INTRODUCTION
The ACT is a relatively small and homogeneous school system comprising approximately 150 schools — 100 government and 50 non-government schools. The system operates at four levels. A universal preschool system is followed by primary school (kindergarten to Year 6), followed by high school (Years 7 to 10), followed by secondary colleges (years 11 and 12). A major difference from other state systems is that each school in the ACT is responsible for the development of its own curriculum and assessment is totally school-based.

The past few years have seen many significant changes, similar to what has been happening throughout Australia. One major change has been the introduction to self-government in the ACT and the subsequent change from a statutory education authority funded by the Commonwealth to a local Ministry of Education funded by the local territory government.

The transition to self-government has heralded a new era of budgetary constrain which has manifested itself in a number of ways. There have been several school closures as well as a tightening of school budgets and staffing cut backs. There is also a strong move to self-management for schools — a move evident in many other parts of Australia.

Since the demise of the National Computer Education Program at the end of 1986 there has not been any major system initiative in the area of Information Technology. Schools have functioned relatively independently with the impetus to make effective use of computers in classrooms coming from enthusiastic teachers. This has led to a situation where the application of computers in the classroom varies considerably from classroom to classroom and from school to school.

Recognising the general lack of systemic direction the Ministry set about developing a policy in the area of information technology in 1989. In the formative stages of the Policy Statement development involved members of the Computer Education Group (CEGACT). As an adjunct to the policy, A Kindergarten to Year 10 Curriculum Framework has been developed. CEGACT has written to the Ministry to attempt to expedite the release of these documents as they are known to be virtually at publication stage. There have not been any similar activities in the non-government sector.

Since 1987, systemic support has taken the form of two curriculum consultants for government schools and a part-time consultant for the non-government sector. The two consultants have undertaken a multiplicity of roles ranging from running in-service, technical advice, curriculum support and software advice. The system also has a reasonably extensive software library which is part of the main teacher resource library, with software available for loan on the same basis as books and other materials.

Recently, one of the government consultant positions has been lost. The ability of the one remaining consultant to effectively service schools is somewhat limited. CEGACT attempts to fill some of these gaps.

CURRICULUM
As stated earlier, schools are responsible for their own curriculum, though the situation in terms of the application of computers within the curriculum in ACT schools is probably not that much different to other schools around Australia. It is often left up to the enthusiastic teacher to make use of the technology, although many schools have a policy to encourage computer use where appropriate.

It is still possible for a student to leave primary school without having any computer experience! In the primary sector, the most typical application of computers would be word processing and the use of adventure/simulation games. Most primary schools integrate computer use into the curriculum, with very few having a separate computing curriculum as such.

At the high school sector, it is common for all students to receive universal computer instruction, typically in Year 7. Such programs are often integrated into various existing curriculum area such as English, social sciences, music, media studies and computer-aided drawing. There is also extensive use of computers made in the Learner Assistance and Special Education areas at both the primary and high school levels.

Most high schools also offer computer specific courses, typically as electives in Years 9 and/or 10. These courses usually focus on applications...
and programming with some social awareness aspects.

At the secondary college level, the situation is more consistent. All colleges offer a matriculation level, computing studies course (and have done so since 1976). All colleges also offer either a computer applications course or an Information Management course. The Computer Applications course aims to familiarise students with a range of common applications including: word processing, databases, spreadsheets, desktop publishing, computer graphics, animation, games and simulations. Information Management courses focus on preparing students for working in an office environment covering topics such as keyboarding, the major business computer applications and office procedures.

Extensive use is also made of computers in the areas of business studies, accounting and small business enterprise. Use in other curriculum areas varies from college to college. However, there is widespread use of computers for CAD, in music, media studies, desktop publishing, science. The software used, then, varies from school to school according to the task to be undertaken. It would be true to say that ACT schools would hold similar ranges of software to other schools in Australia.

Computer use is also widespread in the area of Special Education. The four special schools in the ACT make significant use of computers and have acquired and built specialised interfaces for children with particular needs.

**Administrative Use**

The use of computers for administrative purposes is universal. The Ministry runs a minicomputer with all government schools online. The Student Record Keeping System (SRKS — pronounced circus) keeps all students’ personal and academic records from kindergarten to year 12. All schools are online to the system with at least one dedicated terminal. SRKS provides for a large range of administrative tasks besides student records including course/subject information, class information, electronic mail and the production of Year 10 and Year 12 certificates. Non-government colleges and high schools have access to the system on a user-pay-basis.

Another administrative area being increasingly computerised in school library circulation and cataloguing systems. Approximately 50% of government schools have computerised their libraries (another 15% have commenced the process) with the Ocelot and Oasis software systems being the most common.

**Hardware**

The Ministry does not prescribe or recommend specific hardware for classroom use. However three types of hardware predominate as the breakdown in Table 1 shows.

<table>
<thead>
<tr>
<th>Brand</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amiga</td>
<td>0.8%</td>
</tr>
<tr>
<td>Apple//</td>
<td>48.0%</td>
</tr>
<tr>
<td>Macintosh</td>
<td>12.0%</td>
</tr>
<tr>
<td>BBC</td>
<td>6.0%</td>
</tr>
<tr>
<td>Commodore</td>
<td>3.5%</td>
</tr>
<tr>
<td>Atari</td>
<td>0.2%</td>
</tr>
<tr>
<td>IBM Compatible (XT/AT)</td>
<td>25.0%</td>
</tr>
<tr>
<td>Microbee</td>
<td>2.5%</td>
</tr>
</tbody>
</table>

A breakdown by sectors — see Table 2 — of the predominance of a couple of brands.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Brand</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>Apple//</td>
<td>75.2%</td>
</tr>
<tr>
<td>High school</td>
<td>Apple//</td>
<td>41.8%</td>
</tr>
<tr>
<td>Macintosh</td>
<td>24.6%</td>
<td></td>
</tr>
<tr>
<td>IBM Compatible (XT/AT)</td>
<td>19.2%</td>
<td></td>
</tr>
<tr>
<td>Secondary college</td>
<td>IBM Compatible (XT/AT)</td>
<td>73.4%</td>
</tr>
</tbody>
</table>

Although there is no data for the non-government sector, the breakdown would be similar with a larger percentage of BBC computers in the primary and high school sectors. Most computers are stand-alone with only a small number of networks in use.

It should be noted that this data, supplied by the Ministry, was collected over 12 months ago. Since then, the overall number of computers is estimated to have increased by at least 20%, with increased numbers of IBM Compatables appearing particularly in the high and college sectors. It is estimated that currently the average number of computers is 12 per school at the primary level, 40 to 50 at high school level and 50 to 60 per school at the college level.

Schools purchase computers mostly from their own funds with no assistance from the Ministry. A similar situation exists in the non-government sector. Two exceptions to this in recent years have been the productivity grants and the Apple Technology high school project.

In the past two years as a trade off for staff cuts, every government high school and college were allocated one-off productivity grants — typically $5 000 to $70 000 (depending on the size of the school). Large amounts of this productivity money has been spent on upgrading, replacing and purchasing new computers.

As a result of an arrangement with Apple three secondary schools (two high schools and one college) were funded on a dollar-for-dollar basis to purchase Macintosh hardware. These three schools run Digicard networks. Several other secondary schools are investigating closer links with industry in order to establish cooperative ventures similar to the Apple arrangement.

Continued on page 15
FIFTH IN WORLD CONFERENCE on COMPUTERS IN EDUCATION

WCCE/90
The conference was a success, and for the NSW CEG as well. Many of our committee members were very involved and although exhausted, felt very proud of the results. In a tangible sense, our group made $15-16 000 profit from our WCCE/90 activities—a just reward after sacrificing our own main revenue raiser (State Conference) for the success of the World Conference.

STATE CONFERENCE
This year our annual conference will be held June 29–July 2 at the Charles Sturt University, Bathurst, with the theme 'Taking Time'. We are continuing with a residential conference which has proved to be so popular in the past, and are including an extra day, while keeping the price similar to the last conference ($210).

The fact that the National Conference is now going to be held in July, 1992, causes problems for our plans for our state conference in the same year. At a state level we feel it is necessary to maintain continuity in the timing of our conferences.

ACEC 1993
The NSW group wish to confirm that they are planning to make a bid to hold this conference in NSW in 1993. We are also anticipating hosting an ISTE Conference. These will combine with our State Conference and possibly be held at Darling Harbour in July 1993. These ideas are under discussion at present.

SPECIAL INTEREST GROUPS
The Year 11 and 12 Computing Studies Special Interest Group has been very successful with a wide range of activities during the year—writing workshops, inservice, sample papers etc. It has inspired the foundation of a LOGO SIG, and demonstrates a trend toward the need us to cater for some specialisation. It is anticipated that other SIG will be formed in the future.

NSW DEPARTMENT OF EDUCATION SYLLABUS
We have been fortunate to have representation on the advisory committees for the Science and Technology K–6 syllabus and the Design and Technology syllabus. It is pleasing to have input at this level.

AWARDS
We are introducing a series of awards in the area of Computer Education. One will be for the top student in the Higher School Certificate Computer Studies. Another will be made to an educator who is making a significant contribution to the use of computers in education in NSW. The third award will recognise a student orientated innovative project. It is hoped that these awards will assist in building the profile of our group, as well as showing recognition to those working in the area of educational computing.

ADMINISTRATION
Having our office located at the Macquarie University is working well, and we can be contacted during normal business hours. We have updated our equipment and the membership database.

COMMITTEE
Toni Downes resigned as President in July 1990, and Pam Gibbons took over for the remainder of the year. At our AGM in March, 1991, Pete Dailhou was elected President, with Arna Wesley as Vice President/Secretary and Martin Maguire to continue as Treasurer.
CEANT's membership continued to rise last year and currently stands at 89. ASECA (our sister organisation in Alice Springs) has a membership of 18 making a total of 107. Both CEANT in Darwin and ASECA continue to hold regular workshops for their members and ASECA will be trying to hold a video teleconference with the World Pen Pals Conference in Germany. Last year CEANT and ASECA held their first teleconference to discuss issues raised from the WCCE. It is hoped that this is the start of closer relations between the two.

INSERVICE TO TEACHERS
Historically all inservice activities in the NT have been the responsibility of the Education Department through their curriculum advisors. Recently the Department has been cutting back its inservice programme and forcing most inservice to be held during out-of-school hours. It is also encouraging professional associations to offer more inservice activities and even negotiating with the NT University to allow some of these to be considered as part of the University's courses.

Although this is an interesting trend and one which CEANT sees as valuable, it will place considerable strain on our limited resources.

ANIMALS DATABASE
This major educational initiative has recently been launched. It is a database (currently only available on HyperCard) of all the animals in the Northern Territory. It is ideally suited to the new LC Macintosh as the database includes sound and graphics. Many schools have already obtained copies and are working with it.

Graeme Sawyer, a computer advisor, has been working on this for over two years with funding from the Commonwealth and assistance from the Northern Territory Conservation Commission. The database is not complete and it is expected that students will contribute data from their studies in their own locality. Graeme is already interested in expanding the concept to Australian Animals.

COMPUTER USAGE
Early in 1984 the Government released a scheme of $2 for $1 subsidy to be spent implementing computer education in schools. This opportunity was used by many Northern Territory schools to set up computer education programmes. The subsidy ran out in 1986 and computer education particularly in many primary schools, has slowly declined as machines have stopped working. Recently the government re-introduced the $2 for $1 scheme on a limited basis. This has seen an increase in the enthusiasm of computing teachers who were starting to despair at using old 8-bit technology, especially at senior secondary level.

Currently all secondary schools in the Northern Territory have or are in the process of establishing computer laboratories of Macintoshs, Amigas or Atmos. Some still have 'labs' of BBCs and Apples, but these will hopefully be replaced in the near future. Many faculty offices also have computers and much of the teacher prepared materials are prepared using computers. The use of computers in lessons by other than computing teachers is progressing slowly.

All primary schools have computers which are available to be used by students. Many schools now have one computer in each classroom, some have more. The most popular computer is the Apple Ile, though some schools also have Amigas and Macintoshs as well. The new LC colour Macintosh was greeted here with interest as an upgrade for the Apple Ile. There are few computer specialists in primary schools and many teachers are becoming familiar with and competent using computers. Unfortunately, they are still in the minority, but CEANT working slowly and surely on that.

All urban schools have an administrative computer system supplied by the department, consisting of one Unisys Burroughs master and 1 – 5 slaves. These handle the school's word processing needs, student records, finance and assets. Information can be transferred to a central Departmental computer and the system is also attached through modems to a central registry for the placement of orders and electronic mail.

All secondary school libraries are now computerised under the Burroughs system. Primary school libraries can tap into this system for catalogue information, however the cost is too great to install it as a circulation system and most are using MS-DOS machines and conventional library packages. This use of computers is having an impact on students and CEANT will be looking at this shortly to see how we can assist.
ACEC '91
This year, CEGQ is hosting the Australian Computers in Education Conference. An exciting and varied program will be offered to those attending ACEC '91. The conference theme of Navigating the Nineties will be explored through formal presentations focussing on a wide range of issues associated with the use of information technology in education. The venue for the conference is the University Park Hotel, Bond University from 22 – 25 September. The keynote speakers will be:

• Barry Jones, MP,
• Jan Hawkins (Bank Street College, New York),
• Fred D’Ignazio (Multimedia expert, USA), and
• John Smyk (Macquarie University and Australian Computer Society Lecturer of the Year).

CEGQ/APPLECENTRE BRISBANE AWARD FOR EXCELLENCE IN COMPUTER APPLICATIONS
In conjunction with a prominent local Apple reseller, CEGQ is, for the third year, seeking nominations for consideration for this award. The award is open to all full-time students in Years 11 and 12 in Queensland and will be presented in November by a panel of judges selected by CEGQ and Applecentre Brisbane.

The award is made to the student team entry which is judged to exhibit excellence in originality of concept, thoroughness of planning and quality of documentation and presentation. The entry should demonstrate a practical solution which benefits the school, local business or general community. The problem addressed should be of sufficient complexity to require collaborative planning, development and implementation over a number of months.

At the awards evening, finalists will meet and present their projects. The winning team will share a cash prize of $1000 and gain their school an Apple Macintosh computer system, printer, modem and software valued at $6690.

CEGQ TEACHER AWARD FOR LEADERSHIP IN COMPUTER EDUCATION
This award is open to all school-based teachers and administrators. In its third year, this award seeks to acknowledge the outstanding work of teachers involved in the educational use of information technology. The nominees are put forward by their peers, and the recipient is selected by a judging panel consisting of representatives from CEGQ, the Department of Education, the independent school systems, the tertiary sphere and industry. The award includes funds to send the recipient to the following ACEC.

DEPARTMENT OF EDUCATION
The Department is currently undergoing restructuring with the aim of improving educational services to students throughout the State. The ‘blueprint’ for this change was published in October 1990 and titled Focus on Schools.

The restructuring has already had an impact on the services provided by the Department. As part of the goal of reducing ‘central’ office, those personnel who are responsible for curriculum development in the area of information technology (and a number of other areas) and those who coordinate the reviewing of computer software and publication of SUGAR have been ‘re-deployed’ to, at the time of writing, unspecified tasks in regions.

To date many good things have been initiated by the Department. Much work has also occurred in regions and schools in the areas of inservice, curriculum development and curriculum implementation. A network of 36 regional Learning Systems Consultants has been maintained to provide teachers with advice and professional development. This group of people are pivotal in providing much needed inservice and appropriate advice to teachers. They have played a key role in the establishment and extension of the Business Education Centres and the Electronic Learning centres.

These activities will continue in some form after the restructuring. The groups which have a limited future are those in central office. This report emphasises those activities for which these groups have been responsible.

In central office many groups have ‘beavered away’ on projects designed to raise the standard of computer hardware, software and expertise in schools. Learning Technology Services (LTS) has had the carriage of Learning Systems Project. This project commenced in 1988 and was worth $19 million over its three years. Many of the activities undertaken as part of the Learning Systems Project involved personnel from Curriculum Development Services (CDS) who focussed on the curriculum implications of the major initiatives. Curriculum Resource Services has continued to review of computer-based resources. Materials Development Services has continued to produced a number of computer-based, video-based and multimedia packages. The activities of these groups is discussed in briefly below.

Business Education Centres
There is now a Business Education Centre (BEC) in every Queensland State high school and every primary school with a secondary department. They reside in the commerce areas of the
schools and are designed to offer relevant curriculums involving the use of a range of modern business technologies. They were established so that their physical environment, classroom practices and learning experiences would begin to reflect what is happening in businesses. The range of learning experiences arises from activities including: spreadsheeting; accounting packages; telecommunications; word processing; reprographics; preparing graphic presentations; electronic filing; and, the use of databases.

The BECs were set up using three different type of computers hardware: IBM-PC compatible computers, either stand-alone or networked using Novell or Digicard systems; Apple Macintosh computers, either stand-alone or networked using Appleshare or Digicard systems; and, Prime EXL 320 computers running Unix System V/386. The software provided with the computers reflects the desired learning experiences listed above.

As part of this activity CDS has published two booklets: Teaching strategies within the Business Education Center and The contemporary business environment and implications for the commerce curriculum.

Electronic Learning Centres

There are over 200 Electronic Learning Centres (ELC) in State primary and secondary schools. These centres were established to enable both teachers and students to do things in new ways. For teacher this translates into a shift in their role from delivering content to helping students develop strategies to achieve their personal goals. Students, on the other hand, are to be challenged to learn more independently and to respond more creatively to tasks.

Curriculum development—supported by suitable technology, software and related items—is a vital part of the project. Thus as part of the ELC project, CDS has been very involved and as a result has published a number of booklets. Curious about Computers? is a series of case studies of successful classroom practice. The nine titles in the series are: Computers in a Year 4-7 classroom, Trial geography ELC, CAD applications, Trial primary ELC, Business Education Centres, Infants ELC, Upper primary ELC—Year 7, Using computers in art, and Desktop publishing and group learning strategies—Year 7. This series were prepared after visits to schools, interviews with teachers and administration, from teachers' written reports and classroom observations.

Other publications produced were: Use of information technology in English language arts which consists of a discussion paper, six sample units and a resource list; Use of information technology in social education also incorporates a discussion paper, sample units and resource list; Guidelines for the use of computers in the curriculum provides broad guidelines on the use of computers in the Years P-10; Guidelines for the use of computers in the music curriculum is similar in content to the other Guidelines document and it due for publication this year; Years 4 to 8 keyboarding states policy guidelines for schools, as well as giving curriculum guidelines—content, activities and evaluation—and an annotated selection guide; ILY writers on-line was co-published with CEQG and focuses on Gillian Rubinstein; Computers in education: Personnel directory gives details of personnel working on the use of computers in the curriculum in the education departments of all Australian States and New Zealand; and, Curriculum resources to support the use of computers is a list of resources which was distributed to Regional Learning Systems Consultants, other States and territories and New Zealand.

Computer studies

Students in Years 11 and 12 can select from two courses, Practical Computer Methods and Information Technology and Processing.

A broad coverage of computing is given to students undertaking The Practical Computer Methods course. Students doing the course use computer technology in a practical way to deal with tasks based on real-life activities of the local community. Topics covered include: basic operations, word processing, spreadsheets, file-management programs, relational databases, graphics software and telecommunications using Keylink. The course is now available in 134 schools.

The Information Processing and Technology course offers a more extensive study of computing. The course is designed for students who wish, on completion of Year 12, to enter tertiary courses or embark on technology-related careers. The topic areas of the syllabus are: information systems, artificial intelligence, algorithmic languages, computer systems, and social and ethical implications. The course is now available in 48 State high schools. A further 42 schools will offer the course next year.

To support the implementation of ITP in schools, LTS has arranged this year, five two-day short courses, a five day inservice seminar and inter-regional teacher meetings. LTS has also coordinated grants used to purchase hardware and software for these courses.

Telecommunications

The use of telecommunications for school and departmental communications and for delivery of courses to students has been expanded and is continuing to be trialed.

The provision of a special Keylink network called EDUCATION.QLD for electronic mail has been one of the initiatives in the use of telecommunications. The network includes users from the Association of Independent Schools and the Catholic Education Office. The system now has more than 200 mail boxes. Students have participated in state-wide communication projects, designed to allow them to explore the use of language, writing styles and audience needs.

The Information Access Project aims to provide teachers, students and various Departmental personnel with the most up-to-date educational and administrative information to meet their needs. The service is based on a 'host' computer housed in Education House, Brisbane, which is accessed via normal telephone lines—including Austpac—or through the departmental data and telephone networks. Some of the databases supplied are: Special Education information—resources, teaching advice, professional news; the
Education Office Gazette, since 1988; and, the current Australian Associated Press news service.

The pioneering TeleLearning Project uses communication technology—loudspeaker telephones, facsimile machines and computers—to share teacher expertise among schools to give students a wider choice of subjects. Clusters of schools are linked by computer and telephone to create learning networks that give students access to specialist teachers. Students who would otherwise be unable to take their preferred subjects because they are not offered at their school can now be taught by a teacher in another suburb or town. Subjects that have been offered by the trial sites include: German, Japanese, geography, agricultural science and music.

Maintenance

The Sperry PC computers which were provide under the Computer Literacy Project were upgraded to 640 Kb and a graphics card installed. Augmenting this initiative was an additional $500 000 which was made available to regions to support maintenance requirements on both classroom and administrative installations after the expiry of warranty periods.

Software review

Curriculum Resources Services is responsible for reviewing of resources. It publishes the widely acknowledged SUGAR. Two special editions of SUGAR have been published to meet the need for resource information for specific areas of the curriculum. The first focussed on social education, volume 7 number 3; while the second, volume 7 number 4, was on language issues.

Software development

The software development unit within Materials Development Services has continued to provide resources at reasonable prices. Packages released during the past twelve months include:

- **TurtleWorks** which allows young students to use a touchpad to control a 'turtle' robot;
- **ENTER Commerce** which has been completely revised to support a range of computers and applications in order to provide support for the Business Education Centres;
- **RealWorld**, a suite of twelve accounting packages which are being distributed under licence;
- **Brown Bag: Using relational databases** provides three sample databases and associated student activities designed to introduce students to SQL; and,
- **Brown Bag: Nile** a simulation of the effect of the annual flooding of the river on an ancient Egyptian community.

Packages due for release this year include:

- **ENTER Mathematics** which has been revised to support a wide range of computers and applications;
- **Stone of the Fifth Sun** which includes computer software—adventure game which involves students in the discovery of the lost Aztec city Aztlan and the ‘universe stone’, the Stone of the Fifth Sun—and a videotape which can be used to set the scene for the software;
- **Communities** which provides an icon-based simulation which enables students to build ‘models’ of communities using a set of predefined ‘building blocks’ and a videotape that highlights similarities and differences between urban, rural, mining and island communities; and,
- **Heritage** which is a social education resource consisting of software, video and print materials and is designed to introduce students to the issues which emerge when development proposals threaten to affect groups within a community.

The Future

The long term impact on services of the restructuring is hard to assess at this point. The restructuring is being implemented progressively through a negotiation process. For example, in the plan initially 45 school support centres are to be established. The exact function of each of these will come from negotiation between the soon-to-be appointed coordinators and the surrounding schools and regional management.

The hope is that after the dust settles the winners out of the restructuring will be teachers and students, particularly with respect to the use of information technology.

ASSOCIATION OF INDEPENDENT SCHOOLS IN QUEENSLAND

AISQ employs Lorrie Maher as an education officer to provide support for independent schools, through the computer coordinators. The program of activities for this year includes:

- two ‘up-date’ days for coordinators in secondary schools;
- a one day meeting for primary coordinators;
- one ‘computer day’ in Townsville for both primary and secondary; and,
- reviews and demonstrations of applications for library and administration areas.

There are also a number of ‘machine specific’ user groups that have been initiated by teachers in independent schools.

Catholic Education Office

The Brisbane Archdiocese employs Terry Grogan as their Education Officer, Information Technology. Some of this year’s professional development activities are being undertaken in conjunction with AISQ. A significant task Terry has set for himself is to establish self-sustaining networks of school-based ‘computer resource’ people.

Terry is also involved in a working party looking at information technology in Queensland Catholic schools. The working party has representatives from most dioceses and is charged with developing recommendations for the future use of technology in schools. It is heartening to hear that Terry is being consulted, during the design phase of new schools, regarding facilities to accommodate wide access to information technologies.

SUMMARY

Many good things are happening in the Sunshine State; and many things are changing. While some of the changes may reduce the services available to schools in the short term, CEQ members are well placed to play an active part in the events to ensure that in the long term teachers gain the support—in-service, curriculum materials and equipment—they need.
CEGSA has had a year of consolidation rather than innovation.

A state-wide industrial campaign for Education Department teachers caused the cancellation of a number of planned public meetings and SIG meetings, but meetings on textiles and spreadsheets were well attended.

**ADVISORS**

Loss of computing advisors in the teaching system has seen the demise of close networks and planned school-based local workshops, yet at the secondary level there has been a huge growth in administrative computing needs, as such innovations as SAR (student achievement records) and SACE (South Australian Certificate of Education) have been introduced into the school record keeping requirements. Concomitant with this has been the loss of skilled teachers to other industries.

There are obvious needs for base-level support for computing in schools, in curriculum, methodology, software and hardware areas, and only CEGSA seems to be addressing these needs.

**SUPPORT**

CEGSA has had Departmental support through a six-month grant to employ a secretarial assistant, and this employment was continued for the year using CEGSA funds. Assistance with funding for Departmental teachers to go to the World Conference in Sydney, and from the ACS for other members has helped individual teachers' involvement in CEGSA. The state representation of 100 conferees in Sydney confirmed the solid support for computing in education in South Australia.

**COURSES**

The continued success of CEGSA courses in systems and applications software has done much to maintain interest in CEGSA. These are running in 1991, and are usually fully subscribed within a few days of being advertised. The honorarium method of payment for instructors has been given validity by the Taxation Department.

**OFFICE FACILITIES**

Negotiations to share common facilities with other subject associations at The Orphanage were protracted and met with some success, but the provision of an office in Unley Primary School has been decided on as the way to proceed for now.

**PUBLIC DOMAIN**

The purchase of 250 Mb of CD-ROM disk from Berkeley has enabled Hartley and Marilyn Hyde to produce 10 disks of public domain education oriented files, graphics, stacks and applications. These have represented excellent value when resold to members, and provide a service to schools which no other supplier can match.

**COMMITTEE**

Planning for this year's State Conference is well under way, and it promises to be the best we have held. With a largely new and revitalised committee, under the Presidency of long time committee member Peter Carter, and the meeting Chairmanship of Hartley Hyde, 1991 promises to be a year of growth and continued success for CEGSA.
The State of Victoria Computing in Education

There appears to be little to contradict the notion that education in Victoria is going through its biggest ever, across the board, change. The early 80s saw the laying of the groundwork for sweeping changes to the system.

New curricula, teaching strategies and assessment procedures have been developed and documented in the past few years. We are involved in putting into practice Frameworks curriculum documents from P–10, the Victorian Certificate of Education (VCE) at Years 11 and 12 through District Provision and school reorganisation.


Whole school planning is encouraged, in an attempt to regulate professional development and use of human resources, in supporting these changes to teaching practice. A Professional Development Framework is at the draft stage at the moment. At the same time, resources provided by the government are diminishing.

Considering the rapidity and breadth of change, it is no wonder school communities are feeling pressured. This does not mean that teachers are unwilling to take up the challenges involved, but rather that considerable support is required and that some adjustment/growth/settling time should be allowed.

So given the general developments in Victorian education what issues are impacting on computers in education, in schools? Where have we come from? Where are we now? What phase of computer use are we entering? What support will be necessary?

WHERE HAVE WE COME FROM?
In the early period of computer use in Victorian schools, the State Computer Education Centre (SCEC) was established. SCEC was a statewide service and operated for four years to provide support for consultants in the various regions, initiate special projects, software development and curriculum resource production. Most importantly, SCEC personnel acted as central policy developers and also serviced the central bureaucracy with, for example, hardware and system recommendations.

Over time, consultants were appointed in all regions and have given practical support to teachers and school communities. Under the auspices of SCEC, the consultants met regularly to develop inservice modules, discuss current issues and share information.

The Computer Education Unit (CEU) evolved in 1990 from SCEC. The CEU continued to develop policy and provide recommendations to the School Programs Division, but many of the functions carried out by SCEC were lost.

In schools over this period, several phases of philosophy and usage were passed through. Initially, the technology itself was the focus. At times the computers were hard to use and there was little appropriate, user friendly, software available. Often, computers were associated with particular departments. Over time, computers spread to non-traditional areas. The computer being seen more as an agent for the user to improve the way a task is performed.

The computer room was the most common organisational model, particularly in post primary schools. Computers in a designated computer room remains the most appropriate organisational method at that level.

In-service models over this period were generally based on the one off approach, in an attempt to cover as many participants as possible. For some teachers, this method was appropriate and they took the ideas back to schools and began implementing them. For other teachers it was not as easy. Many could see benefits for their students but they couldn't successfully transfer what they had learnt at the in-service day into their own classroom practice. Often they were isolated by being the only person from that school to attend the in-service session. Changes to teaching practice were on an ad hoc basis. However, there has been considerable change, considering the relative brevity of computer use in schools.

Both in the area of curriculum development and hardware purchasing, consistency of approach to computer education by schools has not been a feature of development. The rush to get computers into schools was often done at the expense of policy development and a clear idea of what it was that computers were going to support.

Primary schools, in most cases, went for the option of stand alone machines that could be used within the students' normal classroom. Some, that did choose a computer room, later disbanded this and spread the computers out amongst the rooms. Others augmented their computer room with stand alones in the classroom. Therefore offering what many would see as the best of both worlds.

WHERE ARE WE NOW?
Nineteen ninety saw the completion of funding through the Computer Initiatives in Schools (CIS) program. This government commitment began in 1985, with schools applying for funding for hardware and software within a clearly defined curriculum outline. With the final round, all
Victorian state schools had received some funding towards the provision of equipment, software and in-service training. Professional development models have altered with more emphasis on on-going in-service training and support. For example in 1990 Southern Metropolitan and Gippsland Regions trialed a keygroup approach. This followed the successful models established in the areas of literacy, numeracy and science. Successful schools were required to establish a keygroup. This group consisted of six members — three teachers, two parents and a regional support person. Often the regional support person was a consultant from another curriculum area so helping to spread the word about computer education. This team had the backing of the whole school and, in particular, the principal was encouraged to attend at least one of the planning days.

School teams identified the area, curriculum and teaching strategies they wished to change, so allowing the professional development to be relevant to their local school setting. They then developed an implementation plan, identified the resources they would require and went back to their schools to implement, document and share the results of their plan with their school community. A one day follow up session gave the opportunity to share the process and progress with other keygroups from primary and post primary schools. Each keygroup had a grant and some time release days give support to the plans they had made.

Other regions are encouraging computer use in schools in areas such as desktop publishing, P-3 and music, by providing kits of computers suitable for the task to schools, for short term loan periods. An initial day was set aside for the teacher, responsible for the kit while it was in the school, to be in-service on care of the equipment. For example, the teacher was taught how to set the equipment up correctly and safely. During the time the schools had the equipment, they were encouraged to document the ways they used the equipment and report back to the consultants, when the equipment was returned.

There is certainly more appropriate software around now, although the lack of programs that offer local content and fit equal opportunity criteria, is of concern to many teachers.

Most schools, both primary and post primary have come to use generic software such as word processors, databases and spreadsheets. Many rural schools and the Ministry’s Telematics Unit are involved in distance education and communications packages. Others are making use of bulletin boards. Issues such as when and how to teach keyboarding are also still relevant.

The Victorian Ministry of Education and Training has, in 1991, disbanded its central body, the Computer Education Unit. Their responsibilities have generally been integrated into the School Programs Division.

Control of budget and overseeing of Computer Education Consultants is now handled at a regional level. Regions have shown their commitment to the consultants by maintaining staff levels in computer education in the face of budget cuts in other curriculum areas. They have also allowed the idea of the statewide conference mentioned earlier to continue.

A new set of 'Computer System Recommendations for Victorian Schools 1991' has just reached schools. This had been worked on by officers of the CEU.

This document organises the hardware recommendations into curriculum and administrative areas. Computer systems are then classified into three groups - Basic, Intermediate and Advanced. This does not intend that primary schools use machines from the basic group and VCE uses advanced machines, but rather, schools purchase their hardware after deciding what they want to be able to do with it. A separate document is being prepared on laptops and portable computers.

The organisational dilemma of computers in each classroom versus the dedicated computer room is still an issue. This is particularly so when trying to make resources spread far enough.

One priority area, for the Ministry, is the provision of resources and in-service support for the implementation of the VCE Information Technology Area of Study.

The Information Technology Area of Study, in its first official year of operation is already proving a very popular subject choice, with 12500 students taking it at Year 11 level in 1991 and nearly every school in the state offering it. It may prove to be one way of encouraging girls to take up a computer related study as early figures show the gender balance to be approximately 50:50, although no analysis of these figures has yet been done to see which units are being chosen by which gender. When compared to figures such as 80:20 (boys/girls) in Computer Science and 1:99 in Secretarial Studies these figures are encouraging.

IT has developed from a number of HSC subjects - Computer Science, Secretarial Studies, Advanced Typing and EDP. It involves eight units of study:

Unit 1 — Information Technology
Unit 2 — Information Technology
Unit 3 & 4 — Information Processing and Management
Unit 3 & 4 — Information Systems
Unit 3 & 4 — Information Technology in Society

Each unit involves certain aspects:
- Applications, developing problem solving and decision making skills using the equipment
- Technology, looking at the operation of information systems
- Implications, looking at the influence IT has on people, organisations and society in general

Students studying IT will be better able to use and assess electronic equipment. They will be involved in the areas of processing, managing and communicating information in order to solve problems and make appropriate decisions. They will investigate the relationship between IT and individuals, organisations and society.

The knowledge and skills gained by students studying IT should be transferred to all areas of their learning.

Teachers come to IT (the subject) mainly from Computer Science, Secretarial Studies and Commerce. Many are new to the technical details of using computers, the language and the software choices available. Regional IT teachers networks provide a forum for discussion and sharing. Even though
most schools are offering IT as a subject in many schools there is only one class and this is an isolating situation for the teacher. However, they have on the whole showed great enthusiasm in taking on teaching IT.

**WHAT PHASE OF COMPUTER USE ARE WE ENTERING? WHAT SUPPORT WILL BE NECESSARY?**

Hardware, generally has become easier to use while the quality of software continues to improve. Many projects, to develop or use software, are focusing on making and using packages that allow for active participation and interaction. For example, the Parliamentary Stack (Parliamentary Education Office), *Windows on a Workplace* (Royal Melbourne Zoo Education Service) and AAP Data Base (Australian Association Press) offer ways for the user to use research skills while at the computer and away from it.

With multimedia research and development being done in Australia, the cost of this medium may drop. This could provide the new phase for those educators ready to move into it. Schools in Victoria are at many stages when it comes to computer usage with some barely starting out, while others are ready to take up the latest ideas available.

Many teachers, particularly in the area of IT, have stepped onto a very fast learning curve. They need to be given the time and support to build their confidence and teaching strategies. The Ministry has a large responsibility to provide this support. Those involved in assisting teachers in changing will need to provide relevant inservice models, up to date policy advice, time and resources.

Teacher associations and User Groups are other avenues for teachers to use.

**ROLE OF CEGV**

The Computing in Education Group of Victoria is in a position to play a larger role in teacher support, with the appointment of a half-time Project Officer and part-time Administrative Officer. With the recent review of extension education services, the Ministry of Education and Training funded the secondment of a teacher to the position of Project Officer.

The CEGV continues to offer many activities and publications for its members. Along with *COM3* and *Interrupt*, new material is being produced. Computing Practical Units (CPU) provides an opportunity for teachers to have their own units of work published and shared amongst colleagues. The Resources section also provides relevant material to aid members.

Monthly meetings are being run. Demonstrations or site visits, of interest to members, are arranged. For example, this year has seen a demonstration of *Supermap for Windows*, bulletin boards and how to use them and a site visit to the stationers, Norman Brothers, to examine their radical departure from normal computer practice by business. The site visits are of particular interest to teachers of VCE as enquiry learning and the use of research techniques are of primary importance.

Professional development activities are planned on a regular basis. The activities are arranged to take into account issues raised in the draft Professional Development framework. The plan identifies the implementation of the VCE and support for teachers wishing to improve their skills, during the Career Restructure, as its priorities.

We are providing sessions for teachers across P–12. They offer a chance to look at curriculum issues raised by computers in education, as well as the opportunity to develop personal skills and confidence, in computer use.

The program has addressed different groups by timetabling sessions at different times of the day and week, as well as in different locations. Some sessions will be run in country centres. A variety of learning techniques have been catered for with lectures, demonstrations and hands-on sessions being run. Gender equity is another area addressed with a balance of female and male presenters being used. Beginners through to advanced participants are being catered for.

Following the successful series of site visits organised for teachers in 1990 it was decided to extend this opportunity to students this year. In collaboration with the Australian Computer Society, a Student Participation Day has been arranged whereby students will be able to hear directly from computer users in industry. Another day for students allows them to Meet the Examiners in Computer Science Year 12. The day will involve workshops and lectures. Speakers will focus on areas of weakness apparent in previous years.

The state Computers in Education Conference is another forum for computer educators, organised by the CEGV. The theme for the 1991 conference, to be held July 8 and 9 is, Computers — Contributing to Chaos or Change? Planning is also well underway for the national conference, to be held in Melbourne, in July, 1992. Both these events will focus on current trends in computer use.

The Victorian Information Technology Teachers Association (VITTA) is another avenue of support for teachers involved in VCE Information Technology. Founded by the CEGV, it has become a joint venture of the CEGV and the VICTA. Membership of VITTA is an 'add on' to the CEGV or VICTA membership.

An executive officer gives valuable support to the committee members and board of management made up of equal representation from the CEGV and VCTA. The association offers IT teachers professional development, newsletters, consultancy, publications and curriculum materials to assist teachers developing course for Information Technology. Another aim is to present members views to those responsible for future developments in the Victorian Education and the VCE.

**CONCLUSION**

It would seem that teachers, in Victoria, on the whole, are willing to accept the challenge of changing their teaching practices. This is a golden opportunity for them to include computers in their new approaches. Their students will benefit by gaining understanding of, and experience in learning with computers. Developing skills that allow them to understand the implications of using computers for society, is another important consideration.

As usual, computer use in education, as with other fields, continues to develop at an ever increasing pace. Some of the old issues continue to be relevant. At the present time, high amongst Victoria's priorities is the need to successfully resource VCE Information Technology. At the same time a re-assessment of professional development models is occurring, both at a Ministry level and within the
The year 1991 marks a year of significant change for the government schools. The new contract for 'Computers for Educational Uses' was announced late in 1990 and provided a marked increase in the range of computers and peripherals available to schools. This matches the schools increasing desire to explore the possibilities of educational computing. The new contract provides for three families of non-DOS machines; five families of DOS machines; and three laptops; as well as modems and printers. An entry level is specified for each range, and new machines in the family can be admitted if compatible with the entry level machine. The contract is for families of machines so that schools can trade up the range if they see the need or application. The prices offered as part of this contract are available to both government and non-government schools.

The Ministry of Education published an advice to schools — The Use of Microcomputers in Schools — to cover the choices of machines and software, and the use and maintenance of educational computers. This document was designed to support schools and to give them an alternative source of information and help. This is to assist schools to make their own decisions on hardware and software, and to take responsibility for their own decisions. Though this guide is very comprehensive, there are many teachers who feel unable to make purchasing decisions using that alone.

Nineteen hundred and ninety was the last year that educational computing was a priority area, and ended with the Computers in Education Project being closed down. The closure of the Project was part of an extensive cost-savings exercise by the Ministry and resulted in the abandonment of elements of the project that were scheduled to continue. This was seen as a great loss to educational computing by many in this State.

The cost-saving exercise also resulted in reductions in District Office Support. There are no more than six to eight full time equivalent officers in the twenty-nine District offices with responsibility for educational computing. All that remains of the central team of eleven officers in curriculum policy, curriculum programs and curriculum services is one officer — the Consultant in Computer Education. It is naturally a great challenge for him to be able to support the approximately 1000 government educational institutions, most of them expanding their educational computing resources all the time. Central support for schools administrative computing has also been substantially reduced.

The government schools are now largely dependent upon their own resources for help and have few avenues open when needing advice. Traditionally computing teachers have been a very supportive group of professionals, either through the Educational Computing Association or through the informal networks that have developed over the years. As a result of the cutbacks by the Ministry the importance of ECAWA and the informal networks can only increase.

In the non-government sector, where teachers were always left to their own devices, or to informal help groups, computing in schools is increasing at a great rate. Many of the independent schools do not follow the government curriculum for lower secondary courses, but wait until Years 11 and 12 to follow the government syllabuses in preparation for the University Entrance Exams. This gives them great flexibility in what they teach and how they implement computing across the curriculum areas.

The National Curriculum has implications for all States where the resources to be developed will be done so by different States where they have expertise. The prediction is that WA will develop much of the media that goes with computer education — videos, multimedia applications, etc.