will be high, and are deducted from a lowered salary. This condition hits hardest at women who are single parents. The family blight which has made a break in service necessary and mobility difficult, then becomes a device which keeps a woman in her (low) place for the rest of her career. The report summarises the findings: 'significantly fewer women than men are able to meet requirements leading to higher ranks' and since the abolition of the preferment practice 'the one path by which a small but significant number of women have reached the level of

principal has been closed'.

One significant aspect of the report is that its anlaysis of the practice of preferment is in line with the 'spirit and intention' rather than the letter of the Anti-Discrimination Act. The Act as it stands covers only direct discrimination, when ironically before the report was initiated there were fears that the Act might have been used in reverse to challenge the three women principals promoted via the preferment practices. The report details the indirect and/or systemic discrimination that makes equal opportunity for men and women within the teaching service impossible. If the report is politically acceptable, will changes in the Act follow? Can the Act be used to herald structural change rather than concentrate solely on injustices suffered by individuals?

> **'(vii) Since women are allowed (sic) to continue teaching on marriage, conditions for promotion should be such that married women have some prospects of promotion. For this reason lines of promotion are open to women where they are not required to occupy vested residences or to move round the country.'**
>
> **(From Public Service Board *Statement of Principles*, p 25, 1961 & 1965**

The report can also be commended for its close and careful use of statistics to illustrate events and trends within the teaching service and to establish systems to monitor the effects of future equal opportunities policies.

A third important feature of the report is the methods it uses to hold the Department accountable to the public, its employees and its clients for its time-honoured and seemingly unchangeable practices. In putting forward reasons why changes in promotion should take place, several groups of arguments are presented. It is argued that women have a right to fair and equal treatment, and that students, teachers and the community have a right to be able to be represented by persons of both sexes at higher levels. Another group of arguments centres on the fact that present methods of promotion cannot tap half the available talent, and that they thereby contribute to lowered efficiency and reduced quality of education. The third group of arguments stems from a consideration of students' educational well-being. The Department will be in difficulties trying to counter this barrage. It is interesting, too, to speculate how many of the Department's practices were implemented because they were administratively simple, and for no other reason.

The report also convincingly locates some of the important barriers to women's promotion *within the education system itself*. It identifies and examines practices with which the proportion of women who can comply is consistently smaller than the proportion of men. While such practices might have been the product of the social conditions of the time in which they were initiated, they are clearly not the product of present social conditions, and can be changed.

An impressive array of evidence is presented which disposes very neatly of the commonly held set of beliefs that accounts for the lack of women in promotions positions by locating the problem within the women themselves – women fear success, want easy jobs without responsibility, aren't sufficiently professional, and so on. While it is fairly obvious that fewer women than men are encouraged to seek assessment for a promotions list, it cannot be demonstrated statistically that women are actually more reluctant than men to apply. Success rates for female applicants were higher than those of male applicants at each level of list placement in 1977-8.

The report should also provide food for thought to those who believe that mechanisms exist within the Department or the NSW Teachers Federation to assess and redress injustices suffered by women within the teaching service. The Anti-Discrimination Board neither carried out new research nor compiled statistics from raw data. All the alarming facts of the report were known to the Department and could and should have been known by the Federation if it had a serious interest in the welfare of its female membership.

By implication, the report demonstrates as quite erroneous the belief that teaching is a good career for a married woman which children. While teaching might have some features that make it a suitable job for a woman in this position, the obstacles to it becoming a career are made very clear. The vision of a teaching service where men and women work together as equal partners is shown to be a total myth.

The main limitations of the report are inherent in its terms of reference. These encompass the relationship of the practice of preferment to the present Anti-Discrimination Act, other justifications for continuing or discontinuing the practice and possible changes in the law that such considerations suggest as appropriate. While this appears to be a wide brief, the full nature of the situation that thrust preferment into the limelight is not incorporated into the terms of reference. The result is that alternatives to the present hierarchical structure within the Department get scant attention. It is relevant to the situation that numbers on the promotions lists have increased steadily over recent years. In 1970 there were 417 on List 2; in 1978, 2123. There is now a backlog of eligible recruits who must wait years for their turn for promotion to come. This situation is exacerbated by the high proportion of graduate teachers in recent years, diminution in new entrants and the

greatly reduced turnover rate. While it could be claimed that the practice of preferment is worth scrutiny in any context, it is significant that it is in this particular context that the practice has come to notice, been challenged, and caused resentment among male candidates. When there is so visible a queue, any mechanism that can be construed as enabling some to jump part of it will be seen as unfair. It is the queue, the structures that encompass it and the social conditions that have produced it that need investigating, not just the mechanism by which a few seemingly irregular promotions can be made. Thus the report and recommendations, while providing a range of strategies for ensuring that women get a better deal in any new promotions practices, leads inevitably to a situation in which numbers on each list could practically double overnight and cause a real crisis to be reached. Creating one new promotions position, another deputy position, will not solve the real problem.

All education institutions are suffering the pains of non-growth. To get a grasp on what is happening we need to be able to assess the relationship of the education system to economic and political structures, particularly in view of the economic restructuring taking place in Australia and the world at present. Action that stems from an assumption that past structures need only a little altering to serve us well in the present and future will result in superficial change only, or changes which reveal the extent of the problem more fully without doing anything toward solving it.

The report has caused some ripples among education circles interested in industrial issues. It has clearly threatened the NSW Teachers Federation which has over recent years (almost by default) taken a positive stance over issues such as sexism in education and maternity leave. Interested Federation women work long and hard on such issues, but if the depletion of male members from the ranks when the issues come before Annual Conference can be taken as any indication of their esteem within the Federation, they are peripheral issues indeed. This report, with its potential to threaten the prospects of male teachers at a time when prospects are already grim, could change all that. However, recognition of women's issues under such circumstances could prove less than ideal.

Feminist response reflects the above confusion. It is here that a coherent response needs to be developed, and clear lines of political action followed. It would be a pity if feminist teachers in NSW who have worked and achieved so much in gaining official recognition for non-sexist education, were to retreat in disarray when it came to dealing with their own work prospects.

Post Script

The NSW Teachers Federation Annual Conference, 1979, passed a comprehensive resolution on affirmative action in the teaching service. Aimed ultimately at the goal of equality of opportunity, the resolution covered a number of short term programs aimed to attain proportional representation of both sexes in the promotions system and in promotions positions. Recommendations included:

- dropping temporary status as a barrier to promotion;
- according child raising accreditation;
- continuing the practice of preferment for the time being;
- establishing dual deputy principal positions in high schools;
- electing Year Supervisors in the proportion of males and females on the staff;
- at least one female deputy principal in class 1 and 2 infant and primary schools;
- a single promotions list at each level and/or subject area reducing the advantage gained by mobility.
- the monitoring of promotions lists by a joint federation/department committee;
- extensive education in equal opportunity for teachers at all levels;
- career development workshops for women;
- inclusion of women in assessment panels;
- inclusion of women in proportion to their numbers on the staff in democratically elected staff committees;
- continuation during 1980 of the ad hoc committee on Affirmative Action, with specific research tasks;
- development by the Federation of a Log of Claims to be presented to the Public Service Board, to include removal of penalties for broken service, credit for child raising, parental leave, career development workshops for women.

The resolution caused heated debate, with the president, Barry Manefield, leaving the chair to assert that a part of the resolution was 'sexist' and to move his own amendment – subsequently lost.

With this debate over, the struggle begins as the resolution goes the rounds gathering support throughout all the branches. By the end of 1980 we might begin to see some changes.

For a full account of the conference, see *Education*, journal of the NSW Teachers Federation, January 28, 1980.

> **'A limited number of scholarships will be awarded to married women after taking into account not only their academic attainments but also their likely availability for placement as teachers. It is desirable that children of married women applicants should be of school age or older.'**
>
> **From the Department's *Teacher Education Handbook*, p 82, 1973-4**

Everyone Learns Everyone Teaches

Helen Hill

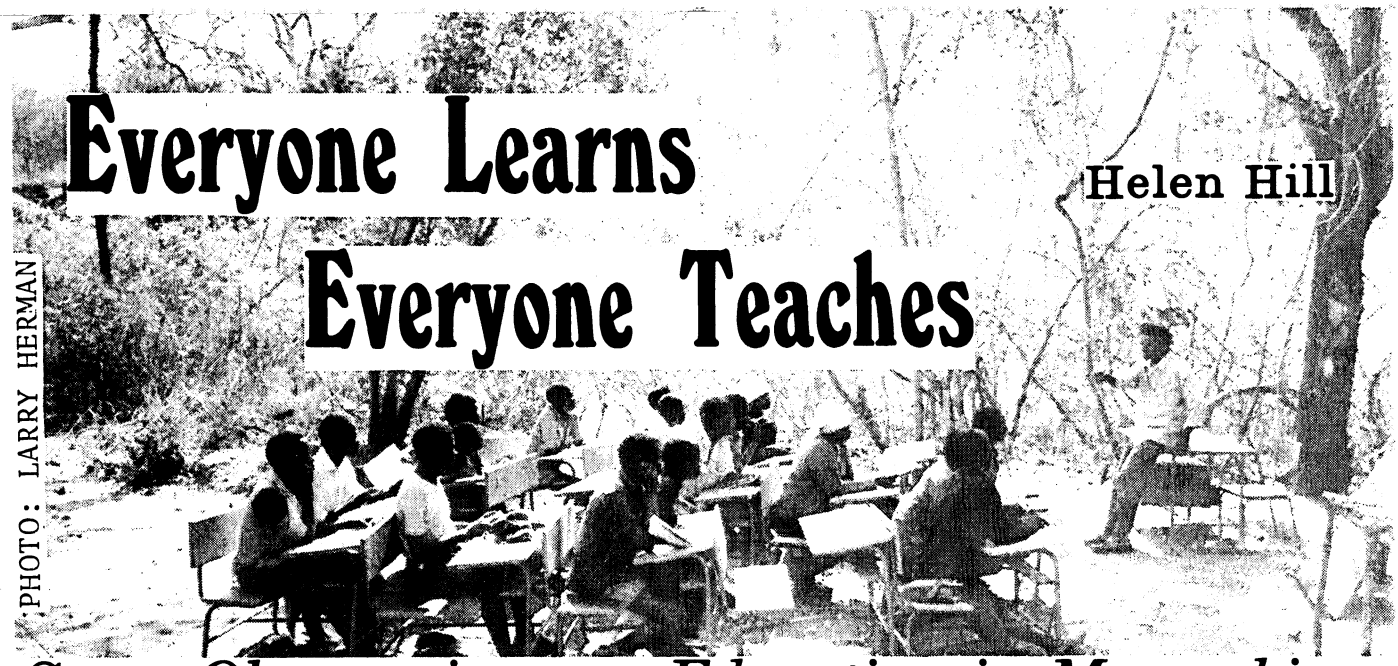


PHOTO: LARRY HERMAN

Some Observations on Education in Mozambique

Travelling around the country or speaking to people involved in education in Mozambique one often comes across the slogan 'Make the whole country into a school in which everyone learns and everyone teaches'. Originally from a speech by the country's President, Samora Machel, the notion of Mozambique as a vast classroom is one which appeals to both the people and the government of the former Portuguese colony. To the people it is attractive because most of them had never seen the inside of a schoolroom before Mozambique became independent in 1975 and they had a notion of schools as places where the sons and daughters of Portuguese settlers, together with a few wealthy Africans, could go to learn how to make money and get on in life. Of those who had attended the educationally inferior establishments run by the missions for 'native education' most had forgotten a major part of their studies, and saw the education they had received as irrelevant to their life as peasant farmers.

The FRELIMO government of Mozambique is attracted by the notion of the country as a vast school, since party leaders are constantly finding their development programs held back by the lack of trained people. At the grass roots level the party's ability to implement socialist planning is almost non-existent in some areas due to the high level of illiteracy. Another slogan I frequently saw painted up on walls in Maputo, the capital, during a visit to Mozambique in February 1979 was 'You can't build socialism without wiping out illiteracy'. Thus, as one might expect, the educational scene in Mozambique is a flurry of vigorous activity, with much debate as to methods and priorities and with students, teachers and planners all enthusiastically working very hard in the belief that mass education is indeed a path to a higher standard of living.

When FRELIMO came to power after leading a ten-year guerilla war against the Portuguese they inherited an education system whose main aim had been to provide a European-style education for the white settlers – equivalent to what they could get in Lisbon, including a university modelled on those in Portugal – and to select out a tiny class of the most able blacks to become, in effect, black Portuguese or *assimilados*; Africans removed from their own culture who could appreciate the advantages of the Portuguese empire and explain it to the mass of the other Africans who would remain in general uneducated, apart from some training in Catholicism. The aim of African education as the Cardinal Archbishop of Lourenco Marques once put it was to 'teach just enough reading and writing to enable understanding of the greatness of the nation that protects them'.[1]

Education and Culture

FRELIMO has always seen a close relationship between education and culture. Its first congress held in 1962 in Dar es Salaam outlined the following tasks among others:

- the liquidation of colonial and imperialist education and culture; reform of existing education; energetic and rapid combatting of illiteracy;
- development of instruction, education and culture to serve the liberation and peaceful progress of the Mozambican people.[2]

During the ten years of armed struggle which began in 1964 FRELIMO tested out these ideas and gave them practical shape in an education system in the jungle areas which it had managed to liberate from Portuguese colonial control. In these areas the colonial school teachers had departed along with the army and FRELIMO was left to fill the gap. Providing schools, however makeshift, in the bush areas was obviously one tangible way of demonstrating to the people of a region that the liberation movement had their interests at heart. It was also necessary for waging the struggle to have a minimum level of technical training among members of the guerilla forces and other people involved in the administration of the liberated areas. Finally literacy classes could become the basis for discussion groups to combat the propaganda of the Portuguese and form the embryo of a political organisation. These years were crucial for the development of FRELIMO policies and practice, not only in the field of education but in health, agriculture and administration as well. By the end of the war 30 000 Mozambicans were in FRELIMO primary schools, 500 in secondary schools and 70 Mozambicans were studying in foreign universities.

It was during these years that FRELIMO developed most of the priorities and orientations which it has now. For example one often sees on school walls and front fences the slogan 'Let us study hard to master science and technology'. This emphasis on scientific education is very evident in writings and speeches on education by FRELIMO officials[3]. Its origin can be traced to the type of education Africans received during the colonial period. In 1970 Samora Machel made a speech to the second conference of FRELIMO'S Department of Education and

Culture in which he said:

'Although the colonialists dealt a powerful blow to traditional society, traditional education is still the dominant form of education in Mozambique. Owing to their superficial knowledge of nature, members of traditional society conceive it as a series of forces of supernatural origin which are to varying degrees hostile to humans. Hence the fact that superstition takes the place of science in education. Furthermore, the poor development of the economy based on subsistence agriculture results in the isolation of the community. Taking advantage of the superstition among the masses and the community's isolation, certain social groups are able to maintain their retrograde rule over society.[4]

The 'certain social groups' here referred to certainly include the Catholic Church. Five years later, delivering his speech on Independence Day Samora was less circumspect about the Church; he said:

'Religion, and especially the Catholic Church, was a powerful factor in the human alienation of the Mozambican, to make him a docile instrument and object of exploitation, and smash any display of resistance in the name of Christian resignation.[5]

These two excerpts from speeches by Samora go some way towards explaining why decisive action was taken in the area of education immediately after independence was declared. The first such action was the nationalisation of all schools, which was announced one month after independence. With this announcement the state took over all school properties, most of which belonged to the Catholic Church as the result of a thirty-five year old concordat between the colonial government and the Vatican. The teachers, like all workers in industries and services nationalised after independence, were offered continued employment, but many chose to leave, particularly members of religious orders. All textbooks previously used in the schools were banned. A FRELIMO document explained the decision this way:

'It may be thought that we would have done better to keep at least some of the Portuguese text books for the time being. Our answer is that the immediate problems created by the absence of text books are much less prejudicial to our future development than the use of books based on criteria completely opposed to our situation and objectives.[6]

One of the reasons for making such a complete break with the past appears to have been as much to create a new attitude among the teachers as in the students. At a national seminar called to discuss new curricula shortly after independence some teachers were criticised for never having questioned the content of the lessons they had taught previously:

'Either they expected the FRELIMO participants to tell them what to do, just as the colonial government had done, or they thought it was sufficient to simply substitute the word Mozambique for Portugal.'

However, the report of the meeting goes on to say that through discussion this group of teachers soon realised that much more was involved.

'They began to see that teaching geography did not mean learning by heart the principal rivers and mountains of Mozambique but in showing our youth how man is the agent of change in his environment, how and why our country is as it is because of the economic requirements of the colonial power, and how it must be changed.'[8]

One important aspect of Mozambican schools is the provision of experience in group decision-making and democratic organisation. Each pupil from the time he or she enters school is a member of a *grupo* or group of about six children. Several *grupos* make up a *turma* or teaching unit. Each *grupo* elects a leader and from these a representative of the *turma* is elected. These representatives, together with the teachers, make up the *Conselho da Escola*, (School Council). Thus matters for discussion by the *Conselho* can be initiated at any level.

Problems of Elitism

While policies hammered out in jungle schools and bush hide-outs during the days of the guerilla war are serving FRELIMO very well in areas which never knew much in the way of Portuguese education, problems are being experienced at some of the more elite institutions which FRELIMO inherited from the Portuguese: the urban academic high schools and the university – now renamed Eduardo Mondlane University after FRELIMO's founding President who was assassinated by the Portuguese in 1969. While rural schools may be plagued by lack of teachers, inadequate supplies of school materials, over-crowded classrooms or no classrooms at all, in many ways FRELIMO can cope with these problems much more adequately than with some of the other challenges found in the elite institutions. Petty bourgeouis individualism, elitism and competitiveness among students, all qualities which these institutions previously aimed to foster, are persisting and in some cases posing a threat to FRELIMO's plans for reform.

A number of people I spoke to voiced the opinion that the university was one of the most difficult institutions in the whole country to transform to socialist principles. It is, however, the scene of a number of initiatives, among them the Institute of African Studies where extensive research is being carried out on the political economy of Mozambique, in particular the history of economic relations with South Africa and effects on the economy which an economic embargo on that country would have. The research carried out in this institute will be invaluable for future industrial and agricultural planning. Another new initiative is TBARN, the Department of Basic Techniques and Natural Resources of the Institute of Scientific Research. Here appropriate technology for use in communal villages is being developed which will use local resources to solve pressing problems such as the storage of grain[9]. But generally speaking, as an educational institution the university is declining in importance as higher priority is being given at present to shorter technical courses.

Other elite institutions in quite a different sense are the FRELIMO schools for training political cadres. The oldest of these at Ribaue has a long history. It began as the only FRELIMO secondary school during the war. It was established as the Mozambique Institute in Dar es Salaam in 1965, but forced to close in 1968 due to interference by elements hostile to FRELIMO. In 1970 a new start was made in Bagamoyo, a small town in Tanzania where it was hoped that the students would be sufficiently removed from the outside influences which had so successfully subverted it previously. When I visited this school in 1974 security was tight, the living spartan and the hours long. Selection for the school was tough; most of the students had come from primary schools in the liberated areas and all were expected to follow the career or course of study directed by FRELIMO. Now that the school has moved within national boundaries it is much more involved with the local population in terms of production, etc. But it is still very much the FRELIMO national school. Selection is based on political development as much as academic potential, and there are a number of FRELIMO officials' children attending the school. Its teachers are specially selected, a number of them being from

overseas. Many of the policies for other schools are worked out at the FRELIMO school at Ribaue before being implemented elsewhere[10].

National Literacy Campaign

The Mozambican constitution defines work and education as 'rights and duties of every citizen' and charges the state with the responsibility of 'promoting the necessary conditions so that these rights may be extended to all'[11]. The most important structure in trying to meet this need is not the formal educational system but the National Literacy Campaign. For Mozambique still has one of the highest illiteracy rates in the world, an estimated 80-90% of the population, and one of the greatest problems facing FRELIMO is how to overcome illiteracy in the shortest possible time. The high percentage of illiterates poses a great problem as it means that in rural areas there is almost no one with a high enough level of education to volunteer as a teacher in the literacy program. Comparison with countries which have wiped out illiteracy, such as Cuba, are not relevant as none had such a small proportion of already literate people as Mozambique. Most people with the required fourth year certificate have moved to the cities or are teaching in the formal school system.

The Ministry of Education defines literacy as having reached second year of primary school level but the literacy programs are designed not to stop at that stage but to lead on, through adult education centres, to accelerated progress through the normal school curriculum. FRELIMO sees two main aspects to the literacy process. The first is the mobilisation of people to take part in it. This has always been a difficult aspect in peasant societies where people saw no need to learn to read or write. The second part is the actual classes and using them to teach people elementary health, pass on improved agricultural methods and promote political discussion. The government has designated priority groups in accordance with national needs; these are workers in large state owned enterprises, the army, the members of the National Assembly, residents of communal villages and members of co-operatives. On July 3, 1978 Samora Machel officially opened the national literacy campaign at a meeting of 4 000 railway workers in Maputo. The railway was the sector chosen to begin the campaign as it has the greatest number of workers and a very high level of illiteracy. In workplaces literacy classes are usually held on the job, many employers giving time off for classes and some private employers giving wage rises when workers have learnt to read and write.

The Organisation of Mozambican Women plays a major role in mobilising women to take part in the literacy campaign. Needless to say there is a much higher level of illiteracy among women than men and FRELIMO sees it as very important to overcome this added disadvantage which women have traditionally had. Another significant structure in mobilising people to take part in the literacy program, either as teachers or as students, has been the *grupos dinamizadores* (dynamising groups, sometimes translated as activist groups). These groups were established during the transitional government immediately before independence, particularly in areas where FRELIMO had formerly had no overt presence (which includes the whole southern part of the country). They undertook a wide range of activities on a self-reliant basis but under the general orientation of FRELIMO: establishing consumer cooperatives, organising the allocation of housing vacated by departing colonists, taking over abandoned shops and small factories as cooperatives, and setting up their own adult literacy classes. They were established both in workplaces and in residential areas. The *grupos* in workplaces have now almost all been replaced by branches of FRELIMO (which transformed itself from a liberation movement into a Marxist-Lenninist party in 1977) but in the residential areas the *grupos* still remain and many non-party members, in addition to party members, are active in them. In many cases they produce a *Jornal de Povo* (People's Newspaper) which is usually chalked up on a blackboard and contains local, national and international news. This is just one way of persuading people that learning to read is worthwhile.

The methods used in the literacy campaign are very basic and not at all as I would have expected having studied with Paulo Freire and read how his methods were being used in Guinea-Bissau, another former Portuguese colony[12]. However Freire's method of 'Culture Circles' requiring extended preparation of teachers would be a totally unattainable luxury in Mozambique. The shortage of teachers means that a strategy has to be adopted where, as in the words of the slogan, nearly every one literally does learn and teaches others who are only a little way behind themselves. Samora Machel described it this way in a speech in March 1977:

> 'The more advanced classes should teach the less advanced classes, the less advanced classes should teach the illiterates. It is the way that we grow. We will advance in successive waves, like ants.'[13]

Another way in which Mozambican policy differs from the practice of Paulo Freire (and Guinea-Bissau) is in the use of the Portuguese language for the adult literacy program (and indeed for the formal education program). FRELIMO took the decision to make Portuguese the national language, mainly for reasons of national unity, early in its development. While Guinea-Bissau also used Portuguese as the national language, literacy is taught there in the mother tongue and then Portuguese is taught as a second language after literacy is established. One literacy worker in Mozambique told me that to produce literacy manuals in all the Mozambican languages would set back the eradication of illiteracy by a number of years. FRELIMO hopes to wipe out illiteracy in ten years but will have to work very hard in order to achieve this.

Education and Productive Work

Eventually it is hoped to unite education and productive work, not only in the factories but also in rural areas in the form of communal villages. FRELIMO sees the ultimate establishment of communal villages throughout the countryside as the only way of eliminating exploitation in agricultural production. A national paper on adult education for the 1976 Dar es Salaam International Conference on Adult Education and Development described literacy as:

> '. . . an important support to the work of mobilising the peasants into communal villages for collective production, for fighting against traditional and colonial-capitalist ideas, for developing self-confidence and for making everyone feel the importance of his role as a transforming agent of society. The priority for literacy is based in units of organised production which by their very nature will guarantee not only a better organisation of literacy activities but will also bring about increased production because of new attitudes and new knowledge on the part of the literates.'[14]

There is no doubt that the Mozambican authorities see education as a means of mobilising the people for increased production and they place great reliance on the combination of education and production to raise the living standards of their citizens.

(continued on p 30)

BRONWEN DYSON of the Inner City Education Centre, Sydney, has developed an excellent set of non-sexist and multicultural lesson plans. Further explanation of the kit and some lesson plans from it are set out below. For more information or your own copy, contact The Inner City Education Centre, 37 Cavendish Street, Stanmore, NSW 2048.

Introducing the Lesson Plans

Teachers interested in non-sexist education, working in schools with migrant and Anglo-Australian students, are becoming increasingly interested in the links between non-sexist and multicultural education. These lesson plans are a response to questions like the following that teachers are asking:

- How can we help students to understand sexism, cultural prejudice and racism in Australian society?
- How can we diversify non-sexist education so that it is appropriate culturally to migrant communities?
- In doing this, what can we learn from the women's movement in migrant source countries, eg in Italy, Portugal and Greece?
- Isn't it paternalistic towards migrants to assume that non-sexist education has a place in the education of Anglo-Australian students, but conflicts with the education of migrants?

Hopefully, this and other non-sexist/multicultural material that is available, and being developed, will be the basis for other teachers to develop their own. This unit is only a draft and will undoubtedly be greatly improved by teachers trying it out, and changing it to suit their students.

Aims

- To help overcome sexism, cultural prejudice and racism by examining their causes and effects, and by helping develop alternative behaviour and social structures.
- To provide a teaching framework which draws on multicultural and non-sexist resources that are available.
- To provide the students with opportunities to examine and extend their views on marriage.
- To enable curriculum and teaching practice to better reflect the interests of girls and migrants.
- To develop the students' political, economic, cultural and organisational understanding and skills, to further enable them to contribute to the development of a multicultural society.

Target Groups

This unit has been developed for:

- Junior secondary students in schools with a significant proportion of migrant students.
- Classes with Anglo-Australian and migrant students.
- Classes with girls and boys.

Teaching Suggestions

There are four sections in this unit. The topics of these sections are:

1 Marriage Dreams, pages 1, 2
2 Media Dreams, pages 3, 4, 5
3 Marriage, Past and Present, pages 6, 7, 8
4 Marriage and Work, pages 9, 10, 11.

1 **Marriage Dreams**
Stereotyped fantasies of marriage interest many students, particularly girls. This section leads the students into defining these fantasies and their sources.

2 **Media Dreams**
The mass media's influence, particularly on young people, in reinforcing stereotyped values and behaviour is emphasised. Changes in the present role of the mass media, so that they reflect cultural diversity and the reality of marriage, are explored.

3 **Marriage, Past and Present**
This section examines the characteristics and changes in marriage in Anglo-Australian and migrant source countries. The impact of industrialisation and urban living on rural agricultural communities, is emphasised. The historical and cross-cultural approach of this section is an important means of overcoming the static presentation of societies and cultures that predominates in multicultural education at present.

4 **Marriage and Work**
The working lives of women and men are the focus. A realistic view of the present position of women and men in marriage requires this. Also, in order to change the disadvantaged position of women in marriage, it is necessary to change the sexual division of labour as well. Racism and prejudice are dealt with, particularly to emphasise the double disadvantage of migrant women.

These sections are divided into concepts, activities and resources.

Concepts
These principal ideas in the sessions have guided the choice of activities and resources.

Activities
Only one or two activities have been suggested. As far as possible, they draw on the knowledge and experience of students and the community, and suggest uses for the resources.

Resources
See the Resources section at the back of this book.

Sessions

The sessions require about two 45 minute periods to cover. The order of both the sections and sessions is flexible. Feel free to extend, delete and change.

Aims

- To inform the students about the importance of women's economic role throughout history.
- To motivate the students, particularly the girl students, to compare their work and life expectations with the reality of women's working lives.
- To provide opportunities for the students to critically assess sex roles in work and marriage, and to encourage them to act accordingly.
- To help break down prejudices about migrants and work, by informing the students about the particular problems migrants face.
- To develop the students' understanding of their own position at this time of high youth unemployment and economic difficulty.

Concepts	Activities	Resources
SESSION 1 The work expectations of the students Emphasis should be placed on the girls' expectations.	**Games and Discussion** If the doctor who lived next door was a migrant and a woman, would you go to her? Discussion of the working lives of the students.	**Background Reading** ACP 'A New Deal For Women' (1948) Curthoys A, 'Women and Work' (1975) Jones J, 'Women at Work' (1976) Kingston B, 'My Wife, My Daughter and Poor Mary Ann' (1975) OECD Study, 'The Role of Women in the Economy' (1974) Ryan E, 'Gentle Invaders' (1974) **Class Resource** 'Things You May Not Know About Women & Work' Women in Education, $1.00. (All available from Non-Sexist Resource Centre)
SESSION 2 Married women and work in Australia. Reasons why women work.	Audio-tape could be made from interviews with women about why they are working. Comments could be compared with information from the films.	**Film*** Librarian, Department Employment & Industrial Relations; BBC films, free hire: 'Jobs for Girls'; 'What Sex is Your Job?'; Part of the Union'; 'The Lesser Half'; 'What Did You Do in the Great War, Mummy?'. **Films** available for hire from NSW Film Council: 'It's Not Enough', (Working Mothers Series, col, 16 mins) Analyses the reasons given by women for taking jobs.
SESSION 3 Married women's conditions: • 2 jobs • working conditions, childcare, wages and salaries. • unions.	Films and discussion Visits to factories	Factories in the local area. **Films** from NSW Film Council in Working Mothers Series: 'Luckily I Need Little Sleep'; 'Tiger On a Tight Lease'. **Films** from Sydney Filmmakers Co-op: 'Me and Daphne'.
SESSION 4 Migrant women's conditions: specific problems: • language • piecework • last hired, first fired • unions	A worker from Workers Health Centre will visit schools showing the video to participate in the discussion.	**Background Reading** 'But I Wouldn't Want My Wife to Work There', a study of migrant women in Melbourne industry. Collection of Source Documents, 'Migrant Women Workers', by Ecumenical Migrant Centre (1975) Cox E, 'We Cannot Talk Our Rights' (1976) (All available from Non-Sexist Resource Centre) 'Women in the Workforce', **Transcript** of Contact, no 3. Migrant Women, Part 1, Producer Kate Miller, ABC (1975) Interviews concentrate on factory work. **Videotape** available from Workers' Health Centre, Lidcombe (646 3233) b/w. Payment according to what you can afford. An interview with two Lebanese women who are process workers.
SESSION 5 The division of labour and the nature of work in agricultural societies • emphasis on migrant source countries • contribution of women to economy • economic roles of men and women	To guide viewing of programs and reading of books, a checklist could be devised: eg • who takes care of the children? • do men and women do different work in the fields? • who works in the fields?	**Class Reading** Selections from 'Resources for Schools, Multicultural Education' Kolar V, Beograd (Belgrade), one of series about regions of Yugoslavia Wanella A, 'i Ellada ki emis' (Greece & US) (Greek) ABC TV 'The Italian Way', 30 mins b/w series of 7, include 'The Winter Harvest', 'Siena'.

Concepts	Activities	Resources
SESSION 6 Effects on women's traditional role of their participation in industrialised work • emphasis on migrant women's role • attention to the changing role of women in migrant source countries • significance of women's wages • maintenance, also, of subservient role of women.	Role play acting out aspects of changing sex roles, eg husband never helps with housework. What does the wife do that night when he asks for coffee?	**Background Reading** Costa M, 'The Power of Women and the Subversion of the Community', (1972) (Italian Women) (Available from Non-Sexist Resource Centre) Power M, Cast-off Jobs: 'Women, Migrants and Blacks May Apply', University of Sydney, 1976.
SESSION 7 Migrant men, work and marriage • maintenance of migrant men's status • effect of improvements in status of women and children	Viewing and discussion	'Pig in a Poke', 'Theo's Story', ABC TV (for help in locating contact Inner City Education Centre)
SESSION 8 Effects on children of both parents working • total inadequacy of childcare facilities • children's especially girls' role in childcare and housework • social and psychological problems • benefits for kids, eg greater freedoms	Videotape viewing and discussion	**Videotape**, 'Two Migrant Boys: Peter & Andrew' b/w 10 mins (Available through Inner City Education Centre)
SESSION 9 Unemployment: Its effects on young people and the family • effects on young people's self-esteem and views of their future • strains of unemployment on relationships, eg in family • expectation that women and girls should not work and their victimisation.	Videotape/film viewing & discussion Visit to CYSS Centre or talk by a participant in the scheme. A display and assessment of effectiveness of CYSS Program	***Videodialogue** 'Julie: Your Best Just Isn't Good Enough' (Available for loan from Dept of Environment, Housing & Community Development, 221 2599) ***Film** available from State Film Library, 'Would I Ever Like To Work', 339 7111. *Community Youth Support Schemes
SESSION 10 Sex roles of working men & women • sharing of responsibility for child-care, housework and outside work • equality as the ideal means of achieving this.	Films and discussion	*Film available from M Lambe & Associates, '51%', 20 mins, $35 hire, 929 8417. *Film available from State Film Library 'They Appreciate You More' *Film available from Sydney Filmmakers Co-op, 'Don't Be Too Polite Girls', 31 3237.
SESSION 11 Work expectations of the students	Assessment by the students of whether they have changed their expectations of • working women • division of labour – in and outside the house • migrants working.	Connell W P, Stroobant R E, et al, '12 to 20: Studies of City Youth', Hicks, Smith & Sons, Sydney 1975.

RED REVIEWS

A Sense of Frustration

Class, Sex and Education in Capitalist Society. Culture, Ideology and the Reproduction of Inequality in Australia by Jan Bramson and Donald Miller, Sorret Publishing, 1979. $6.95.

One is tempted to say that the only good thing about this book is its title. This is a book which should have been, and could have been, far better, given that it attempts to do for the Australian context the same sort of thing as Bowles and Gintis did for the US in their study *Schooling in Capitalist America,* and given the critical commentary about education which the publication of that study provoked among Marxists. There are limits to the applicability of the analyses of Bowles and Gintis, Young and Whitty, and Bourdieu and Passeron, to the specifics of Australian education; and a good, comparable book using Australian source materials would have been invaluable. Thus one feels a particular sense of frustration that such a potentially important book as the present one should fail to fulfil the expectations which its title arouses.

The thesis of this book is that education in Australia is, and always has been, intimately bound up with the needs of capitalism, and that despite the ideology of equality and individualism which has been important in legitimating class relations under capitalism, Australian education serves to reproduce structures of inequality – particularly those relating to class and sex.

For those who find such a conclusion unstartling, there is little new evidence or original commentary offered in support of it, although the case studies provide useful illustrations of the general strand of the argument. The theoretical commentary itself is surprisingly loose and in some cases shoddy, especially given the more rigorous discussions of the concepts of culture and ideology in Marxist theory in recent years. For example, the treatment of class cultures as largely separate and self-contained ignores the significance of the concept of hegemony which reveals how such class cultures are structured through by hegemonic meanings and practices and are not 'fundamentally incompatible' as the authors maintain.

An important readership group for the book is the readers who remain unconvinced or unaware of the structural necessity of class and sexual inequality under capitalism and the role of education in its production. From this point of view one regretfully has to judge the book a failure despite its good intentions. Firstly, the style is poor: the sentences are often clumsy and replete with jargon which adds little to the argument and only antagonises those not familiar with the intricacies of disputes within contemporary sociology. More importantly, the authors fail to engage in a really systematic debate with those offering non-Marxist explanations of class and sexual inequality within education. Assertion is no substitute for argument, and if the uncommitted are to be convinced they have to be shown precisely where liberal interpretations fail. Moreover, if part of one's aim is to offer a Marxist concept of class as an alternative to a liberal one, it is surely problematical to use socio-economic status as a criterion of class for one's own empirical research, to rely on a crude three-class model, or to utilise other liberal categories like power elite, etc, in one's own analysis. To convince others one has to be ruthlessly consistent all the way through. Those not convinced will be unhappy about an argument which suggests at some points that education causes social stratification (page 2) and at others that education itself is not responsible (page 163).

Other readers will agree with the authors on the need to understand the structural context of education but will be disturbed by the description of Australia as a metropolitan capitalist economy rather than a semi-peripheral one, given Australia's reliance on the export of primary food and mineral products, and on the import of machine goods. Such a point is not pedantic, but intimately tied in with the dynamics of Australian capitalist development and its location vis-a-vis the world market, which will account for a somewhat different trajectory from that which metropolitan economies like the USA, Japan and Western Europe will experience. These misleading elements in the book undermine the validity of the whole thesis. Many others could be cited, but the general point should be clear – the argument is not tight enough. The project is so important that it has to be done really well, otherwise it can be counterproductive, as I believe it is in this case.

Finally, whilst any attempt to integrate an analysis of class inequality with that of sexual exploitation is laudable, it seems dangerous to ignore the fact that the socialisation processes in some families, nuclear and privatised, perpetuate significant anti-capitalist counter-hegemonic practices and beliefs which are not eradicated completely by schooling and the mass media. The film *Harlan County* throws some doubt on the too hasty rejection of everything the family symbolizes. However it is not fashionable for people on the left to argue this. Neither is it fashionable to query the book's main conclusion that 'sexism [should be] recognized as a factor **as vital** in the structuring of access to life chances as is class, a reality clearly not even considered by the vast majority of intellectuals who have pondered the nature of advanced capitalist society'. Whilst the latter part of the sentence may be true, the former is clearly an overstatement. I would argue that class domination has to be the central focus of any analysis of education under capitalism and that sexual inequality is one, but only one, of the mechanisms whereby class domination is maintained.

Rachel Sharp

Domination by Design

America by Design: Science, Technology and the Rise of Corporate Capitalism by David F Noble, New York, Knopf, 1977. US$12.95.

At a time when 'technological' unemployment and the appropriate educational response to it are matters of intense debate here in Australia, David F Noble's study of engineering in America can provide us with a valuable historical and political perspective. Noble's book traces the development of the engineering profession in America and its role in the rise of corporate capitalism from the late nineteenth century to about 1930. The purpose of his work is to dispel the technocratic myth that technology is produced in an autonomous and almost automatic way, as a force beyond human control. Noble shows how the network of relations linking the engineering profession with science-based industries

led American engineers to identify the interests of corporate capitalism with the general social interest. Because of this identification, he writes:

> *the professional engineers who emerged during the second half of the last century in America as the foremost agents of modern technology became as well the agents of corporate capital. Thus, from the outset, they hardly proceeded according to the dictates of some logically consistent 'technical reason', blindly advancing the frontiers of human enterprise, but rather informed their work with the imperatives of corporate growth, stability, and control . . .* (pp. xxiii-iv)

As engineers became increasingly important to science-based industries, more and more of them moved into managerial positions – many of them reaching the upper echelons of corporate leadership. At the same time, the engineering profession was securing control over technological education and licensing procedures. The result of these two processes, Noble shows, was a major series of educational 'reforms' which brought all phases of technical education, from elementary vocational training up to advanced tertiary study at institutions like MIT, into ever-closer conformity with the needs of industrial corporations. Thus the values of corporate capital became embodied in the process of technical education itself, not only through the continual modification of scientific and technological training, but also through the introduction of courses in personnel management and administration for tertiary engineering students. Noble's research on these developments in technical education reinforces and adds a new dimension to the historical studies by Bowles and Gintis in their book, *Schooling in Capitalist America.*

The final stage of the interpenetration of engineering and industry came when the engineers began to view the control of the work force, as well as the machinery of production, as an 'engineering problem'. From this attitude came the concepts of 'scientific management' and 'human engineering', leading to the time-and-motion studies of engineers like F W Taylor, whose system of 'Taylorism' was only the most famous of many schemes devised to transfer the knowledge of skilled workers to their supervisors. This transfer of knowledge, known as 'deskilling' the work force, has been excellently treated in Harry Braverman's *Labor and Monopoly Capital;* and Noble's study of the role of the engineering profession in this deskilling process makes *America by Design* an important companion-piece to Braverman's book.

In the context of the current Australian debate over technology, employment and education, Noble's work gives strong and well-researched support to the following views:

First, that modern industrial technology is not an inexorable historical force but rather a tool monopolized by a specific social class; that its design and application are dependent upon the interests of that class rather than the logic of a disembodied 'technical reason'; and that consequently the introduction of new technology and its effects on employment are never purely 'technical matters' or 'questions of efficiency' but also have an important political dimension.

Second, that since the end of the nineteenth century the development of scientific and technical education has constantly been shaped by the changing demands of industrial technology and therefore by the interests of the class controlling the design and application of that technology; that while a degree of 'education for employment' is necessary for the student's future economic survival, it also reproduces the social relations embodied in the design and application of industrial technology; and that consequently the development and control of curricula in science and technology are never purely matters of 'professional expertise' or 'pedagogical efficiency' but once again have an important political dimension.

Randall Albury

(continued from p 24)

Patrick van Rensberg sees importance in the formal and the non-formal education systems in Mozambique being closely linked together and complementary. 'The formal system is necessary to provide the manpower to decolonise and develop the commanding heights of the economy and the superstructure, and to provide cadres to release the creative energy of the people'. By involvement in the productive life of the community 'students learn to identify with the producing classes and develop collective attitudes and a sense of organisation. During their education they learn to serve the people and are afterwards prepared to work wherever assigned'[15]. It is a model which educators in many other African countries are watching with great interest.

References

1 Cited in Samora Machel, 'Knowledge and Science Should be for the Total Liberation of Man', speech at Ahmadu Bello University, Nigeria, December 1977; reprinted in *Race and Class*, (Institute of Race Relations, London) vol XIX, no 4, Spring 1978, p 401.

2 Cited in 'The Struggle Continues: Mozambique's Revolutionary Experience in Education', *Development Dialogue*, (Dag Hammarskjold Foundation, Sweden) 1978:2, p 27.

3 The emphasis on mastering science and technology is not to be confused with seeking technological solutions to what are basically political problems. For example, in August 1978 the Minister for Agriculture was sacked and criticised by FRELIMO for 'systematically giving priority to technology' by importing a large number of tractors and other farm machinery and 'disregarding the people's initiative and contribution'. His dismissal notice said 'he does not consider man as the determining element in development'. See 'Minister Sacked in State Farms Policy Clash', *New African*, November 1978, p 43-44.

4 Samora Machel, 'Educate Man to Win the War, Create a New Society and Develop Our Country', in *Mozambique: Sowing the Seeds of Revolution. Selected Speeches of Samora Machel*, London: Committee for Freedom in Angola, Mozambique and Guinea-Bissau, 1974, p 38.

5 Samora Machel, 'The People's Republic of Mozambique: The Struggle Continues', Independence Day speech by the President, English translation reprinted in *Review of African Political Economy*, (London) no 4, November 1975, p 19.

6 'The Match That Lights the Flame', FRELIMO submission to UNESCO, January 1976, reprinted in *Peoples' Power*, (Mozambique, Angola, Guinea Information Centre, 34 Percy Street, London W1) no 3, July-August 1976, p 20.

7 *Ibid*, p 19.

8 *Ibid*, p 19.

9 For a discussion of the University and TBARN in particular see Louis-Jean Calvet, 'Back to Basics', *Seven Days* (New York), vol 2, no 2, January 1978, p 19. TBARN is also described in Joe Hanlon 'Does Modernisation = Mechanisation?' *New Scientist*, August 24, 1978, pp 563-565.

10 See Clare Simpson, 'Life in a FRELIMO School', *Peoples' Power*, no 12, Autumn-Winter, 1978, pp 34-40.

11 'Education for Development: Mozambique', in B L Hall and J Roby Kidd (eds), *Adult Education: A Design for Action*, (Oxford: Pergamon Press, 1978), p 123.

12 See for example Rosiska & Miguel Darcy de Oliveira and Claudius Ceccon, *Guinea-Bissau: Re-inventing Education*, (Geneva: Institut d'Action Culturelle, 1976) and Paulo Freire, *Pedagogy in Process: The Letters to Guinea-Bissau*, (New York: The Seabury Press and World Council of Churches, 1978).

13 Cited in Carol Collins, 'Education for the People', *Southern Africa* (Southern Africa Committee, 156 Fifth Avenue, New York, NY 10010) June-July 1977, p 23.

14 'Education for Development: Mozambique', *op cit*, p 131.

15 Patrick van Rensberg, 'Education and Production as a Lever for Another Development', *Development Dialogue*, 1978: 2, pp 82-83.

ABOUT RED

RADICAL EDUCATION DOSSIER is produced and published three times a year by Radical Education Publications.

RADICAL EDUCATION DOSSIER examines the conflicts within schooling and education. It identifies the opposing interests involved in the struggle and works to develop strategies and tactics for change.

Our long term aim is to work towards further development of a socialist theory of education. Our immediate aim is to analyse the current process of education and to examine and explore the role of education in society.

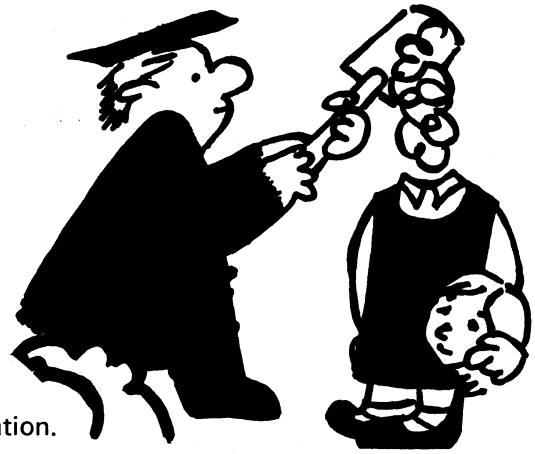
The task is large and is open to all. We invite teachers at every level, students, parents and others interested in education to join the debate. Contributions should be concise, jargon-free and comprehensible to the non-specialist. RADICAL EDUCATION DOSSIER has a policy of using non-sexist language and requests that all contributors submit with this in mind.

Articles should not exceed 5000 words and those with a practical emphasis are especially sought. We also seek commentaries and information items up to 1000 words, as well as book reviews, letters, notices, contacts, news, photographs and cartoons. Please submit articles typed and double spaced.

RED 12 will focus on primary education. CONTRIBUTE NOW. Copy for this issue is needed by April 1, 1980; copy for RED 13 by July 17, 1980.

Send contributions to: Editorial Collective,
Radical Education Dossier,
PO Box 197,
Glebe, NSW 2037.

Catch Up With The REDs



RADICAL EDUCATION DOSSIER

looks at schooling differently

In RED 1: Sam Bowles and Rachel Sharp on progressive education.

In RED 2: Bob Mackie on Freire, revolution and education, Herb Gintis on the politics of deschooling.

In RED 3: The Schools Commission, classroom practice for radical teachers, Tvind: education on the move.

In RED 4: I.Q., the politics of compensatory education and the old heredity-environment game.

In RED 5: Unemployment and education, Keith Windschuttle: The gospel according to the OECD, the HSC: preparation for what?

In RED 6: Counter-sexist strategies in counselling and teaching, the politics of child care, the Royal Commission on Human Relationships.

In RED 7: The economic role of migrants, multicultural education, the Galbally report.

In RED 8: Behind the right-wing attacks on education, teacher unemployment, teachers and discipline.

In RED 9: The politics of community involvement.

In RED 10: Youth Unemployment: Crisis and Response.

Subscribe to RED

Complete, clip and mail this form to: RADICAL EDUCATION DOSSIER, PO Box 197, Glebe, NSW 2037, making cheques payable to RADICAL EDUCATION PUBLICATIONS.

Please enter my subscription to RADICAL EDUCATION DOSSIER (3 issues) to begin with no .....

Name: .....

Address (for delivery): .....

..... Postcode .....

Enclosed please find cheque etc. for $4.50, $6.00 libraries and institutions (includes p. and p.)

Back Numbers

Back issues $1 each (includes postage). Circle issues wanted. I enclose cheque for $.....

1 2 3 4 5 6 7 8 9 10

The Sydney Filmmakers Co-op Ltd distributes 16mm films and video tapes covering educational methods, teacher/pupil relations, sexism in education, vocational needs and free/progressive schools. Titles include:

● **Temperament Unsuited** (drama, 53 mins.) A rebellious student teacher's battle with the state education system. Gold Award, Short Film Section, 1978 Australian Film Awards.

● **Seeds of a New Life** (documentary, 55 mins) Educator Dorothy Heathcote takes 25 post-graduate teachers to work for two weeks in a hospital for the 'mentally subnormal'.

● **Showtime** (drama, 17 mins) A young woman faces her first country teaching appointment. Based on a short story by Gwen Kelly.

● **Assertive Training 1, 2 & 3** (documentary, 20, 20 & 30 mins.) Dramatised situations which can be used in assertiveness training for women in high school, college and older women thinking of returning to the workforce.

● **Sugar and Spice** (documentary, 32 mins.) Three New York schools attempt to raise teachers' and students' awareness of sex-role conditioning.

● **The Settlement** (documentary, 16 mins.) A promotional film for a community neighbourhood centre in a working class suburb of Sydney. The centre is run by local residents and those who work there.

● **West Head** (documentary, 19 mins.) A progressive high school during its formative years.

● **Women Returning to Study** (documentary, 25 mins.) Women discuss their entry into university as mature-age students, after years at home.

Write for free 'Issues in Education' brochure. Also available, brochures on 'Films on Black Australia', 'Prison Films', and films on environmental issues together with:

● **A Catalogue of Independent Women's Films** ($4 posted), listing over 250 titles by women and on women's issues.

● **Filmnews,** a monthly newspaper covering independent and commercial cinema. $8/year.

• cinema and 16mm and super 8 projector hire.

available for hire or sale from –

Sydney Filmmakers Co-op Ltd. P.O. Box 217, Kings Cross, NSW 2011. (02) 33-0721