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## Computing technologies in school education: policies and standards and standard policies

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### Abstract

In 1989 the Australian education policy, the *Common and Agreed National Goals for Schooling* included Goal (6d) that proposed students develop skills in ‘information processing and computing’<sup>1</sup>. This was the first time an Australian school education policy statement specifically provided a role for computing technologies in schools. In 2005 the Ministerial Council for Education, Employment Training and Youth Affairs (MCEETYA) released the *MCEETYA Joint Statement on Education and Training in the Information Economy*. This policy text includes claims that ‘information and communication technologies’ (ICT) will ‘empower’ teachers and raise the standards of students’ learning outcomes<sup>2</sup>. The purpose of this conference paper is to examine the changing language and intentions of Australian school education computing technologies policies since 1989 in order to debate the current and future roles of technologies in teaching and learning, and to examine the links drawn between computing technologies and students’ learning outcomes. Issues addressed include the utopian nature of the policy aspirations and the changing positioning of technologies within school education. It is argued that the current school sectors’ technologies policy texts have unnecessarily adopted the dominant education standards rhetoric to justify learning with computing technologies in schools.

### Introduction

Commonwealth, national, state and territory initiatives in Australia over the past two decades have promoted the integration of computing technologies into school education<sup>3</sup>. Currently Australia, like governments in the USA, Great Britain and Canada view computing technologies as instrumental to creating a highly skilled and capable workforce and that school education has a significant role to play in achieving such workforces. The following paragraph from the 2005 *MCEETYA Joint Statement on Education and Training in the Information Economy* is illustrative of the links seen between technologies and improving the quality of the nation’s workforce:

A leading edge education and training system drives development of an innovative society. Information and communications technology in education and training has the potential to raise education standards and minimum skill levels, including information and communications technology literacy skills, necessary for the future economy. A workforce with access to

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<sup>1</sup> Australian Education Council (AEC) 1989, p1

<sup>2</sup> Ministerial Council for Education, Employment Training and Youth Affairs (MCEETYA) 2005

<sup>3</sup> AEC 1989; Australian Capital Territory (ACT) Department of Education and Community Services, 2001; ACT Department of Education and Training 2004; Department of Education (Tasmania) 2002; Department of Education (Tasmania) 2005; MCEETYA 2005; State of Victoria 2001

individualised and flexible, quality training through new technologies will address Australia's need for competent workers who learn throughout life. This is especially important in the context of an ageing population and a world of continuous technological change where knowledge is becoming a commodity.<sup>4</sup>

## **Language**

The introduction into schools of computers and a range of technologies sees these technologies and associated processes labelled with several different names. There is however, no universally-shared use of or understanding about the language that collectively describes these technologies. Different devices and processes tend to be lumped together and referred to variously as 'information and communication technologies' (ICT), 'learning technologies' or 'new technologies'. These terms are often used interchangeably and without any clarity about to which particular device or functionality is being referred. Without clarity about the language being used, confusion and cross-messages can easily enter into descriptions and discussions about different technologies, and their place within school education. To enable the reader to have a common understanding with the author concerning interpretations of key words and phrases, a brief outline about the language used in this paper is provided.

## **Hardware, software and telecommunications**

A range of technologies enable activities in schools that are supported through online networks and databases: activities such as record-keeping (eg of students' attendance, student achievement outcomes, finance and asset management); information provision (eg through online daily bulletins); communication (eg using email); online content (eg through the use of publicly and privately developed materials accessible over the Internet); and borrowing books (eg through the library). Computers linked to the Internet through telecommunications services including broadband and through satellites; wireless technologies; personal digital assistants (PDAs); other handheld devices such as notebooks and laptops; and interactive whiteboards are all examples of technologies that are used in schools. These devices each employ different sorts of software. Both synchronous and asynchronous software is used to support online learning. Synchronous software enables learning to occur with participants taking part at the same time, and asynchronous software enables learning to occur at anytime and in any location. The computing infrastructure provisions of schools usually include the hardware, software, Internet services, networking and connectivity requirements necessary for the teaching, learning and administration of schools.

For the purposes of this paper, I will use the phrase 'computing technologies' by which I mean electronic digital devices that store and process information and that are linked to the Internet to support learning, teaching and the administration of schools. Such a definition draws a distinction between the facilities or equipment, and activities such as those available with the use of online content. In this paper, where hardware other than computers linked to the Internet, or software or combined services are intended, reference will be made specifically to that process or piece of technology by name.

## **Positioning Digital Technologies**

While computing technologies can be carefully defined for the purposes of establishing a shared understanding of the language used in a conference paper, such an approach is balanced here with the recognition that computing technologies are socially constructed. Integrating computing technologies into teaching and learning requires a level of technical knowledge, socially applied<sup>5</sup>, in order for the technologies to meet their

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<sup>4</sup> MCEETYA 2005, p1

<sup>5</sup> Kress 1997

purposes. Different people require different levels of technical knowledge depending upon what sorts of technology they are employing. Computing technologies can also be defined as 'networks of interacting human, organizational, and artifactual entities and practices. Particular elements both constitute and are constituted by the networks in which they participate'<sup>6</sup>. This definition of technology problematises it, and places 'technology' into social and cultural constructs; a view that is acknowledged in this paper. Instrumental definitions of technology can hide the overall technological relationships that exist with the world<sup>7</sup>. Studying the language used to describe the purposes and functions of the equipment however, can facilitate an understanding of the potential different technologies have in structuring activities undertaken in school education.

It is assumed in this paper then, that computing technologies may be used in a variety of ways in school education. It is recognised however, that not all applications of these technologies in schools are meaningful, pedagogically sound, fiscally responsible, or ethical<sup>8</sup>. For the purposes of this paper, the focus is on computing technologies as a teaching and learning tool, that achieves meaningful outcomes for students that could not be achieved using other forms of resources such as books or pens and paper.

## Articulating aspirations

Insights into the aspirations identified by the Australian school sector for learning with computing technologies, can be seen through a review of government policies. Policies provide a window into the aspirations of the authors, since policies are created in order to articulate preferred visions of the future, and are used to make decisions in the present that are consistent with these visions. The forward of the national policy, *Learning in an online world: the school education action plan for the information economy* illustrates this view when it states, the policy 'sets out a vision for the future and a roadmap for change'<sup>9</sup>.

Policies can be considered the authorised, official 'talk' of organisations such as schools or governments<sup>10</sup>. Policy texts carry the legitimacy and authority of the authoring agency<sup>11</sup>. What constitutes a policy often is contested however, with multiple texts labelled as policies. Texts ranging from guidelines on how to conduct activities within an organisation (eg email use); through to strategic planning documents; government departments' and committees' statements labelled as 'public policies'; and governments' legislations can all be considered 'policies'. Reviewing texts such as these though, enables us to examine what are the assumptions underlying visions for how computing technologies can be incorporated into school education.

But policies embody more than simply text. The policy-making processes that lead up to the fixing of the meanings of the policies in time, as well as the policy texts themselves<sup>12</sup> form part of policy construction. As such, ways of understanding policies can be found in the nature of the discourses through which the policies are framed and the debates around them are expressed<sup>13</sup>. Computing technologies policies, for example, are the outcome of negotiations between individuals, groups and institutions, where the meanings of the technologies can be seen in the language and in the symbols created

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<sup>6</sup> Hakken 1999, p23

<sup>7</sup> cf Heidegger 1977

<sup>8</sup> Yee 2000

<sup>9</sup> Education Network Australia (2000). p1.

<sup>10</sup> cf Apple 1993, Codd 1988, Taylor 1997

<sup>11</sup> cf Luke, C., de Castell, Luke, A. 1989

<sup>12</sup> Ball 1990, 1994

<sup>13</sup> Reid 2000

through the respective policies, and in the way people employ those technologies<sup>14</sup>.

Policies are also strategic; they can be used to gear up momentum for change and provide a leverage for resourcing. A retrospective of 20 years of technologies policies in the USA<sup>15</sup> indicates that in 1983 the Federal US education policy, *A Nation at Risk* identified 'computer science' as one of the five 'new basics'. Since then over \$40 billion in infrastructure, professional development and technical support has been invested into American schools<sup>16</sup>.

In this paper then, Australian school sector policies are used to identify the aspirations or what has been proposed concerning learning with computing technologies. By identifying the themes and actions outlined in schools and sectors' policies, it is possible to see the visions held for the inclusion of these technologies in Australian school education. These data enables us to build a picture of the Australian school sectors' hopes concerning teaching and learning with computing technologies. It will be seen that some key themes repeatedly emerge from these policies, and it is to some of these themes we now turn our attention.

### **Changing aspirations: key policy themes**

Since 1989, policies concerning computing technologies and students' learning have changed their focus from teaching students computing skills<sup>17</sup>; to focusing upon social and structural issues of access for all students<sup>18</sup>; to questions of whole school changes in teaching and learning<sup>19</sup>; to issues in 2005 concerning leadership, research and professional learning to support teachers<sup>20</sup>. This changing landscape provides some pointers to the evolving nature of the diffusion of computing technologies into teaching and learning.

One of the current national goals for schooling (Goal 1.6) states all students will leave school as 'confident, creative and productive users of new technologies, including information and communication technologies, and understand the impact of those technologies on society'<sup>21</sup>. To support the National Goal of Schooling 1.6, the MCEETYA ICT in Schools Taskforce has released the policy *Learning in an online world: the school education action plan for the information economy* (2000) and several accompanying statements and frameworks. *Learning in an online world* (2000) is due to be replaced later in 2005 with *Learning in an online world 2003-06: Contemporary Learning*. The suite of supporting statements and frameworks include the *Online Content Strategy* (2004); *Learning Architecture Framework* (2003); *Research Strategy* (2003); and *Bandwidth Action Plan* (2003). A *Pedagogy Statement* and a *Leadership and professional learning strategy* are expected for release in 2005.

Key themes to have emerged from Australian policies over the past five years include:

- Improve access, connectivity (ie bandwidth) and associated infrastructure;
- Create high quality, reusable Australian online content;
- Provide high quality professional development and support for teachers;
- Improve the skills of teachers and students;

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<sup>14</sup> cf Wyatt, Henwood, Miller & Senker 2000

<sup>15</sup> Culp; Honey & Mandinach 2003

<sup>16</sup> Dickard in Culp; Honey & Mandinach 2003

<sup>17</sup> cf AEC 1989

<sup>18</sup> cf MCEETYA 1999

<sup>19</sup> cf Curriculum Corporation 2003

<sup>20</sup> cf Curriculum Corporation (forthcoming)

<sup>21</sup> MCEETYA 1999, p2

- Increase and link research about computing technologies with teaching and learning; and
- Update regulations and policies that affect technology use including those pertaining to copyright (or intellectual property), security and privacy<sup>22</sup>.

More recently, key themes have also included computer technologies

- Being important in preparing students for the 'information economy'<sup>23</sup>;
- Being a tool to improve or 'transform' teaching and learning<sup>24</sup>;
- Enabling individual student learning plans<sup>25</sup>;
- Improving standards and students' learning outcomes<sup>26</sup>;
- Operating as a lever for whole school reform<sup>27</sup>;
- Providing a mechanism for improving international competitiveness<sup>28</sup>; and
- Being a tool for assisting schools to be accountable in a local school or site-based management environment<sup>29</sup>.

Over the past decade these key themes have been underpinned by an utopian 'ostinato bass'<sup>30</sup>.

While several key themes are identifiable within the policies, here, two are addressed:

- Preparation of students for the 'information economy'; and
- Standards and students' learning with computer technologies.

Before discussing these two specific themes, a brief outline is provided of the utopian aims that underpin many Australian computing technologies policies.

### **Utopian aims**

Underpinning Australian computer technologies policies is a repetitive pattern which equates the introduction of computing technologies into school education with social progress<sup>31</sup>. Partly this is due to the characteristics of public policies: policies by their nature reflect the ambitions and intentions of their authors. In many of the policies advocating the use of computing technologies in schools however, there is a strong utopian undercurrent about the potential 'miracles' of using these technologies to solve a range of social issues. That is, it is implied that these technologies will bring about an improved future for all.

Wertheim explains such views stating that More's Utopia was a version 'of idealised Christian communities notable for their use of technology'<sup>32</sup>. She applies More's concept of Utopia to current circumstances concerning the use of computing technologies by stating that

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<sup>22</sup> cf AEC 1989; Australian Capital Territory (ACT) Department of Education and Community Services, 2001; ACT Department of Education and Training 2004; Department of Education (Tasmania) 2002; Department of Education (Tasmania) 2005; Department of Education & Training (Victoria) 2000; Education Queensland, 2001; MCEETYA 2005; State of Victoria 2001

<sup>23</sup> cf Curriculum Corporation 2003; (then) Department of Employment, Education, Training and Youth Affairs (DEETYA) 2000; MCEETYA 2005;

<sup>24</sup> cf ACT Department of Education and Training 2004

<sup>25</sup> cf MCEETYA 2005

<sup>26</sup> cf Department of Education (Tasmania) 2005

<sup>27</sup> cf Education Queensland, 2000

<sup>28</sup> cf MCEETYA 2005

<sup>29</sup> cf Ibid; Curriculum Corporation, 2003

<sup>30</sup> An 'ostinato bass' is the repetition of a musical pattern many times over which provides the structural underpinning in the lowest part of a piece music.

<sup>31</sup> Similar observations are made by Bromley (1998) concerning policies in the USA and UK.

<sup>32</sup> Wertheim 1999, p42

today too, champions of cyberspace suggest that their technology will create a new utopia – a better, brighter, more “heavenly” world for all. With contemporary cyber-utopianism, ... the technology is digital rather than mechanical, but the dream remains the same<sup>33</sup>.

The following excerpts illustrate the utopian nature of Australian computing technologies policies, and the maintenance of this characteristic over time.

This following statement was made by the Commonwealth Information Policy Advisory Committee (IPAC) in 1997.

The members of IPAC have a vision of an Australia where everyone is ‘location independent’ in terms of access to affordable services, closeness to each other and to the worlds of learning<sup>34</sup>. ... It is about deploying the true miracles of the communications and information revolution to transform rural Australia, to break down the barriers between metropolitan and country Australia and this to create new futures for all Australians<sup>35</sup>.

In 2000 the Queensland Government proposed a new utopia for the schooling sector suggesting that the miracles of cyberspace mean

We are witnessing a new world order [where the] “cyber” education of tomorrow will have no geographical borders. ... Cultural exchange may well develop into the long-dreamed-of “global village”<sup>36</sup>.

In 2005, the MCEETYA *Joint statement on education and training in the information economy*, states

The everyday use of information and communications technology will transform education and training, and lay a foundation for our future economic and social prosperity. ... Through new technologies, education and training provision is becoming borderless<sup>37</sup>.

It can be seen that over time computing technologies have been ascribed the ability to promote an idealised space where communities can be fostered and where there will be an enriching of people’s lives as social beings. These statements construct communities that transcend distance. Making communities more economically and socially prosperous however, does not emerge from thin air. To achieve the utopian rhetoric of these policies, a terrestrial infrastructure is required. To achieve this idealised state of ‘location independence’, there is the necessity not only for a sound telecommunications infrastructure, but also for some, an accessible electricity supply. Achieving the utopian ideals espoused will take time and money.

### **Preparation of students for the ‘information economy’**

Policies advocating the inclusion of computing technologies into school education draw into consideration a complex array of interactions with other state, territory, national and Commonwealth policies within and beyond school education. Schools are included in ‘whole of government’ ICT policies<sup>38</sup> where an emphasis rests on schools contributing to Australia’s international competitiveness through the ‘information economy’<sup>39</sup>.

*Australia's Strategic Framework for the Information Economy 2004 - 2006: Opportunities*

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<sup>33</sup> Ibid

<sup>34</sup> IPAC 1997, pii

<sup>35</sup> IPAC 1997, p3

<sup>36</sup> Queensland Government, Department of Communication and Information, Local Government and Planning 2000, p2

<sup>37</sup> MCEETYA 2005, p1

<sup>38</sup> cf Department of Communications, Information Technology and the Arts (DCITA), 2004

<sup>39</sup> Ibid

*and Challenges for the Information Age*<sup>40</sup> is the Australian Government's peak information economy policy document. It is intended to provide the 'policy leadership and national direction needed to address new challenges to Australia's position as a leading information economy'<sup>41</sup> It follows on from the *Strategic Framework for the Information Economy: Identifying Priorities for Action - December 1998*, and its' three progress reports (1999, 2000 & 2002) where education and training were identified as being 'a crucial underpinning to Australia's success in the information economy'<sup>42</sup>. It stated that 'our education and training systems must equip all Australians to be enterprising, innovative, adaptable and socially responsible participants in the information economy'<sup>43</sup>. The 2004 version of the *Strategic Framework* indicates that education and training have central roles to play in developing 'Australia's innovation system as a platform for productivity growth and industry transformation'<sup>44</sup>.

But if the 'information economy' is a destination for which students are being prepared, what is the 'information economy' and how is it different to other economies and economies of the past? The Australian Bureau of Statistics (ABS) has grappled with this problem and has forwarded the following respective definitions of the 'information society' and the 'information economy'.

The term 'information society' is mainly used to refer to the diffusion of these technologies throughout the community (business, government and households), and the term 'information economy' relates to the flow of information between economic units, the transactions that take place, and the benefits resulting from these transactions and information flows<sup>45</sup>.

The eminent Australian economist Professor Don Lamberton observes however, that while online economic activity tends to be constructed as a separate economy, he argues against this view stating that it is not a separate economy because like the rest of the economy, it is 'built upon the labour force, the knowledge base, public assets, and the legal framework and other institutions of society'<sup>46</sup>. Furthermore, he argues that while 'economic theory assumes decision makers have rich and sure information about the information economy, ... we lack official statistics of information work and activities and especially of the international flow of information'<sup>47</sup>. He states 'it should be an important clue that most of the disputed areas in economic theory and most of the major discontents are tied up with the assumptions made about the role of information'<sup>48</sup>. As such, suffice to note here that while policies in Australia and overseas portray the 'information economy' as a new, separate economy, for which schools are encouraged to prepare students to take their place, defining this field of economic activity is problematic. The relationship between schools and the 'information economy' then, is not a clear or easily definable concept.

Strongly linking the policy language to economic concepts however, also influences the way students, teachers and leaders are positioned within the policies, which in turn influences how individuals within these respective groups of people see themselves. Within economic markets, individuals are consumers who *use* information, products or services. There is not a concept within such a paradigm of a common good, nor of joint

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<sup>40</sup> Ibid

<sup>41</sup> DCITA 2004, p1

<sup>42</sup> National Office of the Information Economy (NOIE) 1998

<sup>43</sup> NOIE 1998

<sup>44</sup> DCITA 1998, p44

<sup>45</sup> ABS 1999, p587

<sup>46</sup> Lamberton 2000, p3

<sup>47</sup> Lamberton 2000, p2

<sup>48</sup> Lamberton 2000, p3

constructions of knowledge, products or of services that usually underpin theories of education<sup>49</sup>.

Much of the current ICT policy language emphasises the ‘use’ of computing technologies and positions students, teachers and school leaders as ‘users’ of technologies. The *Adelaide Declaration on National Goals for Schooling in the Twenty-First Century* provides an illustration of this point stating students will leave school confident, creative and productive users of new technologies, particularly information and communication technologies, and understand the impact of those technologies on society<sup>50</sup>.

Positioning students, teachers and school leaders only as ‘users’ of technologies feeds into a passive mindset where the respective members of the school community are ‘clients’. Such an approach gives a sense of a ‘one-way’ relationship: it does not promote a sense of reciprocity, or that the ‘users’ may have a level of control or choice over the technologies and their deployment. A challenge for school leaders is to balance assertions of positioning students as ‘users’ of technologies, with activities that also position them as ‘creators’ either of or with technologies; not simply as users of technologies.

The narrowing focus on economic outcomes from school has occurred rapidly. The *Adelaide Declaration on National Goals for Schooling in the Twenty-First Century* (1999) does not refer to preparing students to enter the information economy but rather proposes a broader outcome that the ‘achievement of the national goals for schooling will assist young people to contribute to Australia's social, cultural and economic development in local and global contexts’<sup>51</sup>.

### **An alternative view**

Ways of conceptualising people’s relationships with technologies was raised in the 1997 (then) Department of Employment, Education, Training and Youth Affairs (DEETYA) funded report *Digital Rhetorics*<sup>52</sup>. This report was prepared as a result of a two year study investigating literacy, technology and learning. *Digital Rhetorics* identified three conceptual principles upon which it is possible to conceptualise learning with technologies: the ‘operational, cultural and critical’ dimensions<sup>53</sup>. Bigum and Kenway elaborated upon this concept indicating that educators require an understanding of all three dimensions in their work, stating that the ‘operational dimension’ refers both to the physical descriptions of technologies and associated equipment (eg computers, local and wide area networks, printers and modems) and to the skills required to use these pieces of equipment. The ‘cultural dimension’ involves being within the culture of incorporating computers into teaching and learning for educational purposes, irrespective of one’s level of skill, and the ‘critical dimension’ refers to undertaking a critical appraisal of the circumstances, or ‘reading against the grain’<sup>54</sup>. By this they mean ‘asking questions about the taken for granted assumptions that are embedded in the stories about computer technologies inside and outside of schools’<sup>55</sup>.

Conceptualising ICT in schools by applying the ‘operational’, ‘cultural’ and ‘critical’ dimensions may assist school leaders to understand some of the implications of integrating computing technologies into teaching and learning.

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<sup>49</sup> cf Dewey 1966

<sup>50</sup> MCEETYA 1999, p1 [author’s emphasis]

<sup>51</sup> MCEETYA 1999, p2

<sup>52</sup> Lankshear, C., Bigum, C., Green, B., Morgan, W., Murray, J., Synder, I. & Wild, M. 1997

<sup>53</sup> Lankshear, Bigum & Green et al. 1997. Volume 1, p24

<sup>54</sup> Bigum and Kenway 1998, p389

<sup>55</sup> Ibid



## **Standards and students' learning with computer technologies**

Another theme that resonates strongly in recent policies in both Australia and overseas as one of the reasons for including computing technologies in teaching and learning is to improve students' learning outcomes. Related to this purpose are the aims of increasing the personalisation of teaching and learning, raising standards and supporting students to achieve to their full potential<sup>56</sup>, as the following examples illustrate.

Two of the five major emphases in the 2005 Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA) *Joint statement on education and training in the information economy* are

- Ensuring that all learners achieve their potential [and]
- Improving quality and raising standards<sup>57</sup>.

The Department for Education and Skills (DfES) in the UK has a *Five Year Strategy for Children and Learners* positions computing technologies as important enablers of educational progress<sup>58</sup>. It identifies the following two specific priorities for computing technologies in teaching and learning:

- ICT will support personalised teaching and learning; [and]
- better information sharing with increasingly integrated ICT.

The British Educational Communications and Technology Agency (BECTA) has indicated that the integration of ICT into teaching and learning should:

- raise pupil attainment;
- increase pupil motivation and self esteem; .. [and]
- improve pupil behaviour<sup>59</sup>

Similarly work by the OECD points to the following themes emerging from member countries' who indicate that ICT deployment in schools should:

- Improve the quality of learning; and
- Improve student learning outcomes<sup>60</sup>

In the literature, up until recently there have been differing views about whether computing technologies of themselves produce improvements in students' learning. Recent research from BECTA however, indicates that 'there is a growing body of evidence relating to the positive impact of ICT on learner attainment and other outcomes'<sup>61</sup>. BECTA indicate though that further development of effective pedagogies and how they can be supported, is required.

While recent computing technologies policies are picking up the 'standards rhetoric' to justify the inclusion of computing technologies into teaching and learning, it is probably important to remember that concern about standards is not new. *The Adelaide declaration on national goals for schooling in the twenty-first century* indicates that

The achievement of these common and agreed national goals entails a commitment to collaboration for the purposes of: ...

- increasing public confidence in school education through explicit and defensible standards that guide improvement in students' levels of educational achievement and

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<sup>56</sup> cf Department for Education and Skills (DfES) 2005; MCEETYA 2005; US Federal Department of Education 2005

<sup>57</sup> MCEETYA 2005: pp1-2

<sup>58</sup> The Department for Education and Skills (DfES) 2005

<sup>59</sup> BECTA 2004: p1

<sup>60</sup> OECD 2002

<sup>61</sup> BECTA 2005, p4

through which the effectiveness, efficiency and equity of schooling can be measured and evaluated<sup>62</sup>.

In 2005, considerable effort is being made at Commonwealth and national levels to influence what is taught; how it is taught; how student outcomes are assessed and how those outcomes are reported to families and employers. The Australian Government is taking a driving role in curriculum, assessment and reporting matters by

identifying and promoting national standards and priorities for students; reporting nationally comparable data on student achievements and improving reporting and accountability on schooling outcomes to parents and the wider Australian community<sup>63</sup>.

Key curriculum, assessment and reporting initiatives being promoted by the Australian Government include

- establishing greater national consistency in schooling across Australia; ...
- implementing a common school starting age by 2010;
- developing statements of learning in key subjects to build more consistency in curriculum outcomes;
- introducing national tests in key subject areas;
- developing a national system for the transmission of student information for students moving from one jurisdiction to another;
- implementing an Australian Certificate of Education for year 12; ... [and]
- strengthening the school curriculum and learning outcomes<sup>64</sup>.

In order to monitor student learning outcomes MCEETYA through the (then) MCEETYA Performance Measurement and Reporting Taskforce (PMRT), are undertaking national sample assessments conducted in three-yearly cycles of students':

- science literacy (samples of Year 6 students);
- civics and citizenship (samples of Year 6 and Year 10 students); and
- ICT literacy (samples of Year 6 and Year 10 students).

The national assessment of ICT literacy sits at the intersection of ICT, curriculum, assessment and reporting. The assessment cycle for ICT literacy is planned to commence in October 2005. The national sampling will be used to generate a report on ICT literacy of Australian students which should be available in May 2006.

## Homogenisation of policies

While these national assessments are intended to enable students' progress towards the *National Goals for Schooling in the Twenty-First Century* to be monitored, emerging from an examination of the current school sectors' technologies policies shows that the authors of these policies have adopted the dominant education standards rhetoric to justify learning with computing technologies in schools. There seems to be a global trend towards an homogenisation of the policies that reflects a hegemony<sup>65</sup> of the standards rhetoric. Computing technologies policies in Australia and overseas are being subsumed by economic imperatives and technologies are seen to be able to 'naturally' improve the 'productivity' of teachers and whole schools. To make judgements about 'measurable outputs', standards and standardised tests are being used or are planned. If we look at the

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<sup>62</sup> MCEETYA 1999, p1

<sup>63</sup> Department of Education, Science and Training (DEST) 2005, p1

<sup>64</sup> DEST 2005, p2

<sup>65</sup> Hegemony is understood here in the Gramscian (1971) sense, as the predominance of one group of people over others, achieved through their consent, and maintained through the commonsense or normal reality of those subordinated in the hegemonic relationships.

experiences of schools in Great Britain and the USA<sup>66</sup>, such approaches make it only a small jump to be able to then identify 'successful' and 'unsuccessful' schools on the basis of student populations' achievements on these standardised approaches, and it is only another small jump to resource schools on the basis of their levels of 'success' with their student cohorts' achievements against externally set standards.

If we remember however, that the core business of schools is teaching and learning, it seems impossible to imagine school education in the 21<sup>st</sup> century not including the integration of computing technologies into teaching and learning. As such, the inclusion into current school sectors' technologies policy texts of the dominant education standards rhetoric to justify learning with computing technologies in schools is both unnecessary and counter-productive to addressing professional questions such as 'in what ways should teaching and learning change to meaningfully and ethically include technologies into teaching and learning in pedagogically-sound ways?'

The professionalism of a teacher rests in his or her ability to make the content and the pedagogy appropriate, stimulating and successful for students and their families. Focusing on the pedagogy with technologies in the day to day teaching and learning of students, where the teaching and learning builds upon students' existing knowledge, skills and experiences will mean these school communities will be successful, but maybe not standard or standardised.

## **Conclusion**

This paper has examined Australian computing technologies policies since 1989 and discussed the changing language and intentions in these texts for Australian school education. The utopian links drawn between computing technologies and improving the economic and social fabric of society have been debated. The policy rhetoric of linking computing technologies with improving students' learning outcomes and the preparation of students for their place in the 'information economy' have been challenged. It is argued that the current school sectors' technologies policy texts have unnecessarily adopted the dominant education standards rhetoric to justify learning with computing technologies in schools. Taking a step back from the many policies concerning the integration of computing technologies into teaching and learning, this paper has observed an homogenisation of policies in Australia and overseas: hence policies and standards an standard policies.

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<sup>66</sup> cf Bromley 1998; Gorard, Taylor & Fitz 2003

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