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# **UNESCO/APEID: Asia and the Pacific Seminar on Educational Technology (Tokyo 2007 regional Seminar)**

**Country report: Australia**

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## **1. Introduction**

Australian education operates under a federated system where the Federal government is predominately accountable for national educational policies, strategies and initiatives while state and territory educational jurisdictions are responsible for the governance of the K-12 sector. While this distinction enables federal influence at the level of policy, through the setting of national priorities, the curriculum and day-to-day running of schools remains for the most part a jurisdictional responsibility. Pre-service teacher education programs are influenced by both national and state governments with the Federal government accountable for funding universities that train pre-service teachers, while jurisdictions influence policy and teaching accreditation that impacts heavily on how teacher education programs are structured. Despite a wide array of pathways it is possible to largely categorise pre-service teacher education within either four-year undergraduate education degrees, four-year double degrees (where students graduate with an additional degree in another discipline) and post-graduate degrees/diplomas where students enrol having already completed an existing degree. This broad division can be further separated into the various sectors such as early-childhood, primary (or elementary) and the secondary (or high-school) sector. Tensions currently exist with on the one side the Federal and jurisdictional authorities identifying key priorities and increasingly moving towards national consistency, while on the other the Australian Council of Deans of Education defending their autonomy and the right to determine the content of their teacher education programs (see ACDE 1998, 2004 and 2005).

While it is possible to identify key national policy that underpins the United Nations Decade of Education for Sustainable Development (UNESD) and trace how this policy is positioned within jurisdictions and local school settings, it is critical to state that 'Learning for Sustainability or whole-school approaches to sustainability do not form an essential part of teacher education programs in Australia' (Ferreira, Ryan and Tilbury 2006 p.18). Hence, while pre-service teachers may study about sustainability in certain curriculum areas such as science, geography or studies of society, it is important to note that an explicit notion of sustainability is not embedded across teacher-education courses. Although ICT and Media education retain a more overt presence in teacher education programs it is also critical to note that although there are numerous instances where technology is used to promote Education for Sustainable Development (ESD), there is no systemic linking between the areas.

The following report begins by outlining the Education for Sustainable Development (ESD) framework from the national policies level. The report traces how such policy flows through to a jurisdictional level and finally into practice. The report examines this same process in relation to ICT Education and Audiovisual Education (termed Media Education in the Australian context) and how both have been harnessed in the promotion of ESD. Although it is possible to provide a relatively comprehensive analysis of policy at the national level, the report narrows its focus to the single jurisdiction of the state of Queensland so that a detailed examination and explanation of exemplars can be provided. The report concludes with a series of recommendations for better integration of ICT/Media Education and ESD.

## **2 National ESD Policy/Initiatives**

### **2.1.1 National Goals for Schooling (1999)**

The [\*Adelaide Declaration on National Goals for Schooling in the Twenty-first Century\*](#) produced agreement on areas of common educational concern by State, Territory and Federal Australian Government Ministers of Education and set the platform for a national framework of collaboration aimed at improving Australian schooling policy, focus and direction. Critical to ESD, is Goal 1.7 of Declaration which maintains ‘Schooling should develop fully the talents and capacities of all students. In particular when students leave school they should have an understanding of, and concern for, stewardship of the natural environment, and the knowledge and skills to contribute to ecologically sustainable development’ ([Department of Education Science and Training](#): accessed October 2007). The importance of this declaration is ‘that it has given the states and territories a basis for including Learning for Sustainability in their curriculum plans and policies’ (Ferreira, Ryan and Tilbury 2006, p.18).

### **2.1.2 Today Shapes Tomorrow: Environmental Education for a Sustainable Future**

In January 2000, a key discussion paper [\*Today Shapes Tomorrow: Environmental Education for a Sustainable Future\*](#) was released by the Ministry for the Environment and Heritage. This discussion paper was instrumental in providing national recognition that environmental education was crucial in Australia’s attempt to address and achieve sustainable development. This discussion paper is significant in that it both raised the profile of environmental education as a critical element in future government programs while also providing a platform for national Government policy on environmental education as contained within the Environmental Education for a Sustainable Future: National Action Plan.

### **2.1.3 Environmental Education for a Sustainable Future: National Action Plan**

The launch of the [\*Environmental Education for a Sustainable Future: National Action Plan\*](#) in July 2000 aimed for national coordination and leadership across a range of activities carried out under the umbrella of environmental education. This National Plan provides a ‘hub’ by which a series of national initiatives could be made that scaffold a ‘move from an emphasis on awareness raising to an emphasis on providing people with the knowledge, values and skills to actually make a difference to the protection and conservation of Australia’s environment’ (p.5). Within this context environmental education was characterized very broadly and seen to ‘encompass raising awareness, acquiring new perspectives, values, knowledge and skills, and formal and informal processes leading to changed behavior in support of an ecologically sustainable environment’ (p.3). The National Action Plan in short, provides strategic direction for education and moves towards a learning-based approach to environmental sustainability initiatives. The plan incorporates five central principles of Australian environmental education. These are that environmental education must involve everyone, must be lifelong, must be holistic and about connections, must be practical, and must be in harmony with social and economic goals and accorded equal priority.

These principles have influenced subsequent strategies that included development of a national framework for environmental education activities, the raising of the profile of environmental education, better coordination of environmental education activities, greater access to quality materials, more professional development opportunities for teachers in the formal education sector, more integration of environmental education principles into mainstream education (including tertiary level education) and vocational training activities; and better resourcing of community organizations involved in environmental education (p.5). The key recommendations of the plan center on the

- development of a national environmental education strategy, which seeks to better coordinate current environmental education activities;
- provision of high quality, accessible and relevant support services for environmental education;
- provision of funding to support contributions already being made by States and Territories, industry and the community (p.5).

Flowing from these recommendations are concrete initiatives that include the establishment of the [National Environmental Education Council \(NEEC\)](#), the [National Environmental Education Network \(NEEN\)](#), the [Australian Research Institute in Education for Sustainability \(ARIES\)](#); and the [Environmental Education Grants Program](#). The following section of the report outlines how each is positioned within an overarching framework for Australia's sustainable development.

#### **2.1.4 National Environmental Education Council (2000)**

The release of Environmental Education for a Sustainable Future: National Action Plan coincided with establishment of an expert advisory body made up of eminent leaders from a range of sectors. The purpose of the [National Environmental Education Council \(NEEC\)](#) was to raise the standing of environmental education nationally while at the same time providing specialist counsel to the national government on environmental education and how to move from positions of awareness to positions of informed action concerning the environment. The council meets three times each year and reviews major advancement in schools, universities and higher education and industry. On the basis of this information, the council evaluates the success of national environmental education activities and environmental education issues more generally providing advice to both the Federal Ministers for the Environment and Water Resources and the Department of the Environment and Water Resources. A number of working groups were formulated in 2002 and 2003 aimed at increasing the effectiveness of the council. Of particular interest in terms of this report are the Further and Higher Education and School Education working groups.

## **2.2 ESD policy into practice**

### **2.2.1 School Education Working Group**

This working group (SEWG) investigates avenues through which to better coordinate the profile of environmental education within the curriculum frameworks of formal education departments and regulator bodies at both the State and Territory level.

### **2.2.2 National Environmental Education Network**

The [National Environmental Education Network \(NEEN\)](#) was established to advance Commonwealth, State and Territory inter-government corporation education activities surrounding environmental education. Working groups incorporated within this network include the Sustainable Schools Working Group overseeing projects such as the [Australian Sustainable Schools Initiative](#). The importance of this initiative is the manner in which schools are encouraged to address sustainability by taking a whole-system and whole-school approach.

### **2.2.3 Australian Research Institute in Education for Sustainability - ARIES (2003)**

[ARIES](#) was established in 2003 to undertake research that can inform policy and practice in ESD. Although physically located within Macquarie University (Sydney), it obtains a majority of funding from the Australian government. ARIES 'aims to identify key factors and impediments influencing sustainability education, evaluate existing approaches to environmental capacity building, and develop effective educational materials and programs to

promote behavior change towards the sustainable use of Australia's resources ([Department of the Environment and Water Resources](#) accessed October 2007).

#### **2.2.4 Education for a Sustainable Future: A national Environmental Education Statement for Australian Schools (2005)**

This key statement provides a nationally agreed framework for Education for Sustainability within Australian schools and an orientation for State and Territory educational policies that provides for:

- schools as they decide on their education programs from K to 12;
- professional learning programs for teachers;
- reviews of curriculum documents that refer to the environment and sustainability in relevant learning areas in all the States and Territories of Australia;
- developers of education materials for schools; and
- stakeholders who want to promote environmental education in schools.

([Department of Environment and Heritage](#) 2005, p.1 accessed October 2007).

#### **2.2.5 Further and Higher Education Working Group**

This working group assists universities and vocational education sectors in integrating the principles of sustainable development into their core curricula and training courses. In addition, the group helps the sector develop strategies to better manage their facilities while at the same time coordinating research (e.g., Action Research Towards Change for Sustainability Project or [ACTS](#)). ACTS is of relevance to this report as the project engaged postgraduate student teachers in action research that linked notions of curriculum change and graduate skills targeting sustainability.

#### **2.2.6 Australian Vice-Chancellors' Committee Policy on Education for Sustainable Development (2006)**

This policy is important for pre-service education in that the peak body of leadership of Australian universities, the AVCC, has declared strong commitment to Education for Sustainable Development and recognized the importance of the university sector in promoting UN Decade of Education for Sustainable Development. Although the impact of this recent policy 'is as yet unknown, [it is clear that] it offers an important opportunity for garnering support for Education for Sustainability within teacher education institutions in Australia' (Ferreira, Ryan and Tilbury 2006, p.19).

#### **2.2.7 Pre-service & In-service teacher education**

In terms of the structure and content of pre-service courses, there are at present no formalised mechanisms or policies that mandate an Environmental Education component within any Australian pre-service education courses (Tilbury, Coleman & Garlick, 2005). Although in-service professional development is largely voluntary, it has been argued by Ferreira, Ryan and Tilbury (2006), that pre-service teacher education offers the greatest opportunity for ESD. Woven into teacher-education courses are a number of core 'education-studies' subjects that all students complete. In addition to these core units, are curriculum-based and elective units. Although the current pre-service education model presents issues for ESD it has been suggested that the avenues open for promoting ESD are:

- a) struggle to be recognised as core curriculum alongside literacy and numeracy; or
- b) be offered as an elective, which results in a small number of student teachers specialising in Learning for Sustainability; or
- c) mainstream across the teacher education program so that a genuine 'whole-school approach' to sustainability can be developed; or
- d) a combination of the above (Ferreira, Ryan and Tilbury 2006, p. 13)

### 2.3 ESD: Exemplars from the field

[Teaching and Learning for a Sustainable Future](#) is a web or CD-based programme published by UNESCO that targets teacher education. It targets the professional development of both pre-service and in-service teacher education as well as providing a rich source of content for curriculum developers and policy makers. The unique aspects of this program are that it provides excellent ESD teaching related content, raises the techno-literacy skills of teachers using the program and can be easily translated to be used in different language formats.

Curriculum Corporation is based on the collaboration of all Australian Education Ministers. Its role is to target improved educational experiences for students in areas that are deemed to be in the national interest. Importantly the Curriculum Corporation works closely with States and Territories governments in the areas of curriculum development, e-learning, assessment and the provision of a range of content/resources that can be accessed free of charge online by teachers and students. The Curriculum Corporation's [Environmental Education](#) section provides links to current projects that use ICT and Media in the promotion of sustainability.

The [Australian Greenhouse Calculator](#) is a program developed by the Victorian government that enables teachers and students to calculate their yearly greenhouse gas emissions. The site provides teachers' notes and allows comparisons to be made between 'green' and 'typical' households.

Community and school-based gardens are gaining importance as places for learning, developing community and focusing participation in the area of sustainable food production. The [Northey Street City Farm](#) is an example of one such community farm that has established relationships and provided support to schools. This support includes design and implementation of growing spaces, waste/resource audits and the integration of the 'growing space' into the school curriculum.

## 3. National ICT in Education and Media Education Policy/Initiatives

### 3.1.1 National Goals for Schooling (1999)

The [Adelaide Declaration on National Goals for Schooling in the Twenty-first Century](#) discussed in relation to ESD, is also critical in relation to ICT in Education and Media Education in that Goal 1.6 of Declaration states that students when they leave school should be 'be confident, creative and productive users of new technologies, particularly information and communication technologies, and understand the impact of those technologies on society' ([Department of Education Science and Training](#): accessed October 2007).

### 3.1.2 Learning in an Online World (2000-2005)

[Learning in an Online World](#), adopted by all Australian Education Ministers, constitutes a number of key policy documents that frame a national attempt to achieve Goal 1.6 from the Adelaide Declaration listed above, while at the same time enabling 'schools to integrate information and communication technologies into their operations, to improve student learning, to offer flexible learning opportunities and to improve the efficiency of their business practices (MCEETYA 2004, p.2). Learning in an Online World is influential in that it recommends addressing five core areas in relation to ICT Education:

- **People:** providing educational leaders, teachers and administrative staff with the skills and commitment to use learning technologies effectively
- **Infrastructure:** providing access to an advanced ICT infrastructure that supports good teaching and learning and delivers efficiencies in business practices

- **Content and Services:** providing access to and applying online resources and services that support continuous improvement in curriculum practice, in classroom and distance settings, and in school administration
- **Supporting Policies:** providing policies and protocols that facilitate the uptake and use of ICTs in schools
- **Enabling Regulation:** providing a legal and regulatory framework in Australia that supports rather than inhibits the use of new technologies to enhance learning (MCEETYA 2005, p.2).

### 3.1.3 MCEETYA ICT in Schools Taskforce

Although *Learning in an Online World* provides a single national policy strategy, the instrument through which it is administered is the Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA) [ICT in Schools Taskforce](#). This taskforce is made up of members from all state and territory jurisdictions including New Zealand. Importantly, it also includes members from both the Catholic and Independent schooling sectors. Its core role is national collaboration and the provision of strategic advice to Education Ministers on the use of ICT as framed within *Learning in an Online World*. The taskforce provides articulation across jurisdictions and sets priority areas where jurisdictions provide annual reports on progress. Recent key priorities include bandwidth, K-12 interoperability, online content and professional development.

### 3.1.4 MCEETYA National Education and the Arts Statement

The [National Education and the Arts Statement](#) forms the foundational Media Education framework and heavily accents the importance of creativity, technology and the arts, design and new media in giving students opportunities not only to appreciate a range of cultural activities, but also to become active participants in the production of culture. This document has influenced subsequent [Statements of Learning](#) particular in the area of English and is representative of federal attempts to achieve greater national consistency across curriculum outcomes.

## 3.2 Translating ICT and Media Education policy into practice

### 3.2.1 Statements of Learning for Information and Communication Technologies (National)

Statements of Learning for [ICT](#) and [English](#) have been collaboratively produced by Australian education departments in an attempt to build in greater curriculum uniformity across the various jurisdictions. These statements are not a national curriculum for teachers to use, but rather a resource for state-based curriculum developers to use to incorporate essential components and opportunities to learn. Thus individual state and jurisdictional curriculum documents include supplementary components.

### 3.2.2 Curriculum Corporation (National)

The curriculum corporation discussed earlier provides major ICT and Media education projects such as The Le@rning Federation and Australian Screen Online (these are outlined in the exemplars section)

### 3.2.3 Smart Classrooms (State)

[Smart Classrooms](#) is an overarching strategy by the Queensland government to help schools, teachers and students engage with ICT across a range of activities. The portal forms part of an overarching state wide initiative termed the [SmartState Strategy 2005 – 2015](#). Smart Classrooms include a web-based portal through which individual schools gain access to a virtual environment enabling students, teachers and administrators access to assessment

reporting structures, learning and content management, online curriculum resources and ICT professional development (several are outlined in the exemplars section).

### **3.2.7 Pre-service teacher- education and ICT (University)**

Recent Australian government reports such as the national [Review of Teaching and Teacher Education](#) and [Making better connections: models of teacher professional development for the integration of information and communication technology into classroom practice](#) stress the need for teacher education courses to better provide new teachers with core ICT competencies and the ability to embed ICT within their pedagogy. The ICT in Schools Taskforce reports that all school systems across Australia have been 'liaising with universities regarding the ICT components of teacher Education Courses [and that] Some school systems had reached agreement with local universities so that pre-service ICT course content as aligned to the needs and actual situations that new teachers would encounter in schools (MCEETYA 2005, p.13). Another factor impacting on ICT use within pre-service teacher education are the standards that state regulatory bodies impose on teachers for registration. In the case of the Queensland College of Teachers, the [Professional Standards for Teachers](#) include the explicit "embedding of ICT across the standards" (p.3). Although teacher education courses currently embed components of ICT, there is no systemic mechanism or policy directive to achieve this outcome. Some pre-service education courses do, however, offer ICT pathways in the primary strand, while most courses offer specialist units in ICT in Learning and specific curriculum units such as secondary specialists units (i.e., computer science).

### **3.2.8 Pre-service teacher- education and Media Education (University)**

Media education could be termed an emerging field in Australian education and has clearly gained considerable impetus as a result of new digital media. The first media education syllabus (termed at the time Film and Television) was released and implemented in Queensland Schools in 1981. Not all pre-service teacher education courses currently offer media education as a distinct strand, however those that do draw heavily on debates related to media literacy and the theoretical interactions between youth and media. In terms of school curriculum in the state of Queensland, Media education is present in 2 formats. The first of these is a distinct course of study termed *Media Studies* or *Film, Television and Media Studies*. The second uses an across the curriculum approach tapping into the Arts, English, Health and Physical Education, Technology studies and Study of Society & Environment. A key debate remains where media education fits within an increasingly crowded curriculum.

### **3.2.9 Engaging Teacher Educators with ICT and New Media (University)**

Universities have invested heavily in both computer labs and media enhanced lecture theatres while attempting to address increasingly sophisticated learning management systems (LMS). A key issue remains one of encouraging academics to engage with LMS and better cater for a diverse student cohort that increasingly demands more flexibility and access to online content. The literature refers to early, late and resistant adopters of such technologies and of great concern to faculties of education is the widening gap between 'early-adopters' who continue trialling the latest tools and 'late-adopters' who struggle at the level of techno-literacy and often move to become 'resistant-adopters' (Burnett & Dawson 2005). In 2004, the Faculty of Education at Queensland University of Technology funded an explicit project targeting new pathways through which to engage groups currently marginalised or excluded from the online teaching and learning discourse. [The Innovation, Technology and Pedagogy](#), was conceived partly as an instrument to aid in generating new conversations regarding online teaching and learning pedagogy, and partly as an experiment in uniting the disparate interpretations of

integrating online technologies around a common focus. It was envisaged that the ITP site, and any consequential communities of learning generated through ITP, would serve as an alternative conduit for a range of staff to connect their teaching with the university endorsed LMS. The site has been extremely successful in encouraging new conversations about familiar pedagogical themes, grounding these discussions in a traditional framework of established pedagogy and designing and building a repository where such conversations can be shared and accessed. This model has broad application and is recommended in the concluding section as an avenue for raising professional ICT and Media education skills of teacher educators.

### **3.3 ICT & Film and Media exemplars from the field**

#### **3.3.1 The Le@rning Federation (National)**

[The Le@rning Federation](#) (TLF) project is an initiative of federal and state governments as well as the New Zealand government to use emerging web-based technologies to produce online curriculum content that can be accessed by Australian and New Zealand schools. The TLF has been successful in achieving the following outcomes:

1. established standards that allow for interoperability of online content across various platforms and operating systems;
2. produced 4581 items of online content within the six priority curriculum areas of Science; Mathematics and numeracy; Literacy for students at risk; Studies of Australia; Languages other than English (Chinese, Japanese and Indonesian); and Innovation, enterprise and creativity;
3. negotiated access via TLF to a range of digital resources from various public and government sites (see for example Australian Screen Online below);
4. conducted pilot research studies on the use of TLF online curriculum content (See [TLF](#) for more detail).

#### **3.3.2 Australian Screen Online (National)**

[australianscreen online](#) is an online repository of the Australian film and television industry that serves a promotional and educational function. Freely available to the world online the site sorts information from Australian feature films, television programs, documentaries as well as television programs and newsreels. In terms of Film and Media Education, the site provides notes for teachers that help structure classroom activities (negotiated copyright has been obtained for all accessible material).

#### **3.3.3 oz-Teachernet (National)**

The [oz-Teachernet](#) is national online community of teachers that has been in existence since 1995. Managed and maintained by teacher educators within the Faculty of Education at Queensland University of Technology it is one of the longest running online communities of teachers in the world. Current membership is approximately 1500 educators and education system leaders predominately from Australia. It serves as both a portal to professional discussion lists related to ICT education as well as providing resources and the dissemination of ICT research projects.

#### **3.3.4 The Learning Place (State)**

[The Learning Place](#) is the Queensland Department of Education, Training and the Arts e-learning environment and is an attempt to provide a web-based platform and infrastructure for a state-wide networked learning community. The Learning Place uses a range of ICT related tools within a single portal and provides a supportive online community function for individuals or classes to meet electronically and share ideas and resources, access professional expertise or access online content across the full range of the curriculum.

Structurally, the Learning Place is set out across four broad areas with the first using the LMS of Blackboard. The second addresses the notion of an online community where students and teachers engage with for example online projects, travel buddies and virtual field trips. The third section is basically a communication function where not only training and professional development is offered, but also where users access Blogs, chats, forums, teleconferencing, podcasting and MOOs. Possibly largest component of the portal is the Curriculum Exchange which serves as a curriculum gateway to learning objects and digital resources of The Le@rning Federation. This site also provides access to well over 10,000 online curriculum resources with sophisticated search and retrieval functionality. The Curriculum Exchange is free to all state schools, however it operates in a fee-for-service capacity for other users such as pre-service teacher education students.

### **3.3.5 ICT Learning Innovation Centre (State)**

The [ICT Learning Innovation Centre](#) was opened in 2004 in partnership with the University of the Sunshine Coast and currently provides a state-of-the-art ICT facility directed at the use of ICTs in education. The centre offers a location for educators to explore innovative ICT practice across the teaching, learning and administrative aspects of schooling and hence serves a key role in the professional development of Queensland's teachers. In addition, the centre serves as a location where emerging technologies and ICT pedagogy can be trialed and tested.

## **4. Conclusion**

[The Future of Schooling in Australia](#) is the current national attempt to address the significant social, political, environmental and technological changes since the 1999 Adelaide Declaration on Schooling. All Australian educational jurisdictions are currently undertaking a consultative process in regard to this document and will report on how best to implement subsequent Action Plans. Given national trends of curriculum renewal that show increased ICT integration across all curriculum areas, it is likely that ESD at the level of schools will continue to embrace new technologies and new media. A more pressing concern remains linking ESD and ICTs within pre-service teacher education courses and thus this report concludes with three main recommendations in this regard:

1. The existing crowded curriculum prevents the inclusion of ESD as a core stand-alone subject and thus this report recommends notions of ESD be embedded across subjects undertaken by pre-service teachers.
2. This report recommends that an online digital repository listing exemplars of ESD-ICT integration be formed. This site could include both examples from teacher training courses as well as those used in schools.
3. If ESD is embedded across teacher education courses then its promotion via new technologies and new media will centre on the ability of teacher educators to use effective ICT pedagogy. Hence the final recommendation of this report is the development of an explicit web-based project similar to [The Innovation, Technology and Pedagogy](#) that targets ESD pathways to engage academics who are currently marginalised or excluded from the online teaching and learning discourse.

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