

INFORMATION & COMMUNICATION TECHNOLOGY IN SCHOOL EDUCATION

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1. Introduction

1.1 Rationale

The AEU - ACT Branch acknowledges that information technology, when defined, encompasses a broad area and relates to more than just computer related technology.

This policy addresses those aspects of technology, mainly information and communication technology, which currently affect curriculum and teaching practice in ACT schools.

Students in schools not only need to learn about new technologies but also need to develop the capacity to critically examine social arrangements and changes, and devise strategies to best employ information and communication technology applications in a socially useful manner. Education incorporating information technology and IT change should form an embedded part of the whole curriculum. It should not compete with nor should it become the focus of the curriculum.

1.2 Structure of Policy

This policy identifies four areas of significance: Students, Teachers, System and Technical. In each of these areas the specific outcomes desired by the AEU - ACT Branch are detailed.

2. Students

2.1 Curriculum

The curriculum must:

- (a) embed the application of information technology across all key learning areas.
- (b) create a model of information technology in which the user is seen as an engaged learner using information technology to access, manipulate, synthesise and evaluate information within a global and critical context.
- (c) develop materials which:
 - take into account from an equity perspective the social needs of students from different socio-economic and cultural contexts;
 - recognise that the development of a student's abilities to actively apply skills of investigation is essential to the learning process and life;
 - create personal understanding and communicate this understanding in meaningful situations;
 - assume a genuinely socially productive function by adopting an orientation which stresses the importance of using information technology applications to explore means of defining and potentially solving complex social and environmental problems;

- stress the private nature of information owned by others and the necessity to maintain the integrity and correctness of information.
- (d) provide adequate course and career path counselling to students.

2.2 Access to Communication Technology

All students must have equitable and appropriate access to computer mediated communication technology.

2.3 Inclusivity

Strategies to promote inclusivity must:

- (a) provide recognition by the Department that for many groups of students in ACT schools unacceptable levels of educational disadvantage exist, and this is particularly so in regard to ICT.
- (b) ensure that all ICT implementation strategies involving hardware, software, all forms of equipment, pedagogy and practice address the needs, interests and experiences of all students, with special reference to groups of students who experience disadvantage: students with disabilities, students from culturally diverse backgrounds, and students suffering socio economic hardship. Such strategies must also address relevant gender issues.
- (c) include recognition by the Department that deliberate, explicit practice which actively promotes and analyses the participation and inclusion of these groups of students in ICT in education is fundamental to equity of outcomes.
- (d) implement processes of accountability which ensure that system and school managers do not neglect their responsibility in relation to the implementation of these explicit practices.
- (e) ensure that particular attention is given to:
 - software being inclusive of the interests and experiences of students from a range of backgrounds, including Indigenous students.
 - use of non violent software and images.
 - use of software which promotes a broad range of positive constructions of masculinity and femininity.
 - valuing and incorporating the experiences of students in ICT with disabilities, from culturally, economically and socially diverse backgrounds, and female students.
 - applying principles of equity when developing units of work which expect students will have access to technology.
 - use of a range of teaching practices which acknowledge that groups of students will have differing learning styles.
 - appropriate role models who promote and support the active participation and valuing of all students' involvement in ICT.

3. Teachers

3.1 IT Experienced Teachers

The AEU requires:

- (a) recognition by the Department of the pool of existing teachers who have well developed knowledge and skills in information technology applications through appropriate appointment structures.
- (b) allocation of appropriate non contact time to allow the development, maintenance and support of school based information systems and networks.
- (c) allocate appropriate PD time to keep abreast of the rapidly developing IT world.

3.2 Additional Staff Required

ICT staffing provision must:

- (a) ensure that teachers are not required to repair computers or act as system technicians.
- (b) include negotiation with the Department to create an agreed number of appropriately skilled system technicians and IT Managers, which are additional to current staffing levels and have responsibilities similar to the following:
 - (i) The position of Information Technology Manager:
 - must be filled by experienced, registered teachers with recent teaching experience, permanently appointed;
 - is to assist the staff of the school to integrate a wide range of information technologies in teaching and learning;
 - would be expected to facilitate the professional development and training of staff in the educational uses of a wide range of information technologies;

- will work closely with individuals, small groups and whole staffs of teachers, teacher aides, and administration personnel to ensure that they develop appropriate standards of competency to support the enhancement of effective learning and teaching practices within the school;
 - will act as a change agent in assisting classroom teachers to effectively use computer related technologies in their key learning areas and with respect to Department of Education principles for Effective Learning and Teaching. The professional development of staff will therefore involve the development of personal skills as well as exploring possibilities for using information technology applications across all curriculum learning areas and all sectors represented within the school;
 - will involve consultative strategic planning for information technology within the school, eg providing input and recommendations for prudent and pedagogically sound choice of hardware and software in the school;
 - will manage information technology resources (hardware/software/network);
 - will manage internal and external support services as appropriate for maintenance of technology systems;
 - will support the planned integration of information technology within school programs;
 - will support the ongoing professional development and training of the school's staff in the use of computers for curriculum purposes;
 - will manage system technicians employed within the school;
 - will be a non classroom teaching position;
 - will work collaboratively with teachers in curriculum delivery;
 - will have regular ongoing access to professional development and training.
- (ii) The position of System Technician:
- will provide schools with easy access to advice and support on hardware purchase, software selection, equipment installation/maintenance and trouble-shooting;
 - will assist with the installation, management and ongoing support of information technology systems;
 - will receive accredited training from outside the school in the use of office technology rather than drawing upon teachers for instruction.

3.3 Job Protection

Expansion of ICT must ensure:

- (a) no reduction in teacher numbers as a result of technological advancements;
- (b) agreement between the Department and the Union before DET installs or uses any form of information technology application;
- (c) all applications of technologically based innovations are subject to detailed, open and public ongoing review and evaluation to determine effectiveness and quality of services provided in terms of planned outcomes.

3.4 Preservice

Teacher training courses must include the following compulsory units of work, regardless of the type of course involved:

- an information technology awareness program intended to make students aware of the mechanics of operating information technology systems (similar to that found within schools);
- an educational information technology course, intended to familiarise intending teachers with the potential uses of information technology in all curriculum areas and particularly in their areas of curriculum expertise.

3.5 Professional Development and Training

The AEU requires that:

- (a) professional development and training is regular, and recurring, to allow for the maintenance and enhancement of teachers' professional knowledge and skills;
- (b) Training program enrolments are, as far as is practicable, in proportion to overall numbers of men and women teachers;
- (c) sufficient professional development and training is provided in school time to allow all teachers to achieve and maintain currency and competence in relation to industry standards;

- (d) teachers receive appropriate professional development and training for the task/s, before being required to implement/develop programs involving information technology;
- (e) the Department negotiate appropriate professional development and training models which include:
 - periods of “formal” instruction;
 - opportunities to observe good practice in classrooms;
 - supported implementation in classrooms;
 - provision of paid release time for teachers with expertise to provide professional development and training in their schools and across clusters of schools;
 - provision of sufficient release time to provide time for return to industry for vocational teachers.
- (f) the Department negotiate appropriate professional development and training courses which:
 - detail possible ways in which information technology applications are useful in classroom practice;
 - suggest ways to introduce information technology applications in the individual teacher's classroom;
 - provide instruction in the use of information technology as a productivity tool in the administrative requirements of a teacher;
 - assist teachers to use information technology applications in curriculum planning;
 - discuss possible problems to be avoided;
 - model and share effective classroom practice;
 - disseminate information on availability of quality resources for particular subject areas, or for specific work units.

3.6 Induction

Induction procedures must ensure that, within each school, suitable procedures are in place to familiarise new staff with existing information technology and management systems.

4. System

4.1 Adequate Funding

Funding provision must ensure that all schools, irrespective of size or location, are adequately resourced and funded by government in order to provide equitable learning opportunities in all areas of ICT for every student.

Funding provided by the ACT or Federal Governments must include the full cost of installing and implementing the new technology.

4.2 Departmental Responsibilities

The following systemic responsibilities of the Department must be recognised, funded and implemented by the ACT Government:

- (a) A competent and adequately resourced Departmental team is maintained to ensure effective planning to meet and respond to the continually changing needs of the school system.
- (b) Clearly defined outcome expectations concerning the implementation and integration of information technology application across the curriculum, and in processes of curriculum delivery, agreed between the AEU - ACT Branch and the DET.
- (c) Funding on a permanent basis of adequate system technicians and IT Managers as described in 3.1.
- (d) Development of the most educationally appropriate and cost-effective means of centrally developing and funding equipment supply. Equipment profiles are to be systemically standardised (to include platform specifications, communication protocols and generic software criteria).
- (e) Providing each school with appropriate IT equipment such as curriculum file server (configuration and desk capacity to be on a pro-rata basis of school enrolment) scanner, digital camera, CD burner, high capacity printer and dedicated internet lines, with such equipment to be on a cyclical replacement program to ensure currency and applicability of the equipment.
- (f) Supplying teachers with a current model high end type laptop or desktop computer configured to operate within the school local area network, have required software (current and licensed) to support them in performing their professional duties, have access to a dial up ISP service to provide secure off-site access to the DET network

and access to aspects of the school IT infrastructure at no personal expense to the teacher.

- (g) Ensuring teachers have access to computer resources in terms of computer hardware, communication configuration, internet service provision and common software. These resources are to be updated on a regular basis as the technology evolves, and are an enhancement to specific courses and inservice.
- (h) Supply of ergonomically designed furniture as an integral component of the provision of computer equipment. Ergonomics is to be made a component of all preservice and professional development and training. Ergonomic standards in preschool, primary and secondary schools are to comply to Australian Standards Association's reference numbers AS3590.2, AS/NA 443, AS4442, AS4438 and AS1837. Special schools and units are to have ergonomic standards appropriate to the students they serve.
- (i) Provision in all classrooms of effective access to school information technology systems for teacher curriculum delivery (eg large screen presentation ability using television/video systems or data projectors and suitable multimedia computer system). Standardised systems and equipment suited to schools of different sizes are to be established. System and equipment are to be compatible in order to ensure cost effectiveness in terms of purchase, support, operation and maintenance.
- (j) Linking schools through wide area computer networks, support groups and similar initiatives. All schools are to be provided with appropriate funding for installation of networks within schools/colleges, initial and ongoing funding to provide quality links to external networks (to include high speed fibre optic or other appropriate networks to all classrooms, staffrooms, libraries and administration offices, high capacity hubs, routers, file and proxy servers, base scanners, digital cameras). The base level of equipment issued to schools is to be sufficient to bring all schools up to an acceptable minimum standard. Systemic planning is to also take into account the need for ongoing expansion of school network infrastructure.
- (k) Location of information technology resources in schools as determined by the intended curriculum application of the technology. The facility for the teacher to integrate the use of information technology as a natural part of curriculum delivery is to be encouraged and supported.
- (l) Implementation of an overall coordinated approach to information technology provision, with the acquisition of information technology to be related to school needs following a proper audit of requirements. Systems compatibility, maintenance, ongoing operational costs (SINA, ISDN charges, service provision charges, etc) environmental climate enhancements (eg air-conditioning) and security need also to be addressed through appropriate funding and systemic provision.
- (m) Incorporation of appropriate OH&S provisions into the school design. This includes providing sufficient central funding to ensure that physical environment is appropriate for IT purposes.
- (n) Implementation of an appropriate form of digital document management and retrieval for all DET offices and schools WANwide, to eliminate duplication and ensure ease of access.

5. Technical

5.1 Technical Responsibilities

The following technical responsibilities of the Department must be recognised, funded and implemented by the ACT Government:

- (a) Departmental indemnity for each teacher against the damage, loss or theft of any departmental technological equipment used by the teacher for work related purposes either within or external to the school premises.
- (b) Ongoing development of quality "filtering" processes to protect students from unacceptable materials and internet sites, together with the monitoring of student email "openly" to ensure that similar material is not transmitted via Departmental resources.
- (c) Recognition that software developed by employees of the Department, other than those who are directly employed to develop software, is owned by the developer, not the Government, the Department or any of its agencies. Regardless of incidental support provided in any form by Department, employees who voluntarily produce software for their own professional or school use, retain intellectual property and all rights to software.

- (d) Both software theft/piracy and illicit copying of software is opposed. However, schools have limited funds for purchase of quality software, multi user software licences are generally expensive, and there are significant pressures applied to schools to provide quality educational experiences in computing. Accordingly, sufficient funding is to be made available to alleviate these problems and teachers, acting in good faith, are to be indemnified against possible action resulting from purchase of software later proved to be pirated.
- (e) Software purchases for educational use are to be free of copy protection.
- (f) Central licensing by the Department of generic software (operating systems, word processors, spreadsheets, database applications, communication applications) and educational software deemed to have systemic value/application, and provision of same to all schools on request at no charge to the individual schools or staff. Such software is to be identified as being licensed for educational use by staff and students of the Department of Education. This software must be available for off-site teacher use.
- (g) Provision by the Department of:
 - a standardised virus protection system that is constantly updated as new viruses are reported;
 - quick response services for schools affected by virus attacks on computer communication systems;
 - a virus protection system to all employees to put on personal systems where Departmental work tasks are undertaken.
- (h) Department provision of a common computer based administration system that:
 - meets the needs of ACT schools and is sufficiently flexible to accommodate variations between schools and changes which occur with the passing of time. Provision is to be made for economical exchange of data between all administrative systems within the school such as the school office, library, book hire scheme and teacher assessment records.
 - incorporates structures and architecture of networks which are flexible enough to take into account the increasing role of IT based information systems such as "Kidmap", "School Mate" and "Report Wizard" which require transfer of information across existing fire walls of the curriculum and administration networks.
 - ensures teachers have easy access to Department intranet and internal data structures that are relevant and supporting to their professional roles. This access should also be available from teachers' home computers.
 - details the capabilities of the system in use in a manner which is easily and openly available.
 - provides teachers who use any system for administrative purposes with instructional training.
- (i) The following privacy and security measures are to be implemented:
 - Personal information about staff and students is to be stored on the system only with the knowledge of the individuals concerned. Only appropriate and authorised employees are to have routine access to the stored information.
 - Information about student progress is to be regarded as the property of the student in the first instance.
 - Standard procedures are to be created for validating data stored on any information system, and keeping it up to date. Every staff member and student has the right to view, and, if necessary, to challenge the accuracy of any information recorded about him/her on any departmental system operated either at the school or at any other place.
 - Control of information stored at the school level is to remain with the school. The interrogation of school databases from outside the school can only occur for routine, agreed data access and with the knowledge of the school, so that the school has the opportunity to check the accuracy of the data to be accessed before extraction.